

# Exploring health literacy amongst the general population and healthcare providers in Nigeria: a mixed methods study.



**Deborah Ola Babalola**

Health, Sport, and Behavioural Sciences  
University of Northampton

This dissertation is submitted for the degree of  
*Doctor of Philosophy*  
April 2026

© Deborah Ola Babalola 2026.

This thesis is copyright material and no quotation from it may be published without proper  
acknowledgement.

I would like to dedicate this thesis to my mother in the Lord, in person of Rev.  
Oyenike Areogun. I thank God always for giving you to me...

## **Declaration**

I hereby declare that except where specific reference is made to the work of others, the contents of this dissertation are original and have not been submitted in whole or in part for consideration for any other degree or qualification in this, or any other university. This dissertation is my own work and contains nothing which is the outcome of work done in collaboration with others, except as specified in the text and Acknowledgements. This dissertation contains fewer than 80,000 words including appendices, bibliography, footnotes, tables and equations and has fewer than 150 figures.

Deborah Ola Babalola  
April 2026

## Acknowledgements

It has been a journey that would not have been possible without the presence of the Alpha and Omega with me. People manage life challenges in diverse ways. For me, having Jesus as my Lord and Saviour and following the Word of God have been my saving grace.

I started my PhD journey with Dr Tracey Redwood and Dr Jo Chen-Wilson. I later had Dr Matthew Hopkins who took over from Dr Jo. Apart from the training and the knowledge imparted, they were all there for me in those moments of doubt and fear. This is to let you know that I greatly appreciate you. Thank you, Dr Tracey, for those moments of open and firm discussions. They have helped my self-confidence a lot.

I have mixed feelings as I write about my dad, Presiding Elder James Oladoye Akinola. I wish you were here to see me achieve this milestone. You always believed in me and wanted the best for me. I know you are in a better place, but Dad, I am crying as I type this. Mum, in the person of Ruth Olusola Akinola, thank you for teaching me resilience. Thanks for your sacrifices, too. May you enjoy a long life and good health.

To my second daddy, Mr Matthew Olubayo Akinola—fathering goes beyond biological. You have done very well, sir! Your reward is great before the Lord. To all my siblings, I appreciate your contributions to me, in one way or another. Thank you, and thank you very much.

This is to my biggest fan and friend, who always believes in me and loves me dearly. Sometimes I think he loves me more than I love myself! This is no other person but my dear husband, Paul Abiodun Babalola. We have come some distance, but we still have forever to go. This is to let you know that I appreciate all your sacrifices and selflessness in dealing with me. I thank God for giving me to you every day. What can I do without you?

To my first daughter, (brain and beauty) Glory Ewaoluwa, who always sets the bar higher and higher for me; my beautiful, peaceful Peace Ayanfeoluwa, who brings firm but gentle touches to situations; and my special gift from God, Faith Iseoluwa, thank you all for your endurance and support in your different ways. We did it together!

Christiana Ikehatise Elegar, (ore bi eje, winks) we have been together for some years. Thank you for your listening ears always.

I am forever grateful to God, the giver of the gift of men, for giving me my pastor, Pastor Joshua Areogun. He has been a silent force in my life from the beginning to the completion of this journey: more grace, sir. Fathers take us further. I want to thank my God-given spiritual father, Rev. Olusola Areogun, for yielding to God's call, of which I am a beneficiary. To my mother in Zion, Rev. Oyenike Areogun, thank you, mummy, for the training and pacing.

So many people contributed to me in one way or another that I may not be able to mention all of them. Dr Raghad was there at the critical moment of decision. She has such a helping heart. May God bless and prosper your way. My Dream Centre Coventry family was also there for me, with their support and prayers. I appreciate you all.

Finally, I would like to thank the Federal Government of Nigeria for the opportunity and support to conduct this research.

## Abstract

Health literacy in Nigeria was investigated by examining the relationship between healthcare users and providers, the healthcare system, and health information. Also, the intersection between health literacy and COVID-19 knowledge was explored. A mixed-methods approach was adopted, using a nine-dimensional health literacy questionnaire among the general population and interviews with healthcare providers in Nigeria. A self-created questionnaire was also used to investigate the association between health literacy and COVID-19 knowledge.

Participants (ages 18-65) from three of Nigeria's six geopolitical zones, along with 16 healthcare professionals, were recruited. The acquired data were evaluated using multiple regression and thematic analysis and weighted equally in relationship tests. The association between health literacy and COVID-19 knowledge was also analysed using Spearman's rank correlation.

Result: Age, 'needing help to fill out the survey', and employment are all important factors in the relationship between healthcare users and providers; the healthcare system; and health information. Education improves health literacy, but does not always determine it. A positive correlation between COVID-19 knowledge and health literacy was observed, specifically for "actively engaging the Healthcare providers", "navigating the healthcare system", "ability to find good health information" and "understanding health information well enough to know what to do".

Conclusion: The factors contributing to health literacy in Nigeria require further investigation. To reduce inequities, healthcare providers should be enlightened on health literacy. Better health literacy, involving understanding of the healthcare system and health information, and active engagement with healthcare providers, can prepare the general public for future pandemics.

# Table of contents

## List of figures

## List of tables

|          |                                                                                             |          |
|----------|---------------------------------------------------------------------------------------------|----------|
| <b>1</b> | <b>Introduction</b>                                                                         | <b>1</b> |
| 1.1      | Background to the Study . . . . .                                                           | 1        |
| 1.2      | Purpose of the Study . . . . .                                                              | 4        |
| 1.3      | Research Questions . . . . .                                                                | 5        |
| 1.4      | Scope of the Study . . . . .                                                                | 5        |
| 1.5      | Research Settings . . . . .                                                                 | 6        |
| 1.6      | Significance and Justification for the Study . . . . .                                      | 6        |
| 1.7      | Researchers' Role . . . . .                                                                 | 6        |
| 1.8      | Summary . . . . .                                                                           | 7        |
| <b>2</b> | <b>Literature review</b>                                                                    | <b>8</b> |
| 2.1      | Introduction . . . . .                                                                      | 8        |
| 2.2      | Definitions of Health Literacy . . . . .                                                    | 8        |
| 2.2.1    | Summary of section . . . . .                                                                | 11       |
| 2.3      | Literacy, education, and Health literacy . . . . .                                          | 11       |
| 2.3.1    | Introduction . . . . .                                                                      | 11       |
| 2.3.2    | Literacy, education and health literacy . . . . .                                           | 11       |
| 2.3.3    | Conclusion . . . . .                                                                        | 14       |
| 2.4      | Health Literacy Tools . . . . .                                                             | 14       |
| 2.4.1    | Introduction . . . . .                                                                      | 14       |
| 2.4.2    | Criteria for selection of tools for review and the review of the<br>selected tool . . . . . | 14       |
| 2.4.3    | Observations from the assessed tools . . . . .                                              | 17       |
| 2.4.4    | Conclusion . . . . .                                                                        | 21       |

|          |                                                                                        |           |
|----------|----------------------------------------------------------------------------------------|-----------|
| 2.5      | Health Literacy among the healthcare providers. . . . .                                | 21        |
| 2.6      | Strategies for enhancing health literacy and dealing with low health literacy. . . . . | 23        |
| 2.6.1    | Introduction . . . . .                                                                 | 23        |
| 2.6.2    | Approaches to enhancing health literacy . . . . .                                      | 23        |
| 2.6.3    | Methods and interventions for enhancing health literacy . . . . .                      | 24        |
| 2.7      | Comparing Health Literacy in the United Kingdom and Nigeria . . . . .                  | 26        |
| 2.7.1    | Introduction . . . . .                                                                 | 26        |
| 2.7.2    | Health Literacy in the United Kingdom . . . . .                                        | 26        |
| 2.7.3    | Nigeria . . . . .                                                                      | 28        |
| 2.8      | Health literacy and COVID-19 pandemic . . . . .                                        | 34        |
| <b>3</b> | <b>Methodology</b>                                                                     | <b>36</b> |
| 3.1      | Chapter overview . . . . .                                                             | 36        |
| 3.2      | Aim and objectives of the study . . . . .                                              | 36        |
| 3.3      | Research Approach . . . . .                                                            | 37        |
| 3.3.1    | The Purpose . . . . .                                                                  | 37        |
| 3.3.2    | The Theoretical Drive . . . . .                                                        | 38        |
| 3.3.3    | Timing of integration . . . . .                                                        | 39        |
| 3.4      | Methods of data collection . . . . .                                                   | 39        |
| 3.5      | Instrument for data collection. . . . .                                                | 41        |
| 3.6      | Summary of the chapter . . . . .                                                       | 42        |
| <b>4</b> | <b>Research Method(Quantitative Data)</b>                                              | <b>43</b> |
| 4.1      | Introduction . . . . .                                                                 | 43        |
| 4.2      | Research population . . . . .                                                          | 43        |
| 4.3      | Research locations and settings . . . . .                                              | 44        |
| 4.4      | Recruiting Fellows . . . . .                                                           | 44        |
| 4.5      | Recruitment strategy . . . . .                                                         | 45        |
| 4.6      | Ethical considerations . . . . .                                                       | 46        |
| 4.7      | Instrument for data collection . . . . .                                               | 47        |
| 4.8      | Data collection process . . . . .                                                      | 47        |
| 4.9      | Data preparation . . . . .                                                             | 47        |
| 4.9.1    | Data entering, screening, and cleaning . . . . .                                       | 47        |
| 4.9.2    | Dealing with missing data . . . . .                                                    | 48        |
| 4.10     | Assumption checks . . . . .                                                            | 50        |
| 4.11     | Chapter Summary . . . . .                                                              | 51        |

|          |                                                                                                               |           |
|----------|---------------------------------------------------------------------------------------------------------------|-----------|
| <b>5</b> | <b>Research Method (Qualitative Data)</b>                                                                     | <b>52</b> |
| 5.1      | Introduction . . . . .                                                                                        | 52        |
| 5.2      | Health literacy and healthcare providers . . . . .                                                            | 52        |
| 5.3      | Rationale for research type and design. . . . .                                                               | 53        |
| 5.4      | Ethical approval . . . . .                                                                                    | 54        |
| 5.5      | Research Population. . . . .                                                                                  | 54        |
| 5.6      | Sampling design . . . . .                                                                                     | 55        |
| 5.7      | Recruitment procedures. . . . .                                                                               | 55        |
| 5.8      | Participants' selection . . . . .                                                                             | 57        |
| 5.9      | Consent . . . . .                                                                                             | 58        |
| 5.10     | Data collection and interview process . . . . .                                                               | 58        |
| 5.11     | The use of a Reflective Journal . . . . .                                                                     | 59        |
| 5.12     | Data Analysis . . . . .                                                                                       | 61        |
| 5.13     | Description of the Interviewees . . . . .                                                                     | 65        |
| 5.14     | Data management . . . . .                                                                                     | 66        |
| 5.15     | Summary . . . . .                                                                                             | 66        |
| <b>6</b> | <b>Research findings from quantitative data.</b>                                                              | <b>67</b> |
| 6.1      | Introduction . . . . .                                                                                        | 67        |
| 6.2      | Description of the demographic data . . . . .                                                                 | 67        |
| 6.3      | Narratives of the findings from the nine domains of health literacy as<br>highlighted in the tables . . . . . | 68        |
| 6.4      | Validity of data collection instrument . . . . .                                                              | 69        |
| 6.5      | Selected Predictors for Health Literacy . . . . .                                                             | 72        |
| 6.6      | Choice of statistical test . . . . .                                                                          | 74        |
| 6.7      | Preliminary analysis for multiple regression . . . . .                                                        | 75        |
| 6.7.1    | Domain 1: feeling understood and supported by HCP . . . . .                                                   | 75        |
| 6.7.2    | Domain 2: "Having sufficient information to manage my health".                                                | 75        |
| 6.7.3    | Domain 3: "Actively managing my health." . . . . .                                                            | 77        |
| 6.7.4    | Domain 4 Social support for health . . . . .                                                                  | 79        |
| 6.7.5    | Domain 5: Appraisal of health information . . . . .                                                           | 79        |
| 6.7.6    | Domain 6: Ability to actively engage with the HCP. . . . .                                                    | 80        |
| 6.7.7    | Domain 7: Navigating the Healthcare System . . . . .                                                          | 80        |
| 6.7.8    | Domain 8: Ability to find good health information. . . . .                                                    | 81        |
| 6.7.9    | Domain 9: understood health information well enough to know<br>what to do. . . . .                            | 81        |

|          |                                                                                               |           |
|----------|-----------------------------------------------------------------------------------------------|-----------|
| 6.8      | Preliminary analysis for the relationship between HL and knowledge of COVID-19 . . . . .      | 82        |
| 6.8.1    | Domain 1: Feeling understood and supported by healthcare providers . . . . .                  | 82        |
| 6.8.2    | Domain 2: Having sufficient information to manage my health. .                                | 83        |
| 6.8.3    | Domain 3: Actively managing my health. . . . .                                                | 83        |
| 6.8.4    | Domain 4: Social Support for health. . . . .                                                  | 84        |
| 6.8.5    | Domain 5: Appraisal of health information. . . . .                                            | 84        |
| 6.8.6    | Domain 6: Ability to actively engage the healthcare providers. .                              | 84        |
| 6.8.7    | Domain 7: Navigating the healthcare system. . . . .                                           | 85        |
| 6.8.8    | Domain 8: Ability to find good health information. . . . .                                    | 85        |
| 6.8.9    | Domain 9: Understanding health information well enough to know what to do. . . . .            | 86        |
| 6.8.10   | Summary of the relationship between health literacy and knowledge about COVID-19. . . . .     | 86        |
| 6.9      | Conclusion . . . . .                                                                          | 87        |
| <b>7</b> | <b>Findings from the Qualitative Data.</b>                                                    | <b>95</b> |
| 7.1      | Introduction . . . . .                                                                        | 95        |
| 7.2      | Presentation of the themes . . . . .                                                          | 95        |
| 7.3      | Theme 1: The relationship between the Healthcare Providers and the Healthcare Users . . . . . | 96        |
| 7.3.1    | Establishing the interaction of the HCP with the HCU. . . . .                                 | 96        |
| 7.3.2    | Types of Relationships between HCP and HCU . . . . .                                          | 97        |
| 7.3.3    | Positive versus negative relationships . . . . .                                              | 98        |
| 7.3.4    | Violence against HCP . . . . .                                                                | 100       |
| 7.3.5    | The determining factors for interactions between the HCP and HCUs. . . . .                    | 101       |
| 7.3.6    | Trust and Feelings . . . . .                                                                  | 103       |
| 7.3.7    | Timeline . . . . .                                                                            | 104       |
| 7.3.8    | Financial status . . . . .                                                                    | 106       |
| 7.3.9    | Workforce and work schedule . . . . .                                                         | 108       |
| 7.3.10   | Personality and attitude of both HCP and HCU. . . . .                                         | 111       |
| 7.3.11   | Conclusion . . . . .                                                                          | 111       |
| 7.4      | Theme 2: Healthcare Users and Health Information . . . . .                                    | 112       |
| 7.4.1    | Introduction . . . . .                                                                        | 112       |
| 7.4.2    | Availability of health information. . . . .                                                   | 112       |

## Table of contents

---

|          |                                                                                                                                 |            |
|----------|---------------------------------------------------------------------------------------------------------------------------------|------------|
| 7.4.3    | Sources of health information to the HCU and the challenges around them . . . . .                                               | 116        |
| 7.4.4    | Challenges around the increasing health-related information to the HCU. . . . .                                                 | 120        |
| 7.4.5    | Problem with the source of health information . . . . .                                                                         | 121        |
| 7.4.6    | Understanding health information . . . . .                                                                                      | 124        |
| 7.4.7    | Better communication between the HCP and the HCU . . . . .                                                                      | 125        |
| 7.4.8    | Conclusion . . . . .                                                                                                            | 128        |
| 7.5      | Theme 3: The Healthcare System and Healthcare Users. . . . .                                                                    | 128        |
| 7.5.1    | Introduction . . . . .                                                                                                          | 128        |
| 7.5.2    | Channels of interaction with the Healthcare system. . . . .                                                                     | 128        |
| 7.5.3    | Determining factors for HCU interactions with the healthcare system . . . . .                                                   | 130        |
| 7.6      | Conclusion . . . . .                                                                                                            | 132        |
| <b>8</b> | <b>Discussion of findings</b>                                                                                                   | <b>133</b> |
| 8.1      | Introduction . . . . .                                                                                                          | 133        |
| 8.2      | The process for interpretation and discussion of findings from the qualitative and the quantitative data sets. . . . .          | 135        |
| 8.2.1    | Summary . . . . .                                                                                                               | 137        |
| 8.3      | Research Question 1: . . . . .                                                                                                  | 137        |
| 8.3.1    | Domain 1: Feeling understood and supported by HCP . . . . .                                                                     | 137        |
| 8.3.2    | Domain 2: Ability to actively engage with the Healthcare Providers. . . . .                                                     | 145        |
| 8.4      | Research Question 2: What are the interactions of Healthcare users with Health Information in Nigeria? . . . . .                | 153        |
| 8.4.1    | Having sufficient Information to manage my Health. . . . .                                                                      | 154        |
| 8.4.2    | Domain 4: Critical Appraisal of Health Information. . . . .                                                                     | 158        |
| 8.4.3    | Ability to find Good Health Information. . . . .                                                                                | 167        |
| 8.4.4    | Domain 6: Understanding Health Information well enough to know what to do . . . . .                                             | 174        |
| 8.5      | Research Question 3: How is the experience of Healthcare users with the Healthcare system in Nigeria? . . . . .                 | 179        |
| 8.5.1    | Introduction . . . . .                                                                                                          | 179        |
| 8.5.2    | Domain 7: Navigating the Healthcare System . . . . .                                                                            | 179        |
| 8.6      | Research Question 4: What is the relationship between COVID-19 knowledge and Health Literacy among Adults in Nigeria? . . . . . | 185        |
| 8.6.1    | Introduction . . . . .                                                                                                          | 185        |

|          |                                                                                                                              |            |
|----------|------------------------------------------------------------------------------------------------------------------------------|------------|
| 8.6.2    | Summary . . . . .                                                                                                            | 187        |
| 8.7      | Conclusion . . . . .                                                                                                         | 187        |
| <b>9</b> | <b>Study Overview, Conclusions, Limitations, and Recommendations.</b>                                                        | <b>189</b> |
| 9.1      | Introduction . . . . .                                                                                                       | 189        |
| 9.2      | Study Overview . . . . .                                                                                                     | 189        |
| 9.3      | Conclusions from the Study . . . . .                                                                                         | 191        |
| 9.3.1    | Research Question 1: What is the relationship between the<br>Healthcare Providers and the Healthcare Users in Nigeria? . . . | 191        |
| 9.3.2    | Research Question 2: What are the interactions of Healthcare<br>Users with Health Information in Nigeria? . . . . .          | 192        |
| 9.3.3    | Research Question 3: How is the Healthcare users' Experience<br>with Nigeria's Healthcare system? . . . . .                  | 195        |
| 9.4      | Conclusion . . . . .                                                                                                         | 197        |
| 9.4.1    | Introduction . . . . .                                                                                                       | 197        |
| 9.4.2    | Contributions of the Study to the Body of Knowledge . . . . .                                                                | 197        |
| 9.4.3    | Limitations of the Study . . . . .                                                                                           | 198        |
| 9.4.4    | Areas for Further Studies. . . . .                                                                                           | 200        |
| 9.4.5    | Recommendations . . . . .                                                                                                    | 200        |
|          | <b>Bibliography</b>                                                                                                          | <b>203</b> |
| .1       | Consent form . . . . .                                                                                                       | 244        |

# List of figures

|      |                                                                                                                                        |     |
|------|----------------------------------------------------------------------------------------------------------------------------------------|-----|
| 2.1  | Graphical representation of gender in Nigeria population . . . . .                                                                     | 29  |
| 5.1  | Inclusion criteria for the selection of participants . . . . .                                                                         | 55  |
| 5.2  | Adopting Gibbs’s reflective cycle (1988) to deal with an event . . . . .                                                               | 62  |
| 5.3  | Stages of Qualitative data analysis (Bingham, 2023) . . . . .                                                                          | 64  |
| 6.1  | Scores of the nine scales of Health Literacy Questionnaire for the overall sample SD=standard deviation, CL=Confidence Level . . . . . | 71  |
| 6.2  | Outcome of predictor variables for multiple Regression: Feeling understood and supported by the HCP. . . . .                           | 76  |
| 6.3  | Outcome of predictor variables for multiple Regression: "Having sufficient information to manage my health". . . . .                   | 77  |
| 6.4  | Outcome of predictor variables for multiple Regression: “Actively managing my health.” . . . .                                         | 78  |
| 6.5  | Outcome of predictor variables for multiple Regression: Social support for health . . . . .                                            | 88  |
| 6.6  | Outcome of predictor variables for multiple Regression: Appraisal of health information . . . . .                                      | 89  |
| 6.7  | Outcome of predictor variables for multiple Regression: Ability to actively engage the HCP. . . . .                                    | 90  |
| 6.8  | Outcome of predictor variables for multiple Regression: Navigating the Healthcare system. . . . .                                      | 91  |
| 6.9  | Outcome of predictor variables for multiple Regression: Ability to find good health information. . . . .                               | 92  |
| 6.10 | Outcome of predictor variables for multiple Regression: Understood health information well enough to know what to do. . . . .          | 93  |
| 8.1  | Factors for the ‘ability to actively engage the HCP’. . . . .                                                                          | 188 |

|   |                                                         |     |
|---|---------------------------------------------------------|-----|
| 1 | Summary of the Health Literacy tools reviewed . . . . . | 237 |
| 2 | Advert for Quantitative study . . . . .                 | 242 |
| 3 | Consent form for qualitative study . . . . .            | 245 |

# List of tables

4.1    Categorisation of missingness in a survey . . . . . 49

# Chapter 1

## Introduction

### 1.1 Background to the Study

The World Health Organisation (2016) defines health as a state of complete physical, mental, and social well-being, not merely the absence of disease or infirmity. Over the years, healthcare has evolved beyond what patients could obtain in the traditional hospital setting to a transformed way of life for optimal well-being, achieved through care, cure, and health promotion (Northern NSW Local District, 2016). Health promotion is a tool for empowering people, communities, and society to avoid factors that predispose a person to ill health. This is achieved through informed decision-making that is aligned with good health while adopting a healthy lifestyle (WHO, 2016). Health promotion is established to be cheaper, safer, and better than curing diseases. It also shifts the total responsibility for good health and well-being from healthcare providers, society, and the government to individuals, thereby promoting their active participation (WHO, 2025; Menabde, 2017; Kumar and Preetha, 2012). One of the key elements of health promotion is health literacy. Health literacy is a concept that empowers individuals to be active partners in their health matters (WHO, 2016). It is also a key to achieving sustainable development goals (SDG) (Menabde, 2017).

Health literacy has been defined as an individual's ability to effectively use health resources to achieve an optimal state of health (WHO, 2016). It is "the knowledge, motivation, and competence to access, understand, appraise and apply information to make decisions about healthcare, disease prevention, and health promotion" (Quagliò et al., 2017). This implies that for an individual to be considered health literate, he must be able to access the necessary health information, process it, and effectively apply it

to achieve an optimum state of health (US Department of Health and Human Services, 2025). Health literacy does not stop with individuals; it also touches the healthcare providers (HCP). The HCPs are expected to supply information to healthcare users (HCUs) in a way that they can understand (Schwendemann and Thieme, 2023; Finlay, Meggetto, Robinson and Davies, 2019). Healthcare organisations must ensure that their practices, vision, mission, and strategies consider their clients' health literacy to improve their outcomes (Lloyd, Thomas, Powell-Davies, Osten and Haris, 2018). The government is to ensure policies, programs, and infrastructures to provide optimum enhancement of people's health literacy, considering its overall effect on the healthcare system (Lloyd et al., 2018).

There are three sides to health literacy: the basics, which is about an individual's ability to read and write; the communicative, which is concerned with understanding and interpreting the information received; and lastly, the critical health literacy, which focuses on being able to make decisions based on the critical analysis of information received (Sorensen et al., 2012; Nutbeam, 2000). Although the ability to read and write enhances health literacy, it does not guarantee a high level of health literacy (Oyewole, Dipeolu, Ajuwon and Odetola, 2019). This is especially when it involves medical terminologies or when people are already overwhelmed with the stress associated with being unwell (Centres for Disease Control, 2024).

There are several advantages to health literacy, which include but are not limited to a reduction in the cost of care and burden on healthcare resources, an improvement in the health of individuals, and a lesser need for emergency care and hospitalisation (Marquez and Ladd, 2019; Rasu, Bawa, Suminski, Snella and Warady, 2015). Health literacy also aims to bridge gaps caused by socioeconomic status and educational level, thereby promoting equity (Jansen, Rademakers, Waverijn, Verheij, Osborne and Heijmans, 2018; WHO, 2016). Low health literacy is associated with unhealthy practices; more hospitalisation; increased use of emergent care, which could be more expensive; less use of preventive measures; non-compliance with medical instructions leading to poor health outcomes; and, at the extreme, death (Shahid, Shoker, Chu, Frehlik, Ward and Pahwa, 2022). Undue burdens are also placed on the healthcare system and providers (Hickey, Masterson, Reading, Robert, Frulla and Casida, 2018).

Different developed and developing countries conduct studies on their citizens' health literacy, exploring its various aspects (Duong, Pharm, Do, et al., 2020; Quaglio et

al., 2017; Sorenson et al., 2015). Recorded are varying degrees of health literacy in these countries, which have led to various interventions (Sykes and Wills, 2018). For example, the European Health Literacy Survey (EHLS), conducted in 2010 and including eight European countries (Austria, Germany, Spain, Poland, the Netherlands, Bulgaria, Ireland, and Greece), showed that 47% of respondents had limited health literacy (Sorensen et al., 2015). This is with the questionnaire for the study translated into six different languages in the countries, considering the effect of language on health literacy, as Dowse (2016) noted in their research. A further assessment of health literacy in Germany seven years later, using the same questionnaire, though a more comprehensive version, showed that 54.3% of the respondents had limited health literacy (Schaeffer, Berens and Vogt, 2017). In a study in Zambia, a developing country, six out of ten participants were found to have low health literacy (Schrauben and Wiebe, 2017).

Even though a community's health literacy is determined by its people, the HCP play a significant role in shaping the health literacy of the people (Nesari, Olson, Nasrabadi, and Noris, 2019; Coelho, 2018; McKinn, Lin, Foster, and McCaffery, 2017). However, there have been concerns about the health literacy of the HCPs. For instance, a community-based Centre in Canada found that 50% of the health professionals participating in the study could not relate to the term 'health literacy', and 80% would appreciate more training on the concept (Coelho 2018). Additionally, inadequate knowledge and practices related to health literacy were observed in a quantitative study conducted among 190 Iranian registered nurses (Nesari et al., 2019), while some physicians were also found to sometimes overestimate their clients' health literacy (Cooper, Blucker, Thompson, et al., 2018). On the positive side, the low level of health literacy among HCPs has led to the introduction of various interventions, such as developing tools to assess health literacy. An example is the universal health literacy kit (Brega, Freedman, Leblanc et al, 2015). Also, a health literacy curriculum and different educational interventions were developed for the HCPs (Finlay et al., 2018; Karuranga, Sorensen, Coleman, and Mahmud, 2017). Considering the role of the HCP in the health literacy of the HCU, there may be a need for studies specifically focused on the HCP in Nigeria.

Searches were carried out across different academic databases for studies on health literacy in Nigeria. This was not limited to databases that are health-related alone because health literacy is a concept that is being studied by researchers from various educational backgrounds and disciplines like librarians, psychologists, and so on (Nwafor-

Orizu, Emelumadu and Nwabueze, 2020; Aluh, Okonta and Odili, 2020). The findings from these databases showed that different studies have been carried out on health literacy in Nigeria. An opinion paper by Adekoya-Cole et al. (2015) expressed concern for the need to explore factors, such as poverty, low educational literacy, and so on; that may be affecting health literacy in Nigeria. A study by Shabi and Oyewusi (2018) that focused on adolescents' health literacy and the use of the internet for assessing information revealed that only 37.7% of the respondents had adequate health literacy. Mental health literacy has also been explored in different dimensions in Nigeria such as mental health literacy among adolescents (Alu, Anyachebelu, Anosike, and Anisoba, 2018), the study of mental health literacy among undergraduates (Alu, Okonta and Odili, 2019), among others. There are also, case-specific studies on health literacy, for example, the study of Nwafor-Orizu, Umunnakwe, and Onwudinjo (2018) on cervical health literacy among female librarians and the health information literacy study by Ekoko (2020) among rural women in the southeastern part of Nigeria. However, there is a study gap on health literacy among Nigeria's general population. It is also worthy of note that a systematic review of the literature on health literacy in Nigeria could not be carried out due to the limited relevant literature applicable to PhD-level research.

The world is just recovering from the COVID-19 pandemic. Various strategies and measures were employed during the pandemic to combat its spread, including face masks, hand hygiene, and social distancing (Afolabi and Ilesanmi, 2022). All these interventions are primarily dependent on individuals, as there is no medical intervention for the disease (Cable, Heymann, Uzicanin et al., 2021). Additionally, there have been concerns about the world's preparedness against pandemics (Cable, Heymann, Uzicanin et al., 2021) and health literacy can be one of the ways to solve this problem (Thomas and David, 2021).

## 1.2 Purpose of the Study

Health literacy is one of the ways a society can improve its well-being. Considering its advantages in healthcare and the disadvantages associated with its low level, it is important to explore health literacy among the general population in Nigeria. This is to identify areas to strengthen and where interventions may be needed.

## 1.3 Research Questions

The research questions for this study are:

1. How is the relationship between the healthcare providers and the healthcare users in Nigeria?
2. What are the interactions of healthcare users with health information in Nigeria?
3. How is the experience of the healthcare users with the healthcare system in Nigeria?
4. What is the relationship between COVID-19 knowledge and Health Literacy among Adults in Nigeria?

## 1.4 Scope of the Study

This study focuses on understanding health literacy in Nigeria from the adult population and healthcare providers' perspectives using mixed methods. The study is divided into two phases; the first phase involves the survey among the adults, referred to as the healthcare users (HCU), while for the second phase, the healthcare providers (HCP) were interviewed. The survey was conducted first to contribute to and guide the second phase. This was to triangulate the findings from both data, thus increasing the study's credibility. The study benefited from the views of the large number of participants from the survey and the deep and rich individual opinions achieved from one-on-one interviews of the HCP, giving a better context to the study (Office for Health Improvement and Disparities, 2020). The quantitative aspect of the study was carried out using a standardised tool - the Health Literacy Questionnaire (HLQ). At the same time, a one-on-one interview was adopted for the qualitative aspect of the study. In bringing both studies together, a convergent design was adopted right from the data collection stage, with the questions from the questionnaire shaping the questions for the interview. The findings from both studies were individually presented and equally utilised in the discussion chapter of the study.

A self-developed questionnaire was also adopted as part of the survey to understand the relationship between health literacy and COVID-19 knowledge in Nigeria. This is to understand the strategies that may be needed to prepare the people against any future pandemic. The world is a global village, and with the movement of people from one country to the other comes the challenge of the spread of diseases.

## 1.5 Research Settings

Nigeria, a country in the western part of Africa, comprises six geopolitical zones: South-west, South-east, South-south, North-east, North-west, and North-central. Three geopolitical zones, namely Southwest, Southeast, and North-central, were selected for the survey. This is because of the limited resources and time available for this study. There was also the COVID-19 pandemic, with attendant restrictions on human interactions that also affected the decisions and processes for the study. All of these are in addition to the problem of insecurity and violence, primarily due to terrorism and religious war in the North-east and Northwest, making them unsafe (Ojo, Oyewole and Aina, 2023; Ijadunola et al., 2020).

## 1.6 Significance and Justification for the Study

Health literacy is a global concept regarded as one of the determinants of health. The health literacy of a country fosters good health and the well-being of the people. Different countries have researched their health literacy, and the findings have led to diverse activities and interventions as required. Nigeria, as a nation boasting over twenty-nine million people (UNFPA, 2024), cannot afford to be ignorant of her health literacy, considering its positive and negative effects on health. That is why this study explored health literacy in general as it relates to the adult population in Nigeria. Additionally, the survey's focus on adults in the country is significant because they are the largest group in the population (UNFPA, 2024). Another point that stands the study out is the methodology adopted, which is mixed- methods, unlike the available studies on health literacy in Nigeria.

## 1.7 Researchers' Role

Before starting this study in 2020, health literacy was a concept that the researcher was unaware of, even as a registered nurse with over 10 years of practicing experience. I stumbled upon the concept online and was captivated by its value in the healthcare and well-being of people. After further research, I came across the study on health literacy in eight European countries, carried out in 2011, which spurred my concern for studies on health literacy in Nigeria. At the beginning of this study, there were just a handful of resources on health literacy in Nigeria, with none giving an overview of it in Nigeria as it is with some other countries. Given the effects of health literacy

---

on human life and health, I decided to explore health literacy in Nigeria, a decision I remain happy with and intend to pursue further.

## 1.8 Summary

The first chapter of the thesis introduced the study's focus: health literacy in Nigeria. The importance of the concept in the healthcare system was explained, while the significance of the study was highlighted. Lastly, the researcher's reflection on the choice of topic was discussed.

# Chapter 2

## Literature review

### 2.1 Introduction

This chapter reviews the relevant literature on health literacy. It includes seven sections, in which various aspects of health literacy were explored. These include definitions of health literacy, general literacy, and education. Also considered were the different tools for measuring health literacy among the general population and among health care providers (HCP), as well as the determinants of health literacy. Furthermore, Health literacy in the United Kingdom was compared with that in Nigeria, with an overview of Nigeria as a country. The chapter concludes with an overview and a conclusion.

### 2.2 Definitions of Health Literacy

Health literacy has been defined differently over the years (Liu et al., 2020; Pleasant et al., 2016; Sorensen et al., 2012; Ratzan and Parker, 2006; Nielsen-Bohlman et al., 2004;), and some of these will be discussed in this section.

Simmonds (1974) first used health literacy to measure how health education was taught in schools. Bee (1985) used the terms to refer to the knowledge of people in Shawara, a village in Malaysia, about the causes, lines of treatment, and prevention of diseases, including food taboos. This approach to health literacy was focused on diseases and the people's knowledge of them, laying the responsibility for health literacy on them. Ratzan and Parker (2000) defined HL as a measure of an individual's ability to obtain health information, understand it, and make intelligent decisions based on the information received. This definition, though, still puts the responsibility for health

literacy on the health care users (HCU) recognises the fact that there is a need to supply the correct information to the people. However, how well the information can be applied depends on an individual's ability to translate the information received into what can inform their health decision.

The definition and explanation of what HL is, according to Nutbeam (2000), linked HL to Literacy. According to his explanation, literacy can determine a person's level of health literacy. Nutbeam divided HL into three levels: Functional health literacy, interactive health literacy, and critical health literacy. Functional health literacy focuses on reading, writing, and relating to basic numeracy (Ekoko, 2020; Nutbeam, 2000). Tejero et al. (2022) emphasised functional health literacy as a tool needed for an individual to actively participate and enjoy basic health care and everything a society offers. Functional health literacy is the ability to read the drug dosage (which most often comes in numbers), the side effects, the drug's safety, and follow the doctor's instructions (pleasant, 2014). All these fall under functional health literacy. The second level of health literacy introduced by Nutbeam (2000) is interactive or communicative health literacy. This goes further than functional health literacy in that the individual can communicate and carry out daily life activities, including communicating their needs and participating in decisions about their healthcare. (Task and Finish group of health knowledge and library specialists, 2023; UCL Institute of Health Equity, 2015). Ownby et al. (2014) also corroborated this view while emphasizing the importance of the content of the information supplied.

The third level of HL (Nutbeam, 2000), critical health literacy, was described as an individual's ability to analyze information received and make informed decisions based on it. For instance, being able to read and write may not lead to the person engaging in healthy practices. Peng et al., (2018) cited the example of antibiotics, which some educated people misuse. The ability to read, write, and make decisions on health information may make an individual health literate, which shows that HL is beyond education. Other factors that were recognized to influence HL include age, socioeconomic status, language, cultural beliefs, and the environment (Davis et al., 2020; UCL Institute of Health Equity, 2015).

Another dimension to explaining what health literacy means is seen in the definition given by the WHO (2024). Although literacy is recognized as necessary, health literacy is regarded as possessing the proper knowledge and skills and being confident enough

to apply them. This can be done by adopting lifestyles and ways of living that improve an individual's and the community's health. Health literacy enhances people's understanding of the importance of the determinants of health. This definition shifts the focus of health literacy from individual well-being to society at large through the combined activities of the people in the community Oyewole et al., 2019; Agency for Healthcare Research and Quality, Accessed 21/02/25). Expanded by some other authors (WHO, 2019; Finlay et al., 2018; Lloyds et al., 2018; Bonaccorsi et al., 2016), this definition of health literacy did not just saddled individuals with responsibility for it but involved the different health stakeholders such as government, media, the health care professionals, and organizations. This implies that it is not just about the HCUs being able to read and write or understand the doctors' writings; a health-literate healthcare provider will take into cognisance the level of health literacy of their client to understand each client and relate with them based on their level of health literacy (Health Literacy Toolkit 2nd Edition, 2023). Health literacy is the skills and capacity needed to get the best out of health care or supply health information and services to others (CDC, accessed 21/02/2025). This implies that healthcare providers are expected to possess some skills required to deliver healthcare to clients (Coelho, 2018b). Healthcare providers are expected to supply health information and services in ways people can understand (CDC, accessed 21/02/2025.). They are expected to understand what people are saying, directly or indirectly, and they should know how to relate to different situations. It is the sum of these skills and competence that determines whether a health care provider is health literate or not, since health literacy is regarded as what is done by the health care organization and professionals to make health information and services understandable and actionable (Task and Finish group of health knowledge and library specialists, 2023; UCL Institute of Health Equity, 2015). The collaborative effort of the HCU and the HCP to reflect health literacy is expressed in the explanation given by Sorensen et al. (2013) as when "the expectations, preferences, and skills of individuals seeking health information and services meet the expectations, preferences, and skills of those providing information and services."

Ownby et al. (2014) regarded health literacy as a composite of what was described as ASK, that is, "ability, skills and knowledge". Harrington and Valerio (2014) streamlined health literacy into communication. They emphasized the patients' ability to express themselves and listen effectively to interact with the healthcare providers, interpret health information, and understand the healthcare system. This was termed "verbal exchange health literacy." (Harrington and Valerio, 2014). However, health literacy is

argued to be beyond patients' communication ability, rather it involves the collaborative efforts of the HCP and the healthcare organisations (Grabeel, 2025; CDC, accessed 21/02/25; WHO, 2019)

### **2.2.1 Summary of section**

Health literacy is an evolving concept (WHO, 2016). So far, there are no consensus regarding the definition of health literacy. However, all the authors who defined health literacy agreed that it has a key role in determining the health of individuals or society at large. Opinions about the effect of education were diverse. Some authors emphasised education as necessary for health literacy, while some regarded HL as beyond education. Overall, none of the authors disregarded the role of education in health literacy. Some definitions also highlight the need to shift health literacy from individuals to all healthcare stakeholders. Three levels of health literacy were identified: organisational, professional and personal. Community involvement is also recognised in health literacy. For this study, the definition by WHO (2016) would be adopted, which is the ability to “gain access to, understand and use information in ways which promote and maintain good health” for individuals, families, and the community.

## **2.3 Literacy, education, and Health literacy**

### **2.3.1 Introduction**

This section of the literature review will discuss the relationship between general literacy and health literacy. This will serve as a prelude to the various definitions of literacy and health literacy. The relationship between literacy and education will be discussed, with implications for health literacy. The section will conclude with a summary.

### **2.3.2 Literacy, education and health literacy**

Literacy is generally understood as the ability to read and write. However, the National Literacy Trust (2017) defined literacy as being beyond the ability to read and write; it includes the capacity to speak and listen to allow effective communication with the world around us. United Nations Educational, Scientific and Cultural Organization (UNESCO) describes it as “the ability to identify, understand, interpret, create and compute using printed and written materials associated with varying

contexts.”(UNESCO, 2025). It is regarded as a tool necessary for effective participation in society. Literacy involves translating the knowledge of reading and writing to other aspects of life and not just being able to read and write (UNESCO,2025)

The word ‘literacy’ is used in different fields to describe knowledge and proficiency in these fields (UNESCO, 2017). Examples of this are financial literacy, digital literacy, legal literacy, and so on. Health literacy may be considered one such adjectivised literacy.

Compared to educational literacy, health literacy is an individual’s ability and skills to access, understand, and evaluate health information to guide their health decisions (UCL Institute of Health Equities, 2015). WHO (2016) defined health literacy as effectively using health information to pursue optimum health. It is the knowledge, motivation, and competence to access, understand, appraise, and apply information to make decisions for healthcare, disease prevention, and health promotion (Quaglio et al., 2017). Additionally, it encompasses personal characteristics and social resources needed for individuals and communities to access, understand, appraise, and use information and services to make decisions about health (WHO, 2016). Although health literacy involves the ability to read and write, it incorporates the ability to access, engage, and effectively utilise health information and services. Health literacy has three parts: functional health literacy, interactive Health literacy, and critical health literacy (Nutbeam, 2000). Functional health literacy is the ability to read and understand health information and instruction, which can be in numeracy and print. Interactive health literacy is the ability to understand health information and apply it in decision-making concerning health. Critical health literacy reflects healthcare consumers’ power concerning their health as they can actively participate in decision-making concerning their care.

General literacy can be related to functional health literacy, as both focus on the ability to read and write. However, since functional health literacy is just an aspect of health literacy, general literacy cannot be used to determine a person’s health literacy (UCL Institute of Health Equities, 2015).

One of the denominators that have been linked to health literacy is literacy (Vamos and Yeung, 2017). The word literacy is interchangeably used with education, although

the two words differ. Education is of a broader scope compared to literacy. Education is regarded as a discipline and activity related to teaching and learning, mainly in a school or school-like environment (Hammann and Nehm, 2020). Different grades and levels are applied to education, such as basics, college, degree, and so on, which may not be obtainable with literacy generally. However, people with higher education tend to have higher literacy levels (Vamos and Yeung, 2016). The level of education can also be proportional to the level of health literacy (Chen et al., 2022), implying that the higher the level of education, the higher the level of health literacy can be. This is shown when comparing the different educational levels with health literacy. However, a high level of education does not translate directly to being health literate, as people with high educational levels can still have low health literacy. This shows that, although there is a strong connection between education and health literacy, sometimes they may not be directly proportional. This is because there is the possibility of other factors influencing HCU's responses, two of which will be considered:

1. Anxiety associated with being sick: people take up the sick role when they are having challenges with their health (Patel et al., 2018; Ed Mitchell, 2013). This makes them prefer to depend on the health care provider to get well quickly (Cheshire et al., 2021). The anxiety associated with their state of health, coupled with fear of what the outcome could be, can affect the reasoning power of the healthcare receiver. However, the effect of this on health literacy may differ from that on education. While those with higher levels of education may not have issues with functional health literacy, they may not be able to cope with the interactive and critical level of health literacy. In contrast, those with low levels of education may become confused even at the level of functional health literacy.
2. Choice of words by healthcare providers: It has been shown in previous writings that health literacy goes beyond healthcare consumers. It involves healthcare providers, organisations, government, and other healthcare stakeholders. The choice of words by the health care providers can go a long way in determining how well the health care consumers can relate to the health care system (Health Literacy Toolkit 2nd Edition, 2023; Dodson and Osborne, 2014). Someone with a high level of education in a particular field, for example, engineering, will have sets of words that they use in their field. Such a person, though well-educated, may not be able to understand some medical terminologies (Tavakoly et al., 2020). For example, an individual who is to have a blood test and has been asked to go to the phlebotomy department may be wondering what this means, even though

he is educated. An individual with just a basic level of education may interpret a high blood sugar level to mean something good!

### **2.3.3 Conclusion**

Literacy and education may be used interchangeably in some contexts but not when it concerns health literacy. Also, being educated does not automatically translate to being health literate, although education positively influences health literacy.

## **2.4 Health Literacy Tools**

### **2.4.1 Introduction**

This literature review section explores some tools for assessing health literacy among the general population. It will then evaluate some of these tools, including the other interventions that different countries are implementing to address the issue of health literacy among their citizens. The tools for assessing health literacy among healthcare providers and organisations will also be considered. Finally, the section will wrap up with a summary of what could be deduced from these assessments.

### **2.4.2 Criteria for selection of tools for review and the review of the selected tool**

Health literacy measurement has been identified as of great importance in improving the health outcomes of the general population (WHO, 2016). Through this, baseline data for people's health literacy can be developed with any interventions needed (Sorensen et al., 2015; UCL Institute of Health Equities, 2015). It is important to note that two words were used interchangeably in the literature in describing health literacy assessment among the general population, even though the words should have different meanings. These words are screening and measurement. Screening tools tend only to group people based on their likelihood of having a health condition without considering other factors like the causes of the highlighted issues and the probable solutions to the identified problem (New York State Department of Health Accessed 21/02/25 ). Measurement concerns individuals' capacity, with no reference to their interaction with health information or the healthcare system (Shum et al., 2016). Some selected tools will be considered in this review. The tools' selection was based on how long the tool has been introduced and the recorded usage or popularity. This is to understand the

progress in developing health literacy tools over the years and to assess the relationship between them, if any.

Samora introduced the first peer-reviewed measuring tool for health literacy (Samora, Saunders and Larson, 1961). This was before the word health literacy was first used by Simmond (1974). The tool, “Comprehension of 50 medical terms,” focused on medical vocabulary knowledge among the general population. Even though the term health literacy was not attached to this tool, the tool was meant to test the ability of the participants to understand simple sentences formed from these medical words. Rapid Estimate of Adult Literacy in Medicine (REALM) was introduced in 1991 (Davis et al., 1993). The tool assessed the participants’ reading levels by evaluating the patients’ pronunciation of 125 medical words. This resulted in the grouping of the participants into four reading levels. REALM has been refined over the years, with the number of items reduced (David et al., 1993), and it can be regarded as one of the most widely used tools in health literacy, with some other tools developed based on its principles. Test of functional health literacy for adults (TOFHLA) was introduced four years after the introduction of REALM (Parker et al., 1995). As the name implies, the tool concerns functional health literacy (Nutbeam, 2000), like REALM. However, TOFHLA covered a broader area in its assessment, including numeric calculation, comprehension reading, and the patient’s ability to seek information, an advantage above REALM. It comprised 64 items, estimated to take 22 minutes to complete. Assessing the content of this tool about the definition of health literacy shows a deficiency as it is not comprehensive enough, and having 64 items may not be an easy task for an average member of society.

The medical achievement Test (MART) was introduced in 1997 (Hanson-Divers, 1997). It focused on testing how well the patients could recognize some medical words like a prescription. It comprised 42 items, which were to be completed in 5 minutes by the participants. The less time needed to complete this tool can be regarded as an advantage over the previously described tools, although the domain explored is still limited. The shortened form of TOFHLA was introduced in 1999 (Baker et al., 1999). STOFHLA comprised 40 items compared to the 64 in TOFHLA, taking ten minutes less to complete. However, the domain assessed is still the same as the TOFHLA, which is still not comprehensive about the definition of health literacy. However, the advantage of using less time to complete the assessment cannot be ignored. The introduction of the short form of Rapid Estimate of Adult Literacy in Medicine

(REALM-R) (Bass, Wilson and Griffith, 2003) moved the health literacy assessment forward as it comprised only eight items that took only 2 minutes to complete. However, the REALM-R was still based on the pronunciation of medical terms, which can be argued to be incomprehensive because health literacy is beyond the pronunciation of words. The brief Health Literacy screener (Chew et al., 2008) was even shorter than REALM\_R as it comprised three items, taking one and a half minutes to complete. It focuses on the patients' information-seeking ability, a domain not considered in REALM.

Another dimension to the method of application of the tools was shown in the 191 items comprehensive computer-based survey, which was done in addition to the face-to-face method of administration, in the tool "Health Activities Literacy Scale of NALS-(HALS) (Rudd and Yamamoto, 2004). This can be regarded as an improvement and means of overcoming the limitation associated with the face-to-face medium of administration of the assessment test. Also, a survey allows for the recruitment of more participants, which can be an advantage. However, the number of items may not be a plus for the tool, considering that the previous tools produced the shorter version, reducing the number of items. Medical data interpretation test MDIT (Schwartz, Woloshin and Welch, 2005) focused on how well the patients could make sense of medical risks, a domain the previous tools did not consider. The newest vital signs were set in English and then Spanish. The tools comprised three items to be done face-to-face in 3 minutes. It sought to test health literacy using numeracy and comprehension using ice cream labels, which could be regarded as one of the day-to-day items people relate to in their food choices for healthy living.

The attention to tools for assessing health literacy has gained more popularity after 2004. This is because more tools have been released every year since 2005. The Short Assessment of HL for Spanish-speaking adults (SAHLSA-50) was developed in 2006 (LEE et al., 2006). SAHLSA-50 was focused on the pronunciation of medical words in Spanish. It comprises 50 items, which were expected to be completed in four and a half minutes. Language is regarded as a factor in determining health literacy, so having a language-oriented tool can be considered an advantage over those not (Pleasant, 2014). Single item screener had just one item, which was to be completed in one minute (Bonaccorsi et al., 2017). The subjective numeracy scale (Zikmund-Fisher et al., 2007) was one of the tools published in 2009, which is based on self-assessment and numbers. BRIEF HL screening tool (Wallston et al., 2013) had its domain on number, comprehension, and the ability of the patient to seek information (Ishikawa et al.,

2008). Evolving are the Shortened and language-oriented forms of the published tools, such as the short assessment of HL for Dutch patients (Maat, Essink-Bot, Leenaars and Fransen, 2014), the short test of functional HL in Mandarintools (Mantwill and Schulz, 2016), and different shortened forms of the European HL survey.

The health literacy questionnaire was introduced in 2013 (Osborne et al., 2013). The tool has the advantage of considering nine domains of health literacy, each of which tests for health literacy exclusively. As reviewed on the Health Literacy Tool Shed platform (New York State Department of Health, accessed 02/20/2022), this tool can be used in diverse settings, including national and general surveys and clinical settings. It is a valuable tool among researchers, healthcare practitioners, and governments. It has been validated in at least nine countries and translated into different languages, and the review continues. So far, it has been used in over 55 countries, including Nigeria, to assess health literacy, and this number is still increasing.

### **2.4.3 Observations from the assessed tools**

#### **Health literacy definitions and tools**

Health literacy definitions and tools Health literacy is gaining ground in different countries across the globe (Pleasant, 2013). For effective determination of the context of a term, most significantly, for it to attract policy intervention, there is a need for proper measurement of the term; as the saying goes, "If it can be measured, it can be managed". Over the years, different tools have been developed to measure health literacy. Over 200 peer-reviewed tools have been introduced to assess health literacy among the general population and still counting (New York State Department of Health, accessed 02/20/2022). However, there is yet to be a consensus on the content of a standard tool for measuring health literacy. This is attributed to the fact that there is yet to be a generally acceptable definition for Health literacy (Pleasant et al., 2016; Malloy-weir, Charles, Gafni and Entwistle, 2016). A standard definition of Health literacy is supposed to aid the development of a unifying assessment tool that can be generalised and help the establishment of policies on health literacy (Malloy-weir, 2016; Pleasant, 2014; Sorenson et al., 2013). Using health literacy tools in the clinical setting could lead to better awareness and better outcomes for the patient (Dijkman, Brake, Drossaert and Doggen, 2023). This is because it may not be easy to know patients with low health literacy as they may find it difficult to admit it due to shame. Also, the need to change healthcare professionals at different appointments and the workload on

the healthcare providers can make it a challenging task to take time with each patient to understand their health literacy (Dijkman et al, 2023). Relying on gut feelings may also not be effective, as overestimation of HCU's health literacy has been documented (Johnson, 2015). All of these make having tools to assess health literacy desirable. Altin et al. (2014) also wrote that assessing health literacy in the general population can be regarded as a multi-directional approach to evaluating health literacy.

### **The use of health literacy tools in the Clinical settings**

It is important to note that the health literacy tool is not meant to be used in the routine clinical care of patients as it is yet to be proven to influence the patient's experience and outcome. Instead, it can lead to labelling individuals, harming their experience with the healthcare system (Pleasant, 2014). The tools instead are to be used for research to develop strategies and policies for health illiteracy (Weiss, 2017). Another recommendation for ensuring a better experience for the HCUs, no matter their health literacy level, is using the Health Literacy Universal Precaution Toolkit (Brega et al., 2015). This is because it advocates clarity and simplicity of health information and interactions between the HCP and the HCU.

All the tools considered in this review comprised questions of varying numbers, the least being one question (Bonaccorsi et al., 2017), with the approximated time frame for attempting the questions being between 1 minute and one hour (Ownby, 2014). According to Whiting et al. (2017), before developing a new tool, it is essential to note the reason for the development, which may be to build on the previous ones. However, this does not seem to be so in the early development of the tools for health literacy. This is because there is no consistent pattern in the number of items in the tools over the years. However, this challenge is being resolved by developing shortened forms of different tools.

### **Mode of administration of health literacy tools**

Different modes of administration were observed in the tools over the years. This varies from face-to-face (Connor, Mantwill, and Schulz, 2013) to paper and pencil (Paival et al., 2020), computer-based (Slesinger et al., 2020), survey mail (Schwartz, Woloshin and Welch, 1999) and via telephone (Sakib et al., 2019). However, the most used mode of administration observed in the tools is face-to-face. Different settings will need different approaches to administering health literacy tools, each with its advantages and disadvantages. More importantly, things are changing generally, and this includes

research studies. The use of the Internet is increasing and gaining popularity in all fields. The possibility of using various internet-based platforms, such as Webex, Teams, and so on, can also be explored when administering research measurements. However, the setting and the target population for a study will be significant determinants.

### **Acceptance of Health Literacy in Different Countries**

Most of the tools for assessing health literacy, especially in the early years of the concept, seem to have been developed in the USA (Pleasant, 2013; Samora et al., 1961). It also seems that the concept has gained more popularity in the US. However, this is changing as different countries are recognising the importance of the concept and actively working with it. Between 2009 and 2012, a health literacy survey was carried out in 8 European member countries (Sorensen et al., 2015). The health literacy test for limited literacy was validated in South Africa in 2019 (Marimwe and Dowse, 2019). These are just some of the many countries that are developing tools for exploring health literacy. However, even though health literacy is not a new concept in Nigeria, as evidenced by the different studies on it (Adedimeji et al., 2017; Ayamolowo and Akinrinde, 2020; Ekoko, 2020), to the best of my knowledge, there is yet to be a validated tool on health literacy developed in Nigeria.

### **Languages Use in Developing Health Literacy Tools**

The tools introduced in the early days of the development of health literacy tools were done in the English language (Schwartz, Woloshin, Black and Welch, 1999), and those that were done in other languages were mainly translated from the English versions (Bonaccorsi et al., 2017; Schwartz et al., 2005). This could be thought-provoking as health literacy can be linked to culture and language, and health literacy should not be judged from the Western point of view since each locality has its culture and language (Devray and Guchup, 2012). However, translated tools are as effective as the original versions once the necessary procedure for translation is followed (Rademakers et al., 2020). In translating a tool to another language, the focus is not just on the literal translations of the words used but also on the context and cultural application of such words that are to be applied. Six steps are identified in translating health literacy instruments (Rademaker et al., 2020). This includes forward translation by a bilingual expert in the field. The translated version is assessed and corrected by bilingual experts who understand English and the target language. The backward translation stage is done by an independent expert who is also bilingual, has English as the mother tongue, and does not know the original version of the questionnaire. This expert translates the

new language back into English. From these back-and-forth translations, a consensus is reached on the translation. A pre-test of the questionnaire on a representative sample of the targeted population follows this. The necessary corrections and adoptions are then made, and the tool is documented appropriately.

### **Health Literacy domains**

Most of the assessed tools tested those health literacy domains that revolved around the patient's ability to read and write, pronounce some medical terminologies and relate with some numeracy. All these fall under functional health literacy. On a brighter note, the health literacy questionnaire considered nine domains, exploring the various aspects of Health literacy, which is an advantage over others. This study will explore health literacy in Nigeria, using the Health Literacy Questionnaire (HLQ) as the measuring tool.

### **Summary**

Assessment tools for health literacy are still emerging. More instruments are needed to measure the level of literacy among the general population and evaluate the effect of any intervention based on the assessment. There is an argument about the effect of using health literacy assessment tools in day-to-day activities related to the HCU. This is because it can be time-consuming and lead to labelling patients. Rather, it may be better to relate with all patients using a universal health literacy kit.

Health literacy assessment is to be done at the research level, and the findings can inform the necessary measures to be put in place. Another benefit of the assessment is that it can help to inform the policies to be put in place to ensure that every member of the society gets the best out of the healthcare system, regardless of their level of education, social status, race, creek, or location. The assessment can also inform other areas for research.

There is a need to explore the other domains of health literacy, not just the functional aspect, which is common to the available tools. The use of internet-based media for the administration of tools can also be explored, keeping in mind the settings for the study and the target population. Translating a tool from one language to another may not constitute a disadvantage.

#### 2.4.4 Conclusion

This section has explored some of the tools available for assessing health literacy among the general population, pointing out the areas where further work may be needed. A summary table of the review can be found in Appendix (i).

### 2.5 Health Literacy among the healthcare providers.

Health literacy is beyond the healthcare users (Rajah et al., 2017). Healthcare professionals and organisations have their roles to play in people's health literacy (Bonaccorsi and Lorini, 2024; Dinh, Nguyen and Bonner, 2022). There are no consensus as to the beliefs of the health care providers about their patient's level of health literacy and their actual level of health literacy (Voigt-barbarous and Brutt, 2020; Storms et al., 2019; Atcherson et al., 2013). This implies that the health literacy of healthcare users can be overrated or otherwise. Some of the factors that could be responsible for this are:

1. The Allocated time for consultation: The time allotted for the health care provider to interact with the patient can affect their judgment of their health literacy. (Rajah et al., 2017). Healthcare providers may have to be time conscious, so they cannot take time out to interact with healthcare users well enough to understand their health literacy level.
2. Decision-making in the healthcare system: The belief or understanding of the healthcare provider on the level of participation that should be expected or allowed from the HCU has a role in their health literacy and outcome (Drossman and Ruddy, 2020). They are supposed to enable healthcare users to make decisions about their health. The traditional way of health care services puts the providers as the 'boss' which empowers them to make decisions for the patients without much consideration given to their understanding, opinion, or decision on the prescribed modality of care (Murgic et al., 2015; Lambert et al., 2014). Shared decisions allow healthcare providers to have a better understanding of the patient. Also, the patient, through effective communication, could understand their health problem and the available options of care (Montori et al., 2022). There should be room for patients to understand what is wrong with them, the available options in terms of care, and the proposed care modality. This emphasises the ethical law of autonomy and the focus of health care on health promotion (WHO, 2016). Shared decisions allow the patient to be at the centre of their care because their

preferences are considered in deciding their care (Grover et al., 2022). It can be argued that permitting patients to make decisions about their health can burden patients already suffering from poor health (Cheshire et al., 2021). However, to promote patient-centred care, their direct involvement cannot be overemphasised (WHO, 2016).

3. The frequency a healthcare provider has in caring for a patient can help develop a better understanding of who the patient is beyond the sickness (Lambert et al., 2014). However, it is not always possible for a patient to meet with the same care provider whenever they need to visit the hospital. Documentation is supposed to aid in the continuity of care among HCPs. However, without a definite yardstick for assessment, a subjective view of health literacy may not always be accurate.

At this juncture, it is important to note that the aforementioned factors on the practices of HCPs with the HCU are based on the assumption that HCPs are health literate and that the HCUs are not. This is probably why many tools and instruments have been developed to determine healthcare users' health literacy level, as shown in the previous section. With the many studies on the health literacy of the general population, it is difficult to find instruments explicitly developed to assess the level of health literacy of healthcare providers. The question to ask at this juncture is, can it be assumed that all healthcare providers are health literate? Is it possible for a healthcare provider to be health illiterate? Can we assume that all healthcare providers know how to assess their patient's health literacy? Do they know the strategies to put in place to help those patients who seem to have low levels of health literacy? If health care providers are assumed to be health literate, is it that they learn it in school or that it just becomes part of them as they relate with patients? These questions are essential considering the effect of health illiteracy on the health outcomes of patients.

A study by Cafiero (2013) showed that the nurse practitioners in the survey, though demonstrated a vague idea of what health literacy is, have their knowledge of the concept to be low. A mixed-method web-based study among healthcare professionals in the oncology department of a community-based cancer centre in Canada showed that only 50% of the participants could relate to health literacy. 84% would want to be trained in it (Coelho, 2018). The respondents in this study expressed their lack of knowledge of assessing their clients' health literacy level and did not understand the need to consider their health literacy level. Budhathoki et al. (2019) explored how true the assumption that healthcare providers are health literate was by studying how well a group of undergraduates studying medicine could relate to the healthcare

professional and healthcare system. It would have been expected that the students, being in the medical field, should be able to interact effectively with the healthcare facility and practitioners. However, this was found not to be so. All these studies show the presumption of the assumption of HCU's health literacy. This is an area of study to be considered in the future.

## **2.6 Strategies for enhancing health literacy and dealing with low health literacy.**

### **2.6.1 Introduction**

As Pleasant et al.(2014) pointed out, using different measuring tools is not recommended to address the issue of health illiteracy in individuals. Rather, it is to serve as a measure to determine a community's health literacy level and develop intervention strategies (Weiss,2017). Different strategies have been identified to influence health literacy among healthcare providers and users (Oo et al., 2015). Some of these will be discussed in this section.

### **2.6.2 Approaches to enhancing health literacy**

In dealing with health literacy, considering a multilevel approach may be more beneficial (McCormack et al., 2017). This is because health literacy involves multiple stakeholders and factors (Health Literacy: Past, Present, and Future: Workshop Summary, 2015; Hernandez et al., 2017), and so to have an effective outcome, it may be necessary to combine different strategies. Five multilevel strategies were proposed by McCormack et al. (2017), which are accumulation, amplification, facilitation, cascade, and convergence. These strategies can be used singularly, and they can be combined at different levels, and they are:

- Accumulation strategy: This strategy suggests that the desired outcome is determined by combining different interventions, even though each intervention is independent.
- Amplification strategy: this is when an intervention serves as a boost for another, increasing its effectiveness and thereby enhancing the shared outcome.
- Facilitation strategy: This creates the atmosphere for an intervention to be effected. It works to remove obstacles and enhance an intervention to be effective.

- Cascade strategy occurs when an intervention affects other strategies at different levels.
- Convergence strategy occurs when different interventions are set to strengthen each other, thereby increasing their effectiveness individually and enhancing the outcome.

### 2.6.3 Methods and interventions for enhancing health literacy

#### How of communication.

Health information must be accessible to all and can only be measured from the recipients' perspectives (Task and Finish group of health knowledge and library specialists, 2023). The effective flow of communication between the HCUs and the health care provider depends on the information supplied and how it is passed. (Health Education, England, 2021). Plain language should be used for written and spoken health information rather than complex and complicated medical terminology (Brega et al., 2015). There are different techniques for ensuring effective communication between the HCP and the HCU (Eakin Healthcare, 2024). These include:

- “Keep it simple”: This is achieved by using plain language and simple words that even young children can understand. It also involves consistency in the use of terms and short sentences.
- “Chunk and check”: This deals with avoiding overloading the HCU with a large quantity of information simultaneously. Instead, the information could be put in sections and bits
- “Teach back”: This is by assessing the understanding of the information supplied. This can be achieved by asking the HCU to explain what they were told. This allows any missed information and misconceptions to be corrected.
- Offering to help: People who cannot read may find it difficult to admit it. This is because of feelings of shame and embarrassment. To address this, the HCP should assume that all their clients/patients cannot read and should read to all. As a result, those who cannot read will not face the challenge of admitting they cannot read and asking for help.

**Having standards and laws to ensure health literacy**

This may concern healthcare organisations more than individuals. A health-literate organisation implements measures that encourage health literacy. This can start with having a standard that everyone in the organisation is to work with (Llyod et al., 2018). An example of such a standard is the National Culturally and Linguistically Appropriate Services (CLAS) standard in the USA, referenced in Ohta (2015). This standard aimed to reduce disparity and inequalities in healthcare settings, giving everyone equal rights and access to care.

**Development of content with the audience in mind.**

Considering the audience for a piece of information can go a long way in ensuring effectiveness in communication. This can include the language, migration status and cultural background of the recipient of the information. For instance, a cross-sectional survey by Beauchamp et al. (2015) showed that immigrants who do not speak English at home tend to have low health literacy. Every country member should have access to health information in a way they can understand.

**The use of pictures and symbols**

Appropriate pictures and symbols can help simplify health information (UCL Institute of Health Equity, 2015). This can help with functional health literacy, especially for those who find it difficult to read and write. Pictures and symbols make information simple for the audience to understand easily. The images can also be used in addition to prints to drive home the point being discussed (Task and Finish group of health knowledge and library specialists, 2023). However, the audience must be considered when developing a picture to avoid confusion (UCL Institute of Health Equity, 2015).

**Training of the health care providers.**

Healthcare providers are to be made aware of the importance of health literacy in patients' outcomes. This is because healthcare providers can be health illiterate (Budhathoki et al. (2019). The study by Rajah et al. (2017) showed that healthcare providers were eager to improve their health literacy knowledge, leading to higher productivity and effectiveness in dealing with HCU (Coelho, 2018). Integrating health literacy into the medical school curriculum and ensuring continuous development programmes can go a long way in equipping healthcare providers.

### **Ensuring Basic Education for all**

Education positively affects health literacy, and ensuring basic education for all will help their health literacy (Sorensen et al., 2015). Also, people's level of education is linked to their opportunity for a better career, which can affect their income. The economic status of people can influence their health literacy due to the opportunities and information that they can access (WHO, 2016; UCL Institute of Health Equity, 2015).

## **2.7 Comparing Health Literacy in the United Kingdom and Nigeria**

### **2.7.1 Introduction**

This section gives an overview of health literacy in the United Kingdom and Nigeria. Although the two countries are far apart in terms of development (Nigeria is regarded as a developing country), it is essential to compare the available resources on health literacy in both countries. This is because Nigeria, a country that gained independence from Great Britain, has its practices in education, governance, healthcare, and so on modelled after the British way (Nwashinku, Onu and Okonkwo, 2023; Fwatshak, 2022; Schram, 1971) and later reformed to reflect some American styles (Hauwa, 2023). This prompted the need to assess health literacy in the country regarded as Nigeria's foundational role model and, from there, to gain an understanding of health literacy in both countries. Additionally, although the focus of this study is Nigeria, it is being conducted from the United Kingdom. Therefore, it is expedient for the researcher, who is also a licensed nurse in the United Kingdom, to understand health literacy in the United Kingdom.

### **2.7.2 Health Literacy in the United Kingdom**

One of the UK government's policies on Health focuses on making health services available and suited to all (Task and Finish group of health knowledge and library specialists, 2023; Turner and Clegg, 2014). The government is striving to eradicate inequality, one of the sources of which is low health literacy (UCL Institute of Health Equity, 2015). Low health literacy has been identified as one of the significant barriers to the use of the healthcare system and information in the United Kingdom (Task and Finish group of health knowledge and library specialists, 2023; UCL Institute of

Health Equity, 2015). Although there is yet to be a United Kingdom or England-wide survey on health literacy assessment, diverse studies have been done on health literacy in the United Kingdom. The European Health Literacy survey showed that 1 in 2 of the members of the European countries have limited health literacy (Sorensen et al., 2015). The study by Rowlands et al. (2015) found that the health information materials produced in English were too complex for the native adult working population. Six out of ten adults struggle with understanding health information that includes figures and arithmetic. Also, education among adults in the United Kingdom is relatively lower than needed for adequate health literacy (Rowlands et al., 2015).

The first health literacy assessment survey in the United Kingdom was in Stroke-on-the-Tent among the general adult population. The study was prompted by a lack of data on health literacy in the city (Protheroe et al., 2017). The study revealed that more than half of the subjects (52% ) had limited health literacy. This is similar to the findings from EHLS of some European countries, such as Bulgaria and Spain. Although there is no nationwide assessment of health literacy in the United Kingdom, an assessment of the printed materials used in passing across health information showed that the language used in the print was far too complex for the level of skills possessed by an average adult in England. The figure increases when the print involves some numeracy (from 43% to 63%), cutting more than 15 million of the working-class population from the needed health information (Public Health England, 2017). This aligns with the longitudinal cohort study by Kobayashi et al. (2014), where adults with less functional health literacy have a higher mortality rate. This emphasises the need to have health information presented in ways that could be more accessible to the HCU.

Different work and interventions involving various stakeholders in the healthcare system have been put in place to improve health literacy in the United Kingdom. The United Kingdom government has set up a collaboration for health literacy, which involves Health Education England, the NHS, and Public Health England (Public Health England, 2017). These three bodies have developed strategies for adequate health literacy at individual and corporate levels. One of these strategies is training healthcare providers and consumers on health literacy, which creates a sense of awareness about health literacy. There was also special training for the healthcare providers. For example, general practitioners were trained by the Royal College of General Practitioners to increase their awareness of health literacy. Different designs and principles must be applied to writing and designing health information materials (NHS,

2023). Medical writings are expected to follow the principles of accuracy, conciseness, and clarity. Health information is also supposed to be accessible to all, which is not just about the production of the information but also the media for communicating such information. According to this principle, since 2016, every organisation offering NHS care or that is government-funded must follow the accessible information standard. Some of the nine principles for designing health materials for whatever purpose, be it strategies, materials, plans, etcetera, are highlighted below:

- Designing with the audience in mind, taking into cognisance their total being - physical, mental, social, and so on
- Having the expected outcome for whatever is being designed in mind from the beginning
- Equity. This implies that everyone who is supposed to benefit from whatever is planned must be considered. Individuals are more than the disease condition that they are dealing with. In developing any strategies, individuals are to be considered in their entity.

There are organisation and group-specific interventions, too. Different programs are put together annually to increase people's awareness and strategies to improve health literacy, an example of which is the Information Week celebrated annually by the Health Education England library department, Health Literacy Month, which is in October of every year. Another strategy is the involvement of the general population through local groups in developing health information materials (The Patient Information Forum (PIF, accessed 05/03/2025). There are also health literacy groups for healthcare providers, such as the "Health Literacy group, UK" (Health Literacy UK, accessed 22/02/2025), where information, ideas, and strategies are shared. Health literacy toolkits are also developed to equip healthcare practitioners with acceptable practice guidelines. Summary: These are some of the activities related to health literacy in the United Kingdom. The next section will consider an overview of Nigeria as a country.

### **2.7.3 Nigeria**

#### **Overview of Nigeria as a Country**

Nigeria is the most populated country in West Africa, boasting over 200 million people. (Worldometer, accessed 21/02/2025.), with males being 50.5% of the population (National Bureau of Statistics, accessed 21/02/2025) (Fig. 2.1). There are more

than three hundred ethnic groups and languages in Nigeria, with the whole country comprising thirty-six autonomous states and the Federal capital territory. Regarding geographical zones, Nigeria comprises six zones: the Southwest, Southeast, North-central, South-south, and North-east. The three major ethnic groups in Nigeria are the Yoruba, Hausa, and Igbo. Nigeria was colonised by the British, from whom she gained independence in 1960. This influenced the official language adopted in Nigeria, which is English.

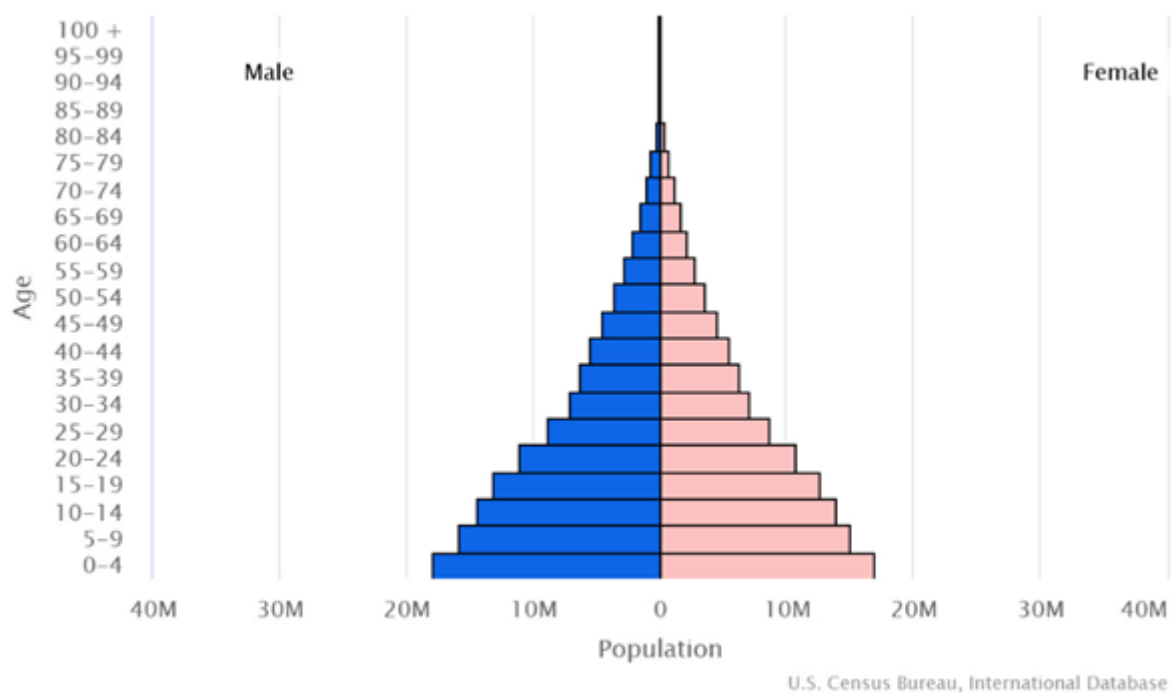


Fig. 2.1 Graphical representation of gender in Nigeria population

Demographically, the age group with the highest population is 15-64 years, while the sixty-five and above have the least number. (Central Intelligence Agency, 2019). Even though there has been a decrease in the infant mortality rate, Nigeria still has one of the highest infant mortality rates globally.

Nigeria runs three tiers of government- the federal, the state, and the local government, with each tier saddled with pre-stated responsibilities. For example, the Tertiary level deals with the tertiary level of health, the state with the secondary, while the local government runs the primary health care.

## **The Healthcare system in Nigeria**

The healthcare system in Nigeria is divided into three tiers, which are managed by distinct levels of government. These are the tertiary level under the federal government's management, the secondary level by the state and the primary level by the local government (Onimisi, 2022). The tertiary level manages the complex health issues that need experts, while the secondary level deals with less complex care involving surgical interventions. Primary healthcare is supposed to be the closest to the people where preventive care can be accessed. They also treat minor ailments (Okoli et al., 2017).

Various challenges have been plaguing the healthcare system in Nigeria. One of them is poor demarcation and the inability of people to understand the levels of care, causing ineffectiveness in the healthcare structure (Okoli et al., 2017). Health issues that should be managed at the primary healthcare level are sometimes taken to the tertiary level (Koce et al., 2019). The reason for this is not a total lack of understanding of the structure by the healthcare users but the fear of not having the best care at the primary care level. For example, primary healthcare has mostly been deprived of the needed amenities, including work-power (Okoli et al., 2017). The poor funding of primary healthcare has made people lose trust in the quality of care offered at this level, with the ripple effect of overburdened secondary and tertiary levels of care leading to long queues and waiting times (Salami, Dada and Adelakun, 2016).

The funding of healthcare in Nigeria also contributes to the challenges around it. The government and individuals fund healthcare, contributing to inequality in care accessibility (Enabulele, 2020). There are government-funded healthcare and services, which are supposed to be free to all, while privately established healthcare services are paid for by individuals. In privately owned healthcare settings, care is mainly paid for out-of-pocket, while some private health insurance is available to the elites, mostly due to the cost. The government-owned healthcare system is 'politically' free but mostly ends up as out-of-pocket funded care by individuals. This is because most of the care people need must be paid for at the end of the day. The national insurance scheme was introduced around 2005 to ensure the accessibility of healthcare to all. Still, its coverage has been limited to mostly government employees, while care coverage is also extremely limited (Enabulele, 2020). However, people still patronise privately owned hospitals even though they are expensive because of the state of the government-funded hospitals, which can be frustrating. There is poor budget allocation to health and politicking of healthcare, one of the effects of which is the lack of an adequate workforce

(Oburota and Olaniyan, 2020). The HCP are poorly remunerated, leading to the quest for greener pastures. This has led to a highly disproportionate ratio of the HCP to the HCU, with the attending frustration both on the side of the HCP and the HCU (Enabuele, 2020).

The increasing population in Nigeria is also not helping matters. Nigeria is projected to have the 3rd largest population in the world by 2050 because of the increasing population burdening the available healthcare resources. Another challenge is unrealistic health policies that usually recognise the problems but are unrealistic in their execution plans (Olatunji et al, 2024; Auwal et al., 2023). This is compounded by the issue of corruption, where resources are mismanaged at different levels of government (National Bureau of Statistics, 2024). Focusing on curative care more than preventive care is also challenging. This can be seen in the poor state of care in the primary healthcare setting, leading to distrust of the services at this level (Auwal et al., 2023). The ripple effect is that health issues that should be dealt with at the primary healthcare level are taken to the secondary and tertiary levels of care, leading to overcrowding of these services (Enabulele,2020).

There is a disproportionate distribution of healthcare resources between urban and rural areas. Rural areas lack basic infrastructure, which causes healthcare providers to avoid working there (Mshelia, Analo, and Booth, 2020).

There have been actions to tackle most of the challenges facing the healthcare system in Nigeria. However, more work remains to be done, especially in ensuring realistic policies (Auwal et al., 2023).

### **Health Literacy in Nigeria**

This section gives an overview of health literacy in the United Kingdom and Nigeria. Although the two countries are far apart in terms of development (Nigeria is regarded as a developing country), it is essential to compare the available resources on health literacy in both countries. This is because Nigeria, a country that gained independence from Great Britain, has its practices in education, governance, healthcare, and so on modelled after the British way (Nwashinku, Onu and Okonkwo, 2023; Fwatshak, 2022; Schram, 1971) and later reformed to reflect some American styles (Hauwa, 2023). This prompted the need to assess health literacy in the country regarded as Nigeria's foundational role model and, from there, to gain an understanding of health literacy in

both countries. Additionally, although the focus of this study is Nigeria, it is being conducted from the United Kingdom. Therefore, it is expedient for the researcher, who is also a licensed nurse in the United Kingdom, to understand health literacy in the United Kingdom. Health literacy is not a new subject in Nigeria. Scholars from Nigeria have worked on various aspects of health, including assessing specific sections of the population and subject areas (Afolabi and Ilesanmi, 2022; Ekoko, 2020; Aluh et al., 2018; Adekoya et al., 2015). Also, there has been an increase in the number of studies on health literacy in Nigeria, showing that the subject is gaining more attention among Nigerian scholars (Kuyinu et al., 2020).

There have been diverse views on the level of health literacy in Nigeria. Joseph (2014) conducted an assessment of literacy and health literacy among prison inmates in southwest Nigeria, with a primary focus on functional health literacy. The descriptive study showed that the Inmates lack basic education and have low health literacy, as revealed in their communication skills. In their analysis of the level of health literacy among patients with glaucoma, Ajiboye et al. (2016) observed low medication health literacy among participants, with only 38% demonstrating adequate health literacy. This was found to improve after educating the patient on health literacy. Ekoko (2020) surveyed to assess the level of health literacy among rural women in a suburb of a city in Nigeria. The study evaluated the three levels of health literacy among women in the local community. It showed that rural women had low health literacy, which is most significant with functional health literacy. Shabi and Oyewusi (2018) studied adolescents' health literacy and the use of the Internet in Nigeria and found that even though there is low health literacy among adolescents, their Internet use was proportional to their level of health literacy.

The findings by Kuyinu et al. (2020) contradict the trends of many earlier studies. The study, which was carried out in one of the major cities in Nigeria, showed that the majority (74%) of the respondents have adequate health literacy. The study was carried out using the Brief Health Literacy Screening tool, a standardized tool with 3 items. One of the factors that can be responsible for this shift in the trend of findings is that the study was recently carried out, and there may have been a level of improvement in health literacy in Nigeria. However, it is worth noting that the study was carried out in one of the major cities in Nigeria with a high level of development, which can give them better opportunities for health literacy compared to rural dwellers. Another factor is that the city's high level of health literacy was connected to the internet and broadcast

media, which smaller towns and villages may not have access to. However, in line with the findings by Kunitz et al. (2020), Ayamolowo et al. (2020) found a high level of health literacy among undergraduate students. This was revealed from the testing of the knowledge of female undergraduates on cervical cancer using the Health Literacy Questionnaire. The reason for this may not be far-fetched, as education has been shown to affect health literacy positively. However, health literacy is beyond education, so there may also be some underlying factors that are responsible for the findings. For example, educated parents are found to have their children be health literate compared to their counterparts from uneducated parents. Oyewole et al. (2015), on the low literacy level in Nigeria, suggested the need for the population to be more educated to improve health literacy in Nigeria. This view was supported by Nwafor-Orizu (2015), who proposed the need for improvement in health literacy in Nigeria to effect a more rapid development in the health system. This he explained from the assumption that low literacy will translate to low health literacy. If this should be the case, then the findings from the literacy census, where almost 50% of adults have low literacy, should raise a concern (Bridging the Literacy Gap in Nigeria, accessed 21/02/2025). There are also subject-specific studies on health literacy in Nigeria, such as maternal and child and mental health (Nwafor-Orizu, 2020; Aluh et al., 2019; Aluh et al., 2018; Nwafor-Orizu et al, 2018).

Educating the people has been a strategy that has been suggested to improve health literacy in Nigeria. A study by Bella-awusah et al. (2019), though done among adolescents and on mental health, showed an improvement in the participants' health literacy level after the intervention. This is in line with the study by Hanas-Hancock (2015) who recommended teaching as one of the ways to improve health literacy among Adolescents. This method was also found to be effective among adults with glaucoma who had poor medication adherence (Ajiboye et al., 2016). The study showed that the participants had low health literacy pre-intervention, with a significant increase in knowledge and medication adherence post-intervention. A study by Abubakar (2019) showed that participatory methods can also improve health literacy. The study was done among mothers in the northern part of Nigeria. The women were trained to become peer educators, which was found to be effective in passing information to other women.

Health literacy among healthcare providers in Nigeria has remained unexplored, as a study focused on this group is yet to be found. Organisational and governmental

policies on health literacy are also yet to be found. However, with the increase in the interest of researchers from the different fields in health literacy, this should hopefully change with time.

## Conclusion

Comparing Nigeria and the United Kingdom showed that both countries have been working on health literacy. However, the United Kingdom has had more intervention than Nigeria.

## 2.8 Health literacy and COVID-19 pandemic

The global pandemic of coronavirus disease 2019 (COVID-19), a contagious disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was an outbreak that started in China in 2019. The disease was later declared a pandemic by WHO in March 2020 because of its rapid spread to different continents and countries and the resulting death tolls. Between 2020 and 2023, over 6 million people died globally from this disease, making it one of the deadliest pandemics that has happened in humanity. Different measures, including local and international lockdowns, were introduced in the heat of the pandemic to curtail its spread globally (WHO, 2023). Another key intervention was the increased awareness and sensitisation to healthy living activities for individuals and the community. People were taught about using face masks to curb the spread of the disease from one person to the other. Hand hygiene was taken from being a routine for the HCP in the hospital to activities that must be learnt and practised judiciously by all. Different media were used to educate people about the disease, the mode of spread and how it can be managed at home. At the peak of the pandemic, the hospital could not handle the burden of people who were presenting to be treated, and that is why different measures were put in place to educate people on how to treat themselves at home (Lazzerini et al., 2020).

People's reactions to the COVID-19 pandemic vary globally, with various misinformation and conspiracy theories propounded around it (stein et al., 2021). While some see it as an act of the sovereign to punish the world for their sins, some see it as a political gimmick by some powerful countries to trouble the world (Miller, 2019). Some even regard it as a strategy by some powerful pharmaceutical companies for financial gain (stein et al., 2020). To date, there is still argument and doubt about the usefulness and the safety of the vaccines that were introduced against the virus (Olesky et al., 2022).

The issue of misinformation was so strong that the director general for WHO declared that it was not just a pandemic that the world was facing but also infodemics (Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC, 2020).

One important question raised during the pandemic was the world's preparedness against pandemics. The panics and uncertainty that surrounded the COVID-19 pandemic were regarded by some as a lack of adequate preparation from the governments (Cable et al., 2021). The 2019 Global Health Security Index showed that no country is fully prepared for a pandemic (Global Health Security Index, accessed 24/02/2025). The flu pandemic that happened a century ago claimed almost 100 million lives, the same as Ebola and other pandemics. The truth is that pandemics may not be ruled out; however, strategic planning and measures can help curb their effects (Sand et al., 2016).

An aspect of this study was dedicated to considering health literacy as related to the COVID-19 pandemic. This is because the early stage of this study was during the pandemic, which influenced the study process. Also, health literacy is about sourcing and utilising health information, as established earlier. One of the recommendations of the Commission on a Global Health Risk Framework for the Future (Sand et al., 2016) is to strengthen public health and people involvement, which is what health literacy is about. So, people's health literacy will be tested against their knowledge of COVID-19, which can prepare them against any future pandemic.

# Chapter 3

## Methodology

### 3.1 Chapter overview

This chapter outlines the aim and objectives of this study and revisits the research questions. Then it describes the research approach employed and the data collection method. The data collection instrument is also described, and the chapter concludes with a summary. It is worthy of note that this study is not informed by public involvement.

### 3.2 Aim and objectives of the study

The importance of health literacy in healthcare systems has been established in the previous chapters. An individual's health literacy level plays a key role in their interaction with the health care system. The literature indicates that patients with low health literacy tend to use hospital resources more, require emergency treatment, and exhibit higher non-compliance with healthcare prescriptions. Health literacy ensures that healthcare users (HCU) understand the modality of care available to them, and, having been correctly informed, can make informed decisions about their health.

Health literacy is not just about the healthcare users but also concerns the healthcare providers. The HCP is expected to communicate with the HCU in such a way that they can understand, ensuring their active participation in the decisions about their health. A low level of health literacy leads to inequality in the distribution of care, with the healthcare system having to spend more on preventable diseases.

This study focuses on exploring health literacy among the general population in Nigeria. There have been studies on different aspects of health literacy in Nigeria. Some studies assessed health literacy among various groups and on different issues such as mental health and adolescence. However, considering the HCP's perspective, the researcher is yet to come across a study that explores health literacy among the general population in Nigeria.

This study is divided into two parts: Part A explores health literacy among the HCUs and Part B focuses on the HCP's perspective of health literacy in Nigeria. The findings from both parts are then integrated to provide a picture of health literacy in Nigeria.

The research questions for this study are:

- How is the relationship between the healthcare providers and the healthcare users in Nigeria?
- What are the interactions of healthcare users with health information in Nigeria?
- What is the experience of healthcare users with the healthcare system in Nigeria?
- What is the relationship between COVID-19 knowledge and Health Literacy among Adults in Nigeria?

### **3.3 Research Approach**

For this study, mixed methodology (MM) is applied. MM is a type of research in which qualitative and quantitative approaches are incorporated to gain a broader and deeper understanding of a phenomenon (Schoonenboom and Johnson, 2017). According to these authors, choosing MM for a study should be guided by a purpose, theory, the point and timing of integrating both study types, among other considerations. These points shall be considered as they concern this study.

#### **3.3.1 The Purpose**

The purpose of integrating both qualitative and quantitative approaches in a study is to increase the study's validity, which is not automatically guaranteed, but rather achieved through thoroughness in the approach to every step involved in both study

designs. (Schooneboom and Johnson (2017) also opined that using mixed methodology for a study will allow for an in-depth and complete approach to the study.

The purpose of selecting MM design for this study is to enable a comprehensive assessment of health literacy in Nigeria from the perspectives of both the HCU and the HCP. The HCP are in the first line of interaction between the HCU and the healthcare system. They are to develop and maintain an interpersonal relationship with the HCU, which is a bedrock to the supply of quality healthcare (Jenstad et al, 2024). Part of what they do is to assess their patients holistically, ensuring they have the capacity to access the best available healthcare resources and receive proper care. This implies that they are in the best position to provide their views on the health literacy of the people they interact with, which can go a long way toward understanding health literacy among the general population in Nigeria. Interviewing them provides a deeper expression of their views, allowing for clarification and better understanding.

The quantitative aspect of the study aimed to understand health literacy among the general population through their experiences and interactions with the healthcare system, including personnel, structure, and activities. Engaging the community not only raises awareness of the subject but also enables understanding of health literacy directly from their perspectives, an approach recommended in today's healthcare interventions (NIHR, 2025; WHO, 2023). A survey targeted to the general population allows the collection of information directly from a large number of participants, thereby enhancing the study's generalizability.

Combining these two methods in this study would not only provide a broader, deeper view of health literacy in Nigeria but also enable a better understanding of this concept among the general population.

### 3.3.2 The Theoretical Drive

The theoretical rationale for a mixed study focuses on the extent to which each study type that forms the mixed method will be employed (Schoonenboom and Johnson, 2017). Five patterns are highlighted, with the core study typewritten in capital letters. They are:

- QUAL→quant
- QUANT→qual

- QUAL→QUANT

For this study, both designs will be given equal status. This is possible because, according to Guetterman and Manojlovich (2024), Integrating the two designs can occur at any point in the study, allowing for thoroughness with the two study types. Exploring the level of health literacy in Nigeria needed to be done rigorously at every stage to get a complete picture of the present state.

### 3.3.3 Timing of integration

The third component that will be considered is the timing for integrating the two study types. According to Fetters, Curry and Creswell (2013), there are three classifications of mixed-method designs which are:

Explanatory sequential method: This method collects and analyses the data for the quantitative aspect of the study first. The result is then explained using the qualitative design aspect of the study.

The exploratory sequential classification is the opposite of the explanatory sequential method. With this design, the qualitative aspect of the study is developed first, and the data analysis serves as the basis for developing the instrument used to collect quantitative data.

Convergent parallel mixed method: According to Fetters, Curry and Creswell (2013), the convergent parallel mixed method is the third classification. With this design, the data for the study's quantitative and qualitative aspects are collected simultaneously. In between, each study can inform the other part of the study, for example, the questions. The two studies are then brought together at the discussion of findings stage.

For this study, the convergent parallel method is adopted. This is coordinated using the health literacy questionnaire as the basis for both the quantitative and qualitative parts of the study, facilitating the easy integration of findings from the two data sets.

## 3.4 Methods of data collection

For the quantitative aspect of this study, an online and face-to-face survey was conducted. This is because a survey allows the recruitment of large numbers of

participants and offers the advantage of time; however, it is prone to error due to bias (Lewis and Sauro, 2021). Some of these errors are highlighted below:

- Coverage errors
- Sampling error
- Measurement error and
- Nonresponse error

### **Coverage error**

This can occur when some individuals who are supposed to be part of the population are left out. This study combined online and face-to-face surveys, allowing those who may have challenges with the online platform, either due to network issues or a lack of facilities, to access the printed survey.

### **Sampling error**

The sampling error occurs when the individuals selected for a study do not represent the research population. This was prevented in this study by defining the study population and participation criteria from the outset, which were strictly adhered to during participant recruitment.

### **Measurement error**

This concerns the instrument for data collection, which should be fit for the study. HLQ, a standardised tool, was used for this study. There is the record of the validation of this tool to show its reliability (Sorensen et al, 2013).

### **Non-response errors**

This can occur when a study does not have participants' attention. The tool for this study is user-friendly, so this error was prevented, as shown by the large turnout of participants.

For the qualitative part of the study, one-on-one interviews were conducted. These were carried out online via the Team online platform. The recordings from the interview were then transcribed and analysed.

### 3.5 Instrument for data collection.

Various instruments have been used to collect data on health literacy across different times and settings (Tufts Medicine, accessed 02/02/2021). The commonly used of these instruments are TOFHLA, REALM, and Newest Vital Sign (NVS). TOFHLA focuses on functional health literacy, especially how well people can read, comprehend, and understand numeracy, such as drug prescription. The limitation of this instrument is that functional health literacy is mainly concerned with education and people's literacy levels. Functional health literacy is not an accurate measure of health literacy (Tejero et al., 2022; Elder et al., 2012). REALM includes 66 medical words, which use the pronunciation of some medical terms to measure health literacy. Health literacy is beyond the ability to pronounce a few words. The Ability to pronounce some words also does not translate to understanding the meaning of such words (Elder et al., 2012). The Newest Vital Sign is based on the ability of the care recipients to read some medical materials (prescription label), testing the understanding of the content settings (Tufts Medicine, accessed 29/09/2020). Although it has fewer items than TOEFL, understanding the prescription label does not encompass all that health literacy entails.

For this study, a standardised health literacy questionnaire is utilised. This is a questionnaire on health literacy having nine domains. The questionnaire can be applied to people who directly interact with the health care system and to the general population, whether sick or well (Osborne et al., 2013). The instrument was developed from the WHO (2016) definition of health literacy, incorporating all three aspects highlighted by Nutbeam et al. (2012). It explores comprehension, numeracy, and the application of conceptual knowledge. The instrument has been widely used in different countries and settings for assessing health literacy, with each of the nine scales highly reliable (Osborne, 2013). It was developed for national and general surveys and can be adapted to clinical settings. It has been used for population surveys (Beauchamp et al., 2015) and has the advantage of using it with individuals who cannot read or write. The tool was developed in such a way as to allow the data gathered from it to be useful for the different stakeholders in health care: researchers (for academic purposes), healthcare practitioners, governments (for policy making), and so on (Osborne et al., 2013). The data generated through the tool can also be used in the planning, execution, and evaluation of health literacy interventions (Osborne et al., 2013). Different approaches to administration were used to confirm the instrument. These include face-to-face, phone-based, pencil and paper, computer-based, and mailed surveys. The average response time to this questionnaire is 7.5 minutes, making it a

highly participant-friendly tool.

The questions in the health literacy questionnaire were grouped under nine domains. Each domain can be used exclusively to explore health literacy within a population, allowing a choice of focus on the aspect of health literacy. The nine domains are:

1. Feeling understood and supported by healthcare providers.
2. Having sufficient information to manage my health.
3. Actively managing my health
4. Social support for health
5. Appraisal of health information
6. Ability to actively engage with healthcare providers.
7. Navigating the healthcare system
8. Ability to find good health information.
9. Understanding health information well enough to know what to do.

The researcher's choice of the standardised instrument for this study was informed by their naivety regarding health literacy at the project's onset. It felt safer and better to utilise what the experts in the field validated, with proven records of effectiveness.

### **3.6 Summary of the chapter**

This chapter presents the research approach and data collection method for this study. Convergent parallel mixed research was adopted, with both qualitative and quantitative data given equal status when combined. The instrument for data collection was a Health literacy questionnaire, which was advantageous to the study due to its extensiveness and user-friendliness. The next chapter considered the research method for the quantitative data collection.

# Chapter 4

## Research Method(Quantitative Data)

### 4.1 Introduction

This chapter describes the research method used to collect health literacy data among the Nigerian general population. This is part of a mixed-methods study that combines a qualitative exploration of health literacy among the general population in Nigeria from the perspective of healthcare providers with a survey among the general population. As part of this chapter, the procedures for selecting the target population, the sample, the sample size, and the data collection instrument were discussed. Also, the ethical considerations, data management techniques, and limitations were described. The chapter concludes with a summary and conclusion.

### 4.2 Research population

The target population for this study is the general population in Nigeria aged 18 to 65. This age bracket is considered because a child is deemed to have entered adulthood and can make legally binding decisions at 18, while the retirement age for workers in Nigeria is 65. All other things being equal, these are the people in the active stage of their lives and, most importantly, form the higher percentage of the population. Therefore, it is crucial to assess their health literacy to ensure they are getting the most from the healthcare system.

### 4.3 Research locations and settings

For this study, 3 out of the six geopolitical zones in Nigeria were covered. These are the South-West, North-West, and the South-Eastern regions. These three regions are a semblance of the Nigerian population. Exploring health literacy among the general population of these three regions maximises available resources and time while also creating room to examine the diversity of the Nigerian population in terms of language, culture, exposure, and the resources available to each region.

### 4.4 Recruiting Fellows

Recruiting Fellows were utilised to collect face-to-face data. Twenty-four recruiting fellows (eight per zone) were assigned to distribute questionnaires for face-to-face data collection. This is necessary, considering the scope and research setting of this study. There is a reality of emotional and physical risk for the researcher, which could be managed by utilising every ethically acceptable means (Robert, Gordon, and Tomlinson, 2019). It is not feasible for the researcher to cover all 49 states across the three geopolitical zones solely for data collection in this study. This is in addition to other risk factors associated with travelling, unfamiliarity with the research communities, the expenses, security concerns, the study's time limit, and the physical stress on the researcher. All these were considered ethically at the planning stage of this study; hence, the decision to employ recruiting fellows. Furthermore, the COVID-19 pandemic was still on the rampage at the time of data collection, making it a better option to utilise residents in the zones. This was to control the spread of the infection as the WHO recommended.

The recruiting fellows, who were students of statistics and psychology, were recruited from local universities in the three geopolitical zones. The focus on their course of study was to ensure that they had a basic understanding of the data collection process in general and the importance of maintaining its integrity. They were interviewed to ensure that they had the needed skills for the role, even though training was still provided. Additionally, they were recruited from their localities. This aligns with the community-engaged research approach, which involves community members in the research process. Community involvement in research can occur at all stages, including data collection (Palinkas et al., 2025). Inviting the recruiting fellows to distribute the survey could be advantageous to the study, as community members may be more

open and approachable to those who can speak their language and, most especially, understand their culture (Tran et al., 2025; Serekoane, Sharp, Skinner, and Marais, 2014).

The recruiting fellows were trained for this role. This is crucial to prevent discrepancies and maintain the integrity of the data collection process (Serekoane, Sharp, Skinner, and Marais, 2014). The recruitment fellows were informed about the aim and objectives of the research, including the process to be followed in accordance with the ethical approval for the study. Key concepts such as integrity, confidentiality, consent, and withdrawal from a study were discussed with them. They were also trained to assist any participants who may need help filling out the questionnaire without influencing their responses.

The recruiting fellows were equipped with travel allowances and stipends for their services, which were pre-determined from the planning stage of the study. A daily reporting system was implemented to monitor their activities, while they also had the opportunity to call the researcher in case of unforeseen challenges. Weekly general meetings with the recruiting fellows were established to discuss progress and any challenges, allowing them to learn from one another. The only challenge the fellows faced throughout the data collection process was social distancing, which slowed their activities because participants found it inconvenient to interact while wearing face masks. No intervention could be offered in this situation, which ultimately added 3 months to the planned data collection duration.

## 4.5 Recruitment strategy

Advert posters (Appendix 3) were shared on various social media platforms, especially in groups mainly for Nigerians. They were also posted on notice boards and in strategic locations across selected hospitals. Additionally, flyers advertising the survey were distributed in strategic locations, including churches, mosques, and marketplaces in these regions. This is one of the strategies employed to ensure that hard-to-reach people can be reached through the activities they engage with from time to time. Another strategy was collecting the data both face-to-face and online. Considering the extent and locations covered in this study, online surveys alone would have been easier and faster to manage. However, recruiting participants using only one of these two approaches may not be optimal, as some people lack internet access, and others may

prefer the hardcopy questionnaire.

The use of recruitment fellows was effective in recruiting individuals who would otherwise have been excluded due to cultural barriers or their inability to read. The recruitment fellows were equipped not only to distribute the questionnaires but also to support those who may need help filling out the survey. Needing help filling out the survey can be for any reason, from not being able to read or write to having a disability, among others. Importantly, for this group of people, the recruitment fellows explain the purpose of the research and how they can participate, if they wish. After they have agreed orally, the recruitment fellow takes them through their rights regarding participation in the study, including the freedom not to answer any questions they are uncomfortable answering and the right to withdraw from the study at any time. They also go through the consent form with them, after which they read the questions to them one by one, helping them to tick their answers on the questionnaire.

For those who did not need help filling out the survey, after the study introduction, they were given “the brief” document about the study, followed by the consent form. The questionnaire was administered only after the consent form had been completed and submitted.

## 4.6 Ethical considerations

The ethical committee of the University of Northampton, United Kingdom, approved this study. The risk assessment as regards the participants and the researcher was carried out, with no or low risk envisaged.

Every participant interested in participating in the research was given an information sheet (brief) (Appendix 4) about the study. The brief explained the purpose of the research and highlighted the participants’ rights at every stage of the study. Participants were given a consent form to fill out (Appendix 5). Only after this was filled out could they access the questionnaires. The same principle was applied to both the online and face-to-face participants.

Anonymity and confidentiality were maintained at every stage of data collection, after which the hard-copy questionnaires were transferred to the computer system and added to those collected online for analysis. Participants’ IDs were utilised to

identify each participant, while maintaining anonymity. This was achieved by having the participants create their ID from the first letters of their first and last names, with the figure for their birth month in two digits. For example, someone bearing Xylo Pepper and born in September would have their participant ID be XP09. This way, duplicate questionnaires could be identified and removed during data cleaning. This action can also be beneficial for tracing individual questionnaires if any participants choose to withdraw from the survey. To ensure confidentiality, the consent form is kept separate from the questionnaire.

## 4.7 Instrument for data collection

This study used a standardised health literacy questionnaire (HLQ). As described earlier, the tool was found to be reliable for assessing health literacy among the general population in both developed and developing countries.

## 4.8 Data collection process

The data collection exercise was launched in January 2022 with the JISC survey platform for online data collection. The survey attracted 566 participants. However, 24 were found not to have met the selection criteria and were excluded, leaving 544 participants.

The face-to-face data collection could not commence until March 2022. There was a need to put the necessary measures in place, which included training recruiting fellows, mapping out data collection areas, creating awareness of the survey through fliers and posters, printing questionnaires, and so on. The survey lasted till December 2022. Notably, the COVID-19 pandemic affected the data collection because people were still self-conscious about the fear of contracting the infection. In all, 3522 questionnaires were retrieved from the face-to-face survey, bringing the total number of questionnaires retrieved from online and face-to-face surveys to 3600.

## 4.9 Data preparation

### 4.9.1 Data entering, screening, and cleaning

The data collected from the JISC online platform were transferred to SPSS for analysis. The data collected face-to-face was also entered into the application individually. Some

of the questionnaires came out blank or did not have any demographic information filled. In all, any questionnaire that had more than 10 percent missing questions was removed. During data cleaning, participants who did not meet the inclusion criteria, such as those under 18 years old, were removed. Removed were also duplicate entries. The labeling of the variables was also checked and corrected as needed. For part 2 of the HLQ, reverse coding was required, so it was done. The values assigned to the different variables were also assessed to ensure the validity of the data

### 4.9.2 Dealing with missing data

Newman (2014) described measures to minimise cases of missing data. This includes giving advance notice to the participants, allowing them ample time to fill out the questionnaire, and helping those who are unable to fill out the questionnaire

Newman (2014) described missing data, putting them in 3 categories:

- Person-level missingness: This occurs when a participant does not respond to the questions. The individual may fill in their demographic data without answering any questions. This makes the questionnaire problematic and of no value regarding the research question being processed by the study.
- Item level missingness: This occurs when a participant does not respond to some questions on a particular scale or group of questions that address a specific aspect of the study.
- construct level missingness: this is when an individual leaves out an entire questionnaire scale.

While person-level missingness can be spotted outrightly, the other two groups can be interwoven in a questionnaire and must be dealt with appropriately.

Newman (2014), working on categorising survey respondents based on how they completed a survey, put them into three groups. Those who responded to all the survey questions are referred to as full respondents, while those who responded to some, but not all the questions are grouped as partial respondents. Those participants who did not respond to the questions and probably just filled out the demographic data are referred to as the non-respondents.

For this study, 544 participants participated online and 3142 participated face-to-face, for a total of 3,522 participants. Of these data, 164 could be classified as

|              | Demo-graphic | HLQ1 | HLQ2 | Covid-19 questions | Missingness category        | Responses categorisation |
|--------------|--------------|------|------|--------------------|-----------------------------|--------------------------|
| Respondent 1 | ✓            | ✗    | ✗    | ✗                  | Person level missingness    | Non-respondent           |
| Respondent 2 | ✓            | ✓    | ✗    | ✓                  | Construct level missingness | Partial respondent       |
| Respondent 3 | ✓            | ✓    |      | ✓                  | Item level missingness      | Partial respondent       |
| Respondent 4 | ✓            | ✓    | ✓    | ✗                  |                             | Full respondent          |

Table 4.1 Categorisation of missingness in a survey

non-respondents, mainly from the face-to-face data. It is worth noting that the online questionnaires were completed, except for a question or two missed here and there. The majority of missing data comes from face-to-face data, which is understandable as most participants fall into this category. There were also cases of partial responses in the face-to-face data.

Based on the level of missingness, 164 respondents were categorised as person-level missingness because they completed only their demographics and did not respond to the survey questions. Most respondents could be categorised as item-level missingness, with a few as construct-level missingness.

According to Newman (2014), missing data could be ignored depending on the data size. However, ignoring them could lead to inaccurate research outcomes. There are different approaches to managing missing data, some of which are described below:

1. Deleting the case with missing data (listwise deletion): This approach deals with the missing data case by case. Instead of deleting all participants with missing data, participants are retained based on each missing variable. As such, participants' contributions to the survey are not excluded, as each variable is considered and removed as needed. The concern with this method is the possibility of bias in parameter estimation.

2. Pairwise deletion works by excluding sets with missing data, per the assumptions to be checked at each time point. The problem with this method is that it can introduce errors and complexity into the study's results, thereby preventing further activities with the findings.
3. Regression imputation: This imputes missing values using estimated values derived from available information. The advantage of this is that it preserves more of the missing data. However, considering the diversity of the data collected for this study and the large number of participants with missing values, this method does not appeal to the researcher.
4. Replacing the missing data with the median
5. Replacing the missing data with the mean, especially if they are random.

For this study, the missing data were replaced with the mean. This is because of the simplicity of this method. There is also no need for additional data, as the required data was readily generated from the existing data. The concern that this method would not work with categorical data was not a problem, as all data were presented in numerical format.

## 4.10 Assumption checks

To ensure that the results of a study can be trusted and to avoid under- or overestimating its significance, it is important that the variables meet the assumptions of the statistical test used. According to Schmidt and Finan (2018), this will not only help determine the appropriate test to use but also ensure the validity of the results. For this study, multiple regression is being used, with the assumptions checked, some of which are:

- Normality of the variable distributions
- The independent and dependent variables to be linearly related.
- Reliability of the variables
- Homoscedasticity

The nine domains of health literacy, as highlighted in the Health Literacy Questionnaire, are:

1. Feeling understood and supported by healthcare providers.

2. Having sufficient information to manage my health.
3. Actively managing my health
4. Social support for health
5. Appraisal of health information
6. Ability to actively engage with healthcare providers.
7. Navigating the healthcare system
8. Ability to find good health information.
9. Understanding health information well enough to know what to do.

## 4.11 Chapter Summary

This chapter describes the research method for collecting data on health literacy among the general population using online and face-to-face surveys. It discusses the process for recruiting research fellows and ethical considerations, as well as the research location and population for the study. The data cleaning process and assumption checks were also described. In the next chapter, the research method for the qualitative aspect of the study is discussed.

# Chapter 5

## Research Method (Qualitative Data)

### 5.1 Introduction

This chapter deals with the methods used for the qualitative aspect of the study. The focus is to explore health literacy in Nigeria from the perspective of the HCP. The chapter starts with a justification for choosing the target population and the research design. Ethical approval and the research population were described, followed by the recruitment procedure. The use of a reflective journal for this study was expounded, while the steps taken for data analysis are also presented. The chapter concluded with a description of the study participants, data management procedures, and a summary of the chapter.

### 5.2 Health literacy and healthcare providers

Health literacy has been considered one of the bedrocks for effective healthcare delivery and services (Task and Finish group of health knowledge and library specialists, 2023). It is a determining factor in the healthcare users' experience of the healthcare system. Nutbeam (2000) described health literacy from three dimensions: functional, interactive, and critical health literacy. Functional health literacy focuses on the ability to read and write and perform basic numeracy in everyday life (Ekoko, 2020; Nutbeam, 2000), while interactive health literacy focuses on the healthcare user's ability to extract information they deem helpful and apply it to their health decision-making. In critical health literacy, the healthcare user possesses the skills to critically analyse available

information before making decisions and drawing conclusions from it.

Health literacy is expanded further, with the focus going beyond the healthcare users, as emphasised in the Nutbeam categorisation, to include the healthcare providers (Dinh et al., 2022). Health literacy-oriented HCPs are expected to operate with an understanding of the HCU to help them utilise the healthcare resources available effectively (Task and Finish group of health knowledge and library specialists, 2023). With this thought, this study seeks to explore health literacy among the general population in Nigeria from the perspective of healthcare providers. Exploring health literacy among healthcare providers in Nigeria provides a more comprehensive and profound view of health literacy among the general population, as healthcare providers are expected to understand their patients/clients.

### **5.3 Rationale for research type and design.**

A generic, exploratory, qualitative approach is used to examine health literacy in Nigeria from the perspectives of healthcare providers. Researchers can utilise two broad research methods to analyse a situation or individuals. A quantitative method deals with things, situations, people, or whatever is the subject of interest to the researcher, treating them as measurable and assigning numbers and figures to them. In cases where things are not measurable, figures are assigned to describe them. The collected data is then statistically analysed and conclusions drawn (Taherdoost, 2022). Pre-determined instruments considered fit for the data to be collected are sourced or developed. Different strategies for data collection, such as experiments, surveys, and interviews, can be employed depending on the research questions to be answered (Taherdoost, 2022). Finally, the collected data is processed through statistical analysis, from which conclusions are reached (Walker, 2005). Quantitative studies require a relatively large study population, which is why the results can be generalised. It is also easy to replicate the research because it follows a standardised process (Taherdoost, 2022). However, the downside to this study approach is its limited ability to explore human feelings. It also does not give room for detailed explanations and contextualisation. So, the findings and conclusions may lack the emotional aspect that characterises human beings, especially in situations.

On the other hand, the qualitative method seeks to understand and interpret situations from individualised perspectives that figures cannot quantify or represent (Charmaz,

2017). It allows for a comprehensive exploration of human feelings and reasoning, giving room for details and explanations. Additionally, data are collected first-hand and interpreted in the context of the moment and events, which is why it may be difficult to generalise findings from a study to other times and settings (Taherdoost, 2022). An exploratory qualitative research design is adopted for this study, focusing on understanding the perception of the HCP regarding the health literacy of the general population in Nigeria. The study is not looking to test or establish any theory; instead, it seeks to provide a deeper understanding of health literacy in Nigeria. The study is part of a mixed-methods study in which a survey has been conducted to explore health literacy among the adult population in Nigeria. Mixed-methods design combines the strengths of qualitative and quantitative research, creating a holistic framework for understanding the subject. The findings from the interviews will complement the survey data, providing a rich and in-depth understanding of health literacy in Nigeria.

## **5.4 Ethical approval**

The University of Northampton, United Kingdom's ethics committee, approved this study and concluded that it poses no or minimal risk to the participants or the researcher.

## **5.5 Research Population.**

For this study, the targeted population comprises healthcare providers in Nigeria. This was restricted to the Nurses, doctors, and pharmacists. These three professions are pivotal in the provision of healthcare. This is not to undervalue other professions, as all roles are essential in delivering quality healthcare to the public. It is, rather, a pragmatic decision to facilitate this research. The challenges around recruiting healthcare professionals are also noteworthy, including shift work, availability, and the resources to capture the data within the limited time frame. The restrictions from the COVID-19 global pandemic also affected the choice and selection of the research participants. With the restriction comes the need to make the research population as compact as possible to ensure better depth of information rather than having a wide range of healthcare professionals that may make it difficult to relate their ideas to each other.

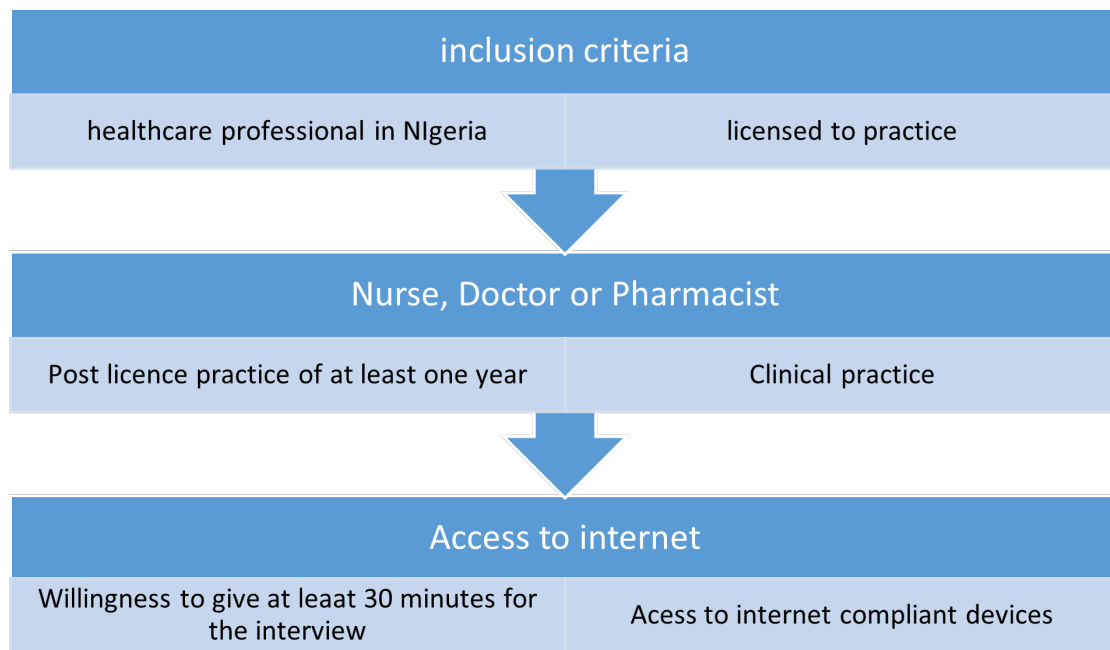


Fig. 5.1 Inclusion criteria for the selection of participants

## 5.6 Sampling design

Participants were purposively and conveniently selected to align with the study objectives, which were to interact with selected groups of healthcare professionals regarding their views on health literacy among the general population in Nigeria. Purposive-convenience sampling allows for restricting participants who do not meet the study criteria while accommodating those who do, without much ado (Jager, Putnick and Bornstein, 2017). The inclusion criteria (Fig. 5.1) are: being a licensed and clinically practising nurse, doctor, or pharmacist with at least one year of post-registration experience. The participant also needs access to the internet and the necessary device for the interview. Purposive-convenience sampling allows the participants to be recruited in a way that maximises time and resources (Jager, Putnick and Bornstein, 2017). As explained in the next section, the recruitment method helped guide against biases.

## 5.7 Recruitment procedures.

After ethical approval, the study was advertised on various social media platforms for healthcare providers in Nigeria. The researcher, as a nurse in Nigeria, made the recruitment process more manageable by leveraging the understanding of the setting.

The advert (as in Appendix 3) was developed to recruit participants for the study. The advert includes the link to the study's information sheet (Appendix 4). Also, anyone interested in the study can complete the consent form (Appendix 5) via the link. The Nuremberg Code (1947), cited in BMJ (1996), emphasised the importance of consent in any research involving human beings. Participating in a study should be with understanding and willingness. There should not be any coercion to participate. The potential participants were supplied with detailed information about the research, including who the researcher is, the purpose of the study, what is expected of the participants, the data that will be collected and how they will be managed. Included are those with whom the data will be shared, if any, and how the findings from the study will be published. The consent form also highlights their rights and guidelines for withdrawing from the research or from having their data used, as described on the GOV—UK website (Service Manual - GOV.UK, accessed 10/02/2024). The researcher is expected not only to ensure that the consent form is completed and signed by each participant, but also to keep it safe in case of any ethical or legal matters. To manage the recruitment process effectively, any potential participant who completes the consent form can proceed to enter their demographic and professional data. The demographic form is designed to capture the study's inclusion criteria, including profession, post-qualification experience, license status, and so on. The demographic form highlights that not everyone who fills it out will be automatically recruited. This depends on the study's popularity and the purposive-convenience sampling method used to ensure the required participants are recruited. The provided demographic and professional data, along with the signing of the consent form, demonstrate the potential participants' willingness to be contacted for further interactions and to participate in the study. Those healthcare professionals interested in the study were also encouraged to tell their colleagues about the study, through which a participant was recruited.

For effective recruitment process management, any potential participant who fills out the consent form could proceed to fill in their demographic and professional data. The demographic form is developed to reflect the inclusion criteria for the study, which include the profession, post-qualification experience, license status, and so on. Highlighted on the demographic form is that not everyone who fills out the form will be automatically recruited. This depends on the popularity of the study and the purposive sampling method to ensure that the required participants are recruited. The provided demographic and professional data and signing of the consent form prove the potential participants' willingness to be contacted for further interactions and participation in

the study. Those healthcare professionals interested in the study were also encouraged to mention it to their colleagues.

Forty-two potential participants responded to the advert for participation in the study. However, twelve were found not to be healthcare providers in Nigeria, so excluded. Of the thirty healthcare professionals, twelve were found not to fall into the category of Nurses, doctors or pharmacists and excluded. Two others had issues with internet connections and so could not be interviewed. Sixteen people who satisfied the inclusion criteria were eventually selected. They were communicated via email addresses or phone numbers to let them know they had been selected. Also, their availability for the interview was confirmed and scheduled.

## 5.8 Participants' selection

As mentioned earlier, the sampling method adopted for this study is purposive-convenience sampling. Unlike quantitative research, qualitative research involves the purposive selection of participants who can help the researcher obtain the needed information and are willing to devote the required time (Gill, 2020). Different sampling approaches can be used to select study participants, each with its advantages and disadvantages as explained further (Gill, 2020). There is a chain sampling method, in which a participant signs the researcher on to other potential participants. With this approach, less time is spent getting to know the new participants. However, the depth of information that such participants may have cannot be guaranteed. Convenience sampling is an easy and agreeable way to recruit participants, allowing them to volunteer for a study. Unlike the first two approaches, purposive sampling involves the researcher selectively choosing participants who are knowledgeable or experienced in the subject area. This approach can be cost-effective, time-saving, and highly beneficial for the richness of data that can be collected from such participants, assuming they have the necessary information.

Using purposive-convenience sampling, forty-two people expressed interest in participating in the study. However, only sixteen healthcare professionals, comprising eleven nurses, three doctors and two pharmacists, were interviewed after applying the inclusion criteria and considering other factors, such as participants' availability and the study's time limit.

## 5.9 Consent

As stated earlier, it is important to obtain consent from potential research participants and that they have detailed information about the research. Those who fulfilled the recruitment criteria and filled out the consent form were eventually invited for an interview. Before the interview, they were allowed to ask questions about the study, and all necessary clarifications were made. Their rights were explained to them, including the freedom not to answer any uncomfortable question and the right to stop the interview if they ever felt distressed. Participants who wish to withdraw from the study after the interview could notify the researcher via email or telephone at the latest one month after the interview.

## 5.10 Data collection and interview process

Individual Interviews were conducted with the participants via the Teams online platform. The purpose of the study, which is to explore health literacy among the general population in Nigeria from their perspectives as healthcare providers, was discussed with the participants. The ethical side of the study, which includes the need for their consent to participate and the assurance of confidentiality regarding their contributions and persons, was mentioned. This was followed with an explanation of how the data from the interview will be managed. To protect the rights of the participants, they can choose to withdraw from participating in the study, even after giving their consent. They can do this up to one month after the interview by writing to the researcher. All these were explained to the participants. It is worth mentioning that none of the participants withdrew their consent during or after the interview. After all the preambles of supplying information about the study and gaining consent from the participants, the interview commenced in earnest. Also, the participants were made aware that they were being recorded.

The interview commenced with a general open-ended question on health literacy in Nigeria. Open-ended questions allow participants to express their thoughts freely without restriction or limitation. At the same time, mentioning Nigeria in the question helps them focus on the research location, which is Nigeria. Further questions were developed from the answers supplied in line with the research questions. Thirty to forty-five minutes was scheduled for each participant, but interestingly, none used less than 30 minutes except for one person, whose network went off after the 28th

minute. However, two cases of interviews ran over the allocated time by five to ten minutes. These were allowed because the participants were making points that the researcher regarded as important. Also, those participants were willing to give extra time. The interaction and the questions developed from the first interview helped shape the following interviews, especially in areas that needed further exploration. This continued till the last interview, and by this time, it was obvious that no new points were coming up from the participants.

To ensure clarity of points made and that the researcher captures the participants' thoughts, what was said or understood was mirrored back to them. This allows the participants to correct any misconceptions. For example, a participant said:

“But how do we know effective communication has taken place? Now ask for your feedback from your patient. That’s when you will know if your patient has had a full grasp of whatever you were saying”. NK

Researcher:

“So, you mean we need to check back with the patients to see how well they understand what we said to them? How do you think this is something that is being practiced?”

Through this method, misconceptions or misunderstandings were ruled out. Also, the researcher's thoughts regarding the participants' responses were noted in the reflective diary (discussed in the next section). This proves to be useful during the transcribing and analysis of the data collected.

## 5.11 The use of a Reflective Journal

A reflective journal was kept and utilised at every stage of this study. There have always been arguments about the influence of a researcher's personality, prejudices, biases, and so on, and how these can impact the findings of a study. However, keeping a reflective journal helps to identify personal factors that can affect the final output of the research, ensuring transparency. This includes my subjective opinions, assumptions, experiences with the various participants, thoughts during interviews, events in my personal life and research, and so on. This way, the study's findings can be as objective as possible. Another advantage of using a reflective journal for this study is that it helped me to develop self-awareness. According to Olmos-Vega et al. (2023), reflective

writing encourages researchers to think deeply and critically, contributing to more substantial and rational outputs. This can lead to a broader and more significant knowledge of the subject area. Using the reflective journal, I found myself thinking about what might have prompted a particular line of thought and interpreting what the interviewees said. For example, I am a nurse by profession. In the recruitment process, using the reflective journal, I was able to caution myself against just looking for nurses who I may find more readily available than other healthcare professionals. However, in the end, I still had more nurses than other healthcare professionals. However, being cautious about such happening from the onset made it not to be a problem for the researcher because it was not influenced in any way. Having more nurses than the other two professions is likely because there are always more nurses than the other healthcare providers everywhere. The reflective journal also helped me refine my thoughts several times during the study. For instance, it was through the use of the reflection journal in writing down the research questions that it occurred to me that for ease of convergence as regards the qualitative and the quantitative part of my main study, I could develop some questions to serve as starting point for the interview questions which are in line with the questionnaire utilised for the quantitative part of the study. This step helped me to be more focused and sequential in the interview process. It also helped me to manage the evolving lines of thought from the participants more effectively without getting overwhelmed.

Another example of the usefulness of reflective journals is my interactions with the participant. The fact that the participants know that I am a nurse, and because of this, they tend to assume that I should understand some things. They expressed this with words like “I believe you understand how it goes” and “Do you understand?”. Realising this, I ensure I ask them to explain further, rather than just agreeing with their belief that I know what they mean. Most of the time, I found that when they believed I should understand what they meant, I did. However, there are some points where, by probing further and listening to their answers, I could see there was more to what they were saying than I would have assumed. In presenting the findings, areas where participants assume my knowledge of their line of thought are placed in brackets.

The other side of this lies in interpreting the participants’ responses. There were some areas where, during the interview, I had to take notes on the interpretations I could draw from what the participants were saying, although I asked for further explanations to clarify them. Such changes may involve adding a word or a punctuation

mark to a sentence, which is placed in brackets with asterisks. Also, the researcher's thoughts regarding the participants' responses were noted in the reflection diary. The reflective diary was kept at every stage of the study and afterwards.

Using a reflective cycle also helps the researcher make more sense of the different events during the study. For this, Gibbs' reflective cycle (1988), as cited in Jasper (2017), was adopted as the reflection framework. In Gibbs's reflective cycle, there are six stages: the description of the event, feelings about the event, evaluation of the event, what can be deduced from the event, conclusion, and lastly, an action plan. These stages were followed in some of the events that happened during the study. For example, in an interview, a question was asked about the health information sources available to the HCU. This research participant discredited some of the available sources of health information. However, when listening to the recorded interview again, reflecting on the points made, the researcher thought they would have asked the participant what the best source of information for the HCU was, in their view. So, using the Gibbs reflective cycle, this was dealt with as shown in (Fig. 5.2).

## 5.12 Data Analysis

Sixteen participants were purposively and conveniently selected and interviewed over 4 months. The interview recordings were listened to three times and transcribed verbatim using Microsoft Word. Listening to the recordings more than once helps the researcher to become familiar with the trend of the discussions. It also helps pick clues not put into words by the participants, such as pauses, hesitations, and uncertainty. Unfortunately, some of the interviews were only in audio due to network issues. However, through active listening, jotting down the researcher's observations and thoughts during the interview, and listening to the recordings at least three times, most of the challenges associated with audio have already been addressed. The transcriptions from the recordings were proofread, with the necessary corrections, additions, and insights included. Different transcript sections were listened to repeatedly as required while writing out and discussing the interview findings. Doing this helped ensure that the participants' minds were correctly captured.

The interview transcripts were uploaded to NVIVO 12, a qualitative data analysis tool. NVIVO is one of the computer-assisted data analysis software. It is helpful in the collection, collation, and organisation of data. It also enhances data analysis. The



Fig. 5.2 Adopting Gibbs's reflective cycle (1988) to deal with an event

distinctive features of the software make it an easy-to-use tool with great value for qualitative researchers. The fact that it can import different data formats, including audio, video recordings, newspaper clips, documents, and so on, for analysis makes it invaluable. Coding, i.e., cutting and labelling different aspects of data, can be creatively mapped out using different colours, making it easy to follow the trend in categorising data content. These codes can be organised into nodes and lines of ideas that can be grouped to form a theme. Files can be created to help organise and tidy up data for easier management. For example, a file can be created for all interviews, with sub-files for the different professional groups. Sixteen participants were purposively and conveniently selected and interviewed over a 4-month period. The interview recordings were listened to three times and transcribed verbatim using Microsoft Word. Listening to the recordings more than once helps the researcher become familiar with the trends in the discussions. It also helps pick clues not put into words by the participants, such as pauses, hesitations, and uncertainty. Unfortunately, some of the interviews were only in audio due to network issues. However, through active listening, jotting down the researcher's observations and thoughts during the interview, and listening to the recordings at least 3 times, most of the challenges associated with the use of video have already been addressed. The transcriptions from the recordings were proofread, with the necessary corrections, additions, and insights included. Different transcript sections were listened to repeatedly as required while writing out and discussing the interview findings. Doing this helped ensure that the participants' minds were accurately captured. Using features like annotations helps the researcher note their thoughts or further information about a particular code. It is also easy to merge closely related nodes, and child nodes can be created for ideas that provide more information to a particular node. The different nodes and their relationships can be visualised using a hierarchy chart, an explore diagram, and compare functions, to mention a few. These features make NVIVO a preferred software tool for qualitative researchers to analyse data.

The transcriptions were imported and taken through different stages, as stated by (Bingham, 2023), which include reading through the transcripts to understand and organise the data; developing beginning codes to form the initial themes, appraising the theme, establishing the final themes with definitions, and writing an analysis report. This was easy to achieve using NVIVO. For example, merging nodes and creating child node functions make forming and appraising initial themes easy.

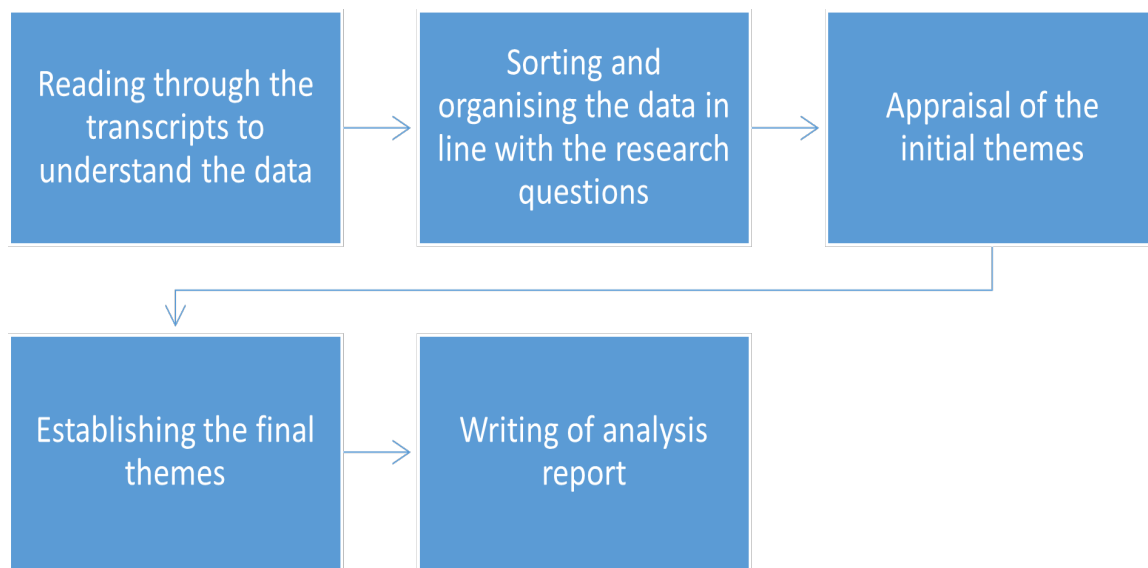


Fig. 5.3 Stages of Qualitative data analysis (Bingham, 2023)

Informed by the research questions, Inductive and deductive methods were used in developing this study's themes and subthemes (Bingham, 2023). An inductive approach is a bottom-up method for generating theories without preconceived ideas about the outcome. The deductive approach, which is more top-down, allows themes to be formed from pre-conceived ideas, theories, and so on. For this study, both methods were used interchangeably at various stages. In developing the background open questions for the interview, the HLQ adopted for the quantitative research was used. Also, from reading the transcripts, some ideas and initial codes were developed. These were refined by going through the research questions and the quantitative data. Through this approach, codes were formed and reformed until saturation was reached. The inductive approach helped sort the data and extract what was relevant to the study, from which the themes were formed. The deductive approach helped synchronise the sub-themes. Overall, combining the two approaches made it easy to integrate the qualitative and quantitative data.

My supervisors closely monitored the data analysis process, even though they could not have direct access to the data due to confidentiality concerns. Any challenges and observations were also freely discussed with senior qualitative researchers in the researcher's faculty, and the researcher attended workshops as needed and used the available support network. This makes the analysis process thorough and robust.

## 5.13 Description of the Interviewees

Sixteen participants were interviewed for this study. Two were pharmacists, three were doctors, and the remaining eleven were nurses. The interviewees were given coded identities to ensure anonymity and confidentiality. The first letter of the code indicates their profession: N for Nurse, P for Pharmacy, and D for Doctor. The second letter is the first letter of their first name. If two people have the same first letter in their first names, the second person has the second letter of their name added in lowercase. Below is the coded identity given to the interviewees:

- Transcript 1– NA
- Transcript 2 – DT
- Transcript 3– NN
- Transcript 4- NS
- Transcript 5- DA
- transcript 6 - DTo
- Transcript 7 – NAI
- Transcript 8- NAK
- Transcript 9– ND
- Transcript 10– NK
- Transcript 11– NM
- Transcript 12- NR
- Transcript 13 - NT
- Transcript 14- P1
- Transcript 15- P2
- Transcript 16– NY

## **5.14 Data management**

The recordings from the Interviews were transferred from the external device to a password-protected computer, where they were transcribed. As specified in the study's ethical approval, the recordings were also uploaded to SharePoint for data storage and protection.

## **5.15 Summary**

This chapter describes the research method for the qualitative exploration of health literacy among Nigeria's general population from the HCP perspective. The next chapter describes the findings from the quantitative data.

# Chapter 6

## Research findings from quantitative data.

### 6.1 Introduction

This chapter describes the findings from the survey exploring health literacy among the general population in three of the six geopolitical zones in Nigeria- Southwest, Southeast, and Northwest. The following sections present the descriptive statistics, followed by a summary of the study's findings. The details of the preliminary and inferential analyses of the data are presented next, and the chapter concludes with a summary. The research questions for this study are as follows:

1. How is the relationship between the healthcare providers and the healthcare users in Nigeria?
2. What are the interactions of healthcare users with health information in Nigeria?
3. How is the experience of the healthcare users with the healthcare system in Nigeria?
4. What is the relationship between COVID-19 knowledge and Health Literacy among Adults in Nigeria?

### 6.2 Description of the demographic data

After excluding participants who did not meet the inclusion criteria, especially the study's age restriction, the online and face-to-face recruitment efforts yielded 544 and

2978 participants, respectively, for a total of 3522 participants. This sample size can be considered significant and advantageous to the study (Andrade, 2020).

Although face-to-face recruitment was restricted to three geopolitical zones in Nigeria, all six zones were captured and represented in the data. This can result from people migrating from one zone to another (Adewole et al., 2023). The Southwest has the largest share of participants (56.2%,  $n = 1979$ ), followed by the Northwest (15.4%,  $n = 542$ ), and the Northeast is the least represented, with 2.4% ( $n = 84$ ). 59% ( $n = 2079$ ) of participants are in the 18-25 age group, with older adults (45-65) comprising less than 5% ( $n = 103$ ) of the sample. English is the official language in Nigeria, so it is not surprising that 99% ( $n = 3518$ ) of participants use it for communication. Most participants are undergraduates (28.1%,  $n = 990$ ), followed by university degree holders (15.2%,  $n = 535$ ), while just 4.4% ( $n = 154$ ) did not complete high school. Regarding their employment status, only 17% ( $n = 597$ ) of participants are employed full-time, while the majority are students (38.4%,  $n = 1354$ ), and fewer than 10% ( $n = 333$ ) have used emergency services in the last year of data collection.

### 6.3 Narratives of the findings from the nine domains of health literacy as highlighted in the tables

This section summarises the findings from the analysis of the nine domains of health literacy as related to the selected variables. Given the aim and objectives of this study, which are to explore health literacy in relation to the determinants of health literacy among adults in Nigeria, the most needed information from the tables is the level of significance for each domain of health literacy in relation to the selected variables, which are emphasised in this section.

For the feeling understood and supported by the HCP domain, having diabetes, lung problems, mental health problems and cancer is significant ( $P < .05$ ). Not having a disability, the geopolitical zone, and the participants' educational status are also significant. On the other hand, being able to speak English, gender, and the use of emergency services in the last year are not significant to this domain.

For the domain "Having sufficient information to manage my health", having diabetes, lung problems, mental health problems, and cancer is significant ( $P < .05$ ), and, unlike domain one, so is age. Other variables were also found not to be significant.

Age, geopolitical zone, level of education, employment status, lung problems, and certain forms of disability are significant ( $P < .05$ ) to the domain “actively managing my health.” Last year’s use of emergency services is added to the list, while other variables related to chronic diseases, such as cancer, are not significant.

Having social health support as a form of health literacy is linked to lung problems, cancer, diabetes, the geopolitical zones, and the participants’ employment status ( $P < .05$ ). It is also important to note that while having no disability is significant, having some specific disability can also affect how having social support affects people’s health literacy. Lung problems, mental health problems, and diabetes are significant to the domain “Being able to appraise health information.” Other relevant variables are the level of education, the geopolitical ozone, and having no / specific disability ( $p < .05$ ).

The use of the emergency service in the last year, the need for help filling out the survey, and participants’ age, gender, and educational status all contribute to their ability to engage actively with the HCP.

Having no disability, age, geographic zone, education, or employment status are significant ( $p < .05$ ) for navigating the healthcare system. Needing help filling out the survey, gender, age, education, and employment status are considered significant ( $p < .05$ ) to the participant’s ability to find good health information.

The participants’ age, education and employment status, and need for help to complete the survey are significant ( $p < .05$ ) factors in understanding health information well enough to know what to do.

## 6.4 Validity of data collection instrument

The assessment tool for this survey was the Health Literacy Questionnaire. It comprises forty-four items and covers nine distinct domains of the health literacy concept. Each domain is measured using nine scales containing 4-6 items. The first five scales have four response options: strongly agree, disagree, agree, and strongly agree, while the remaining four domains have the following response options: cannot do, very difficult, quite difficult, easy, and very easy.

It is important to note that each of the nine domains can be used exclusively to determine health literacy. The health literacy questionnaire was validated, and each of the nine domains was highly reliable for measuring health literacy (Elsworth et al., 2016; Osborne et al, 2013). The homogeneity of the nine scales was also confirmed using Bayesian structural equation modelling and was shown to be measurement-invariant, especially for the first six scales (Elsworth et al., 2016).

The simplicity and the short time it takes to complete the survey, make it a participant-friendly tool (Task and Finish group of health knowledge and library specialists, 2023). Also, the thoroughness of validation and other characteristics of the instrument, which fits well for this study, makes it a choice tool. This is in addition to the naivety of the researcher about the concept of health literacy at the time of this decision. This makes using a tool developed by experts in the field, a better option than trying to create one. Also, a translated version of the tool has been validated in Nigeria and recommended as useful.

The nine domains of health literacy check, as highlighted in the HLQ, are:

1. Feeling understood and supported by healthcare providers.
2. Having sufficient information to manage my health.
3. Actively managing my health
4. Social support for health
5. Appraisal of health information
6. Ability to actively engage with healthcare providers.
7. Navigating the healthcare system
8. Ability to find good health information.
9. Understand health information well enough to know what to do.

The mean scores of the nine scales for the overall sample are presented as shown in (Fig. 6.1)

| <b>S/N</b> | <b>HLQ SCALE</b>                                        | <b>MEAN (SD) [96% CL]</b> |
|------------|---------------------------------------------------------|---------------------------|
|            | Range 1 (lowest) – 4 (highest)                          |                           |
|            |                                                         |                           |
| <b>1</b>   | Feeling understood and supported by HCP                 | 1.93 (.59) [1.80, 1.94]   |
|            |                                                         |                           |
| <b>2</b>   | Having sufficient information to manage health          | 2.01 (.58) [1.99, 2.03]   |
|            |                                                         |                           |
| <b>3</b>   | Actively managing my health                             | 1.96 (.58) [1.94, 1.97]   |
|            |                                                         |                           |
| <b>4</b>   | Social support for health                               | 1.94 (.62) [1.92, 1.96]   |
|            |                                                         |                           |
| <b>5</b>   | Appraisal of health information                         | 1.97 (.52) [1.95, 1.99]   |
|            |                                                         |                           |
|            | Range 1 (lowest) -5 (highest)                           |                           |
|            |                                                         |                           |
| <b>6</b>   | Ability to actively engage with HCP                     | 3.15 (.995) [3.12, 3.19]  |
|            |                                                         |                           |
| <b>7</b>   | Navigating the healthcare system                        | 3.14 (.96) [3.12, 3.17]   |
|            |                                                         |                           |
| <b>8</b>   | Ability to find good health information                 | 3.06 (.96) [3.03, 3.10]   |
|            |                                                         |                           |
| <b>9</b>   | Understand health information enough to know what to do | 3.19 (.98) [3.15, 3.22]   |
|            |                                                         |                           |

Fig. 6.1 Scores of the nine scales of Health Literacy Questionnaire for the overall sample

SD=standard deviation, CL=Confidence Level

## 6.5 Selected Predictors for Health Literacy

For the quantitative data analysis, the following predictors (independent variables) are used to test each of the nine domains.

- **Ability to communicate in English:** Nigeria is a multicultural, multiethnic and multi-lingual country with over 300 languages. The official language of Nigeria is English, which is primarily learned in school. Healthcare professionals are trained in English, and the healthcare system is structured around this language. However, not every individual in Nigeria can fluently communicate in English. While some did not have the opportunity to learn it, some ethnic groups prefer that their children be taught in school in their local languages. This is why the researcher decided to explore whether there is any significance to being able to communicate in English and to health literacy among the general population in Nigeria.
- **Gender:** The researcher seeks to explore whether there is a relationship between health literacy and gender. Each type of gender has its peculiar characteristics, challenges, and experiences regarding health matters and the healthcare system. Some diseases are gender-based, for example, cervical cancer, while the response to illness differs between the genders. For this reason, the researcher will explore the relationship between gender and health literacy.
- **Age:** The ages captured in this study are between 18 and 65. In Nigeria, as in most countries, 18 is the age at which an individual can be held responsible for their actions as they are considered adults. When these ages are grouped, there are the young adults (18-25), the middle-aged (26-45), and the older adults (46-65). These groups constitute the largest share of the population, making it essential to consider their health literacy. Also, each of these age ranges has its peculiarities. For example, the middle class is the most active in the workforce. However, they are the most vulnerable to some chronic diseases due to the occupational exposures that they experience at work and the stress of life. So, the researcher considers it necessary to assess the influence of age on health literacy.
- **Geopolitical zone:** There are six geopolitical zones in Nigeria. These are North Central (NC), North-east (NE), North-West (NW), Southwest (SW), Southeast (SE) and South (SS). Each zone is distinct in its culture, language, sociocultural

development, and infrastructure. The researcher seeks to explore the relationship between geopolitical zones and health literacy.

- **Chronic diseases:** Having chronic disease(s) can increase the frequency of interactions an individual may have with the healthcare system. The typical chronic diseases that the researcher considers are arthritis, back pain, lung problems, and cancer. Others are mental health issues, stroke, diabetes and heart problems. Having a chronic disease can mean more experience regarding Nigeria's healthcare system. Therefore, the researcher considered it essential to explore the relationship between chronic disease and health literacy among the general population in Nigeria.
- **The use of emergency services in the last year:** This is considered a predictor for health literacy because people's experience in a crisis, especially health, can reveal their health literacy. Exposure to the healthcare system as an emergency can also reveal the different aspects of the healthcare system that can be a factor in the health literacy of the general population in Nigeria.
- **Education:** According to Nutbeam (2000), functional health literacy is the ability to read and write. The ability to read and write is usually linked to education. However, when it comes to education, there may be more to it than reading and writing. The researcher seeks to explore the relationship between education and health literacy among the general population in Nigeria.
- **Employment:** This is linked to an individual's financial status. The researcher seeks to consider the relationship between Nigerian adults' economic status and health literacy.
- **Being helped to fill out the questionnaire:** Different issues may warrant an individual's inability to complete the survey. The most important aspects of this study are the participants' cognitive ability and their ability to think critically. Health literacy concerns the ability to critically analyse health information and utilise it in decision-making about health. This is why the researcher seeks to examine the relationship between needing help to complete a survey and health literacy among adults in Nigeria.
- **Disability:** The researcher explores the relationship between disability and health literacy. Having a disability entails more interactions with the healthcare system, which can help us understand health literacy in relation to the healthcare system and the Nigerian population.

## 6.6 Choice of statistical test

After preliminary descriptive statistics were used to gain insight into the collected data, multiple regression was used to analyse the nine domains of health literacy in relation to the chosen parameters. This choice was made based on the research focus, which is to explore health literacy in-depth among the general population in Nigeria. The research questions aim to understand the relationships between the different variables highlighted in this study and health literacy. Multiple regressions can accommodate many variables and predict both causes and effects, making it a perfect choice for analysis (Pederson, 2017). The other options of statistical tests that were considered but did not fit well for the study are the T-test, which is practicable for considering similarity or differences between two groups of variables; the ANOVA, which is just like the T-test but can accommodate more than two groups; and the correlation, which sought to describe the relationship between two variables, without explaining the probable factors for the observed relationship. Having chosen multiple regression, preliminary tests were conducted to assess the method's suitability, as described in the subsequent sections.

The study on the COVID-19 pandemic aimed to investigate the association between health literacy and pandemics. A bivariate correlation would have been appropriate to examine the relationship between health literacy and knowledge of COVID-19 (Carpenter, 2017); however, the assumptions for this test were not met. On the other hand, the assumption checks for Spearman's rank correlation were met and so adopted for the analysis (Laerd Statistics, 2018). In addition to determining the relationship between two variables, Spearman's rank correlation can also indicate the strength and direction of the relationship. This can be very helpful in determining how health literacy affects COVID-19 knowledge among the general population, thereby guiding actions and activities related to this. Six knowledge-based items from the COVID-19 questionnaires, which the researchers' supervisors and expert analysts at the university deemed face valid, were analysed against the nine domains of the Health Literacy Questionnaire. The reliability test of the six COVID-19 questions yielded a modest Alpha Cronbach of .675. This could be attributed to the diversity of the research population, which comprises individuals from different geopolitical zones of Nigeria, each with diverse opportunities and cultures.

Presented next are the preliminary assumption checks for these tests.

## 6.7 Preliminary analysis for multiple regression

It is important to note that this study's research questions focus on three areas of health literacy: the relationship between healthcare providers and users, healthcare users' usage of health information, and their interactions with the healthcare system. That is why only those domains that address these research questions are considered. This is possible because, according to the HLQ instructions, each domain can be used exclusively to assess people's health literacy.

### 6.7.1 Domain 1: feeling understood and supported by HCP

. The multiple regression assumptions check indicated that the number of outliers is less than 5% of subjects, so they are included in the main analysis. Additionally, the normality assumption was satisfied as shown by the distributions of the multiple regression residuals. Furthermore, the data passed the homoscedasticity test, indicating a likelihood of positive bias in the model. Lastly, almost all tolerance scores  $> .2$  and VIF statistics  $< 10$ , indicating that these multiple regression assumptions are satisfied.

The variance is of a significant amount, as shown by the model  $R^2 = 4.3\%$  and the regression model  $F = 10.182$ , with  $P < .001$ . (Fig. 6.2)

#### Summary

With the necessary assumption checks for the domain "feeling understood and supported by the HCP," less than 5% of subjects could be classified as outliers, implying that these subjects were retained in the main analysis. Also, the normality assumption was satisfied, as shown in the normal distribution of the multiple regression residuals.

### 6.7.2 Domain 2: "Having sufficient information to manage my health".

When testing the assumptions of the multiple regression, less than 5% of the study subjects were classified as outliers and retained in the main analysis. Also, the assumption of normality was met, as shown by the distribution of the residuals of the multiple regression. Although there is a probability of positive bias in the model, the data are homoscedastic. Lastly, the tolerance scores and VIF statistics were  $> 0.2$  and  $< 10$ , respectively, indicating that all multiple progression assumptions were met.

| PREDICTOR                 | $\beta$ | $T$    | $P$    |
|---------------------------|---------|--------|--------|
| English                   | -.110   | -.806  | .420   |
| No disability             | .117    | 2.669  | .008*  |
| Arthritis                 | .011    | .160   | .873   |
| Back pain                 | .019    | .260   | .795   |
| Lungs problem             | .176    | 2.600  | .009*  |
| Cancer                    | .166    | 2.101  | .036*  |
| Mental health             | .154    | 2.490  | .013*  |
| Stroke                    | .030    | .453   | .651   |
| Diabetes                  | .104    | 2.524  | .012*  |
| Heart Problem             | .002    | .051   | .959   |
| Other disabilities        | .089    | 2.366  | .018*  |
| Gender                    | .000    | .015   | .988   |
| Age                       | -.001   | -.428  | .669   |
| HELP1                     | .020    | .950   | .342   |
| Geozone                   | -.055   | -9.767 | <.001* |
| Education                 | -.004   | -.517  | .605   |
| Employment                | -.022   | -2.868 | .004*  |
| The use of emergency care | -.006   | -.181  | .856   |

Fig. 6.2 Outcome of predictor variables for multiple Regression: Feeling understood and supported by the HCP.

Note: An asterisk denotes significance

The measure of variance shown by the model  $R^2 = 2.5\%$  and model  $F = 5.925$  with  $p < .001$  shows significance. (Fig. 6.3)

## Summary

Having checked all necessary assumptions for the Domain “Having sufficient information to manage my health”, the number of subject outliers in the data is less than 5%

| PREDICTOR        | $\beta$ | T     | P      |
|------------------|---------|-------|--------|
| English          | -.234   | 1.797 | .072   |
| no disability    | .128    | 3.042 | .002*  |
| arthritis        | .028    | .413  | .679   |
| back pain        | -.010   | -.149 | .882   |
| lung problem     | .231    | 3.560 | <.001* |
| cancer           | .116    | 1.535 | .125   |
| mental health    | .147    | 2.475 | .013*  |
| stroke           | -.002   | -.028 | .978   |
| diabetes)        | .069    | 1.751 | .080   |
| heart prob       | .004    | .109  | .913   |
| other disability | .072    | 1.993 | .046*  |
| Gender           | .026    | 1.267 | .205   |
| age              | -.005   | 3.457 | <.001* |
| HELP1            | .039    | 1.876 | .061   |
| Geozone          | -.025   | 4.679 | <.001* |
| Education        | -.017   | 2.096 | .036*  |
| Employment       | -.007   | -.951 | .342   |
| use of emergency | -.001   | -.019 | .985   |

Fig. 6.3 Outcome of predictor variables for multiple Regression: "Having sufficient information to manage my health".

Note: An asterisk denotes significance.

and therefore retained in the main analysis. Also, the normality assumption was met, making the data suitable for multiple regression analysis.

### 6.7.3 Domain 3: "Actively managing my health."

Testing the assumptions of multiple regression for the number of subjects in the data showed that less than 5% of subjects could be classified as outliers and were therefore retained in the main analysis. Also, the normality assumption was met, as shown by

the normal distribution of the multiple regression residuals. Additionally, the data are homoscedastic, with a probability of a positive bias. Finally, tolerance scores  $>.2$  and VIF  $<10$  indicated that all multiple regression assumptions were met. The variance can be considered significant as indicated by the model  $R^2 = 3.8\%$  and model  $F = 8.649$ , with  $P < .001$ . (Fig. 6.4)

| PREDICTOR          | $\beta$ | T     | P      |
|--------------------|---------|-------|--------|
| Age                | -.007   | 5.350 | <.001* |
| Gender             | .004    | .202  | .840   |
| Geozone            | -.035   | 6.522 | <.001* |
| ENGLISH            | -.240   | 1.846 | .065   |
| Use of emergency   | .068    | 2.205 | .028*  |
| Employment         | -.018   | 2.502 | .012*  |
| Education          | -.029   | 3.709 | <.001* |
| HELP1              | -.026   | 1.255 | .210   |
| arthritis          | -.054   | -.784 | .433   |
| back pain          | .030    | .433  | .665   |
| lung problem       | .181    | 2.807 | .005*  |
| Cancer             | .079    | 1.052 | .293   |
| mental health      | .111    | 1.866 | .062   |
| stroke             | .054    | .858  | .391   |
| diabetes           | -.002   | -.043 | .966   |
| heart problem      | .025    | .603  | .547   |
| other disabilities | .088    | 2.460 | .014*  |
| no disability      | .100    | 2.369 | .018*  |

Fig. 6.4 Outcome of predictor variables for multiple Regression: “Actively managing my health.”

Note: An asterisk denotes significance.

### Summary

In summary, for domain 3, the relationship between "actively managing my health" and health literacy satisfies the assumptions of multiple regression as shown by the normal distributions of the residuals. Also, the main analysis retains the subject outliers as they are less than 5% of the subjects.

#### 6.7.4 Domain 4 Social support for health

Regarding the multiple regression assumptions, fewer than 5% of subjects were classified as outliers, so they were retained in the main analysis. Also, the residuals of the multiple regression were normally distributed, implying a pass of the normality test. The data is also homoscedastic, with a possibility of a positive bias. Finally, all domain tolerance scores and VIF statistics were  $> 2$  and  $< 10$ , respectively, meaning that all multiple Regression assumptions were met.

The variance could be seen to be significant, as evidenced by model  $R^2 = 4.3\%$ , model  $F = 9.881$ , and  $p < .001$ . (Fig. 6.5)

In summary, for Domain 4, the relationship between HCUs 'having social health support' and health literacy met the assumption of normality, as shown by the normal distribution of the multiple regression residuals.

#### 6.7.5 Domain 5: Appraisal of health information

Assessing for the assumptions of multiple regression shows that the number of subjects regarded as outliers is less than 5% of the total data set and so were included as part of the main analysis. In addition, the normality assumption was met, as shown by the normal distribution of the multiple regression residuals; furthermore, the data, although with the likelihood of a positive bias, satisfy homoscedasticity. Lastly, a tolerance score  $> 2$  and a VIF  $< 10$  imply that all multiple regression assumptions are satisfied.

Regarding the variance, explained by the model  $R^2 = 3.8\%$  and the regression model  $F = 8.786$  with  $p < .001$ , it can be concluded that it is significant. (Fig. 6.6)

In summary, the relationship between the HCU's "appraisal of health information" and

their health literacy shows that all the multiple regression assumptions were satisfied, as implied by the normal distribution of the multiple regression residual.

### **6.7.6 Domain 6: Ability to actively engage with the HCP.**

In checking the assumptions of multiple regression, the number of subjects that are outliers was less than 5%, and so was maintained in the main analysis. In addition, the normality assumption was met, as shown by the normal distribution of the multiple regression residuals. The homoscedastic test was also passed, although with a positive bias to the model. Lastly, domain Tolerance score and VIF statistics were  $>.2$  and  $< 10$ , respectively, which implies that all assumptions of multiple regressions were met. The variance explained by the model,  $R^2 = 2.5\%$ , was significant, as shown by the regression model  $F = 6.076$  and  $P < .001$ . (Fig. 6.7)

In summary, the relationship between the HCU's "ability to actively engage HCP" and the HCU's health literacy satisfied the normality assumption as shown in the normal distribution of the multiple regression. With the necessary checks, the number of subjects that could be regarded as outliers was also less than 5%, so left in the main analysis.

### **6.7.7 Domain 7: Navigating the Healthcare System**

The number of subjects classified as outliers related to the multiple regression assumption check was less than 5% and so left in the main analysis. The normality assumption was also met, as shown by the normal distribution of the multiple regression residuals. Furthermore, the data is homoscedastic with the possibility of a positive bias to the model. Lastly, Tolerance scores  $>.2$  and VIF statistics  $< 10$  across all domains indicate that all assumptions of multiple regression were met. As explained by the model  $R^2 = 3.5\%$ , the variance can be regarded as a significant amount as described by the model  $F = 8.130$ ,  $p < .001$ . (Fig. 6.8)

In summary, the relationship between the HCU "navigating the Healthcare system" and health literacy showed that the subjects regarded as outliers are less than 5% and so maintained as part of the main analysis. Also, the data satisfied the normality test, as shown by the normal distribution of the multiple regression residuals.

### **6.7.8 Domain 8: Ability to find good health information.**

Regarding the assumptions of multiple regression, the number of study subjects that fall into the category of outliers was less than 5%, and so retained as part of the main analysis. In addition, the assumption of normality was met, as shown by the normal distribution of the residuals of the multiple progression. Furthermore, the data is homoscedastic, with a probability of a positive bias model. Lastly, all domain Tolerance scores were  $> .2$ , and the VIF statistics were  $< 10$ , implying that all the assumptions of multiple regression were met. For the variance, as explained by the model  $R^2 = 2.0\%$  and model  $F = 4.897$ , with  $p < .001$  implying a significant amount of the variance. (Fig. 6.9)

In summary, the normality assumption was satisfied for the relationship between the HCU's "ability to find good health information" and their health literacy, as shown by the normal distribution of the residuals of the multiple regression. It is also worth noting that the subjects that fall under the category of outliers are less than 5% and kept in the main analysis.

### **6.7.9 Domain 9: understood health information well enough to know what to do.**

For the assumptions of Multiple regression, the number of subjects grouped as outliers was less than 5% of the whole data set, and so they were maintained as part of the main analysis. Also, the residuals of the multiple regression were normality distributed, indicating satisfaction with the normality assumption. The assumption of homoscedasticity was also met with the probability of a positive bias. Lastly, all domain Tolerance scores and VIF statistics were  $> .2$  and  $< 10$ , implying that all assumptions of Multiple Regression were met. For the variance, as explained by the model  $R^2 = 2.5\%$ , a significant amount is shown by the regression model  $F = 5.964$ , with  $p < .001$ . (Fig. 6.10)

Summarily, regarding the domain of the relationship between the HCU "understood health information well enough to know what to do" and their health literacy, the subject outliers were retained in the main analysis because they constitute less than 5% of the overall data. Also, the assumption of normality was met, as shown by the normal distribution of the residuals of the Multiple Regression.

## 6.8 Preliminary analysis for the relationship between HL and knowledge of COVID-19

In testing the relationship between health literacy and knowledge of COVID-19, the proposed null and alternative hypotheses, developed from the available information about health literacy and its importance in healthcare services, are:

$H_1$ : There is a relationship between health literacy and COVID-19 knowledge among adults in Nigeria.

$H_0$ : There is no relationship between health literacy and COVID-19 knowledge among adults in Nigeria.

These hypotheses will be applied to each of the nine domains of health literacy as stated in the HLQ.

In deciding which statistical test to use to test the hypothesis, the first consideration was that the data sets are not continuous, which makes some tests unsuitable (Laerd Statistics, 2018). For the normality test, the p-values for all variables were less than .05, indicating that the data were not normally distributed. Using scatter plots and histograms, the data was found to have outliers. Based on the unmet assumption tests for Pearson correlation, the dataset could be categorised as nonparametric, which makes Spearman's Rank-Order correlation a suitable statistical test.

### 6.8.1 Domain 1: Feeling understood and supported by healthcare providers

There is a relationship between feeling understood by the HCP and the knowledge of adults in Nigeria about COVID-19.

$H_0$ : There is no relationship between feeling understood by the HCP and covid 19 knowledge among adults in Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatterplot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.026$ ,  $p = .142$ .

*Therefore, the alternative hypothesis is rejected, while the null hypothesis is accepted.*

### **6.8.2 Domain 2: Having sufficient information to manage my health.**

There is a relationship between having sufficient  
 $H_1$ : information to manage my health and COVID-19  
 knowledge among adults in Nigeria.

There is no relationship between having sufficient  
 $H_0$ : information to manage my health and COVID-19  
 knowledge among adults in Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatterplot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.015$ ,  $p = .407$ .

*Therefore, the alternative hypothesis can be rejected, while the null hypothesis is accepted.*

### **6.8.3 Domain 3: Actively managing my health.**

There is a relationship between actively managing my  
 $H_1$ : health and COVID-19 knowledge among adults in Nigeria.

There is no relationship between actively managing my  
 $H_0$ : health and COVID-19 knowledge among adults in Nigeria

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatterplot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.020$ ,  $p = .261$ .

*Therefore, the alternative hypothesis can be rejected, while the null hypothesis is accepted.*

#### 6.8.4 Domain 4: Social Support for health.

$H_1$  : There is a relationship between having social support for health and COVID-19 knowledge among adults in Nigeria.

$H_0$  : There is no relationship between Having social support for health and COVID-19 knowledge of adults in Nigeria

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatterplot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.005$ ,  $p = .767$ .

*Therefore, the alternative hypothesis can be rejected, while the null hypothesis is accepted.*

#### 6.8.5 Domain 5: Appraisal of health information.

$H_1$  : There is a relationship between appraisal of health information and COVID-19 knowledge among adults in Nigeria.

$H_0$  : There is no relationship between appraisal of health information and COVID-19 knowledge among adults in Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as evaluated by visual inspection of a scatterplot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.029$ ,  $p = .097$ .

*Therefore, the alternative hypothesis can be rejected, while the null hypothesis is accepted.*

#### 6.8.6 Domain 6: Ability to actively engage the healthcare providers.

$H_1$  : There is a relationship between ability to actively engage the healthcare providers and COVID-19 knowledge among adults in Nigeria.

There is no relationship between ability to actively engage  
 $H_0$  : the healthcare providers and COVID-19 knowledge among  
adults in Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as evaluated by visual inspection of a scatter plot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.359^{**}$ ,  $p < .001$

*Therefore, the alternative hypothesis is accepted, while the null hypothesis is rejected.*

### **6.8.7 Domain 7: Navigating the healthcare system.**

There is a relationship between navigating the healthcare  
 $H_1$  : system and COVID-19 knowledge among adults in  
Nigeria.

There is no relationship between navigating the healthcare  
 $H_0$  : system and COVID-19 knowledge among adults in  
Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatter plot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.346^{**}$ ,  $p < .001$

*Therefore, the alternative hypothesis is accepted, while the null hypothesis is rejected.*

### **6.8.8 Domain 8: Ability to find good health information.**

There is a relationship between the ability to find good  
 $H_1$  : health information and COVID-19 knowledge among  
adults in Nigeria.

There is no relationship between ability to find good health  
 $H_0$  : information and COVID-19 knowledge among adults in  
Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatter plot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.330^{**}$ ,  $p < .001$

*Therefore, the alternative hypothesis is accepted, while the null hypothesis is rejected.*

### **6.8.9 Domain 9: Understanding health information well enough to know what to do.**

There is a relationship between understanding health  
 $H_1$  : information well enough to know what to do and COVID-  
 19 knowledge among adults in Nigeria.

There is no relationship between understanding health  
 $H_0$  : information well enough to know what to do and COVID-  
 19 knowledge among adults in Nigeria.

A Spearman's Rank-order correlation was run to assess the relationship between the two variables as stated in the hypotheses. Preliminary analysis indicated a monotonic relationship, as assessed by visual inspection of a scatter plot.

There was no statistically significant correlation between these two variables,  $R_S(7) = -.361^{**}$ ,  $p < .001$

*Therefore, the alternative hypothesis is accepted, while the null hypothesis is rejected.*

### **6.8.10 Summary of the relationship between health literacy and knowledge about COVID-19.**

Of the 20 COVID-19 questions, six knowledge-based questions were selected to examine the relationship between health literacy and the general population's knowledge of the COVID-19 pandemic. This was done using Spearman's Rank correlation as presented above.

Of the nine domains of health literacy tested against COVID-19 knowledge-based questions, the general population's knowledge of COVID-19 was shown to be, related to the domains: "actively engaging the HCP"; "ability to navigate the healthcare system";

ability to find good health information; and “understanding health information well enough to know what to do”, all at the same level  $p < .001$  significance. This implies that the general population’s ability to navigate the healthcare system is related to their knowledge of the COVID-19 pandemic. This is the same for their ability to find and understand good health information well enough for decision-making and to engage the healthcare provider. (Fig.6.11)

## 6.9 Conclusion

This chapter presents the findings from the quantitative data. While some demographic data were significant for health literacy, most chronic diseases were not. Of the nine domains of health literacy, only four were positively associated with knowledge of COVID-19. The next chapter presents the findings from the qualitative data.

| PREDICTOR             | $\beta$ | $t$    | $p$    |
|-----------------------|---------|--------|--------|
| English               | -.110   | -.806  | .420   |
| no disability         | .117    | 2.669  | .008*  |
| arthritis             | .011    | .160   | .873   |
| back pain             | .019    | .260   | .795   |
| lung prob             | .176    | 2.600  | .009*  |
| cancer                | .166    | 2.101  | .036*  |
| mental health         | .154    | 2.490  | .013*  |
| stroke                | .030    | .453   | .651   |
| diabetes)             | .104    | 2.524  | .012*  |
| heart prob            | .002    | .051   | .959   |
| other disability      | .089    | 2.366  | .018*  |
| Gender                | .000    | .015   | .988   |
| age                   | -.001   | -.428  | .669   |
| HELP1                 | .020    | .950   | .342   |
| Geozone               | -.055   | -9.767 | <.001* |
| education             | -.004   | -.517  | .605   |
| employment            | -.022   | -2.868 | .004*  |
| use of emergency care | -.006   | -.181  | .856   |

Fig. 6.5 Outcome of predictor variables for multiple Regression: Social support for health

Note: An asterisk denotes significance.

| PREDICTOR                 | $\beta$ | T     | P      |
|---------------------------|---------|-------|--------|
| English                   | -.142   | 1.224 | .221   |
| no disability             | .108    | 2.883 | .004*  |
| Arthritis                 | -.029   | -.475 | .635   |
| back pain                 | .035    | .568  | .570   |
| lungs prob                | .181    | 3.124 | .002*  |
| cancer                    | .020    | .297  | .766   |
| mental health             | .220    | 4.142 | <.001* |
| stroke                    | .036    | .633  | .527   |
| diabetes                  | .088    | 2.507 | .012*  |
| heart prob                | -.022   | -.599 | .549   |
| other disability          | .131    | 4.070 | <.001* |
| Gender                    | .022    | 1.179 | .239   |
| age                       | -.004   | 3.002 | .003*  |
| HELP1                     | .016    | .862  | .389   |
| Geozone                   | -.036   | 7.450 | <.001* |
| education                 | -.021   | 2.993 | .003*  |
| employment                | -.005   | -.760 | .447   |
| use of emergency services | -.018   | -.635 | .525   |

Fig. 6.6 Outcome of predictor variables for multiple Regression: Appraisal of health information

Note: An asterisk denotes significance.

| PREDICTOR        | $\beta$ | T     | P      |
|------------------|---------|-------|--------|
| English          | -.363   | 1.656 | .098   |
| no disability    | -.015   | -.205 | .838   |
| arthritis        | .070    | .602  | .547   |
| back pain        | -.141   | 1.204 | .229   |
| lung prob        | -.158   | 1.450 | .147   |
| cancer           | -.107   | -.838 | .402   |
| mental health    | .107    | 1.066 | .287   |
| stroke           | .058    | .544  | .587   |
| diabetes         | .067    | 1.018 | .309   |
| heart prob       | .021    | .304  | .761   |
| other disability | .063    | 1.037 | .300   |
| Gender           | -.091   | 2.621 | .009*  |
| age              | .014    | 6.200 | <.001* |
| HELP1            | .186    | 5.349 | <.001* |
| Geozone          | -.002   | -.184 | .854   |
| education        | -.048   | 3.624 | <.001* |
| employment       | -.031   | 2.564 | .010*  |
| use of emergency | -.101   | 1.919 | .055*  |

Fig. 6.7 Outcome of predictor variables for multiple Regression: Ability to actively engage the HCP.

Note: An asterisk denotes significance.

| PREDICTOR             | <div> <div></div> <div></div> <div></div> </div> |          |  | <i>P</i>          |
|-----------------------|--------------------------------------------------|----------|--|-------------------|
|                       | $\beta$                                          | <i>T</i> |  |                   |
| English               | -.348                                            | -1.655   |  | .098 <sup>2</sup> |
| no disability         | -.132                                            | -1.939   |  | .053*             |
| arthritis             | .121                                             | 1.091    |  | .276              |
| back pain             | -.063                                            | -.562    |  | .574              |
| lung prob             | -.189                                            | -1.807   |  | .071              |
| cancer                | -.119                                            | -.977    |  | .329              |
| mental health         | .143                                             | 1.495    |  | .135              |
| stroke                | .071                                             | .703     |  | .482              |
| diabetes)             | .028                                             | .434     |  | .665              |
| heart prob            | -.061                                            | -.928    |  | .353              |
| other disability      | .108                                             | 1.861    |  | .063              |
| Gender                | -.017                                            | -.521    |  | .603              |
| age                   | .008                                             | 3.671    |  | <.001*            |
| HELP1                 | .062                                             | 1.848    |  | .065              |
| Geozone               | .046                                             | 5.228    |  | <.001*            |
| Education             | -.094                                            | -7.327   |  | <.001*            |
| Employment            | -.036                                            | -3.052   |  | .002*             |
| Use of emergency care | -.017                                            | -.336    |  | .737              |

Fig. 6.8 Outcome of predictor variables for multiple Regression: Navigating the Healthcare system.

Note: An asterisk denotes significance.

| PREDICTOR        | $\beta$ | $T$    | $p$    |
|------------------|---------|--------|--------|
| English          | -.217   | -1.024 | .306   |
| no disability    | -.128   | -1.858 | .063   |
| arthritis        | .105    | .934   | .350   |
| back pain        | -.180   | -1.582 | .114   |
| lung prob        | .010    | .091   | .927   |
| cancer           | -.198   | -1.611 | .107   |
| mental health    | .038    | .395   | .693   |
| stroke           | .056    | .542   | .588   |
| diabetes         | -.007   | -.114  | .909   |
| heart prob       | -.077   | -1.157 | .247   |
| other disability | .091    | 1.551  | .121   |
| Gender           | -.064   | -1.908 | .056*  |
| age              | .011    | 5.175  | <.001* |
| HELP             | .152    | 4.521  | <.001* |
| Geozone          | -.008   | -.862  | .389   |
| education        | -.058   | -4.460 | <.001* |
| employment       | -.031   | -2.627 | .009*  |
| use of emergency | -.072   | -1.420 | .156   |

Fig. 6.9 Outcome of predictor variables for multiple Regression: Ability to find good health information.

Note: An asterisk denotes significance.

| PREDICTOR        | $\beta$ | $t$    | $P$    |
|------------------|---------|--------|--------|
| English          | -.286   | -1.324 | .186   |
| no disability    | -.154   | -2.199 | .028*  |
| arthritis        | .064    | .563   | .573   |
| back pain        | -.184   | -1.590 | .112   |
| lung prob        | -.188   | -1.748 | .081   |
| cancer           | -.090   | -.714  | .475   |
| mental health    | .008    | .078   | .938   |
| stroke           | .073    | .702   | .483   |
| diabetes)        | -.019   | -.289  | .772   |
| heart prob       | .021    | .308   | .758   |
| other disability | .015    | .253   | .800   |
| Gender           | -.062   | -1.819 | .069   |
| age              | .012    | 5.291  | <.001* |
| HELP1            | .185    | 5.391  | <.001* |
| Geozone          | .011    | 1.267  | .205   |
| education        | -.052   | -3.972 | <.001* |
| employment       | -.036   | -3.034 | .002*  |
| use of emergency | -.056   | -1.086 | .278   |

Fig. 6.10 Outcome of predictor variables for multiple Regression: Understood health information well enough to know what to do.

Note: An asterisk denotes significance.

**Non-parametric Correlation**

| Health literacy domain                                              | Knowledge of COVID-19               |
|---------------------------------------------------------------------|-------------------------------------|
| 1. Feeling understood and supported by Healthcare Providers         | $R_s(7) = -.026$<br>$p = .142$      |
| 2. Having sufficient information to manage my health.               | $R_s(7) = -.015$<br>$p = .407$      |
| 3. Actively managing my health                                      | $R_s(7) = -.020$<br>$p = .261$      |
| 4. Social support for health                                        | $R_s(7) = -.005$<br>$p = .767$      |
| 5. Appraisal of health information                                  | $R_s(7) = -.029$<br>$p = .097$      |
| 6. Ability to actively engage with healthcare providers.            | $R_s(7) = -.359^{**}$<br>$p < .001$ |
| 7. Navigating the healthcare system                                 | $R_s(7) = .346^{**}$<br>$p < .001$  |
| 8. Ability to find good health information.                         | $R_s(7) = .330^{**}$<br>$p < .001$  |
| 9. Understanding health information well enough to know what to do. | $R_s(7) = .361^{**}$<br>$p < .001$  |

Fig. 6.11 Spearman's rho for the test of the relationship between Health Literacy and Covid-19 Knowledge.

Note: Correlation is significant at the  $^{**}.001$  level (2-tailed).

# Chapter 7

## Findings from the Qualitative Data.

### 7.1 Introduction

This chapter presents the findings from the interview conducted with 16 healthcare providers in Nigeria. Eleven of these HCPs were nurses, with two pharmacists and three doctors. As explained in the previous chapter, deductive and inductive methods were used to derive themes from the collected data. Exploring these themes led to the development of different subthemes presented in this chapter.

### 7.2 Presentation of the themes

The three foundational themes for this study are:

- The healthcare providers' and receivers' relationships.
- health information as it relates to the healthcare users.
- The healthcare system and the general population.

Note that these are not listed in order of importance, as each theme is exclusive to determining health literacy among the general population, according to the health literacy questionnaire.

## 7.3 Theme 1: The relationship between the Healthcare Providers and the Healthcare Users

### 7.3.1 Establishing the interaction of the HCP with the HCU.

The importance and the effect of good interpersonal relationships between HCP and HCU cannot be overemphasised (Olaisen et al., 2020). Also, its importance in relation to health literacy is emphasised in the HLQ (Osborne et al., 2013). All the interviewees agreed on certain interaction levels between healthcare providers and receivers. Some of the words used in answering the question as to what they could say about the relationship between the HCP and HCU include: “not so there”, “fair”, “it depends”, “not adequate”, “average”, and so on:

“Of course, they do interact. You are going to have some questions you are going to check to examine your patient. So, there’s a level of interaction”.  
N2

Further to this, the interactions between the HCP and HCU are regarded to have experienced some improvement over the years:

“But I must say that from time to time there have always been interactions, just that I will say that nowadays I think the level of interaction has increased because people are engaging their doctors more, (you understand)?”.  
N2

Expanding further on this, all the interviewees agreed to the fact that the relationship between the HCPs and the HCUs could be better:

“In time past and now, they interact, although there are a lot of changes that has happened between healthcare workers and healthcare users initially. And many years ago, maybe as a student, there was a time when the interactions were minimal, but we’re not (you know) there yet.” D1

### Summary

There is a consensus that the HCP and HCU have a relationship, which has improved over the years. However, the relationship is not yet as expected. The next subtheme considered the different relationships between the HCP and the HCUs, which is presented in the next section.

### 7.3.2 Types of Relationships between HCP and HCU

Although not stated directly, it emerged that there could be different types of relationships that the HCP could have with the HCU. The three types that were identified are described below:

#### **Boss vs subordinate.**

This happens when the HCPs take the boss role while the HCUs play the subordinates. The HCP could initiate this, while sometimes, the healthcare receivers could play out the role of subordinates:

“People when they come to the clinics, to the hospital, (to) see (the) healthcare worker, they act like they are the in the court, or before the gods sort of”. DT

One of the predicting factors for this was the severity of the patients’ sickness, which makes them dependent on the HCPs and focused on how they can get well quickly.

“if the patient is in a serious condition, you know you (they) must take the medication so that you (they) can be able to get well. I tell you my problems, for you to give me the medication” NA.

Another reason is that the HCUs trust that the HCPs are experts they can trust, having seen many cases like their own. The best thing is to submit to them.

“You (they) believe that this person has come across so many cases like this, or like my own, and knows how to manage it” DTo.

Some of the HCUs have negative impressions of the HCPs. They believe that they can be arrogant, impatient, and non-accommodating. This puts fear in their hearts, making them tread gently around the HCPs as they regard them like their benefactors, doing them a favour and, as such, would not want to get them angry.

“Because (there is the) knowing they have that the healthcare providers are very arrogant, very unaccommodating, maybe they can abuse them. So they have that fear, which should not be, as a healthcare User” (NN).

Culture and religion also played a role in promoting the boss-subordinate relationship. Some HCPs pull on this when a patient does not want to submit to what they are prescribing. Culturally, people are expected to respect those taking care of them and listen to them, which some religions (Islam) also emphasise. Although this may be regarded as being manipulative, it does happen.

‘So, what we do is we put our own Islamic relations to play. We bring in the sayings of prophet Muhammad. So once the man (patient) is a religious man, no issues.’N4

People who are of low financial status and are also ‘uneducated’ tend to feel unsure of themselves, making them take the role of subordinates. The sense of feeling inferior makes them recoil inside and accept whatever is thrown at them.

"... Because when you see somebody that is still struggling financially, there is tendency for the individual to withdraw, nine domain kind of, when interacting with somebody that is perceived to be financially. Buoyant than they are. So, (there is this) there's a way they recoil inside, not wanting to really say too much, (or) do too much around somebody perceived to be more educated than they are, more financially buoyant than they are. So, because there is link between financial buoyancy and social acceptability, we cannot deny that fact." ND

Summary: Boss versus subordinate is one type of relationship the HCP and HCU could have. Culture, financial status, trust, and impressions of the HCUs of the HCPs are some of the determining factors for this. In the next section, the positive versus negative type of relationship is presented.

### 7.3.3 Positive versus negative relationships

The interactions between the HCPs and the HCUs can be positive or negative, and this can be determined by the two parties involved. While the patients could be unpleasant, the HCPs, too, can be unaccommodating. In both ways, the personalities of the HCPs and the HCUs can determine the tone of their interactions.

"Then there is this thing about people's personality too that you can't really do anything about that even though they are educated. Their personalities sometimes may not, may still be some of some people just naturally violent and there is nothing you can do about (it) though they know." DT

Whether the expectations of the HCUs of the HCPs or the services received are met or not can determine the tone of the interactions between them. Patients who have searched the Internet about their conditions may have a picture of the treatment they

are expecting. If this is not followed, they may see the HCP as incompetent, leading to negative interactions. Patients' outcomes, most especially when the patient dies, can lead to unpleasant reactions from the patients' families, too.

"And they have so much information in their head that is, you know, counterproductive and at some point, they may think the doctor is incompetent or the doctor is not doing enough. And then we have cases of violence, like people beating up their doctors these days because of what they think they know." DT

Some HCPs regard some of the HCUs as having an entitlement mindset. They believe that the HCP is bound to give them the best care they desire, no matter the attitude they put forward. This is not determined by their level of education or profession, as even the HCUs that are 'educated' could be found guilty of this.

"... 'I'm a barrister' and you (being) a lawyer should understand what you are doing , but still you start, you know violence against the doctors shouting at them. (You know) that's what I mean anyway." DT

The possibilities of transfers of aggression were identified. This can happen when, for whatever reason, an HCP is emotionally down, and they allow this to affect their relationships with their clients.

"you (the HCP) might be having some bad days and can report to work with it instead of leaving it at home. some people carry their problem to work and begin to vent their anger on their clients, and this is the situation in our hospitals." NS

The financial situation surrounding care can taint interactions between HCPs and HCUs. This can happen if the patient must stay in the hospital for some time, with the attending physician's continuous prescription. It is worth noting that in government hospitals in Nigeria, patients' relatives purchase the medication and other items they need. Sometimes, the stress of moving from the hospital ward to the pharmacy can be so distressing that it leads to negative responses from the patients and their relatives.

"if you ask them to do this, they get very angry. I work in a state hospital. So when you ask them to buy this, buy that they get angry and they're like thought they are in the government sector that it shouldn't be expensive, that you shouldn't ask them for money. And I'm like, it's not my personal fault. It's still the government's fault." NA

### 7.3.4 Violence against HCP

The issue of violence against the HCP came up in almost all the interviews with healthcare providers in Nigeria, more commonly among the Medical Doctors and less commonly with the Pharmacists. As a matter of concern, it is regarded as a common thing in their interactions with the HCU..

"some of them have good attitude. They greet you; they appreciate you. But those are few. Most healthcare users, they are always on the aggressive side, Violent especially if anything (go) wrong. If anything goes wrong with the patients, the relatives, they're usually aggressive, violent" DTo

in the capability of the HCP. The trust factor comes in from what the HCU believes they know about the disease and, by this, tries to weigh the expertise of the HCP.

"And you have so much information in their head that is, you know, counterproductive and at some point, they may think the doctor is incompetent, or the doctor is not doing enough. And then we have more negative interactions like people beating up their doctors these days because of what they think they know."DT

The HCP, being aware of the possibility of the HCU becoming aggressive, sometimes tries to look for ways to prevent it, most especially as it regards getting the patient involved in planning for their care and the disease prognosis. When the patients and their relatives are engaged in the decision-making regarding the line of treatment, with other factors constant, the issue of aggressiveness can be prevented.

"I don't want any story on the newspaper that says they beat one doctor. So, I tried to carry them along that this is what this this, your patient is gone. 'I'm sorry to say that it's just this this, this, this, that we are using to support the blood pressure. Is this machine that is breathing for him this and that' and they will get to know and Some of them would have been, you know, called the family members (and) start preparing each other. So, when if anything happens, they would have even been expecting. So, if anything should happen, there won't be any violence. DTo

The issue of aggressiveness can also be from the HCP to the HCU. This can be due to the emotional state of the HCP, depending on what they are going through. A healthcare provider is expected to control their emotions at work, but workload, lack of motivation and patient's attitude can trigger aggressiveness in the HCP.

"You might be having some bad days, and when you report to work, instead of leaving (their problems) at home, some people carry their them to work and begin to vent their anger on their clients."NS

### **Summary**

The HCP and HCU interaction can be like that of a boss to a subordinate. It can also be positive or negative. On the negative side, identified is the issue of aggressiveness to the HCP by the HCU. However, in some cases, the aggressiveness can stem from the HCP.

### **7.3.5 The determining factors for interactions between the HCP and HCUs.**

Introduction: Seven factors were identified as to how the interactions between the HCP and HCU could be. These factors can be related to the HCU, the HCP or the health care organization policies and structures. The seven factors are listed below and presented in this section.

- Settings and location of the healthcare services
- Trust and feelings
- Timeline
- Education
- Financial status
- Workforce and work schedule
- Personalities of the HCU and HCP

#### **Settings and location of healthcare services**

The setting or location of healthcare can determine and affect interactions between HCPs and HCUs, as well as the level of care available to HCUs. Different types of settings were highlighted, as well as different management types. For instance, there are government-owned and managed healthcare settings, as well as privately managed ones. The interactions between the HCPs and the HCUs seem to be better in the private sector, though it can be more expensive, while the government-owned settings

may not afford room for many interactions due to the ratio of patients to HCP, which most of the time is unproportionate.

"It's also one of the major problems, especially in the public sector. In the private sector, People have access, but public sector you can have 10 patients at once (to a HCP). So, the Private sector tends to be better." DT

People in the urban area tend to have greater access, though fewer interactions with the HCP, especially regarding the number of HCPs available to them. On the other hand, while people in rural areas may have greater opportunities to interact with HCPs, they are disadvantaged in the level of care available to them.

"But if you consider the rural area, People are not so accessible to (their) I mean HCPs are not that accessible to HCUs, so the accessibility to or is it availability? (No, I don't know, but the accessibility too has to do with availability). So, because for a busy. Doctor, you won't be able to (you know) one patient cannot just delay me, spending like 30 minutes talking to a person (patient) or educating (them). So, availability too is important to accessibility, but accessibility I will say, is on the average depending on the environment, whether Rural or urban. In the rural area, the accessibility is No. Although they have the community health workers that are there. However, the problem that I have with Community health workers is that they may not be well informed. They may not give them (the HCUs) the right information. Their accessibility to those that have the right information is low. So, but maybe in the urban region we can say it's average medium." DA

Another side to how settings and location can affect the interactions between the HCU and HCP is the advent of online consultation. With online consultation, the need for patients to meet their career face-to-face is removed. For online consultations, the HCP asks a series of questions and may request pictures to make their diagnosis. This not only saves the HCU the stress and time of travelling down to the hospital, but it also saves both the hospital and the HCU resources. However, the concern raised is the possibility of this arrangement reducing the interactions between the HCU and HCP to mere words. Effective communication goes beyond words; in fact, the nonverbal aspect of communication carries a larger percentage compared to words. In that case, the interactions between the HCP and HCU may not be optimum while not belittling the advantages of online consultation.

"Another side to it is that nowadays I know of clinics that are, like proxy consultations such that you only see your patient, maybe the first time then subsequently it's virtual. So that can also reduce interaction in the sense of physical examination of physical interactions." DTo

Summarily, in this section, the findings on how the settings and the location of the healthcare can affect the interactions between the HCP and the HCU are presented. In the next section, the trust and feelings factors will be discussed.

### 7.3.6 Trust and Feelings

Trust has been highlighted as a factor in the relationship between the HCP and the HCU. Such trust could be in the believed expertise of the HCP, such that the HCU have rest of mind, believing that they are safe with them. This helps the HCU to open-up better in discussing their health challenges and determines their disposition to the treatment or care being given.

"So by just telling you his (their) problem, You (they) believe that this person has come across so many cases like this, or like my (their) own, and knows how to manage it".NS

There is also the possibility of an HCU not trusting the HCP. This can be due to the information that they have gotten from the internet or friends, or it can be due to their religious beliefs.

"May be mistrust. Lack of trust in health workers (which can be) For no reason that I will point to, but it happens. Probably they have a belief that is stronger than what the healthcare provider is bringing." NR

Furthermore, how the HCU feels about the HCP also determines their relationships. If a patient perceives that the HCP cares for them, they see them as who they can confide in, which makes for a better relationship.

"To be able to share their problems with you (you need to) show empathy actually so that they will be able to go out of way to tell you whatever is in their mind so personally, I try to empathise with my patients" Dr A

The HCP working in a setting that is local to them can help with trust as it gives the HCU a sense of the HCP being part of them and so would readily understand them and care for them well.

“The state government and the federal government (are) recruit(ing) nurses in their communities. So, the Community will respect them and their works, they will say this one will understand us” ND

### 7.3.7 Timeline

Occurring commonly in all the interviews is the fact that the progress of time is of significance as regards the relationship between the HCU and the HCP. Some of the words used in describing this are “in the past”, “before”, “unlike now”, “many years ago”, and so on. All the interviewees agreed to the fact that the relationship between the HCP and the HCU is better these days than it used to be in the past. This is attributed to the general trend of development all around, the increased exposure and education of HCU, the internet and so on.

“Of course, they do interact in time past and now because there are a lot of changes that has happened between (the) healthcare workers and healthcare users. Initially and many years ago, maybe as a student, there was a time that the interactions were minimal” DT

Another point that the interviewee agreed on is the fact that the relationship between the HCP and HCU, even though has improved over time, can still be better.

“We are not there yet, though we are not where we used to be, but we, I can’t say, not there yet. if I grade it (in terms of. You know?) It’s not very poor, it’s not poor, it’s just in between poor and average. So, we are we are moving on, we are not there (yet)”. DTo

### Summary

the timeline is a factor in the interaction between the HCP and the HCU. There has been a notable improvement in the relationship between the HCP and the HCU over time, just that the relationship needs to improve. In the next section, the education factor is explored.

### Education

Different meanings are given to the word education/ literacy by the interviewee as regards its influence on the relationship between the HCP and the HCU. While some take education as formal learning acquired in school, leading to being able to read and

write, some regard it as how enlightened the HCU are as related to health.

There are diverse views as to the effect of formal education on the relationship between the HCP and the HCU. While some of the interviewees believe that having a form of formal education helps the interaction between the HCU and HCP, some could not see many differences. Those with the thought that education has a positive influence on their interactions also believe that the higher the level of education, the better the relationship could be.

“if we find. Someone like a secondary school graduate and stuff like that at least to an extent, the interaction is from my own experience, the interaction is better because there is a way we want to communicate with each other, but because of that barrier they feel like, oh, it should not be, and they want to insist that it should not be. They don’t want to understand your own point of view and stuff like that, but I think. That for those people that are formally educated to an extent, it will try and explain things to. They come to understand that sometimes they might not want to agree, but at least then you can persuade them to and expect to it. It gives a basis for interaction”. NA

On the other hand, those who regard being formally educated as not being of more importance than being knowledgeable on health matters are of the opinion that being educated and being an expert in a field does not guarantee a better relationship between the HCU and the HCP.

“I’ve even seen some people that claim to be well educated that don’t understand what is going on in the healthcare system. I will say that the education I’m talking about is health education in terms of health education, especially of the condition that they may be dealing with or education in terms of the way health system runs or the terms” DTo

Interestingly, being educated and being an expert in a field could be a challenge to the relationship between the HCU and the HCP. Those who are educated could sometimes be found not to readily listen to the HCP and could be too ready to go legal since they are well-learned and understand what should be expected from the HCP. it can be argued that not being educated formally then put the HCU at the mercy of the HCP.

“I’m just trying to give you an example. So that they were pressing the chest of their relatives. So that was what made the person would die,

so they did not know that the person is dead and that is why they are pressing the chest, so you understand that kind of education about health, so they are not. It's not as if they are not educated in terms of their level of education. Some of them are even. The level of if I some of them even come and say I'm a lawyer. I'm a this I'm a barrister and you just why are you a lawyer? So you should understand what you are going to, but still you start you know violence against the doctors shouting at them."DTO

Furthermore, not being formally educated is regarded as a problem sometimes by the HCP. The effect of it is seen in the inability of the HCU to engage with the HCP due to lack of confidence in themselves, regarding the HCP as being superior and all knowing. This makes them not want to query or ask questions from the HCP.

"There's a way they recoil inside. Not wanting to really say too much, do too much around somebody perceived to be more educated than they are"DT

Summarily, as regards the influence of education on the relationship between the HCP and the HCU, the word education has different meanings to the different HCPs. Also, there are diverse opinions as to the effect of it on their relationships with the HCU. In the next section, the financial status factor is presented.

### 7.3.8 Financial status

A consistent point as regards finances is that the buoyant the HCU is financially, the better healthcare they can enjoy. Additionally, the poverty level is recognised to be high among the general population, which implies that they may be having issues enjoying the best of care. This can also make them aggressive towards the HCP.

"A lot of Nigerians, an average Nigeria is not buoyant, so another factor is Pressure. I mean internal pressure... Then if I say poverty and by saying poverty, I mean a lot of people in Nigeria are experiencing that. A lot of times when they come to the hospital, they expect that everything is free and stuff like that. But when you ask them, if you ask them pay, they get very angry" DTo

In addition, social acceptance is linked to financial status and that is why a HCU that is of low financial status may find it difficult to relate comfortably with the HCP.

“Because when you see somebody that is still struggling financially, there is tendency for the individual to withdraw, kind of. When interacting with somebody that is perceived to be financially buoyant than they are. So there is this way they recoil inside not wanting to really say too much, do too much around somebody perceived to be more educated than they are, more financially buoyant than they are. So, because there is link between financial buoyancy and social acceptability, we cannot deny that fact.” NR

There are two sides to the healthcare system in Nigeria- the government-owned and the privately managed hospitals. The government-owned hospitals are subsidised, unlike the private sector. In the private sector, every care rendered must be paid for, but the patients can be sure of prompt and stress-free health care. The government sector is oversubscribed, and this makes the waiting time to be longer and stressful for the HCU. The frustration from this can also make them become aggressive to the HCPs.

“It’s also one of the major problems, especially in the public sector. In the private sector, People have access, but public sector you can have 10 patients at once.”NN

Additionally, finances have a substantial impact on the level and quality of care that the HCU can access. The higher their financial Status, the better the level of care they could afford.

“When I was a student, I had a posting in Lagos where each patient assesses the consultant and then everybody in charge of their care freely. With a snap of fingers like this, they could just call anybody at any time. it is very easy, because they are assigned consultants and medical officers and... So, it’s like the same person is having to take care of them throughout, but in the setting where I am now, anybody can take care of the patients per time, and they keep asking fresh information again and again which can be stressful for the HCU.” NT

Another concern with finances as a determining factor in the relationship between HCP and the HCU is around the subsidisation of healthcare by the government sector and the communication of this to the HCU. The government operates a health insurance system that people can subscribe to. However, this is not all-inclusive. Most of the HCU regards the government-managed healthcare to be free so when they come to the hospital, they are not expecting that they would have to pay. Interestingly, even those

who did not subscribe to health insurance due to misinformation expect that they should be treated free of charge. This leads to anger against the HCPs who are just doing their job because the HCU sees them as the cause of their problem in accessing healthcare.

“if you ask them to do this, they get very angry and, I work in a state hospital. So, when you ask them to buy this and buy that they get angry and they’re like they thought they are in the government sector that it shouldn’t be expensive, that you shouldn’t ask for them for money. And I’m like, it’s not my personal fault.” DT

## Summary

Financial status is found not to only determine the level of care available to the HCU, it also plays a major role in how they relate with the HCP. The manpower and work schedule factor is considered in the next section.

### 7.3.9 Workforce and work schedule

There are two sides to the issue of the availability of workforces and its effect on the relationship between the HCP and the HCU. In the time past, there were a lesser number of HCPs compared to what we have today. There has also been training of more HCPs, and availability of options to specialise in the creation of more healthcare facilities. These are to increase the opportunity for a better interaction between the HCU and the HCP.

“Over time, we have more healthcare providers. I remember that many years back or the time at least I can remember one of our senior colleagues who taught us in school. He told us that in his village he was the only one that went to study medicine. And at that time he had to go and study abroad. Because the first university the first university was only just starting and could not accommodate many students. So that time I believe that many doctors many schools are coming up, the private inclusive you know, and more students can study medicine. so I think we have more doctors now than before. In fact, you can almost see in every street hospital, you understand. this is not about doctors only, but HCP. So, we have doctors, we have nurses, we have different professions that even coming up. We have health records; we have different people. You know, when

I went to study medicine, there are some courses that were not available then. Now we have different, you know, under the health sector different ones.” DT

However, it is interesting to note that even though there is more workforce in terms of training, there has been a decline in the level of interactions between the HCP and the HCU in recent times. The first side to this is the location of the facility. Most HCPs do not like to work in remote settings due to the lack of basic amenities in such locations. This restricts the available number and the quality of HCPs in such locations, and so does the level of interaction when the ratio of patients is compared to that of the HCP.

“Most people (HCP) They join non-governmental organisations. In the services, all the joints and that is the first arm of government that is the federal government healthcare facilities in terms of providing services, most people that have been trained by the state or by the local government over the community, they live the community to witness to go what they are told, to look for greener pastures, maybe at the Federal medical centres (cities)”. NN

Recently, there has been a wave of HCPs leaving Nigeria majorly to seek a greener pasture. This has reduced the number of available HCPs drastically, affecting the time and level of interactions between the HCP and the HCU.

“Also, the with the recent flocks of people healthcare workers. Traveling out of the country, they are now limited hands to attend to people in hospitals in our different hospitals. So, cases where you have a nurse to just, I’m a nurse to over. 30 patients. Which is not in line with The Who recommendation then”. NR

Additionally, the issue of an inadequate number of HCPs available to care for the HCU due to the relocation of HCPs abroad is also impacting the HCP and then the HCU indirectly. This is because when the available HCPs are overworked, it leads to fatigue and less productivity, which can affect their responses to the HCU.

“Like for example, Now I do 24 hours call like every alternative day, and that’s three times. In a week. You understand? if I must work 24 hours three times in a week, that is going to almost night in, night out. What’s that now?  $24 \times 3$ . That’s 72 hours. In a week. I don’t know how you do it your own area there, but it’s a whole lot of work and you have to

stay, considering the environment, you are not well fed as there is no food. Sometimes it's not like you'll be given food but no time to Take care of yourself" DT

Furthermore, the shortage of HCP is not only caused by HCP leaving the country. The interviewee could see a loophole in the recruitment process by the government. The government is considered to have not been making enough effort to recruit new hands since there are HCPs without jobs, and the government is not recruiting them for whatever reasons.

"There are so many people (HCP) outs there who are still unemployed. Before you can get job, you must know somebody that knows somebody. So even when people are trained, they don't get employed". DTo

Named are restrictions in admitting students for training in the different healthcare studies, and so the ripple effect is HCU not having the best of the HCP due to insufficient hands.

"And then the training aspects, you know very few people are allowed into the medical school very few people are allowed into the pharmacist school. Few people are allowed into the nursing school. We are not saying that standards should be lowered, but then, there could be better ways to ensure that many people are well trained to fit him into these positions." PB

Additionally, Poor remuneration and lack of motivation have been highlighted by almost all the interviewees as contributing factors to the shortage of HCUs with its attending effect of poor interactions between the HCU and the HCP.

"Number one problem is the government. I mean they're not paying, nor paying us well. And then also we have few health workers, I mean few health workers and we have so many patients to attend to because of that, there's not enough interactions".NM

Lastly, the excessive workload load is robbing the HCU of the opportunity to be part of the decision making as regards their care. This is because the HCP believe that they do not have enough time to explain the modality of care and procedures to the HCU due to a shortage of hands.

"The patient will just come and sit down, (and) just tell you all his problems, while, as the provider you just want to give the prescriptions. Some patients

complained that that is before they even finish (talking), that the interaction is not there. There are only very few, very few practitioners. Uh, but in most cases in most cases I've been hearing clients complained that they want more than that". NS

Summarily, a shortage of workforce and, by extension, excessive workload and lack of motivation have been factors in the interactions between the HCP and the HCU. This is because the ratio of the available HCP is not proportionate to that of HCU. The next section explores the effect of the personality and attitude of both HCP and the HCU in determining the relationship between them.

### **7.3.10 Personality and attitude of both HCP and HCU.**

The personalities of both the HCU and the HCP can be a factor in their relationship. For instance, some HCPs can operate from the mindset of pride stemming from their training.

"And the other one, I call it pride. (a HCP may be thinking) I've gone to school for this. It Took me a lot of money, a lot of the research, a lot of time, you know, energy. Why would I just forge it to you just like that?".  
PB

Some HCP could also be guilty of allowing their emotion to overrule their sense of judgment. An HCP may be facing challenges, which may be from the workplace or their personal lives, and it is expected that they will be able to manage their lives without affecting their job. Unfortunately, sometimes this is not what they do.

"you might be having some bad days, and when you report to the long instead of it, Libby's at home, some people carry their problem to and begin to vent their anger on their clients, and some sometimes some this is the situation in our hospitals". NS

Summarily, the personality of the HCP and the HCU can be a determining factor in their relationships.

### **7.3.11 Conclusion**

The theme relationship of the HCP and the HCU is explored with its determining factors. Of importance is the point that there has been improvement in the relationship over time, although there is still room for improvement. The next theme presented is health information and the HCU.

## 7.4 Theme 2: Healthcare Users and Health Information

### 7.4.1 Introduction

All the interviewees had one thing or the other to say about health information as it relates to the HCU and the HCP in Nigeria. The sub-themes generated under the team Health information are:

- Availability of health information
- The sources of health information for the HCU
- The acceptance and understanding of health information by the HCU.
- Health information and the problems associated with its usage.
- Ways to better communication between HCU and the HCP.

### 7.4.2 Availability of health information.

Health information can be in terms of what is personal to an individual as it concerns their health. It can also be related to general information about health, disease, and healthy living. There are diverse opinions on the availability of health information to the general population in Nigeria. For personal/ individual health information, most of the interviewees believe that it is not readily available to the HCU. It is as bad as the HCU not knowing what they are being treated for or having the modality of their care discussed with them.

“From my own experience, you know, one thing about Nigerian is branding and packaging for me because I observed a lot of facilities that use the so-called branding. Patients don’t know what they are being treated for, or the medication being given as it is branded. Sometimes when the patient come for some health check like BP (and) wants to know what their blood pressure is, you (will hear) the health care provider saying, what do you want to know? You (the HCU) run some tests; you don’t even have access to those tests. If you (the HCU) ask your doctor. I assure you the doctor will not even tell you” NT

Additionally, HCPs, most especially in private practices, withhold information from the HCU to strengthen their hold on them and maximize their profit.

“You came and complained that you have malaria and I’m giving you this drug. Alright and sometimes you know healthcare providers don’t make the name of the drug readily available to the consumer, they just they want to maximize profit. So, I think that’s also one major aspect, because once you (the HCU) have (the) information, you know, then next time you’re not likely to come to me then. How do I make my money?” PB

As regards general health information, those who believe that health information is available to an average Nigerian see it as a development because it has not always been so.

“One of the things is that people are now, you know knowledgeable about many things. You know, people can access, people have access to knowledge, they have access, to many things” DT

Additionally, they believe increasing availability of health information means better interaction between the HCP and the HCU.

“So, there’s a level of interaction, but it does increase these days because the level of interaction has gotten to the point that people Google many things, and they ask questions” DT.

On the other hand, some of the interviewee regards health information as not being readily available to the HCU. This applies to those who only have access to health information when they come to the hospital or pay attention to it.

“We give patient information on what their health status is and what they need to improve on and what they should do and what they should not. A lot of times if they have not come into the health facility, usually they don’t have information (about their health). For example, when COVID came to Nigeria, Nigerians were, before people knew COVID was very serious, the people do not take medication and people were just walking in there without using facemask like that. So, health information is not readily available”. NA

Some factors were attributed to the availability of health information to the general population in Nigeria. One of such factors is the location of residence of the HCU, either in the rural or urban area. Most remote/rural areas lack basic social amenities like electricity, internet facilities, etc. These lacks can also birth other secondary needs, such as a lack of well-trained HCP who would not want to stay in such an area.

“For those in the urban setting, I would say it is readily available because, thanks to the advent of social media and Internet facility. The Ministry of Health is doing a lot to educate people. For example, now there is currently an outbreak of diphtheria. There have been jingles on radio, Newspaper publication on the Internet, the NCC is doing a lot to reach out to people, to educate them on the disease process, the prevention and so on. But my concern is (the) people in the remote villages where there’s no electricity. They don’t have access to Internet. So, people like that are kind of being cut off health information. And the crop of people that should have served these people, which should be the community health workers are not there, because of maybe poor remuneration, the insecurities in the country (etc) people are not willing to work in those remote settings.”NR

Another determining factor for the availability of health information is language. Language can be in the spoken word. It can also relate to the healthcare system language, as every profession has its language. Different localities have different languages in Nigeria, and while English serves as the uniting language, some people might not have learnt it, so communicating any information to such a set of people in English may not help them. Of course, there are some active management of this by the government. One of such is ensuring that the HCP in the different localities can speak the local languages. Also, health education materials are translated into the local languages as needed.

“Yes, language is playing a major role because to communicate you must do so effectively, you must use the language that the individual can understand. There’s no point speaking English to somebody who does not understand what you are saying. So, I know that for community health workers, one of the criteria for. Job is that we must be able to communicate in the language of the Community”. NR

Regarding the choice of language, it is identified that some HCPs use medical terminologies that even those with general reading and writing literacy may find difficult to comprehend.

“When you are interacting with someone that is not in the healthcare system you may have to choose your words. You must come down to their level, using words that they will understand. So, in terms of this, I think we are not too good on that area because sometimes we the health care provider will just say things that it is the patient that will now be the one

asking this, asking that before they eventually get the information and that is for the bold ones. Most times assume that they already know what we mean using our medical jargons without considering the level of education of the healthcare users” DTo.

Additionally, the choice of language as it relates to medical terminologies is not to be equated to the level of education of the HCU. Every field has its “language.” This is why a well-educated professional may find it difficult to understand some medical terminologies.

“I would also say that I want to turn the coin around now just to give an example. A barrister doesn’t really know what we do in the health system. I also may not really know what they do in the legal system.” DT

Interestingly, this issue with the use of medical language cuts across all the diverse types of HCP.

“I’ve seen it happen in so many instances whereby even with all the healthcare providers - nurses, doctors, even when we come around to, if you want to tell patients something, we’ll be using our language. But how do we know that an effective communication has taken place?” NK

Lastly, while some of the HCP use medical language to discuss with the patients out of inadequate training, some do it out of pride and control.

“And the other one I can say, you know, I call it pride. “I’ve gone to school for this”. You know. Getting this information took me a lot of money, a lot of research, a lot of time, you know, energy. Why would I just forge it to you just like that?” PB

It is worth noting that the HCU language of speaking, or their understanding of the English language, does not have much effect on their access to health information. This is because different measures are in place to handle this. This includes ensuring that it is the HCP that can speak a local language that is employed in a place, and also the use of both local and English languages for teaching in schools. Health materials can also be written and translated into the local languages and so on.

“So, most of the time we don’t have that issue because like I said in the beginning, most of the nurses and doctors and most of the pharmacists and also the house care providers, they are houses. In the northern area. So we

don't. Have any issue? Of language barrier so most. Of the other. Part of Nigeria, you understand and then speaking language part of Nigeria, maybe you will hear some. Yeah, on language. So you are here in northern part of Nigeria? So you understand in English you won't understand. Even in our. School he was taking Houser, and they was speaking English. That is how. They do it so that the student will understand in English this one is cut. They will mention it. So how's that concerning with Maria? Part of Nigeria and you want to another part of Nigeria where you so many languages is only English that you speak while others if you speak English the only they are all" ND.

Summary: In discussing the availability of health information to the general population in Nigeria, it is found that health information may be specific to individuals as it relates to their health and modality of care. It can also be on a general level. There are diverse opinions on the availability of health information to the general population in Nigeria. Also, the availability of health information to the general population is determined by various factors such as the personal value of the HCP, the settings of the healthcare facility - whether private or publicly owned, the location of the healthcare facility, the HCP's language, and the choice of words. Not being able to speak English language is found not to have a defining effect on the availability of health information. The next section deals with Sources of health information available to the HCU and the challenges around them.

### **7.4.3 Sources of health information to the HCU and the challenges around them**

In this section, the various available sources of health information for the HCU will be explored. Also, the identified challenges around each of the sources shall be presented. Some of the sources mentioned include:

- Friends and family
- Google/ internet
- Media – radio, television, billboards
- Flyers
- HCP

- Social media

Most interviewees agree that health information is increasingly available to the HCU nowadays.

“I discover that majority of these people, even before coming to you, before going to the hospital - before I work in a community pharmacy, so I relate more with people in the environment. Before they come to you to fill their prescription. You know that they got from the hospital. They have googled this prescription. You know, they have read a lot about it. They have. Before they even get to. The hospital. They may try to. You know, diagnose.” PB

While some of the information is government supplied, it could be sponsored by profit-making companies like pharmaceutical companies, and individuals, for instance, the quack doctors and traditional bone healers. Individuals that want to project their personal opinions, like the bloggers, also supply information, while some are culturally passed down from generation to generation. , and there is culturally passed down information in communities.

Although health information is becoming increasingly available to the HCU, concerns have been raised about some of the sources of this information. The pros and cons of each of the mentioned sources are discussed below:

#### **Internet resources:**

Some of the interviewees refer to this as Google or the network. This source is available to most HCU, most especially those who can afford smart phones, while those in the rural area may be at disadvantage in accessing resources on the internet due lack of facilities for it.

“Yeah, for those in the urban setting, I would say it is readily available because thanks to the advent of social media and Internet facility. The Ministry of Health is doing a lot to educate people. For example, now there is currently an outbreak of diphtheria. There have been jingles on the radio. Newspaper publication on the Internet, the NCC is doing a lot to reach out to people, to health educate them on the disease process, the prevention and so on. But my concern are people in the remote villages. Where there’s no electricity. They don’t have access to Internet. So, people like that are kind of being cut off Health information” NR

Information about health and diseases can be easily and mostly freely accessed by anyone at any time on the Internet. However, the downside is that there is no restriction on the information supplied to the Internet or filtering of those who can supply or access the information. This means that anybody can publish whatever they believe or like on the Internet, either correct or wrong, good or bad.

“If you go on Google, you will see a lot of things. See, the issue is we can get health information also from the Internet, social media and everything but how reliable? For somebody like me, I can decipher whichever information I’m getting if it is correct or not”. DT

Additionally, another challenge with sourcing information from the Internet is that the individual is thrown into what can be described as an ocean of information that is not tailored to their needs.

“And note for example, you can check, if you are talking about maybe you want to know about an infectious condition, can go to CDC Page or WHO page or you know, a known page that you know that you can access safe information from. Even at that, you know. Is not likely that the information will be tailored to you because it was a general information, so that is why” DTo

Community-sourced health information can come from friends and family, traditional healers, or culturally based health information passed down from one generation to the next.

Information about health is passed around among friends and families. However, what seems to be a concern about this is that some health information is person-specific and so cannot be blindly adopted by another person. Also, the information may be outrightly wrong or incorrectly passed across, which is what happens often among the HCU.

“Most of them Actually get little information they know about their health from their friends and relatives Which most times end up being the wrong information” PB

Another way that health information is shared within the community is through traditional healers. These are people who deal with health issues for people without having gone through formal orthodox training. Some of these people have prejudices or

concerns about orthodox medicine and always seek opportunities to promote their beliefs and sometimes discredit information related to orthodox medicine in the community.

"I think they receive information from the society, from their friends, who they believe has been 'there' instead of Coming to the hospital by themselves to find out what is happening to them. Without even coming to the hospital, they will only receive information from maybe somebody or some other people around the community who have a natural hatred towards the hospitals (orthodox medicine). They will be poisoning their minds on the good idea to come to the hospital, to ask maybe for the health care services available" NN

Culture and religion also play roles in health information sharing in the community. Some health information and practices are culturally generated and passed down from generation to generation.

Media and Social media were identified by all the interviewees as a widely used means of sharing health information among the general population in Nigeria. The mentioned social media platforms are WhatsApp, Facebook and Twitter, while television and radio are the most used mass media.

"They have these social networking like Facebook and Twitter. By using this Facebook to enlighten people about the disease and then they will enlighten them using WhatsApp group sometimes. Yeah, using radio and televisions. You see. Maybe they are explaining this is the causes this disease or that. While in the rural communities, they get their (health) information whenever they come to the hospital". ND

While social media use is more common among urbanites, the media has a wider reach and coverage in rural and urban areas and among the general population.

"Wide range of people have it (radio). You see, a man may have communication network problem/ failure unlike radio frequency signal which can be received even in the bush". DT

Healthcare providers as a source of health information acknowledged the fact that HCU gets their health information from different sources, however, the interviewees are of the opinion that HCP should be their primary source of information.

In summary, there are diverse ways for the HCU to get health information, each with its attendant pros and cons. In the next section, the challenges around increasing health information availability to the HCU will be presented.

#### **7.4.4 Challenges around the increasing health-related information to the HCU.**

This section discusses the challenges around the increased availability of health information to the HCU.

Although there are diverse opinions on the accessibility of health information among the HCU, there is a consensus on the increasing availability of health information to the HCU in recent times. This has been attributed to the availability of the internet and the increasing use of smartphones. Another reason is the increasing keenness of some HCUs to seek health information. The increasing number of HCPs and the introduction of different government programmes have also supported this development. However, some key challenges have been identified in this development, and these are discussed in this section.

Lack of trust in the HCP: With the increasing access to health information, the HCU can research their medical conditions freely, which equips them with an understanding of the likely line of care they could have. However, the challenge around this is that the information that they have access to may be general. At the same time, some specific factors may determine the modality of care the HCP prescribes. The disparity in the HCU expectations with the HCPs prescription can lead to the HCU doubting the competence of the HCP.

“How do you get to judge that? OK, this doctor said this, but I read that this is what should be used to treat this or whatever. They have so many information in their head that is, you know, counterproductive and at some point they may think the doctor is incompetent or the doctor is not doing enough”. NT

Aggressiveness to the HCP by the HCU: Equipped with health information, which the HCU translated to mean knowledge and power, seems to embolden them in their relationship with the HCP. Unlike in the past, most HCU now speak confidently and ask questions. They can go ahead and query what their HCP is doing. Some, depending

on the outcome of the person they bring to the hospital, can become aggressive, while they are also very eager to file a lawsuit against the HCP and the hospital.

“And then we have more negative interactions, like people beating up their doctors these days because of what they think they know and such knowledge that they have, or they have gained from the Internet” DT

‘Too know’ syndrome: With the rising access to health information, some HCH seem to see themselves as knowledgeable like the HCU, who has spent years in medical school learning. Having health information is supposed to foster better relationships between the HCP and the HCU; however, this is not always so.

“Relationship between the patients (HCU) and the Healthcare is not so smooth. The health information is one of the ways that we can bring about good communication in building our relationship with the HCU but, they are always acting as if they know more than you”. NT

Summary: In this section, the challenges around the increasing health information accessibility among the HCU is presented. Aggressiveness, lack of trust and “too know syndrome” are the identified challenges. In the next section, the challenges associated with the different available sources of health information are explored.

#### 7.4.5 Problem with the source of health information

The different sources of information available to the HCU have pros and cons. One challenge is the massiveness of the information available on some platforms. For example, the Internet does not have a control measure regarding the Information that people can access. This can make searching for information difficult and overwhelming for the HCU.

“if you go on Google, you will see a lot of things. How do you get to judge that? (for example, a HCU may say) OK, this doctor said this is this but I read that this is what should be used to treat this or whatever. And you have so much information in their head that is, you know, counterproductive and at some point, they may think the doctor is incompetent or the doctor is not doing enough” DT

Additionally, this information can be so generalised such that it is difficult to be able to apply it to specific cases by the HCU, but rather, it leads to confusion and fear.

“Well, healthcare users can access information on the Internet. But you know there is a way to access information. You know if you go generally on the Google. I was about giving an example that for example if you’re having a headache, and then you go on there are whole lot of illnesses that will cause headache, you understand, ranging from simple illness as tiredness to explain to so you can imagine somebody that is not knowledgeable about it. You can create an unnecessary panic situation for yourself. DT

Another identified problem with the source is the level of knowledge of the person supplying the information. For example, someone working in the hospital but not necessarily a HCVP can have idea about some health issues which may not be complete or applicable to a particular person or their situation. This can also happen when information is shared among family and friends.

“There are some people that are working in the healthcare system that are not well informed. They give people in their environment wrong information. Maybe they just hear something in passing. They didn’t ask for the full information. They didn’t ask, you know, they just hand it over, heard it from a doctor or from a nurse. This is so, so, this is this. They, through this wrongly inform people about things”. DTo

Furthermore, some sites or information sources are made for the HCP, who, by virtue of their training, can put the information supplies into context for application. However, the HCU accessing such information, rather than helping them, leads to more confusion. It can also affect their trust and corporation with their HCP, whom they may see as incompetent or lacking adequate knowledge to care for them.

“(on) the social media or let me put it as the Internet, there are some sites that it’s only majorly meant for health professionals to get to interpret the information there. A lay person that gets there. You know, just take the information and then is working with it and doesn’t know what to do about it. When they have the drug leaflet, after filling the prescription, and going home with the medication, they can come back and say I got this from the leaflet. The leaflet says that a pregnant woman cannot use this drug. You know, this is somebody that has tested positive for malaria saying the medication is contraindicated in pregnancy. There is a question and then he comes and speaks. No, no, no. No, no, no, no. I read from the leaflet. I’m not supposed to use this drug. Then, I explain to them that

there is a risk benefit ratio that we have to look at here. So, we have to explain to them and school them in that area”. PB

Important to note as regards the problem with sources of health information is that not all the sources are available to everyone. Some of the reasons for this are location. People living in the rural area may not have access to some of the sources of health information, such as the internet.

Finally, some of the sources of health information are more advantageous than the other. For example, sitting with the HCP affords the HCU the opportunity to ask questions and seek clarifications, which is not the order with the internet and the media. With the social media, this may not be a problem, however, there is a need to be sure of who is supplying the information at the other end. It is worthy of note that healthcare facilities can also make use of the social media in interacting with the HCU, making it an advantage in information sharing.

“If health information is going to be available, we must use a lot of media and the social media. An average Nigerian will listen to radio. From my own perspective, I have not come across so much regarding health information on TV shows. The elites use social media if they feel they need some information but a lot of people in Nigeria don’t have that. This is because they do not have android to access health information on their phones. Another aspect is coming to the hospital. For example, where I work when they come like that, we give them health education, though not all the time because of staff strength and the workload. But many times, when we have the chance, we give patient information on what their health status is and what they need to improve on and so on, what they should do and what they should not. A lot of times if they have not come into the health facility, usually they don’t have information. For example, when COVID came to Nigeria, Nigerians, before people knew COVID was very serious, the people do not take medication and people were just walking around without using facemask”. NA

In summary, there are challenges associated with the sources of information available to the HCU and their choices. The next section describes the HCU and their understanding of health information.

### 7.4.6 Understanding health information

Health information is increasingly available to the HCU in Nigeria. However, there are concerns about their understanding and the acceptance of health information.

“People come around and you know they ask questions. They get the information but having to use it may not be 100%. Of course, you know they get information and sometimes they come around complaining or asking questions; How true is it? Is it true that I can use this to take care of this? So, they get the information. But for me, I feel a lot of people make a lot of misinterpretations, and some even misuse information” PB

While the lack of the understanding of health information applies to every source available, the effect of it is more pronounced with the internet, social media and media and lesser with the HCP as the source of information. This is because with the HCP, the HCU can ask questions and seek clarifications about whatever is not clear to them, even though, they may choose not to ask, unlike the other sources that are a form of one-way communication.

“Healthcare users Can get health information from qualified practitioners which is more reliable. See, the issue is this, they can get health information also from the Internet, social media and everything but most of them can’t decipher the information they are getting from those sources. With the HCP, they can ask specific questions but not with google”. DT

Furthermore, the HCU having access to information that they may not understand well but holding onto when relating with the HCP can lead to a strain in their interactions. The HCU may because of the information gathered which may not be exact with the recommendations of the HCP regard them as being. It can also lead to lack or loss of trust in the HCP’s ability.

“How do you get to judge that? OK, this doctor said this, or I read that this is what should be used to treat this or whatever. And they have so much information in their head that is, you know, counterproductive and at some point, they may think the doctor is incompetent or the doctor is not doing enough” DT

The interviewee raised issues around the acceptance of health information. No matter what the source of the health information is, even if it is directly from the HCP, it is possible for the HCU not to accept or go by the health information. One of the

identified reasons for this is culture. The cultural belief of the HCU may sometimes be stronger than whatever health information is supplied to them. Their persuasion of such cultural information may be stronger than the orthodox health information that is being supplied.

“I will say that most of the people get to understand the information being passed across through the different media and use of different strategies. For example, on the mass media like that, they can use a form of role play and short drama. So people gets to understand it and utilize it. But there are some people I see them as minority that I feel OK, I wouldn’t say they don’t understand it, but their cultural belief is playing a major role in their utilization of the information. Their cultural beliefs seem stronger than the information they are getting. So those minorities still tend to go with their cultural belief in handling some of this information.” NR

Additionally, cultural beliefs are passed down from generation to generation and so its influence on the acceptance and utilization of health information can be generational.

“If they’re not persuaded, they don’t make use of the health information, that’s the point. A lot of times, I’ve seen some people that are formally educated and when you tell them they’re like please don’t even bother! In fact, I have a cousin like that. They were told that their newborn baby had jaundice and needs phototherapy. She and her husband refused, saying their baby would be fine using, pawpaw water. When I tried to convince them, I was told the story of my life, of how I was jaundiced as a baby and with pawpaw water I was cured!” DT

Summarily, not all the health information the HCU receives can be interpreted correctly. Also, culture plays an important role in the acceptance of health information. The next section is dedicated to ways to better communication between the HCP and the HCU.

#### **7.4.7 Better communication between the HCP and the HCU**

In this section, the different ways to enhance communication between the HCP and the HCU are presented.

The HCP are regarded as a reliable source of information for the HCU. Importantly is the aspect of them being able to ask questions directly and have answers tailored to their personal need which is based on the HCP’s observation, investigations and so on.

Various ways to ensure highly productive communication between the HCP and the HCU are presented as follows:

### **Understanding the patient**

To ensure an effective communication between the HCP and the HCU, it is important that the HCP have a proper assessment and perspective of their client. This should include, but not limited to, their Likely personality, most especially as it relates to the situation they are going through, their choice of language, their preferred mode of communication, and so on. Knowing and understanding the patient will allow free flow of communication without shutting them down or making them uncomfortable.

“When you are Interacting with somebody that is not in the healthcare system and are not feeling well, you may have to choose your words carefully when talking to them. You must come down to their level and use words that they will understand. So, in terms of this I think we are also not too good in that area because sometimes we healthcare provider will just talk and talk and it is the patient that will now be the one asking questions before they now eventually get the information needed and that is for the bold ones. Most of the times we assume that they already know”. DTo

### **Avoiding the use of medical terminologies**

Every profession has its bank of words that are peculiar to it, and so is the healthcare system. It is identified by the interviewee that the use of medical terminologies, otherwise known as medical jargon, is common among HCP. This affects the flow of communication as the HCU struggles to keep up with the discussions. Therefore, it is important to use simple words that could be understood. Additionally, education is found not to be a factor in understanding medical terminologies. This is because different fields or professions have words that are peculiar to them.

“I will say that the Use of healthcare/ medical jargon by the healthcare providers needs to be corrected. We must put into consideration the patients’ understanding and adjust to that too”. NA

### **Transcribing and translation of materials written in English language to the local languages**

Although, being able to speak or understand English language is not regarded to have much effect on health literacy, there are some people that may not be able to speak,

read, write or understand English language. It is recognised by the interviewee that writing health education materials in local languages and translating those written in English language to these languages can help to ensure that health information gets to all.

“For some of our people in rural areas, we have this issue. Whatever somebody has to produce, he has to do it in two languages: the local and English. Like when you when you write name in English, at the bottom there you write name in the local language and so on”. NA.

### **Feedback method**

This is done by asking the patients to explain back what they have been told, what they read, or the instructions they were given. By this, their understanding of the information received can be checked to ensure that the information has been properly passed across.

“I don’t like to take chances. I try to get feedback, you know, after explaining the prescription, this is how you’re supposed to use this, you know. Ask them like, can you repeat what I’ve just said? What do you understand about what I just said? and then they explain. You’ll be surprised that some of them misunderstood what you said. I’ve had cases where people are, you know, a particular medication is supposed to be used four tablets for day 1; 4 for day two and then two tablets for day three. And then somebody is coming back to say oh! You mean I should use four tablets in the morning or in the afternoon then two? So it is a serious matter actually” PB

### **The use of interpreter**

This is also one of the ways identified to ensure smooth communication of health information to the HCU. This is needed in case of language differences between the HCP and the HCU

“You can interpret to the local people our rural areas who do not understand English language to have the information in their language. That way it will be more accessible”. NA

“For information to be passed across effectively, sometimes we use interpreter when there is language barrier. An interpreter will help to pass what you

have said across to the patient. That way you can be sure of an effective communication.” NK

Summarily, some of the ways to enhance communication between the HCP and the HCU is presented.

#### **7.4.8 Conclusion**

The theme health information and the HCU is presented in this section. The understanding of health information is found to impact the relationship between the HCP and the HCU. Also, ways to better communication between them were discussed. The next theme to be considered in the next section is the healthcare system and the HCU

### **7.5 Theme 3: The Healthcare System and Healthcare Users.**

#### **7.5.1 Introduction**

In this section, the findings on the healthcare system in Nigeria as it relates to the HCU will be presented. By healthcare system, this refers to the structure, both physical and organisational, as it pertains to the healthcare system in Nigeria. To be presented in this section are the different ways that the HCU can interact with the HCS; the determining factors for the interactions and the ways by which the interactions can be improved. The section is concluded with a summary of the section.

#### **7.5.2 Channels of interaction with the Healthcare system.**

The healthcare system is recognised as having different levels in Nigeria. The levels are defined by the level of care available in these settings. Mentioned are the tertiary, secondary, and primary levels of care. The tertiary level is regarded as the highest, while the primary level of care is the lowest and most accessible.

“The primary level is very available and accessible. But when it is getting to the secondary and tertiary, it’s a little bit difficult. We have a lot of Primary Health centres around here, in fact in almost every local government and localities”. NA

Another level of categorization of the healthcare system is the private and public. This is based on the sources of the funding for care in these settings. The public or government-funded healthcare facilities are supposed to be free or highly subsidised, while for the private settings, the HCU are responsible. There are pros and cons identified with each of these care settings. For example, accessing care in the private settings is much better compared to the public. This can be in terms of the waiting time, the time that the patient must spend with the HCP, and the ratio of patients to then HCP.

“Accessibility is one of the major problems, especially in the public sector. In the private sector, People have access, but public sector you can have 10 patients at once to one doctor. So, the Private sector tends to be better. And maybe, they come with more expenses though”. DA

Another disadvantage for the public or government-funded carer is the issue with payment for care. Even though the HCU is made to believe that their care is free, there are payments that the HCU still needs to make, and this most often leads to rancour between the HCP and the HCU, which regards the HCP as the source of their problem for asking them to buy medication and the other things needed for their care.

“They come with this and that, that the government has paid for their treatment, and they are still paying so much out of pocket. The government isn’t paying for them, in the sense that they are thinking.it is more of political statement to say that healthcare is free. It is not free” DT

Furthermore, the level of care is regarded to be better in private settings as the HCU is given more attention, no matter the time of call. This is unlike in public-funded settings, where the HCP is already overburdened and overstretched. The effect of this is that the HCU does not mind the cost of care in private settings again and so opts for it instead of government-funded settings.

“You will see that patients are complaining. Many of them will say I will rather take my patient to private hospital than to government hospital. Because the way they will even harass you in General Hospital! It is better for you to go to a private hospital and pay your money. Doctors who are working in that hospital, they have their own private hospital. At the public funded hospital, they will harass you and you will have to stay in the hospital all day. Same HCU will come and see you comfortably at the private. Even though you will pay they will take care of you”. NA

The other classifications for ways through which people can interact with the healthcare system are physical face-to-face and online. Online interaction can be via video calls or telephoning. The online interaction is regarded as having the advantage of the HCU being able to access healthcare without having to be in the hospital physically. This can cut down cost both on the side of the HCU and the HCP, although there are identified downsides to this, too.

“Another side to this is that nowadays I know of clinics that are, like proxy consultations such that you only see your patient, maybe the first time physically and then subsequently it’s virtual. So that can also reduce interaction in the sense of physical examination of physical interactions. However, I think this a practical measure to save time and cost”. DT

Going to a physical hospital is not the only way that the HCU can interact with the healthcare system. There are also pharmacies and’ chemists’ in the neighbourhood, which serve in their own capacities. These also have their upsides and downsides.

“There are pharmaceutical shops, if you know for Africans or in Nigeria you have different ones, I mean with the pharmaceuticals, there are some that we call chemists. Those ones are not knowledgeable about medicine but there are good pharmacies. Sorry a pharmacist ordinarily will have a knowledge of drugs but not about diseases but one of the things we are taught as medical professionals in the medical field is to know when to refer”. DT

### **7.5.3 Determining factors for HCU interactions with the healthcare system**

#### **Introduction**

In this section, the findings on the determining factors for the interactions of the HCU with the healthcare system will be reported. It is worthy of note that there are diverse opinions as regards the interaction of the HCU with the healthcare system, which is regarded as either good or not good enough.

#### **Hospital/government policies**

Firstly, it is established that there are policies in place to guide the interaction of the HCU with the healthcare system. However, it is either that these policies are

not developed by the right set of people, or without consultation. Sometimes, it is that the policies are not being followed. There are also cases of ambiguity as to the interpretation of the policy in some instances.

“There are policies. The problem we have is that those making the policies are like political appointees. They will bring somebody who did not have knowledge about the healthcare to be the director. It’s just like a political appointment. They want to extract something from there, so there is need to improve policy making in hospital, not to bring somebody who has no knowledge. Patients interest should be of more importance than political interest”. NA

Secondly, some of the policies are not patient friendly and so negatively impact the interaction of the HCU with the healthcare system. An example of this is the admission process. The ways through which the HCU can approach the healthcare system, either through the emergency care or the admission process when needed, is of great importance. Some healthcare setting has a policy that patients can only be admitted via emergency, and once this is full, they cannot take in any patients again. Such a policy is not favourable to the HCU and so can only negatively impact how they relate with the healthcare system negatively.

“Like I was saying, hospital policies can impact the interactions of the HCU with the Healthcare system. For example, if a policy says that you can only admit through the emergency, and when you come to the emergency, maybe it is full. You don’t have a space, or the doctor/Patient ratio is too high, there is no way the patients are going to enjoy being cared for in such a setting”. DT

Another such policy concerns care finances. For government-funded hospitals, the HCU can subscribe to health insurance policies, which are meant to ease the burden of medical costs when needed. However, this is not helping as much as expected, thereby affecting the HCU’s interaction with the healthcare system.

“I believe when you are doing an insurance scheme there shouldn’t be any time. They will tell you this scheme does not cover this; you cannot have access to this kind of drugs etc. There are serious limitations to the coverage of the health insurance too. I pay 15,000 naira for cover for myself and 4 kids yearly, even without using the hospital and when I need to use it, they are telling me almost all care like lab tests, drugs are not covered. How can patients be happy with that?”. NAK

One other example of a flawed policy is those regarding preventive care. The HCU does not usually have the opportunity for preventive screening, which is obtainable in developed countries as part of routine care.

“You see, in overseas they will remind you of your screenings They will even go and bring people out to say it’s time for your screening. But here there’s nothing like that. We can copy from the advanced and developed countries. Someone 65 came down with cervical cancer. No pap smear or anything of such. Diseases that are preventable should not take people’s life; you understand. But because this is not incorporated into our system, government policies rules, regulations, what can we do?” DT

Policies are supposed to protect the HCU’s interest in case of damages. However, some of the policies are such that the actions the HCU can take against the hospital or government are limited or not allowed at all. Even when they are allowed, it can be much delayed, and justice delayed is as justice denied.

“It is difficult to sue any hospital because we are not allowed to sue the government. That’s the reason why if you are having problem with them, I don’t think there is solution. There is this case of a child neglected by a doctor and at the end of the day the child died, you know. They sue the hospital and the doctor to court. The case was on for six years and at the end of the day, the case was transferred to Supreme Court where it was ruled that the doctor’s license should be withdrawn, and the hospital had to pay the father almost 10 million Niara. The money was not paid until like 12 years later. That is like almost 30 years to get justice”. NA

Policies regarding the distribution of duty have been found not to foster teamwork. Some HCPs are invested with more power and autonomy than the rest, and this always causes rancour.

## 7.6 Conclusion

The three generated themes from the qualitative data were presented in this chapter. The next chapter discusses the findings.

# Chapter 8

## Discussion of findings

### 8.1 Introduction

In this chapter, the results of the qualitative and quantitative data are discussed. The purpose of this study is to examine health literacy in the general population of Nigeria. Nigerian healthcare providers were interviewed to add a qualitative viewpoint to the study, and adults in the general community were surveyed. The research questions for this study are:

1. How is the relationship between the healthcare providers and the healthcare users in Nigeria?
2. What are the interactions of healthcare users with health information in Nigeria?
3. How is the experience of the healthcare users with the healthcare system in Nigeria?
4. What is the relationship between COVID-19 knowledge and Health literacy among adults in Nigeria?

Health literacy is recognised as one of the determinants of health and health outcomes in the case of diseases. According to Nutbeam (2000), there are three identified areas of health literacy; the functional, the communicative and the critical health literacy. Functional health literacy is concerned with the ability of the HCU to relate to health information, especially to read it. Communicative health literacy refers to the ability to read and understand health information. In contrast, critical health literacy focuses on the ability of the HCU to read and understand health information, critically evaluate it, and make an informed decision about their health.

The tool used to test health literacy among the general population in Nigeria for this study is the health literacy questionnaire (HLQ). This comprises nine domains, each of which can be tested exclusively for health literacy among the general population. The nine domains of the tools are:

1. Feeling understood and supported by healthcare providers.
2. Having sufficient information to manage my health.
3. Actively managing my health
4. Social support for health multiple regression
5. Appraisal of health information
6. Ability to actively engage with healthcare providers.
7. Navigating the healthcare system
8. Ability to find good health information.
9. Understanding health information well enough to know what to do.

These domains are grouped to answer the research questions for the study, as follows: How is the relationship between the healthcare providers and the healthcare users in Nigeria?:

- Feeling understood and supported by healthcare providers.
- Ability to actively engage with healthcare providers.

What are the interactions of healthcare users with health information in Nigeria?

- Having sufficient information to manage my health.
- Appraisal of health information
- Ability to find good health information.
- Understanding health information well enough to know what to do.

How is the experience of the healthcare users with the healthcare system in Nigeria?

- Navigating the healthcare system

For the 4th research question, the nine domains of health literacy were checked against the knowledge of COVID-19 among the healthcare users in Nigeria.

## **8.2 The process for interpretation and discussion of findings from the qualitative and the quantitative data sets.**

As mentioned earlier in the study, a convergent parallel mixed-methods design was adopted to determine the timing of integrating the qualitative and quantitative data. However, the interpretation and discussion of the findings from the two data sets were conducted using triangulation (Bans-Akutey and Tiimub, 2021). This was done after the two data sets were analysed separately. The findings for each of the nine health literacy domains, as related to the research questions, were drawn from the two data sets. Following this process, some points complemented each other, while others elicited diverse opinions. Also, some points in the quantitative data set were not mentioned in the qualitative data, and there was partial agreement on some points. For example, some questions centred on participants having chronic diseases such as diabetes and lung disease were not explored or mentioned in the interview with the HCP. Other questions include the use of emergency care and the need for help filling out the survey. Such points were discussed in relation to the pertinent literature. The findings that are prominently common to both data sets are education, geographical location, age, employment, gender, and language, and these were discussed, as presented in the findings from both the qualitative and quantitative data sets. For example, with the domain “Actively engaging with the HCP,” education was found to be significant in the survey. However, with the interview, the views of the HCP were diverse. While some regarded education as highly beneficial for the HCU’s active engagement with them, others observed that it could be a hindrance because the HCU displayed a “too-know” attitude.

“If we find someone, like a secondary school graduate and stuff like that at least to an extent, the interaction is, from my own experience, the interaction is better because there is a way we want to communicate with each other, but because of that barrier they feel like, oh, it should not be, and they want to insist that it should not be. They do not want to understand your own point of view and stuff like that, but I think that for those people that are formally educated to an extent, if we try and explain things to them, they come to understand. sometimes they might not want to agree, but at least then you can persuade them to and expect them to. It gives a basis for interaction”.NA

"I am just trying to give you an example. So that they were pressing the chest of their relatives, they believe that was what made the person to die, so they did not know that the person was dead and that is why they are pressing the chest, so you understand that kind of education about health, so they are not. It's not as if they are not educated in terms of their level of education. Some of them are even, some of them even come and say I'm a lawyer. I'm a this I'm a barrister and, you are like, you a lawyer? So you should understand what you are doing, but still you start you know violence against the doctors shouting at them." DTo

Another example is from the domain "feeling understood and supported by the HCP". For this domain, the survey showed that employment status, which can be translated into the HCU's financial status, plays a role in the HCU's feeling of being understood by the HCP. The HCP corroborates this in the interview, where they mention that HCUs who are not financially buoyant may not even seek healthcare or may feel intimidated when interacting with the HCP, whom they believe are financially better off than they are.

"Because when you see somebody that is still struggling financially, there is tendency for the individual to withdraw, kind of. When interacting with somebody that is perceived to be financially buoyant than they are. So there is this way they recoil inside not wanting to really say too much, do too much around somebody perceived to be more educated than they are, more financially buoyant than they are. So, because there is a link between financial buoyancy and social acceptability, we cannot deny that fact." NR

One interesting point concerns language. In the survey, being able to speak English, the official language in Nigeria, a multilingual country, was found to be of no significance to people's health literacy. However, the interview provided a deeper understanding of language as being beyond what is said, encompassing how it is said. It also explains language in the context of choice of words, even when speaking English language, giving detailed information about language and health literacy.

"I've seen it happen in so many instances, whereby even with all the healthcare providers- nurses, doctors, even when we come around to, if you want to tell patients something, we'll be using our language. But how do we know that effective communication has taken place?" NK

### 8.2.1 Summary

This section describes the process for interpreting and presenting findings from the qualitative and quantitative datasets. Presented in the next section is the discussion of findings for each of the research questions from these interpretations.

## 8.3 Research Question 1:

How is the relationship between the healthcare providers and the healthcare users in Nigeria?

### 8.3.1 Domain 1: Feeling understood and supported by HCP

According to Hannawa et al. (2022), a strong interpersonal relationship between the HCP and the HCU is the cornerstone of the healthcare system; because it affects the HCU's experience with the HCP and the healthcare system and has a significant impact on their health result (Moll, Frolic, and Key, 2015). It can be characterised as a compassionate and kind approach to caregiving, free from any aspect of the caregiver's judgement, and with a feeling of acceptance and safety in the HCU. Relationship building with the HCU is a component of the HCPs' training. To do this, the HCP must be able to establish and maintain a caring and professional relationship with the HCU at all levels and at all times. For example, the document "The Standard of Proficiency for Registered Nurses," which outlines the abilities, knowledge, and skills that a newly registered nurse should possess at the time of registration, highlights how crucial it is for a new RN to be able to build compassionate and productive working relationships with both patients and other healthcare team members.

“At the point of registration, the registered nurse will be able to demonstrate the skills and abilities required to develop, manage and maintain appropriate relationships with people, their families, carers and colleagues” (Standards of Proficiency for Registered Nurses, 2018:section 1.13 pg. 9).

Hannawa et al. (2022) emphasised the importance of a ‘healthy’ relationship between the HCP and the HCU. This is corroborated by the HCP interviewed for this study, who agreed to the importance of the relationship between the HCP and the HCU. They could also attest to the fact that there is a level of relationship between the HCP and the HCU in Nigeria. However, their opinions are divided on the intensity and the effectiveness of the relationships, while they all agree that the relationship

could be better. This aligns with Drossman and Ruddy's (2020) view on the need to improve the patient and HCP relationship. From their perspectives, it is as if the relationship between the HCP and the HCU is getting worse than it used to be in the past. With these views, it may be worth considering the possibility of the quality of the relationship between the HCP and the HCU being like in a cycle.

A good or therapeutic relationship can only be best described from the perspective of the patients (Waweru et al, 2020). Although HCUs are in the hospital primarily because of their medical conditions, they want to be known and heard as people beyond their state of health (Montori et al., 2022). This is why interpersonal relationships can be best expressed through interpersonal communication. Most of the complaints raised by HCUs revolve around how the HCP relates to them, which is mostly about communication (Moll, Frolic and Key, 2015). In essence, communication is the exchange of information between individuals. Before it can be said that a communication has taken place, it is crucial that the person receiving the information can comprehend it enough to take action or respond. The HCP in this survey believes that communication is more than just words, something that most HCP can be proud of. What is discussed is the medical understanding of the patient's condition and the use of that understanding to address the issue. The HCU is more focused on the other facets of communication as well, which can take place in this manner, at this time, and even at this location. According to Waweru et al. (2020), a strong, caring communication will highlight the care user's illness and their entire humanity. This supports the position expressed by the health care professional questioned for this study, highlighting the significance of understanding the patients. A comprehensive evaluation of the HCU should be a part of any discussion between the HCP and the HCU. Their personality, favourite language, and mode of communication should all be included. However, from the point of view of the HCP in Nigeria, the relationship between the HCP and the HCU is yet to be at its optimum even though there have been recorded improvements over the years. This aligns with the literature as there is always the call to improve the relationships between the HCP and the HCU (McCormack et al., 2015).

“In time past and now they interact although there are a lot of changes that has happened between healthcare workers and healthcare users initially. And many years ago, maybe as a student there was a time that the interactions were minimal but we're not, (you know) there yet”. (D1)

The test for 'health literacy that deals with 'feeling understood and supported by the HCP' can be approached in two ways by breaking it down into two parts. Starting with

the ‘feeling understood’ part, it is important to note that this is more about how the HCU feels and not what the HCP has done (Baker et al., 2021). This still emphasises the importance of giving priority to the person of the HCU, actively engaging them in their care. This has been established to help the patients feel more valued and respected, reducing their anxiety. It also reduces their need for re-consultation, saving healthcare costs while improving overall patient outcomes (Korhnhaber et al., 2016). On the other hand, when the patient’s feelings are not given cognisance, it makes them feel worthless and helpless. This can lead to an increase in anxiety, which can worsen their conditions.

The HCU feeling supported by the HCP is also an aspect of the test emphasized in this domain of health literacy. “Support”, according to the Cambridge dictionary, means “to agree with and encourage someone or something because you want him or her to succeed”. Considering the key words in this definition can give a deeper understanding of what this domain may emphasise. Starting with the word agree with, to agree with can mean that the HCP agrees to what the HCU may be saying about their feelings or what they think may be wrong with them. It can mean agreeing on what the patients consider good for them or their care choice and outcome. At this point, it is important to consider from the perspective of the HCP what ‘agreeing to the HCU’ could mean by exploring the different types of relationships between the HCP and the HCU.

Different dimensions have been identified from the interview with the HCP in Nigeria to the relationships that could exist between the HCP and the HCU. It could be like that of a boss to a subordinate, where the HCP gives the command which the HCU obeys. The HCU could initiate this, while it can also be from the HCP. One of the interviewees described how some HCUs relate with the HCP as “acting like they are in the court before the judge”. In such a situation, the HCU is comfortable with the HCP making decisions regarding their health. One of the ways that this type of relationship is described in the literature is paternalism. Paternalism is derived from the type of relationship that could exist between a father and his child. The father is regarded as wiser than the child and has the child’s interest at heart. So, by this, he makes decisions for the child, focusing on doing what is best for the child without the child’s contribution (Shahul, George and George, 2022).

Paternalism has been part of the healthcare system since ancient times, and it was regarded as the standard for care because the HCUs were regarded as uneducated and

naïve as to health matters (Alexander and Haugen, 2023). However, such a care trend has been questioned and regarded as unacceptable in modern medical care. This is first by the release of the principles of biomedical ethics in the 70s (Beauchamp and Childress, 2019), following the Nazi scientist's atrocious actions during the second world war. Shahul et al. (2022) also mentioned the increase in medical knowledge and research, which led to the different concepts being embraced in healthcare today. Examples of these are patient-centred care, shared decision-making and so on. The other reason paternalism is being queried is the issue of human rights, which does not accommodate decisions being made for an adult, especially if it can be proved that they can make such decisions mentally, no matter what their decisions may be. The oath sworn by the HCP is such that they must not do evil and always do their best for patients. However, what may be considered good for the patient can be contrary to the wish of the patient.

For instance, a patient who does not want to be resuscitated will have his/her desires violated in the patient's autonomy if the HCP does otherwise. However, on the other hand, the HCP taking such an action or inaction, will be against the oath to save lives. Such issue is an example of an ethical dilemma in the healthcare system. In a situation like this, "Agreeing to" and encouraging the HCU could be a challenge. Also, Important to consider is what "success" in terms of health outcome could mean to the HCU. A patient that is in continuous pain may not consider anything that will prolong their life as a successful care outcome. "success" to such an individual may mean accepting to die. The healthcare professions are not against patients dying or seeking to make the patients perpetually alive. Virginia Henderson (Perkins and Henderson, 1966), who was referred to as the first lady of Nursing in defining Nursing, mentioned nursing a patient to recovery or a peaceful death. So, the concern is balancing the patient's autonomy with the HCP doing the job they are trained to do.

In as much as there has been advocacy and actual move from the paternalistic type of HCP and HCU relationship, the question to ask is, can paternalism be outrightly ruled out in healthcare? While it is important to respect the patient's autonomy regarding their care, it is also essential to consider that there are medical knowledge and resources available to the HCP that the HCU cannot access (Kilbride and Joffe, 2018). In dealing with this contradictory situation, it can be useful to consider the three models for the types of relationship between the HCP and the HCU, according to Szasz and Hollender (1956). These models are not 'a one glove fits all' but dependent on the individual

patient's situation. The first model described is called the activity–passivity model. With this model, the patient is regarded as helpless and unable to decide independently. In such a situation, the HCP comes under the necessity of making decisions for them. An example is an emergency, or when a child needs a form of care that the parents may not agree to. In such situations, paternalism may not be regarded as wrong and denying patients their rights.

According to the survey carried out among the general population in Nigeria, of significance to the domain 'feeling understood and supported by the HCP' is a mental health problem. Even though paternalism is unacceptable in psychiatry, when an individual cannot make decisions independently or feels overburdened to make decisions, paternalism may not be a bad idea (Moncrieff, 2014). The second model is described as guidance-co-operation. This applies when the patient is conscious and can make decisions independently. However, for some reason, they relinquish their autonomy to the HCP. One such factor, as described by the HCP in this study and corroborated in the literature, is the effect of sickness on their body and emotions (Center for Health Ethics - MU School of Medicine, accessed 21/02/25.). This was described by Parsons (2013) in the social system theory as a sick role. According to this theory, when an individual is ill, there is a way society expects them to behave. In playing this role, the individual is expected to act sick, get relieved of work, etc. The other side to this role that has been questioned (Cheshire et al., 2021) is the willingness of the sick person to get well as quickly as they can, thereby submitting to the HCP. This may be necessary for an individual in pain and under duress.

For instance, the survey among the general population in Nigeria showed that people with lung problems feel understood and supported by the HCP. This also applies to an individual who has cancer. Examining the case of an individual with a lung problem, being unable to breathe, probably can be distressing, especially in an acute situation. Also, an individual in acute pain may want to be relieved by any means possible. Such situations can make an HCU more reliant on the HCP and may be interpreted as the HCP playing a paternal role to the patient. However, there has been an argument against this as it is believed to give the HCP a form of superior power over the HCU, which is unacceptable in today's medicine (Bailoor et al., 2018). This can be a dilemma in medical care these days, too.

Another positive reason mentioned by the HCP in this study that corroborates this

model of guidance-cooperation is the HCU's trust in the HCP's expertise. They believe the HCP can handle their condition, presumably having previously dealt with many such cases.

“You (they) believe that this person has come across so many cases like this, or like my own, and knows how to manage it” DTo.

HCPs are expected to behave themselves so that the HCU can trust them. For example, the code of conduct for nurses emphasises the importance of promoting professionalism and trust (NMC, 2018). They must express this through their actions and relationships with the patients and all other professional relationships they are involved with. When HCUs trust their HCP, it leads to higher satisfaction and experience in the healthcare system. It also leads to a better outcome for the HCU (Birkhäuser et al., 2017). Trust is a factor in a patient's experience and outcome. In this case, the patients' choice to relinquish their autonomy to the HCP cannot be blamed on the HCU, as it is normal for human beings to relax where they feel cared for and protected. This also boiled down to the patient's feelings about the HCP, which is the emphasis of the test for health literacy in this domain.

Exploring the different types of relationships between the HCP and the HCU and considering the guidance-co-operation model further, this model could have a negative side. According to the HCP in Nigeria, an example of such a case scenario is when the HCU is willing to accept just what the HCP is offering without questioning due to their negative impressions of the HCP and not wanting to annoy them.

“Because (there is the) knowing they have that the healthcare providers are very arrogant, and unaccommodating, maybe they can abuse them. So they have that fear, which should not be, as a healthcare User” (NN).

Also, there are instances where the HCP want the HCU to listen to them without questioning. In such a situation, the HCP may use culture or religion to make the HCU accept what they're offering them regarding care. This subtle way of forcing the patients to take what is being offered was described by Shahul et al. (2022) as faint/weak paternalism. However, as good as the intention of the HCP may be in such a situation, it still brings to question the position and the consideration of the person and the feelings of the HCU in their care plan.

“So, what we do is we put our xxx religion to play. We bring in the sayings of prophet xxx. So once the man (patient) is a religious man, no issues.”  
ND

The financial status of the HCU has been connected to the HCU taking the role of a subordinate to the HCP. According to the interviewed HCP in Nigeria, an HCU who feels inferior to the HCP will not want to talk too much. This is more because they feel unaccepted and unimportant, which should not be so, as healthcare is supposed to be equal for all.

“Because when you see somebody that is still struggling financially, there is the tendency for the individual to withdraw, kind of. When interacting with somebody who is perceived to be financially buoyant than they are. So there is this way they recoil inside, not wanting to really say too much, do too much around somebody perceived to be more educated than they are, more financially buoyant than they are. So, because there is a link between financial buoyancy and social acceptability, we cannot deny that fact.” NR

This is corroborated by the survey for this study that was carried out among the general population in Nigeria. The study shows that the level of employment of the HCU is a determining factor in the HCU feeling understood and supported by the HCP. The level of employment is related to financial status, as the higher the status, the higher the pay may be. This agrees with the study conducted among people of low economic status (Arpey, Gaglioti and Rosenbaum, 2017), where the participants feel like the HCP does not give them enough attention or cognisance of their feelings or what they have to say. According to them, the HCP does not listen to them and ignores whatever they may have to say. Such an attitude display may be a reason for the HCU taking the subordinate role in their relationship with the HCP rather than being actively involved in their care

Interestingly, education is not considered a determining factor for Nigeria's relationship between the HCP and HCU. From the survey carried out among the general population in Nigeria, the level of education of the HCU is of no significance to their feeling understood and supported by the HCP. Also, in the interview carried out among the HCP in Nigeria, some of them believe that the level of education of the HCU is of no importance in the relationship between the HCP and the HCU. However, a patient's level of education can determine how well they can manage their health (Mahoney et al, 2018). It can also play a role in determining the patient's outcome in case of ill health. This agrees with the HCP in Nigeria interviewed. They believe that the higher an individual's education level, the easier it is for them to understand HCP, which can foster better relationships.

“If we find someone, like a secondary school graduate and stuff like that at least to an extent, the interaction is, from my own experience, the interaction is better because there is a way we want to communicate with each other, but because of that barrier they feel like, oh, it should not be, and they want to insist that it should not be. They don’t want to understand your own point of view and stuff like that, but I think that for those people that are formally educated to an extent, if we try and explain things to them, they come to understand. sometimes they might not want to agree, but at least then you can persuade them to and expect them to. It gives a basis for interaction”. NA

However, it is important to note that education goes beyond literacy as it can take different forms, depending on the context. According to the HCP in Nigeria, it is possible for someone who is a professional in their field not to understand the basics of how the healthcare system operates. This was raised as a concern by Chen et al. (2022) in their study, where it was found that people with a high level of education can have low health literacy. This implies that the issue of education not being a determinant of health literacy may have a global tone. It is important to note that such a situation can cause friction in the relationship between the HCP and the HCU, both in terms of being educated and seeing situations from different perspectives.

“I’m just trying to give you an example. So that they were pressing the chest of their relatives. So that was what made the person would die, so they did not know that the person is dead and that is why they are pressing the chest, so you understand that kind of education about health, so they are not. It’s not as if they are not educated in terms of their level of education. Some of them are even. The level of if I some of them even come and say I’m a lawyer. I’m a this I’m a barrister and you just why are you a lawyer? So you should understand what you are going to, but still you start you know violence against the doctors shouting at them.” DTO

Not having any disability is shown in the survey among the general population in Nigeria to be of significance to their feeling understood and supported by the HCP. This can probably be because the HCUs without disabilities may not need the healthcare system too often, so they have fewer interactions with the HCP. With fewer interactions, they have less likelihood and opportunity to have negative experiences with the HCP. This is unlike those with disabilities who are more vulnerable to poor health and, at the same time, have more need for healthcare (Nam et al., 2023). However, the

survey among the general population in Nigeria also showed that some disabilities are significant as regards the HCU feeling supported and understood by the HCP. This agrees with the study by Nguyen and Gilbert (2019), who found that having a disability may not be considered significant to health literacy. However, they recommended addressing the different disabilities separately, based on their peculiarities in exploring health literacy among people with disabilities.

### **Summary**

In exploring the domain ‘feeling understood and supported by the HCP’, it is important to consider what makes the patients feel understood and supported by the HCP. Importantly, among these factors is the need for the HCU to be actively involved in their care. This has brought concern to the issue of paternalism in the healthcare system. However, considering the different forms that paternalism can take, it may be hard to rule it out in the relationship between the HCP and the HCU. Of importance to this domain are the issues of trust and the financial status of HCP. The HCU with low financial status has challenges relating to the HCP, which tends to affect their feelings in relation to the HCP. Education and having some disabilities may not determine health literacy. However, the higher the level of education, the better the relationship between the HCP and the HCU can be. This is because higher education can foster better communication, although there are also challenges around this. For disabilities, there may be a need to look at the different disabilities individually to judge health literacy.

### **8.3.2 Domain 2: Ability to actively engage with the Healthcare Providers.**

#### **Introduction**

Under this domain, the key factors discussed include the gender and age of the HCU. Gender was explored based on cultural definitions and its effect on the personalities of the HCU. The other important factors are the use of emergency services in the last year, the need for help to fill out the survey, and the employment and educational status of the HCU.

## Gender

From the survey conducted among the general population in Nigeria, gender is significant in deciding the health literacy of the general population in Nigeria. This is in line with the study by Lee et al. (2015), where gender-based interventions for health literacy were recommended due to the relevance of gender differences in determining health literacy among adults in Korea. Considering this makes it necessary to explore what gender is all about and its influence on health literacy. Gender was defined as a socially and culturally determined attribute of women, men, boys and girls (WHO, 2025). Because it is culturally determined, it varies from one geographical location or country to the other (Murphy, Fisher and Robie, 2021). Culture coming into play in the issue of gender as it relates to healthy literacy can be an indicator of the need to pay more attention to its effects it.

In the interview among the healthcare providers in Nigeria, culture is used as a tool of power by some HCP with the HCU. It is important to note that gender differs from sex, which describes the biological and physiological features that make males and females (Council of Europe's Committee of Ministers, 2024). It is common to have this confused as most cultures use the words gender and sex interchangeably (Gender, accessed 14/11/24).

Gender inequality has been one of the key issues around healthcare over the years, with active actions being taken by different agencies and policies to tackle it (Cohelo et al, 2022). The two traditionally recognised genders are the masculine and the feminine, each with distinct characteristics. Take, for instance, communication. Women are known to speak differently compared to men. They also use words differently (Yanti, 2021). The role of culture in gender definition makes the issue of health literacy as regards gender a complex matter. According to Conwell and Quadin (2022), gender is a system that promotes inequality through its complex structures. The hegemonism of the masculine gender to the feminine subordination has been from time, and this is one of the reasons for such moves as feminism. The hegemonism of the masculine gender does not involve any form of force, but it is regarded as the culturally acceptable way for males to behave differently from females, making it a legitimate way of life (Knight et al., 2019). Different societies have diverse cultures about how the masculine and the feminine genders are supposed to behave, which also extends to how they relate to each other. What interestingly stands out and is identifiable with all cultures is the superiority of the masculine gender and the subordination of the feminine

gender, and that is why there are moves like feminism to tackle what is regarded as a systemic subordination of the female gender. Another identified effect of this is gender inequality, which has been one of the key issues around healthcare over the years.

Gender was highlighted to play a significant role in patient-provider relationships. This agrees with the findings of this study. The culture of a society, which determines the role played among the different genders, can also be found to play out in clinical settings. Due to the gender role and power-attribution to the masculine gender, the relationship between the HCP and the HCU can sometimes be difficult to manage, with the feminine gender being at the receiving end. In exploring the role of gender as it affects health literacy, a study by Knight et al. (2019) in Kenya, an African country, can also be particularly useful. Moreover, African culture relates to gender similarly. However, it can be argued that the issue of gender domination is not just in Africa, but that it may still be more pronounced in African countries than it is in developed countries. One of the effects of the gender disparity is that it may be difficult for a woman to voice their opinion on matters as they concern their health. However, a male HCP may also unconsciously find it difficult to listen or agree to what a female HCU is saying due to the sense of male power (Knight et al., 2019). The conflict of role can also occur due to the 'power' conferred on the HCP by the reason of their training. So, this, on the other hand, can make a male HCU find it difficult to listen to a female HCP. Quoting from the study by Knight et al (2019).

"[Men] don't want to be told their mistakes. This is a community; women have to submit. Sometimes when you try to explain to them, they don't see you as a care provider they see you as a woman and a woman has no say in the community.' [Female Nurse].

Another area of challenge mentioned by Knight et al (2019) is the issue of sexual advances from male patients to female HCP. There is always this sense of wanting to pursue the female with men, which can be attributed to an instinctive part of nature. Only this is a concern in the engagement of the HCU with the HCP.

Gender, when considered as it relates to the sex of the HCP and the HCU, can also be a hindrance to the HCU's ability to communicate effectively with the HCP. A female HCU talking about her menstrual cycle to a male HCP or a male HCU describing his erection dysfunction to a female HCP could make an uncomfortable conversation. This is in line with the study by Azi (2024), where pregnant women mentioned that they find it difficult to discuss with male HCP. Some religions do not even support the

HCP of the opposite gender, rendering care to the HCU no matter what (Azi, 2024) And that is why it can be understandable why gender is of significance to health literacy.

Another way to look at it is the societal way women are regarded. Most society regards women as weak, forgetful, and mostly unorganised; whatever a woman may be, they are still regarded as unable to attain as much as men (Knight et al., 2019). This thinking also plays out in the clinics, and interestingly, it is not just from the male HCP but also the females (Knight et al., 2019). Regarding non-adherence to care regimens, men are given some considerations and have their faults mostly overlooked, which females do not enjoy. One of the reasons for this is that men are regarded as the breadwinners and so busy, while the female HCUs, on the other hand, are regarded as forgetful and manipulative. This is far from the truth, as in most households today, women contribute as much to household expenses as men.

“Late comers... women do not keep their appointments. Although men are impatient they attend clinics more than women and they keep their appointments... women like giving excuses, “oh I didn’t come last week because my baby was sick, I didn’t have transport.” You know, it gets annoying because if every time you miss the clinic you give the same excuse, surely we get tired.” [Female Clinical Officer].

The significance of gender to health literacy regarding the HCU’s ability to actively engage the HCP can also be traced to the communication styles of the different genders. In most cultures, men are expected to be more dominant and commanding in conversation, while women are expected to speak passively (Handayani, 2023; Knight et al., 2019). Translating to the clinic setting could lead to power abuse between the HCP and the HCU (Handayani, 2023). Also, women tend to speak more with their actions, while men can be more vocal. Some HCP may not be happy with this, thus affecting their engagement with the HCU (Knight et al., 2019). This power play can be identified from the interview of the HCP in Nigeria, where the HCP mostly play the role of the boss, with the HCU acting as the subordinates.

Another angle to gender that can also be explored is personalities. According to the five-factor model of personality, there are five personality traits that an individual could have, including openness to experience, agreeableness, neuroticism, conscientiousness, and extraversion (Lim, 2023). Openness is characterised by being exceptional and erratic, while neuroticism is displayed by being emotionally unstable and having a high tendency to have a feeling of shame. Agreeableness is expressed by being gullible

and submissive; conscientiousness is expressed by being a perfectionist and laborious. The extraversion personality trait is characterised by an individual's always seeking attention and excitement. Rating the males and females based on these five personality traits, women are found to be more agreeable and neurotic, which can make them more emotional than practical (Knight et al., 2019). This can affect their interactions with the HCP as their being emotional can be termed as being manipulative, as illustrated by studies (Beauchamp et al., 2015; Knight et al., 2015). An extract from the study by Knight et al. (2019) describes this:

‘Women have very many personal issues that make them emotional. So sometimes you are attending to them and they just break down, this makes it very hard for us to serve them.’ [Female Clinical Officer].

On the other hand, the males were found to be more conscientious and to demonstrate openness, making them seem aggressive and intimidating to the HCP. This affects the ability of the HCU to actively have meaningful communication with the HCP (Knight et al., 2019):

“Men are also impatient, not just impatient, very impatient. You know when women come, they know it's their clinic day and they queue up waiting to be served. But men... they come in, they want to push everyone around and they have this common line they use, “you know we are going to look for means of feeding our families.”“ [Female Clinical Officer].

In the interview among the HCPs in Nigeria, aggressiveness and violence towards the HCP were recognised concerns. So, it may be safe to say that the issue of aggressiveness may be more common among the males than the females:

"some of them have good attitude. They greet you; they appreciate you. But those are few. Most healthcare users, they are always on the aggressive side, Violent especially if anything (go) wrong. If anything goes wrong with the patients, the relatives, they're usually aggressive, violent". DTo

## Summary

Gender is of significance as it concerns the ability of the HCU to actively engage with the HCP, which mostly affects women more than men. It is important to consider the culture and personalities of both genders as they affect the interactions between the HCU and the HCP. Violence against the HCP by the HCU is also a concern, and there is the likelihood of it being gender-related and more among the male HCU.

### **Needing help to fill the Survey**

This was found to be of significance in the ability of the HCU to actively engage the HCP. There may be diverse reasons why an individual may need help to fill out a survey. This can be due to their literacy or educational level, especially regarding the ability to read and write. One of the definitions of health literacy, according to Nutbeam (2000), is functional health literacy, which is concerned with being able to read and write. Another likely reason can be due to the mental capacity of the individual. Health literacy is concerned about a person's ability to critically appraise health information to make decisions about their health. However, when a person can not read a survey question and interpret it to be able to fill it correctly, it can be a pointer to the state of their health literacy. This coincides with the study by Bourne et al. (2018), in which those participants who needed help to fill out the survey had low levels of health literacy displayed in most of the nine domains of HLQ. What would have been of importance to consider is the ability of those people to read or understand the English language. This is because the survey was written in English, the official language in Nigeria. However, not everyone can speak the language, as there are localities where children are taught in their local language in school. However, the ability to speak the English language is of no significance, not just in the ability of the HCU to actively engage the HCP but in all the other eight domains of the HLQ. Comparing this to the findings from different studies (Bourne et al., 2018; Beauchamp et al., 2015) where participants who speak another language in addition to English language were found to have low health literacy, there is the possibility of those participants in this study not just being able to speak English language at all, which can make the difference when comparing the findings from the two studies. Geopolitical zones that the participants belong to also do not have any significance to their ability to actively engage the HCP. This can emphasize that whether an individual belongs to a setting where they speak English language may not be a determinant of their health literacy.

### **Summary**

Needing help to fill out the survey for this study is a pointer to low health literacy. At the same time, the ability to speak the English language or geopolitical zones does not determine health literacy among the general population in Nigeria.

### Employment and Education

Employment has been highlighted as a determinant of HCU being able to actively engage the HCP. This is important because employment status, most of the time, determines the financial and social status of an individual. This is corroborated by the HCP interviewed in Nigeria, who observed that when a patient is of low financial status, they find it difficult to interact with the HCP, who they are considering more financially buoyant than them.

“Because when you see somebody that is still struggling financially, there is tendency for the individual to withdraw, kind of. When interacting with somebody that is perceived to be financially buoyant than they are. So there is this way they recoil inside not wanting to really say too much, do too much around somebody perceived to be more educated than they are, more financially buoyant than they are. So, because there is link between financial buoyancy and social acceptability, we cannot deny that fact.” NR

These findings align with previous studies on health literacy (Bourne et al., 2018; Lee, Lee and Kim, 2015; Beauchamp et al., 2015), where financial status was found to determine the health literacy of the respondents. Education was found to be of importance to the HCU being able to actively engage the HCP. This may be understandable because the HCP interviewed for this study attests to the fact that it is easier for them to communicate with patients with higher education levels. This is because it is easier to reach a level of understanding with them quicker. This is in line with other studies on health literacy (Bourne et al., 2018; Lee, Lee and Kim, 2015; Beauchamp et al., 2015) where education was shown to contribute to health literacy generally, even though it may not be a major determinant.

“if we find. Someone like a secondary school graduate and stuff like that at least to an extent, the interaction is from my own experience, the interaction is better because there is a way we want to communicate with each other, but because of that barrier they feel like, oh, it should not be, and they want to insist that it should not be. They don’t want to understand your own point of view and stuff like that, but I think. That for those people that are formally educated to an extent, it will try and explain things to. They come to understand sometimes they might not want to agree, but at least then you can persuade them to and expect to it. It gives a basis for interaction”. NA

However, some HCP also believe that the level of education of the HCU does not determine their knowledge of the healthcare system as they have experienced violence and aggressiveness from the so-called educated professionals from other fields due to misunderstandings. This corroborates the result from the study by Curtis et al. 2012), which emphasised the importance of patients' health education in ensuring better health outcomes for them.

## Summary

The financial status of the HCU is of importance in their ability to actively engage the HCP. A higher level of education can also allow for better communication between the HCP and the HCU. However, the importance of health education at the HCU, no matter the level of education, cannot be over-emphasized.

## **The use of Emergency Services in the last twelve months and having a chronic disease.**

From the survey carried out among the general population in Nigeria, the use of emergency care in the last 12 months to the health literacy test using the domain "ability to actively engage the HCP" is significant. This concurs with the literature, which shows that people with higher health literacy mostly do not require emergency care (Chen et al., 2022). A higher level of health literacy is associated with better health management, the adoption of a safe lifestyle for health, and the use of preventive care, which can culminate in a lesser need for hospitalisation and, with all these, a lesser need for emergency care (Chen et al., 2013). This implies the higher the health literacy, the lesser the need for emergency care. On the other hand, a low level of health literacy is associated with unhealthy lifestyles, the need for continuous hospitalisation and the use of emergency care.

Having a chronic disease or disability is of no importance to the HCU's ability to engage the HCP actively. Having a chronic disease may result in an individual having a good support system, which could be from the family or support workers in the community. According to Bourne et al. (2018), this can make unnecessary the need for all-time active engagement with the HCP and the insignificance of chronic disease to HCU engaging the HCP. This can also be applied to the issue of disabilities not being necessary in determining the ability of HCU to engage with the HCP. This can be a pointer to the importance of social support systems and networks in supporting those with low health literacy (Beauchamp et al., 2015).

### Age

The age of the HCU is found to be of significance to the ability of the HCU to actively engage the HCP. For the survey among the general population in Nigeria, the ages considered are from 18-65, which can be considered as the active age group in the society. Mostly, individuals aged eighteen and above would be expected to be in one higher education or a job. This gives them wider exposure to health information and activities, which could improve their ability to engage the HCP. This corroborates the study by Beauchamp et al. (2015), where the participants who were less than 65 years old were found to have meaner scores for being able to actively engage the HCP and higher health literacy compared to the older people.

### Summary

For the domain “actively engage the HCP”, gender is of importance. Women seem to be at a disadvantage as regards this due to their personality traits, culture, and societal limitations. In contrast, men seem to get away with negative attitudes like aggressiveness and non-compliance. Needing help filling out the survey was significant, same as financial status. Those with higher levels of education may be able to communicate more easily with the HCP. Furthermore, the use of emergency services in the last year and the age of the HCU have contributing effects on the health literacy of the HCU.

## 8.4 Research Question 2: What are the interactions of Healthcare users with Health Information in Nigeria?

This research question is addressed using the following domains of Health Literacy Questionnaire:

- Having sufficient information to manage my health.
- Appraisal of health information
- Ability to find good health information.
- Understanding health information well enough to know what to do.

#### **8.4.1 Having sufficient Information to manage my Health.**

The survey among the general population in Nigeria showed that age is significant to the HCU having sufficient information to manage their health. This may be so because the age group considered are the active population of the society, between the ages of 18 and 65. These are the working groups and can explore. Different sources of health information were identified by the HCP in Nigeria, including social media, mass media, direct contact with the HCP, and the internet. Of all these sources, the most widely used, accessible and preferred is the Internet (Alduraywish et al., 2020). Although the HCP is considered the most reliable source of health information, the HCU still prefers to check information online before going to the hospital. This was the view of the HCP in Nigeria, supported by the findings from the study by Xie et al. (2022). The census on internet use among adults in the UK (UK - Office for National Statistics, 2020) showed a general increase in internet use, with 92% of adults being recent users. Active adults in the workforce tend to rely more on the Internet in their day-to-day lives. For example, they use the internet to search for information on anything, including banking, ordering fast food, and online shopping (UK - Office for National Statistics, 2020). This internet use may account for the advantage that younger adults have in having sufficient health information to manage their health. It may also be important to explore the means that are better suited to older adults as regards their confidence in having sufficient health information to manage their health.

#### **Education and Employment**

Having sufficient health education was found to be dependent on the education of the HCU. According to the survey conducted among the HCUs in Nigeria, the higher their education of the HCUs, the higher their confidence in having sufficient health information to manage their health. This is in line with the view of the HCP in Nigeria, who believe that the higher an HCU's education level, the better their interaction with the HCP can be. The HCP is considered the best source of health information for the HCU, so not being able to connect with the HCP effectively may influence the health information accessible to the HCU. There have been diverse opinions on the effect of education on the health literacy OF HCU (Shi et al., 2020; Beauchamp et al., 2015). This was also acknowledged by the HCP in Nigeria, who commented that having a higher level of education may not necessarily mean higher health literacy. However, it is important to note that the functional aspect of health literacy (Nutbeam, 2020) deals with the ability to read and write, which is related to education. So, education

cannot be ignored as regards health literacy. Being able to read and write can aid the findings of the right set of health information which can boost the confidence of the HCU. For example, it was mentioned earlier that the use of the internet is the preferred method of accessing health information by the HCU, even though it is not considered to be the most trusted. In searching for information on the internet, some measures are recommended to be taken to ensure the genuineness of the information being accessed on the internet (National Institute on Aging, 2023). This includes checking who owns the website, ascertaining its purpose, identifying the author of the information published and who reviewed it, whether any offer is attached to the information supplied, and so on. Going through the rigour of all these checks may be difficult for a person with low or no education, which can also help explain the effect of education on the HCU having sufficient health information. Considered another way, sufficient health information may not be about the volume of information, but rather the quality and accuracy of the information gathered to meet the health needs of the HCU (Ferreira et al., 2019), which education can help filter.

The survey from this study shows that being gainfully employed can determine whether the HCU has sufficient health information to manage their health and health literacy. Being employed can translate to the financial status of the HCU (Bourne et al., 2018). This can also be related to educational status because education sometimes can mean higher job opportunities and income. The employment status of the HCU affecting their having sufficient health information to manage their health may stem from the fact that the relationship of the HCU with the HCP can be affected by the financial status of the HCU. This is because the HCUs, who are financially stable, may find it easier to discuss with the HCP without restrictions until they are well satisfied. This may not be so with those who are financially low. According to the HCP in Nigeria, those who are financially low tend to find it difficult to hold discussions with the HCP, who they consider to be more financially stable than them.

Furthermore, the HCP considered the culture of the land as a hindrance to the flow of communication. Financially low people are mostly looked down on in society. Furthermore, being financially stable can also allow the HCU to explore different avenues for health information since they can afford it. The HCP also considered it to sometimes translate to their understanding of the importance of health, so being ready to pay for what will make them healthy. This can be argued because the general thing is for people to seek the best health choice. However, finances may not allow them.

This can be considered as one of those issues causing inequality in healthcare, which different agencies and governments are trying to correct. For example, in Nigeria, the HCP mentioned that the government had initiated health insurance to tackle such inequalities. However, the measure is not as effective as it should be due to the different limitations associated with the scheme. For instance, there are limits to the care that the health insurance can cover. According to the HCP, this leads to misunderstanding and aggressiveness from the HCU. Beauchamp et al. (2015) highlighted having private insurance as a determinant of higher health literacy. This can be because subscribing to private health insurance is more expensive than the government-offered ones. However, a better quality of care could be expected from the private sector. The HCP in Nigeria also mentioned the differences in the quality of care that can be accessed from the private sector compared to the public. With the private sector, the HCP has more time with the HCU, which is not so with the public sector. The patient/ provider ratio is most of the time disproportionate, which affects the time for discussions and interactions that the HCP can have with the HCU in the public sector. This can translate to them not having sufficient information to manage their health.

### **“Chronic diseases” and “having some disabilities”.**

“Having some chronic diseases” has been identified as significant to the HCU having sufficient information to manage their health. According to the survey carried out among the general population in Nigeria, those who have lung-related problems and mental health issues were shown to be positive as regards this domain. It is important to consider health literacy as it is related to HCU having chronic diseases. This is first because of the probability of inequalities in healthcare that these groups of people may suffer (Beauchamp et al., 2015). Also, there has been an increase in the number of people living with non-communicable diseases globally, leading to an increase in the number of years lived with disability (Feigin, 2016). Some chronic diseases, like arthritis, have been shown to increase the burden of global health problems, with the attending increased mortality rate among those affected (Vos Theo et al., 2015). This increase has been attributed to changes in lifestyle, some of which are unhealthy; advancement in healthcare, increasing the ageing population and population growth (Vos et al., 2016). The significance of people living with one chronic disease or a disability having sufficient health information to manage their health can be because these set of people have more frequent visits to the hospital with more interactions with the HCP (Beauchamp, 2015). These interactions can translate to their being better informed regarding their health condition, leading to their confidence in having

sufficient health information for their health. More importantly, is the fact that the HCPs are regarded as the best source of information for the HCU. Furthermore, people with disability or chronic diseases spend more time dealing with their health issues, which can stimulate their searching and getting more informed about their health conditions (Bohanny et al., 2013). They also have the opportunity for more support, which can be from family members or social support workers. This thus increases their chances of getting informed (Beauchamp, 2015).

Ironically, not having any disability has also been shown not to be of any significance to the HCU having sufficient information. This is possible because not having any disability can mean a lesser need for health information and, thus, it is easy to meet their health information needs. Interestingly, the use of emergency care in the last year does not translate to the HCU having sufficient information to manage their health. This is in line with other studies (Meenakshi et al., 2017; Beucahmp et al., 2015) as it has been shown that low health literacy will translate to the need for emergency care and increase the frequency of the need for hospitalisation. This may be so because emergency care, most of the time, does not involve many interactions between the HCP and the HCU, as the focus of the care is more about saving the patient's lives and getting them to become stable medically.

### **Geopolitical Zone**

From the survey among the general population in Nigeria, the geopolitical zone of The HCU was of significance to their "having sufficient information to manage their health". Different things characterised the different geopolitical zones in Nigeria, with various statistical data to illustrate these. Starting with education, which has been shown to have a contributing factor, most especially to functional health literacy, Nigeria has the highest number of out-of-school children. Even though primary education is free in Nigeria, about 10.5 million children do not have the basic education through which they can progress to higher education, while 12.4 million and 5.9 million never attended school or dropped out of school, respectively. (UNICEF, 2020, accessed 23/11/24). According to UNICEF (2020, accessed 25/11/25), looking closely at the distribution of these figures, the majority of these out-of-school children are from the North-West, followed by the North-East. Also, in terms of gender, as it relates to education, more boys are out of school than girls, with the North-West having the largest prevalence. In terms of civilization, the HCP in Nigeria considers living in rural localities to be associated with poor access to quality care and other social amenities, which may be

necessary to access quality health information. All these can show the relationship between geographical zones and the sufficiency of health information for the HCU. The issues of violence and insecurity also contributed to these discrepancies in health literacy in the different regions. For instance, due to terrorism and conflicts, almost two thousand classrooms have been damaged or destroyed (UNICEF, 2020), which can affect the health literacy of the people in such regions.

Health literacy is connected to the economic power of the HCU (Beauchamp et al., 2015). Considering employment rate and status, which can be translated to economic power among Nigerians, South-East and South-South had the highest unemployment rate (National Bureau of Statistics, 2024, accessed 25/11/24). In terms of healthcare accessibility, on the other hand, a study by Anyam and Lawal (2018) showed that geographically determined, accessing healthcare is the same for all geopolitical zones.

Another point to consider is the issue of migration from one geopolitical zone to the other. This can be due to varied reasons, such as insecurity, violence, and lack of basic social amenities, with the most common reason being socioeconomic (Mak, Zimmerman and Roberts, 2021). Most migrants lack access to basic healthcare, which has an attendant effect on their health literacy (Adewole et al., 2023; Beauchamp, 2015). This can be a source of inequality in society, which is worth exploring.

## Summary

As regards the domain “having sufficient health information to manage their health”, the gender and age of the HCU were found to be of importance. Having some disabilities and chronic diseases are also predictors for this domain. This also applies to the employment status and the geopolitical zones of the HCU, while it may be important to explore how to reduce inequality that may be caused through migration.

## 8.4.2 Domain 4: Critical Appraisal of Health Information.

### Introduction

Discussed in this section are the determining factors for the HCU being able to critically appraise health information. Defined and discussed is what critical appraisal is all about. The determining factors that were discussed include the level of education, having some or no chronic disease(s), age and the geopolitical zones of the HCU.

### **Critical Health Literacy**

This is the ability to understand and critically assess health information to make informed decisions about health (Dioviani, 2020). It is also an important aspect of health literacy. This is because the ability to read about health information or assess health information may not be enough. The HCU must be able to determine the quality of the information they are accessing and how it applies to them. It is also important that the care users understand the effect of using information that is of unproven source and of low quality on their health and health outcomes (Diovani et al., 2020). In the United Kingdom, over 42% of adults lack critical health literacy (UCL Institute of Health Equity, 2015). For Nigeria, the studies that could be found only dealt with health literacy generally and not the different components of it, most especially critical health literacy. This makes this study of significant importance in addressing critical health literacy in Nigeria.

Appraising health information involves critical activities which the HCUs are expected to follow concerning health information for them to be safe (Diovani et al., 2015). According to the HCP in Nigeria, the HCU must check out the source, the purpose and the personnel behind the health information they are accessing. The source of health information is important in that it can be used to determine the authenticity of the information. This source can refer to a place, a person, or a thing. According to Ekoko (2020), sources of health information can be grouped into two, which are documentary and non-documentary sources. The documentary sources include published or formally recorded knowledge like journals, government websites using the internet, books, pamphlets and so on. The non-documentary, on the other hand, involves the communicative or interpersonal sources of information, which can be formal or informal. The formal sources include those trained to give health information, like the HCP, while the informal sources, as also highlighted by the HCP interviewed, include family and friends, including traditional healers and religious leaders. Some identified factors as to the choice of source of health information by the HCU in Nigeria are education, location, financial status and so on. Take, for example, individuals who are educated have access to a wider range of health information like the internet, magazines, brochures etc (Ekoko, 2020), while those who are low financially most time are regarded by the HCP in Nigeria as having a nonchalant attitude to their health, probably due to the fear of the cost. The people in rural areas may not be able to access the internet and may feel more comfortable with informal sources of health information like discussing with friends and traditional healers.

“Yeah, for those in the urban setting, I would say it is readily available because thanks to the advent of social media and Internet facility. The Ministry of Health is doing a lot to educate people. For example, now there is currently an outbreak of diphtheria. There have been jingles on the radio. Newspaper publication on the Internet, the NCC is doing a lot to reach out to people, to health educate them on the disease process, the prevention and so on. But my concern is people in the remote villages where there’s no electricity. They don’t have access to the Internet. So, people like that are kind of being cut off Health information” NR

This is in line with studies (Ekoko,2020) in Nigeria, where women living in rural areas were found to rely more on health information from relatives and friends, while some value greatly the traditional healers’ opinions. Some of the sources of health information highlighted by the HCP in Nigeria are the internet, mass media (Radio, TV), social media (Twitter, WhatsApp, Facebook, X and so on), HCP and family and friends. All the sources of health information have their pros and cons, and for the HCU to pass the test of being able to critically appraise health information, they need to be aware of them to manage them. For example, the internet is a quick and rich source of health information. However, the HCU must know the right site to use and how to search for information. Also, there is the concern of the wide range of information that is not customised to the individual, leading to unnecessary anxiety. Consulting friends and family and the traditional healers may also be unsafe as the information being received may not apply to the situation of the person or even be wrong.

“I think they receive information from the society, from their friends, who they believe has been ‘there’ instead of Coming to the hospital by themselves to find out what is happening to them. Without even coming to the hospital, they will only receive information from maybe somebody or some other people around the community who have a natural hatred towards the hospitals (orthodox medicine). They will be poisoning their minds on the good idea to come to the hospital, to ask maybe for the health care services available” NN

Another thing to consider about the source of health information is the purpose of the information. Government and health agency websites like WHO, GOV.UK, NHS, etc., supply information majorly to educate and inform the public, and these websites can be trusted because for any information to be published, it would have

to be rigorously checked (WHO, 2024 accessed 29/11/24). For example, during the COVID-19 pandemic, different information on the pandemic was made available on government websites. However, some websites are for advertisement and financial gain, and it is in guiding against such that there are different agencies and guidelines on the advertisement of pharmaceutical products (Medicines and Healthcare products Regulatory Agency (MHRA), 2012). Finally, on the source of health information, there is the need to verify the personnel that is supplying the information. This can be in terms of their knowledge and experience or even their professional position. According to the HCP in Nigeria, it is possible for an individual who works in the administrative side of the hospital to have some knowledge about some medical issues, but such cannot be relied on as it is beyond their scope of training. The interview carried out among the HCP in Nigeria and supported by Alduraywish et al (2020) emphasized the importance of the HCP as the best source of information for the HCU because the information can be tailored to the patient's condition over time.

There are various skills, knowledge, and attitudes that the HCU must have for an effective and critical health information appraisal (Diviani et al., 2020). According to Cho (2014), the HCU needs to be able to source health information from different sources. This is important because having options for information sources allows for comparing information to be able to decide on the best of all (Diviani et al., 2020). They must be aware that information can be of different qualities and may not apply to their conditions. This should make them to be open to diverse opinions and to be ready to question information (Wang et al, 2012). Also important is the ability to determine the purpose of the health information (Hogan and Vanhagen, 2012) and decipher any form of misinformation or bias (Diviani, 2020). Appraising health information also includes assessing its completeness (Metzger et al., 2015) and determining when further information may be necessary.

## **Education**

From the survey conducted among the general population in Nigeria, education was significant in the HCU's ability to appraise health information. In as much as there have been diverse opinions as regards the significance of education as regards health literacy (Jaseem and Ai-Ashour,2023); Shahid et al., 2022), education is highly contributory to health information search and usage (Ledesma et al., 2022). According to the HCP

in Nigeria, the higher the level of education of the HCU, the better their interaction with health information. This can help them be critical of the information source they are exploring. Having some form of education can expose the HCU to basic knowledge about human bodies and health habits, which is important in appraising health information (Soellner et al., 2017). The educational level of the HCU can also determine the choices of the source of health information, which is a key factor in the critical appraisal of health information. The uneducated in the study by Ekoko (2020) are more comfortable with seeking information from relatives and traditional healers, which may not be safe, while the educated tend to seek information from the internet more often, even if they will still meet the HCP for advice (Alduraywish et al., 2020; Myrick, 2019). The study by Fox and Dougan (2013) showed that those who finish high school are more likely to seek health information from the internet and check with the HCP afterwards, unlike those without education or a lower level of education. Overall, education is important in the HCU appraisal of health information.

Having chronic diseases is significant to the appraisal of health information by the HCU. The survey for this study shows that having lung problems or diabetes is significant to health information appraisal. Chronic or non-communicable diseases (NCDs) are long-term conditions that can only be managed as they do not have a specific cure (WHO, 2023). Seventy-four percent (74%) of deaths globally are due to NCD, with lung-related problems and diabetes as part of the major contributors (WHO, 2023). NCDs are more common among developing countries and countries with low economic power, such as Nigeria. In relating health literacy with NCDs, it has been shown that many HCUs with chronic diseases find it difficult to appraise health information (Dinh, Nguyen and Bonner, 2022; Stomer et al, 2019). This is alarming because people with chronic diseases need to self-manage their health condition, which involves a continuous decision. Because of this, they need to access and assess different information from time to time. However, being unable to critically appraise the high volume of health information they need to interact with may be unsafe and frustrating for them. This can point to need for more support for the HCU with chronic diseases (Dinh, Nguyen and Bonner, 2022). This can include sharing authentic health information, developing patient-centred communication methods and strategies, and education.

## **Age**

Of significance to the critical appraisal of health information is age. In relating health literacy to age, it has been shown that health literacy declines with age (Sorenson et

al., 2015), and this could be associated with increasing health problems among older adults (Kobayashi, Wardle, Wolf and Wagner, 2016). Age has an impact on health literacy in different ways. The burden of diseases is higher among people in the active age group (18-65) due to unhealthy habits, rapid urbanisation and lack of physical activities (WHO, 2023). The activities of the different age groups also affect their health literacy. Starting with sourcing health information, the younger ages may be wider in terms of the sources of information available to them, which is essential in the appraisal of health information (Metzger et al., 2015). Also, younger adults are more likely to use the internet to source information than the older HCU (Fox and Dougan, 2013), while according to the HCP in Nigeria, older people tend to rely more on the mass media like television and radio, and the HCP for their health information. The use of the internet in sourcing health information can be an avenue for access to a large volume of information. However, the HCPs in Nigeria are concerned about the HCU understanding that different information has its specific audience. This skill is also needed to appraise health information critically (Derakhshan et al., 2015).

### **Geopolitical Zones**

Geopolitical zone was significant to the HCU appraisal of health information in Nigeria. There can be many reasons for this. Starting with education, education is of significance to the appraisal of health information. However, there are different attitudes to education in the different geopolitical regions in Nigeria, with the northern zones scoring lower than the other regions. For instance, the issue of out-of-school children, which is a global issue (WHO, 2024); the Northern region has 15% more cases of children not registered in primary school than the other regions (UNESCO, 2022). These disparities were attributed to cultural practices, gender roles and, pronouncedly, religious practices (Williams, 2019). For instance, in northern Nigeria, the most prevalent religion is Islam, with more recognition given to Quranic education (Nwoke et al., 2024). However, the challenge around this is the fact that the Quranic education does not include the basic literacy, like arithmetic, that is taught in general school settings. In Baba's (2013) opinion, the Quranic school may not be considered a problem if the government can look at training the teachers and integrating basic literacy into the Quranic school curriculum. Worthy of consideration also, is the view of the HCP in Nigeria as regards the effect of religion on health literacy. The HCP in the Northern part could use religious practice to make the HCU do what they think is best for them, which may not be helping them in seeing the need to appraise health information. All these point to the effect of education and religion as regards the differences in the

appraisal of health information in the different geopolitical zones in Nigeria.

Further, with respect to education across Nigeria's different geopolitical zones, gender disparity is evident across these regions (WHO, 2024). Although there are more out-of-school children in the Northern regions when different zones are considered from the gender point of view, more male children are out of school in the Southern region compared to females (Nwoke et al., 2024). The males in the southern regions are exposed early to entrepreneurship, which is believed to be more economically promising than formal school education (Ezegwu et al., 2017). This may be a pointer to the need to appraise the school curriculum as regards its economic usefulness.

Another point to be considered is the economic divergence of the different geopolitical zones. According to the Bureau of Statistics (2022), there is a variance in the poverty gradient across the different geopolitical zones of Nigeria. This effect is more pronounced in the Northern regions, having a twenty per cent (20%) poverty level higher than the Southern regions. Poverty is one of the recognised determining factors for health literacy, and so geopolitical zones that have extreme poverty rates may have their HCU struggling to appraise health information. Further to this, the HCPs in Nigeria think that those HCUs who are financially low find it difficult to relate with the HCP. This is conceded in the Institute of Health Equity survey (2015), where it was shown that low economic status can lead to poor interactions with health information, poor health, increased need for hospitalization and poor health outcomes, all of which are associated with low health literacy.

At this point, it is important to consider the effect of migration on appraisal of health information by the HCU in Nigeria. This is because migration is one of the social determinants of health and health outcomes and, more importantly, a contributing factor to health inequity (Hill, Rodriguez and Mcdaniel, 2021). According to WHO Europe(2015), migration describes the movement of people, for whatever reason, from the place of their normal residence, which can be intra or inter-country. This can be forced or voluntary (Mukhtar et al, 2018). The voluntary movement is intentional, while the forced migration is due to pressure, which can be environmental or social. Some of the causes of forced migration, most especially internal, are conflict and insecurity, economic factors and disasters (Mak et al., 2021; Cantor et al., 2021). WHO Europe reported around sixty million people being internally displaced and living in Internally Displaced Camps (IDP) globally. Also, inter-country immigrants may have

more support compared to those who travel from one region of a country to another, making them susceptible to different challenges, including a lack of adequate access to healthcare (Cantor et al., 2021).

In the last decade, there has been an increase in forced migration from the Northern to the Southern regions of Nigeria (Ijadunola et al., 2020). Some reasons for this are insurgency, terrorism, and other forms of violence, resulting in insecurity (Mukhtar et al., 2018). In addition, poverty is more common in the Northern regions than in the Southern regions. According to the National Bureau of Statistics (2022), over 90% of the children in the Northwest and the Northeast are poor compared to 65% in the Southwest. This means most of the beggars in Nigeria are from the northern regions (Mukhtar et al., 2018). Furthermore, some diseases are more common among poor people (Tafida et al., 2015), while there is a limitation to what they can access in terms of healthcare due to cost. This is more pronounced because these migrants rely more on paying for health services in cash, which they do not have enough of (Mukhtar et al., 2018). This is apart from the sense of inferiority among the HCUs with low incomes, which the HCP in Nigeria mentioned. Another issue is education. On the other hand, the southern regions have their challenges, too; however, these regions are considered better havens by the migrant Northerners. This can be attributed to better responses to education, social infrastructures, and a better economy. Overall, the health practices and health outcomes of these migrants are poor compared to the people of the accommodating regions, leading to health inequity (Burns et al., 2021). Bringing all these factors to bear as regards the appraisal of health information by the northern migrants in Nigeria, it can be deduced that they may fall short of what is needed to be able to do this effectively. Starting with sourcing information for health and healthy living, their access is restricted. Also, they may find it difficult to access and interact with the HCP due to poverty and lack of necessary education (Garcini et al., 2021). They may also find reading and understanding health information difficult, which is also part of the skills needed in appraising health information. The saying “beggars have no choice” can apply to this group of people because they may not see the need to appraise the little health information they can access to determine which is good and appropriate. They may not consider themselves empowered enough to have a say in healthcare. This makes the significance of the geopolitical zones regarding health literacy more pronounced, requiring critical attention.

Having no disability and having some forms of disability were identified as significant

to the health information appraisal by the HCU in Nigeria. With improvements in healthcare and sciences, there has been an increase in the ageing population across the globe, with the attending health problems (Vos Theo et al., 2015). Having no disability and appraising health information can be understood in the sense that an individual without any disability may find it easier to access and assess health information than someone with a visual or hearing impairment. However, it is more important to consider those who have some form of disability and how it can affect their appraisal of health information. The disabilities/ chronic diseases explored in the survey among the general population in Nigeria are arthritis, back pain, lung-related problems, cancer, mental health, stroke, diabetes, and heart problems. These were selected because they were regarded as the most common causes of disability among the HCUs (WHO,2022, accessed 03/12/24). However, to be significant, some other disabilities may require more attention to uncommon forms of disability.

In defining disability, the Equality Act (2010) describes a disabled individual as a person who has a “physical or mental impairment” with the impairment having a long-term effect on their day-to-day living. It can be argued that this definition makes what can be regarded as disability subjectively dependent on those affected. On the contrary, considering the details of the definition as explained in the Equality Act (2010) gives room for detailed assessment, with fairness to those concerned. To be grouped as disabled, the Act explained that it is not just about the primary disease an individual suffers from that can determine their status, but the progression or the effect. The concern around this is the fact that this makes the list of what can constitute disability to be endless, and this can lead to an oversight in the recommendation of care for some disabilities; for example, in the study by Vos et al. (2015), 10% of the world population were found to be affected by eight chronic diseases that cannot be grouped among the leading ones, some of which are migraine, iron -deficiency anaemia and Ascariasis. When accessing government-produced health information, there are provisions for some disabilities in accessing the information. Examples of such provisions mentioned by the HCP in Nigeria include translating health information pamphlets into local languages, helping the HCP understand health information based on their mental capacity, and so on. Health information on the government website is available for those with hearing impairment or sight problems. However, there may be other disabilities that can affect people’s access to and assessment of health information, which may not be addressed. This study can be a call for action in this direction too.

### **Summary to Critical Appraisal of Health Information**

There are skills and attitudes needed by the HCU to do this. Also, there are key things to consider in critically appraising health information, such as the source and purpose. The identified factors for critical appraisal of health information by the HCU in Nigeria are education, having none or some chronic diseases, age, and geopolitical zones.

### **8.4.3 Ability to find Good Health Information.**

#### **Introduction**

This section discusses what health information can mean in different contexts and what makes good health information. The available sources of health information, along with their pros and cons, are also considered. The importance of language, though not a deciding factor as regards the ability to find good health information, is also explored. Furthermore, the determining factors for the domain, which include age, employment status and the need for help to fill out the survey, are also reviewed.

#### **Types of Health Information**

In addressing the ability of the HCU to find good health information, it is important to consider the two types of health information that the HCU may need. First is general health information, which aims to educate people about healthy lifestyles. It can also be used to enlighten people about diseases and health conditions. The other form of health information is personalised, especially when an individual has health challenges. According to the HCP in Nigeria, personal health information may not be readily available to the HCU as it can be difficult for them to access. One of the reasons for this is the healthcare system, where paternalism is still prevalent in Nigeria. It is as bad as the HCU not knowing the details of what they are being treated for or the result of laboratory tests. Paternalism in healthcare has been queried, with some calling for its total abolition because of its effect on patients' feelings about themselves (Aakifa and Shaji, 2022).

beginquote“From my own experience, you know, one thing about Nigerian is branding and packaging for me because I observed a lot of facilities that use the so-called branding. Patients don't know what they are being treated for, or the medication being given, as it is branded. Sometimes when the patient come for some health check like BP (and) wants to know what their blood pressure is, you (will hear) the health care provider saying, what do you want to know? You (the HCU) run some tests; you

don't even have access to those tests. If you (the HCU) ask your doctor. I assure you the doctor will not even tell you" NT.

Some HCPs in Nigeria are also guilty of withholding information for personal gain, most especially those in private practice. In line with Dranove (1988), they believe that by withholding the name of the medication, they can keep their hold on the patients to ensure that they will come back to them, ensuring continuous financial benefit to them. This contradicts the 21st-century healthcare system, where patients must be actively involved in their healthcare. The Health and Social Act (2012) give details to the slogan "no decision about me without me" highlighted in the white paper Equity (2010). It emphasised that patients and their careers must be actively involved in every decision concerning their care from their first interaction with the HCP. It should include the diagnosis of their disease condition to the line of management or care, which the HCP is expected to equip the patient to do through correct and appropriate information. This is not so with the HCU in Nigeria, as some HCPs use this for monetary gain and the feeling of power over the HCU. This makes the HCU feel helpless and bossed, contrary to feeling supported and independent (Korhnhaber et al., 2016).

Another challenge around the HCU "finding good health information" is accessing their hospital records. Most hospitals in Nigeria still use only files and papers to keep health records. This can be laborious when searching for and supplying information to the HCU. This is not to mention the problem with the storage of those documents. Electronic Health records (EHR) have made such situations outdated in countries where health information technologies have been adopted, with students even learning about it in school (Evan, 2016). Using EHR makes patients' information readily available and accessible to them from anywhere globally. This is yet to be fully adopted in Nigeria, making health information of this form to be mostly unavailable to the HCU.

Students should have an information certificate or something like that. Not every university or every state school offer that course. So, it's just like they don't care about it. But to me it is very important. People need information on their health. They should be able to access his health information, but not always. Even when you have a file in the hospital, sometimes when you go there, they will say they do not see your file. Unless it's a private hospital where they give information like that. But they don't

have that in state hospital. They don't. They don't. They don't bother about keeping the records. NA

The ability of the HCU to find good health information may depend on the importance that the HCU attaches to good health information as this can determine the effort they are ready to put into it (Suenaga and Vicente, 2021). The HCU must be able to decide what constitutes health information, the available sources, and what makes good health information. This is important since patients are expected to make decisions about their health based on the information available to them (Diviani et al, 2020). They should recognise that health information can vary in quality (Diviani et al., 2020). Also, good health information may be related to its relevance to the patient's condition (Brand-Gruwel and Stadler, 2011). Good health information must also be void of conflict or commercial influence (Neunez, Goldman and Gezzhi, 2020).

From the perspective of the HCP in Nigeria, there has been an increase in the available health information to the HCU compared to the past. This has been attributed to internet availability, a global trend that puts health information at most HCU's fingertips (Suenaga and Vientem 2022; Fox and Dougan, 2013). Various sources of health information that the HCU can explore include the HCP; internet-accessed sites such as government websites; Google; social media (e.g. WhatsApp, Facebook); mass media (e.g. Radio Television); prints (e.g. Journal publications, pamphlets); family and friends; and traditional healers. All these media have their pros and cons. Of all these sources, the one that is regarded as the most reliable and accurate by the HCP in Nigeria and attested by other studies (Suenaga and Vientem, 2022; Wang et al., 2020; Novi, Kovacic and Orso, 2024), while the mostly used is the internet (Haluza et al., 2017). Furthermore, several factors were identified by the HCP in Nigeria regarding the options of the sources of health information available to the HCU before considering the quality of the information. One of such factors is location. The HCUs in rural areas may be unable to access some health information sources due to a lack of internet or other social amenities. This can birth a paucity of well-trained HCPs, who may find it challenging to reside in rural settings. In sourcing health information, the HCP in Nigeria found that the HCUs in rural areas source more health information from friends and family. This is in line with the study by Ekoko (2020) among rural women in Southeast Nigeria, where the use of almost all the available sources of health information was low while they relied on traditional healers, friends and family, and herbalists. On the other hand, those in the urban setting have access to various sources of health information, with the most used being the Internet. Considering the sources

of health information as related to location, all other things being equal, it can be deduced that those in the urban area may possess better health literacy compared to the rural area residents. This is attested in the literature (Nurdiansyah et al., 2022; Wang et al., 2020), where the health literacy of the HCUs in the rural area is considerably lower than that of those in the urban area.

“For those in the urban setting, I would say it is readily available because, thanks to the advent of social media and Internet facility. The Ministry of Health is doing a lot to educate people. For example, now there is currently an outbreak of diphtheria. There have been jingles on radio, Newspaper publication on the Internet, the NCC is doing a lot to reach out to people, to educate them on the disease process, the prevention and so on. But my concern is (the) people in the remote villages where there’s no electricity. They don’t have to access to Internet. So, people like that are kind of being cut off health information. And the crop of people that should have served these people, which should be the community health workers are not there, because of maybe poor remuneration, the insecurities in the country (etc) people are not willing to work in those remote settings.” DT

However, it may be important to consider the pros and cons regarding the sources of information chosen by the HCU. Rural residents may feel more comfortable discussing with relatives and the traditional healer, which may also be cheaper. Also, they may not have access to most of the other sources of health information (Wang et al., 2020). However, the authenticity and the accuracy of the information related to their health situation cannot be assured (Ekoko, 2020). For those in the urban area, who have more affinity to the internet for sourcing health information, the danger around this, according to the HCP in Nigeria, is the ocean of information available on the internet, without much control. The survey by Naunez et al. (2020) on using online platforms for health information showed that the most readily available websites from a Google search are those for commercials and news, with unreliable and unverified information. These sites have unrestricted access to who and what is posted, putting the public in danger of misinformation. Of course, some websites could be accessed for reliable information. However, not all city dwellers understand this. This is a pointer to the need for educating the HCU on how to source health information on the internet rather than complaining or thinking about stopping it, which may not be possible.

Connected to the location of the HCU and sourcing for good health information is education. According to the survey among the general population in Nigeria, the

level of education of the HCU is significant in their ability to source good health information. Even though education has been found to contribute to health literacy, no matter where people reside (Golborne et al., 2017), people in rural areas have been found to most commonly have low education (Ekoko, 2020). Education also determines the health information sources the HCU prefers (Suenaga and Vientem, 2022). Those educated tend to use formal sources like journals, books, and internet-related sources of health information. At the same time, those with low education prefer interactive sources of health information like friends or the HCP (Noviet et al., 2024). This shows that it may be important to tailor information based on educational level for the easy accessibility of good health information for the HCU.

### **Language**

The HCP and the general population in Nigeria recognised the language as not determining the HCU's ability to source good health information. Language can be in the form of spoken words or means of expression, which is culturally decided. It can also include the words and terminologies used to deliver health information. It is worth noting that Nigeria's official language is English, while there are over three hundred and fifty ethnic languages. Also, some regions do not teach in their schools with the English language. On the contrary, the healthcare system is primarily run in English, with provisions made for interpretations. In the survey among the general adults in Nigeria, being able to communicate in English is not regarded as a factor in the HCU's ability to find good health information. This is contrary to the findings from the study by Beauchamp et al. (2015), where the participants who speak other languages at home apart from the English Language find it challenging to find good health information. The likely reason for this discrepancy is that different measures have been put in place in Nigeria to minimise the effect of language. Such measures include recruiting HCP to the localities where they can speak the local language, translating health information materials into the local languages and so on. Another likely reason for the differences is that those study participants were migrants to Australia. Migrants are prone to some level of inequity and low health literacy due to other factors associated with their immigration status (Adewole et al., 2023).

The other side of language is the choice of words. The HCP in Nigeria attested that some of them, due to ignorance, lack of experience or arrogance, use words and medical terminologies that may be difficult for the HCU to relate with. This, they believed, can affect the HCU interaction with health information. Interestingly, this is

not about the level of education of the HCU, as even those who are highly educated and are professionals in their field may find it difficult to interpret some of those words. This is in line with Heaton-Shresta et al. (2023), who emphasised that the language of the presentation of health information might affect its usage by the HCU. This implies that no matter how good a piece of health information may be, the HCU may be put off by the language of presentations, which can affect their finding good health information.

### **Age**

Age is regarded as one of the determining factors for finding good health information by the HCU in Nigeria. The participants for this study are between the ages of 18 and 65, and they can be grouped as young adults, middle class, and older adults. Age can determine the choice of information sources for the HCU. For instance, the younger adults prefer the internet for health information to all other sources (Feng and Zie, 2015). This is because they have access to smartphones and can be more technologically savvy than older adults (Novi et al., 2024). They also mostly reside in urban areas, where they can access the needed social amenities, unlike older adults, who may feel more comfortable living in rural settings. Nevertheless, there has been a recorded increase in the use of the internet by older adults to source health information. However, they tend to use all the sources of health information equally (Lee and Jang, 2022). Overall, there has been concern around how the younger adults relate to health information. They tend to believe everything they see online, which can affect their ability to get good health information (Novi et al., 2024). This may also affect young females, as they predominantly utilise the internet for health information (Haluza et al., 2024).

### **Employment Status**

Of significance is the HCU's employment status in finding good health information. Employment level can be related to the economic power of the HCU, which is one of the determinants of health literacy (Novi et al., 2024; Sorensen et al., 2012). Economic power can determine how much time and resources an HCU may wish to allocate to good health information (Fox and Dougan, 2013). For instance, the poor immigrants who need to pay out of pocket to access healthcare or the HCP will rather do without, which can cut them off from health information (Adewole et al., 2023). The HCP in Nigeria could identify this problem because those who could mostly access health information from the health facility may be deprived of such due to finances manifesting

in diverse ways. Some of it can be because they may feel uncomfortable interacting with the HCP or because they cannot afford the payment for the care. Economic power has also been linked to education, which in turn can be connected to the use of healthcare facilities (Adewole et al., 2023). Additionally, parents who are regarded as poor in Nigeria tend not to send their children to school due to a lack of financial capacity (UNICEF, 2020). The implication is the inability to interact with health information adequately because education affects health literacy, especially the functional aspect (Ekoko, 2020). Economic status can affect accessing the Internet, which is becoming the most used source of health information literacy (Novi et al., 2024). This can be from paying for internet subscriptions to getting the devices to connect to the internet, while some resources on the internet also call for payment (Suenaga and Vicente, 2022). All these factors can make finding good health information difficult for HCU with low economic power, resulting in poor health literacy (Oo et al., 2015). In addition, people with low economic power are more prone to sourcing health information from family and friends or the traditional healer, which is not the best for them as such information may be wrong, incomplete, and unspecific (Ekoko, 2020).

The effect of employment on finding good health information can also be explored from the benefits associated with actively participating in productive activities (Svendsen et al., 2022). This is because those who are not working but are on benefits can access a level of finances for basic welfare, which puts them at the lower rung of the financial ladder, with low health literacy. It is important to note that self-development comes from engaging in productive activities and interacting with people, which can sharpen the HCU reasoning, equipping them for better health literacy (Mottus et al., 2014). Different health schemes can also be available at the workplace, which the HCU can explore as opportunities to search for good health information (Svendsen et al., 2022). Exploring all these angles to employment status as regards the ability to source health information can help in exploring the different interventions, like helping those that can still work but are on benefits to get to work to reduce loads of low health literacy or encouraging employers to include health information supply in the schemes for their employees (Svendsen et al., 2022).

### **The need for help to fill out the Survey**

Needing help to fill out the survey is significant to the HCU's ability to find good health information. Several reasons can be responsible for the study participants needing help to fill out the survey. This can be physical, for example, a disability that affects the

eyes, or mental, like the inability to read and understand the content of the survey, and so needing to have it explained. If the case should be that they have issues with reading and interpreting the research questions, then being able to find good health information may also be a problem. Finding good health information involves being able to read, which is functional health literacy (Friz et al., 2016). Interactive health literacy will require the cognitive ability to extract health information from different sources as it applies to a person's needs per time (Nutbeam, 2000). This may not be possible or easy for those individuals who need help filling out the survey in line with the study by Friz et al. (2016). Having mentioned this, it is important to note that those needing help filling out the survey may be able to utilise other forms of health information apart from the print since the survey was printed and was in English (Simpson et al., 2020). It is important to make information available in diverse ways and tailor it to individuals, as part of patient-centred care advocated in the healthcare system.

#### **8.4.4 Domain 6: Understanding Health Information well enough to know what to do**

##### **Introduction**

This section deals with understanding health information well enough to know what to do by the HCU. It explored this from the perspective of the HCP in Nigeria, while also discussing other factors, such as education, employment status, and the absence of disabilities.

Critical health literacy emphasises the need for the HCU to understand health information well enough to make informed decisions about their health (Nutbeam, 2009). This is important as the trend of health care now is such that individuals should be supported to play an active role in their care and to be able to navigate healthcare, which can only be done effectively by being equipped with the necessary information (Svendsen et al., 2021; Knowles and O'cathain, 2020; Sorensen et al., 2012). Understanding health information indicates that the HCU can read and understand and fill out necessary written forms regarding their care as needed (Osborne et al., 2013).

While the HCP in Nigeria could attest to the increasing availability of health information to the HCU, which is the trend globally (Bo et al., 2014; Svendsen et al., 2021), there has been concern about their understanding of such information. This is not limited to

Nigeria alone as studies from other countries, which also used HLQ, have shown that the HCU, even though they have access to more health information, sometimes find it challenging to understand the information (Svendson et al., 2020; Sorensen et al., 2015; Bo et al., 2014). This can be described as a dilemma, as people are expected to make decisions while they cannot be said to be adequately equipped to do so (Kickbusch et al., 2013).

“People come around and you know they ask questions. They get the information, but having to use it may not be 100%. Of course, you know they get information and sometimes come around complaining or asking questions; How true is it? Is it true that I can use this to take care of this? So, they get the information. But for me, I feel a lot of people make a lot of misinterpretations, and some even misuse information” PB.

Further, the HCU’s understanding of health information varies by information source, with the HCP considered the safest and most understood (Bo et al., 2014), whereas the internet is of greatest concern (Chen and Liu, 2022). The Internet is a world of diverse general information with few regulations and restrictions (Suenaga and Vicente, 2022). Information on the internet can be posted based on different motives and purposes, from enlightening the public to advertising and some just for self-promotion (Novi et al., 2024). Also, the interaction through the internet is mostly one-way, which implies that the HCU lacks the opportunity to ask questions or seek clarification. The other concern about the internet, which is like social media, and media is the concern about the expertise of the person that is posting the information, which may not be verifiable, unlike the information gotten directly from the HCP, which can be tailored to the patient per time (Diviani et al., 2020). This has made the HCP the best source of health information for the HCU as they can interact with the HCP better to understand the information for proper and correct application.

“Healthcare users can get health information from qualified practitioners which is more reliable. See, the issue is this, they can get health information also from the Internet, social media and everything, but most of them can’t decipher the information they are getting from those sources. With the HCP, they can ask specific questions but not with Google. DT.

Several factors were identified to help people understand and be influenced by health information. According to the survey conducted among the general population in Nigeria, these include age, level of employment and education, and the need for help

to fill out the survey, including no disability status. These will be discussed one after the other.

### **Age**

Different age groups use different sources of health information, which somehow affects their understanding of health information (Bo et al., 2014). Generally, the younger folks, due to reasons like access and affinity for new technologies, tend to use the internet more for their health information, even if they will still contact the HCP, while the older folks tend more towards the use of the HCP (Novi., 2024; Bo et al., 2014). This can imply that even though the HCU struggles with understanding health information, the older folks may be at a better advantage. An added benefit that older folks may have is the longevity of their interactions with the healthcare system, although it can be argued that the length of years is not what determines the use of healthcare. The other concern with the internet is increasing anxiety due to the volume of information that is not tailored to the patient, which can lead to increased use of medical services (Novi et al., 2024).

### **Education**

The level of education of the HCU is significant to their ability to understand health information well enough to know what to do. Education is important to health literacy, especially cognitive health literacy (Osborne et al., 2013). Lower education level has been associated with low health literacy in various studies (Mahoney et al., 2018; Bo et al., 2014; Beauchamp et al., 2015; Protheroe et al., 2016). Being educated implies that the HCU can read health information and write, which are components of health literacy (Sorensen et al., 2012). The HCP in Nigeria also found that it is easier for the educated HCU to understand them than those with no or low education. According to Easton et al. (2013), this is because there is an unspoken stigmatisation attached to having low literacy, making those HCU affected want to limit their communication to cover up for their limitations. This also undermines their mental power as they believe they do not know enough, which may not be accurate (Easton et al., 2013).

Education can affect the sources of information available to the HCU and how well they can utilise them (Adewole et al., 2023). In addition, it can affect the level of exposure and the opportunities available to the HCU, which in turn can affect their ability to interact with health information (Svendsen et al., 2021). Higher education is also associated with higher cognitive functioning, which can help the HCU understand health

information (Clouston et al., 2012). All of these show the importance of encouraging and advocating for education in Nigeria, as Nigeria has one of the highest numbers of out-of-school children (NBS, 2024). It also calls for non-judgemental support and care, tailoring communication and care to individual patients (Easton et al., 2013). It is important to clarify that education may not determine the ability to understand health information. According to the HCP in Nigeria, learning in some other educational field may not help the HCU understand everything in the medical field. There may be some words and terminology that the HCU may still find difficult to comprehend, especially from a contextual point of view. Also, the HCU may understand health information literarily but may not manifest their understanding by acting in line with it. This is in line with the study by Svendsen et al. (2020), in which highly educated Danish adults still demonstrated low health literacy. The HCP in Nigeria, however, attributed such occurrences to cultural beliefs, which can be stronger to the HCU than the health information received.

“if they’re not persuaded, they don’t make use of the health information, that’s the point. A lot of times, I’ve seen some people that are formally educated and when you tell them they’re like please don’t even bother! In fact, I have a cousin like that. They were told that their newborn baby had jaundice and needed phototherapy. She and her husband refused, saying their baby would be fine using pawpaw water. When I tried to convince them, I was told the story of my life, of how I was jaundiced as a baby and with pawpaw water I was cured!” DT.

## Employment

Exploring the domain, ‘understood health information well enough to know what to do further, the survey carried out among the general population in Nigeria also showed the significance of employment status. Employment can determine the economic status of the HCU, which has been shown to determine their health literacy. Poor social and economic life has been associated with low health literacy (Scavenda et al., 2021). This is with the attending challenges like needing medical and emergency services, increased vulnerability to diseases and non-compliance with medical care (Osborne et al., 2013; Adewole et al., 2023). The HCP in Nigeria also mentioned that those HCUs that are not financially stable most of the time find it challenging to interact with the HCP, whom they may regard as being better than them in terms of finances. The implication is that even when they do not understand the HCP, they may not seek clarification because they feel embarrassed. Those who are poor most often cannot subscribe to

health insurance policies and only pay from pocket for health services (Adewole et al., 2023). Having to pay from pocket would have made seeking health information or health services not top on their list of priorities, as human beings will always strive to satisfy the basic pressing needs of life first. Access to some health information also requires payment, which those who are financially low may find difficult (Oo et al., 2015; Fox and Duggan, 2013). Low financial power is also associated with low educational status (UNICEF, 2020). This is because, most of the time, poor parents find it difficult to send their children to school. This denies them the cognitive and other skills they should acquire in school, which can help them understand health information.

The other side of employment status' effect on understanding health information can be explored from the positive energy that working can give an individual, including increased thinking capacity due to exposure to day-to-day challenges and activities at the workplace. This was revealed in the study by Svendsen et al. (2021), in which it was found that people who are not working and are on benefits, most especially unemployment benefits, had low health literacy. This can be a call for a review of eligibility for benefits, and the need to encourage those who can still work to do so for the benefits.

### **Having no Disability**

Having no disability can allow the HCU to explore the different available sources of information, which there may be some restrictions for those with disability (Simpson, Knowles and O'Cathain, 2020). Some disabilities can also affect the reasoning and cognitive power of the affected, preventing their understanding of health information (Nguyen and Gilbert, 2020). This is corroborated in the study by Simpson, Knowles and O'Cathain (2020), in which those with disability found it challenging to understand health information well enough to know what to do with it. Also, those with disability tend to need more health information due to their condition, which can make it difficult for them to understand the large volume of information that they need to deal with (Nguyen and Gilbert, 2020). However, does not necessarily translate to those without disability having better health literacy than those with disability.

### **Summary**

There is concern about the HCU's "understanding of health information well enough to know what to do". This is related to the choice and available source of health

information. Also, education, employment status, and having no disability were significant to the domain.

## **8.5 Research Question 3: How is the experience of Healthcare users with the Healthcare system in Nigeria?**

### **8.5.1 Introduction**

This research question is addressed with the Domain of Health Literacy Questionnaire "Navigating the healthcare system"

### **8.5.2 Domain 7: Navigating the Healthcare System**

#### **Introduction**

This section discusses what the healthcare system can mean and its classifications as obtainable in Nigeria. Also considered are the determining factors for the HCU navigating the healthcare system, which includes the needed level of care, location of the HCU, age, education, financial status and having no disabilities.

#### **Description of the healthcare system**

The healthcare system describes the organisational and physical structure committed to total human health by providing resources and services (Lawrence 2014). It comprises different elements and activities intended to meet the health needs of the people. The essential components of the healthcare system described by WHO (2024) are service delivery, the required workforce, medical commodities, management and authorities, and finances, with a focus on reducing health inequalities. The health systems in different countries are developed based on their sociopolitical inclinations and finances, with various adjustments and improvements made to ensure equity and quality of care (Theodore et al., 2014). This applies to the structure of the health system in Nigeria, which comprises three tiers of healthcare. These are the primary, secondary, and tertiary levels, each with its assigned responsibilities and scope of care (Omoleke and Taleat, 2018). The other commonly used classification structure based on finances is the private and the public. Finally, based on the mode of interaction with the healthcare system, there is face-to-face or in-person, and online or virtual. According

to Theodore et al. (2014), whatever system or structure a country adopts, each has its peculiarities and challenges. For instance, in Nigeria, the three tiers of care are set up such that the primary care level deals with minor ailments, while the secondary care level deals with more advanced cases, including minor surgeries. Tertiary institutions are designed to address complex health matters that require the expertise of different professionals. However, people still encounter problems in the utilisation of these systems. The first challenge identified by the HCP in Nigeria is the accessibility of higher levels of care. Primary health care is readily available to the people; however, accessing the secondary and tertiary levels of care can be difficult.

“The primary level is very available and accessible. But when it is getting to the secondary and tertiary, it’s a little bit difficult. We have a lot of Primary Health centres around here, in fact in almost every local government and localities”. NA.

The accessibility of primary healthcare can be regarded as an advantage, as it is the first point of call for care for people and focuses more on preventive care (Omoleke and Taleat, 2018). There is a shortage of necessary equipment and infrastructure, coupled with a shortage of essential drugs and medications (Adebola, 2020). Poor staffing is also a problem with the primary healthcare level of care. According to the HCP in Nigeria, the challenge in staffing the PHC has been caused by a lack of necessary equipment and social infrastructure for staff. Also mentioned is the poor remuneration, which does not encourage higher-level health professionals to work at this level of care (Akokuwebe and Idemudia, 2023). These factors result in poor-quality care at this level, which calls for improvement (Adebola, 2020).

The second identified classification method for Nigeria’s healthcare system is financial, including private and public care. The government or the public should fund public care, while private care is individually funded (Broyle et al., 2016). The first concern, considering these two plans of care, is the inequality that can arise from differences in economic status. Not everyone may be able to afford care, implying that some people may not be able to access care through the private route (Akokuwebe and Idemudia, 2023). This may not be a concern if there are no discrepancies between the care received through the public and privately funded systems, which is not the case. The HCP in Nigeria could identify differences in the level and quality of care received between the public and privately sponsored care. This starts with the accessibility of care. Public-funded care is oversubscribed, which results in longer waiting times and, even when time is spent with the HCP, a quality of care that is incomparable to

the private sector. Also, in public care, the patient-to-provider ratio is always out of proportion, which can pressure the HCP, leading to a lack of patience in listening to the patient or encouraging patients' participation in their care. This is in line with the concern raised by Omoleke and Taleat (2017), in which they emphasised the problem of long waiting times and the physical discomfort of queuing for a long time for the HCU while the ratio of the doctor to patients continues to fall below standard.

“Accessibility is one of the major problems, especially in the public sector. In the private sector, People have access, but public sector you can have 10 patients at once to one doctor. So, the Private sector tends to be better. And maybe, they come with more expenses though”. DA.

Another issue with government-funded healthcare in Nigeria is the ambiguity around care funding. This is politicised as the HCU is made to believe that healthcare services are free, which is not so, but rather subsidised in some ways. Most of the time, this grey area causes a rancour between the HCU and the HCP. This policy-related concern is one of the issues shown in the work by Theodore et al. (2014) and emphasised by Omoleke and Taleat (2017).

“They come with this and that, that the government has paid for their treatment, and they are still paying so much out of pocket. The government isn't paying for them, in the sense that they are thinking.it is more of political statement to say that healthcare is free. It is not free” DT.

The other way people can relate to the healthcare system is through online/ remote services, like video or telephone consultation, instead of the traditional face-to-face means. This is becoming a common practice in most developed countries and is growing in Nigeria, too. There are many advantages associated with this method, which include saving the patients time for commuting, reducing the expenses of care on both individuals and the government, more flexibility around the time of appointment and the comfort of a known environment for the patients, among many (Parnrell, 2014). More importantly, it can reduce the burden of patients needing to attend the hospital or clinic physically. However, there are challenges identified by the HCPs in Nigeria to this method of consultation and care, corroborated by the University of Plymouth (accessed 23/12/24). These include the inability to conduct a physical assessment when needed, technical issues, data management and safeguarding of patients. Critical are the challenges around developing interpersonal relationships between the HCP and the HCU, which may not be as it would have been with face-to-face consultations. The

HCPs in Nigeria, however, believe this can be overcome by using online consultations primarily for follow-up visits. Some challenges are peculiar to Nigeria in terms of the manifestation of remote consultation to its full potential, such as the lack of the basic infrastructures to power the smooth running (Omoleke and Taleat, 2017). Overall, there is a need to ensure a balance to take advantage of the remote consultation in Nigeria correctly.

### **Complexity of the Healthcare System**

Identified in the literature is the difficulty that the HCU encounter in navigating the healthcare system, which is an integral part of health literacy (Adewole et al., 2023; Bourne et al., 2018). The complexity around the healthcare system can be in terms of locating the facilities (Adewole et al., 2023), accessing and deciding on the health insurance coverage to choose, accessing the services within the healthcare system, interacting with the different personnel within the system and so on (Allen-Meares, 2020; Omoleke and Taleat, 2017)). The HCP in Nigeria regards policy problems as one of the challenges the HCU faces in navigating the healthcare system. This problem was identified by Akokuwebe and Idemudia (2023) and Omoleke and Taleat (2017) in their works. An example is the admission process, especially in the tertiary and secondary levels of care. This can sometimes be stressful and difficult for the HCU. Also, knowing the right level of healthcare facility to use for the different ailments and locating them can be a challenge, especially for underrepresented groups, such as immigrants (Adewole et al., 2023). The HCP also identified lapses around the clarity of some policies such as the government health insurance policy, which has been described as ambiguous. This sometimes leads to altercations between the HCU and the HCP. In their work, such issues were attributed to corruption and irregularities in the policy-making process by Akokuwebe and Idemudia (2023).

Navigating the healthcare system also involves helping the HCU understand how it works and making it easy for them to use the services. An example of such activities cited by the HCP in Nigeria, especially preventive care, is sending reminders to patients for their immunisation and test schedules, which is the practice in developed countries. However, this has not been the case in Nigeria, the attending effect of which can be increased in the prevalence of some preventable diseases like cervical cancer (Omoleke and Taleat, 2017). However, it is important to note that different countries and establishments are putting in place measures to reduce the effect of this complexity

around navigating the healthcare system on the HCU. However, the difficulties remain (Theodore et al., 2014).

### **Employment Status**

From the survey among the adults in Nigeria, one of the identified determining factors for the domain “navigating the healthcare” is the employment status, which can be translated into the economic power of the care users. Healthcare has been known to be increasingly costly globally, which can put the financially challenged at a disadvantage (Allen-Meares, 2020; Theodore et al., 2014; Broyles et al., 2016). The economic strength of the HCU will determine the type of healthcare they may be able to patronise, which does not necessarily mean that they do not need the mode of care they are not choosing. This should be of concern as human life should not be compared to money. For instance, the immigrants to the Northern to the South-west region of Nigeria, who were found to be living below the poverty line, could not access any health insurance policy as they do not have the financial capacity for such (Adewole et al., 2023). Healthcare should be made universally available by ensuring workable coverage (Theodore et al., 2014).

### **Age**

The age of the HCU is significant to their ability to navigate the healthcare system. This is not surprising, especially when considered from the physical point of view. Young adults may find it easier to move around because of the physical structure of the healthcare system and the complexities around them (Theodor et al., 2014). The road network and poor transportation in Nigeria can also make it difficult for older folks to utilise the healthcare system (Omoleke and Taleat, 2017). This is in line with the study by Sorensen et al. (2015), which showed that health literacy may decline with age. Navigating the healthcare system can also be considered from the digital point of view since everything is going digital these days. The study by Zoorob et al. (2022) showed that most of the older women who participated in the survey had challenges using the patients’ portal due to technical difficulties. Although there has been some improvement in older adults’ internet utilisation in recent years, a gap still exists between them and younger adults (Novi et al., 2024). Disease burden has been known to increase with age, which can necessitate the need for the use of healthcare by older adults. The implication is the need for older adults to access healthcare more often, which can magnify the challenges they may face in utilising and navigating the healthcare system. Berens et al. (2016) identified this concern in their study, where they could see that older adults seem to have a low level of recognised health literacy.

### **Not Having any Disability**

This plays a role in HCU navigating the healthcare system. According to the Americans with disability act (2023), an individual can be regarded as being disabled if they have one or more physical or mental challenges affecting the performance of at least one life activity. Furthermore, in recent years, the number of individuals living with a disability has increased due to the increase in the ageing population, better healthcare and change in the population (Kassebaum et al., 2015). Having physical or mental issues can have effects on the ability to navigate the healthcare system, which is complex (Theodor et al., 2014). Although Nguyen and Gilbert (2019), in their study, could not find any difference between the health literacy of those with disability and those without, their study showed that those with disability struggle with getting or searching for health information and not understanding it. This is in addition to the fact that those with a disability find it difficult physically to access or navigate the healthcare system, for instance, due to the need for special transportation means. In contrast, those without disabilities do not need such and, so, at an advantage (Hamilton et al., 2020). The HCUs with disabilities tend to have more health challenges to deal with, need to use healthcare services and have costlier healthcare than those without disabilities (Hamilton et al., 2020; Colorado et al., 2023). According to the economic model around disabilities, most people with disabilities may not be able to work at all or as much as they would love to, which may cut them off certain healthcare benefits from the workplace and have a significant effect on their finances (Colorafi et al., 2023). Also, finding and funding their healthcare can be difficult due to their conditions. All these factors can make those without disabilities find it easier to navigate the healthcare system compared to those with disabilities.

### **Education**

The effect of education, most especially on functional health literacy, is evident in the literature (Nutbeam, 2008; Ekoko, 2020). In the survey among the general population in Nigeria, education was one of the determining factors for the HCUs navigating healthcare. Higher education has been associated with better health literacy. In contrast, those with low or no education have been seen to struggle more with their health and to interact with the healthcare system (Adewole et al., 2023). No or low education may affect reading and understanding of health information, including signs and posts for navigating the healthcare system. They may also find it challenging to interact with the HCP, who are also part of the Healthcare system. Accessing

health services policies may also be difficult, affecting their decisions and choices. As established earlier, being educated does not imply being able to interpret health information correctly. This is because different fields of discipline have their own languages. To overcome this challenge, one of the identified solutions by the HCP in Nigeria is described as “keep it simple”, which is about using the general language as much as possible that the HCUs can easily understand. For example, instead of writing phlebotomy, it can be better to write a blood-taking unit, which can be easily read and understood by the HCU.

### **Summary**

The healthcare system goes beyond the physical structures, which are also important. The identified determining factors for the HCU’s ability to navigate the healthcare system include age, education, financial status and having no disabilities.

## **8.6 Research Question 4: What is the relationship between COVID-19 knowledge and Health Literacy among Adults in Nigeria?**

### **8.6.1 Introduction**

This research question is addressed using findings from the data analysis of knowledge of COVID-19 in relation to health literacy. Of the nine domains of health literacy considered, only four were significant for healthcare users’ knowledge about COVID-19. These are: "Navigating the healthcare system"; "Ability to find good health information"; "Understand health information well enough to know what to do"; and "ability to actively engage the HCP". Understanding factors that enable HCUs to handle the COVID-19 pandemic better can provide clues for areas to explore further in preparing the general population for future pandemics. This is important, especially as no country is currently considered prepared to handle any future pandemic (Cable et al., 2021).

Navigating the healthcare system: the statistical analysis found a positive correlation between this domain of health literacy and healthcare users’ knowledge of COVID-19. The healthcare system comprises organisations, structures, activities, and personnel designed to support people’s health and well-being (WHO, 2024). It includes all the

stakeholders in health care, such as patients, their relatives, healthcare providers, health agencies, private healthcare providers, and so on. During the COVID-19 pandemic, the healthcare system was overstretched, so the HCU struggled to get adequate care (Cable et al., 2021). A healthcare user who understands the healthcare system well enough to navigate effectively will not find dealing with the pandemic as difficult as those who do not understand it. This is because they already know what to do, where to go and who to contact. They can relate to healthcare providers, health information, and other aspects of the healthcare system, including activities advised for their well-being. For example, different structures and measures were implemented during the COVID-19 pandemic to curtail its spread, including face masks, hand hygiene, and social distancing (Afolabi and Ilesanmi, 2022). Those who can navigate the healthcare system will understand the need to comply with these measures, and that is why the correlation between this domain and knowledge of COVID-19 is not surprising.

In the same vein, the ability to find good health information, which is positively correlated with knowledge about COVID-19, is not far-fetched. During the pandemic, there was a massive release of information, including misinformation. It was so bad that the director general of WHO described the situation as not just a pandemic but also an infodemic (Joint statement by WHO, UN, UNICEF, UNDP, UNESCO, UNAIDS, ITU, UN Global Pulse, and IFRC, 2020). This was coupled with different conspiracy theories that increased the confusion and panic around the pandemic (Oleksy et al., 2021). Finding good health information implies that the HCU recognises what good health information is (Diviani et al., 2020). They also take the pain to look for it (Dodson et al., 2014). This is why they can have good knowledge about COVID-19, as shown in this study.

Furthermore, understanding health information well enough to know what to do can be considered critical health literacy (Thomas, 2021). Critical health literacy enables the HCU to make decisions based on their understanding of the information available. This explains the positive correlation between knowledge about COVID-19 and the ability to understand health information well enough to know what to do.

Finally, the ability to actively engage with the healthcare provider, which is significantly related to knowledge of COVID-19, can be traced to the fact that the safest health information is linked to the HCP (Xie et al., 2022). Also, good interpersonal relationships

between the HCP and the HCU are important in determining the patient's experience and outcome (Drossman and Ruddy, 2020).

### **8.6.2 Summary**

As shown in this study and corroborated in the literature, there is a positive correlation between health literacy and COVID-19 knowledge (Tao et al., 2023). This implies that measures to increase people's health literacy can be a positive way to prepare them against any future pandemic.

## **8.7 Conclusion**

The findings from the data collected were discussed in this chapter. In the next chapter, the conclusion and recommendations from the study are presented.

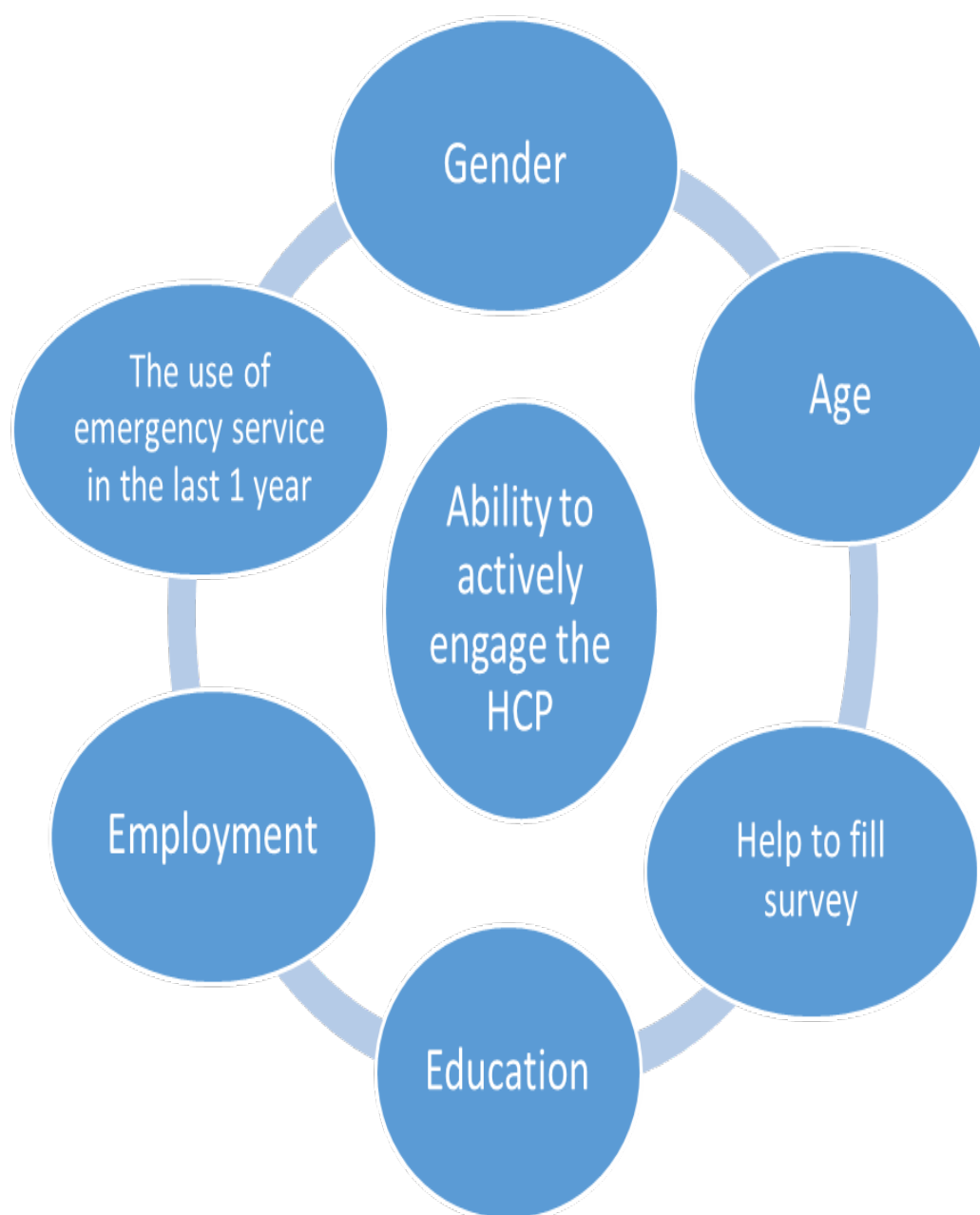


Fig. 8.1 Factors for the 'ability to actively engage the HCP'.

# Chapter 9

## Study Overview, Conclusions, Limitations, and Recommendations.

### 9.1 Introduction

This chapter summarises the project and discusses the study's possible conclusions. It also details the study's limitations and recommendations.

### 9.2 Study Overview

This research explored health literacy among the general population and the healthcare providers in Nigeria. Healthy literacy has been recognised as a determinant of health, healthy living, and outcomes for the general population, among others. Different countries have conducted research on their people's health literacy. In Nigeria, there have been various studies on the health literacy of different sections and groups of individuals, such as adolescents and those with mental health literacy issues. This study is unique because it used mixed methods to explore health literacy among the general population in Nigeria from the perspectives of both the HCU and the HCP. Using mixed methods makes the study rich in context and depth, which characterises qualitative studies, while also leveraging the large survey sample.

The quantitative data for the study were collected using the JISC online survey platform and a face-to-face questionnaire. The data collection tool is the health literacy questionnaire, which has been used in several countries. This questionnaire has nine domains to assess health literacy, each of which could be used exclusively. A self-

developed questionnaire was also used to collect data on COVID-19 knowledge. The target localities for the study were the Southwest, the Northwest, and the Southeast regions of Nigeria. This selection was based on the study's time constraints, the ongoing COVID-19 pandemic at the time of data collection, and, most significantly, the insecurity and violence in the other three regions of Nigeria. For face-to-face data collection, trained hands were used to cover different regions, yielding over 3500 returns when compared with the online survey. The data was analysed using SPSS, multiple regression, and bivariate correlation. The selected independent variables that the nine domains of health literacy were tested against are age, education, disability, not having a disability, and geopolitical zones. Others are employment status, the use of emergency services in the last year, and the ability to speak English.

The qualitative data were collected by interviewing sixteen healthcare professionals in Nigeria. These comprise four medical doctors, three pharmacists, and nine nurses. The interview was conducted online via Microsoft Teams, primarily via audio. This is due to network issues during video calls in some areas of Nigeria. The recorded data was transcribed and read three times to provide context and get detailed information from the interview, especially those expressed through voice tone, pauses, and prompts. The data were transferred to NVIVO, a tool for analysing qualitative research, where themes and subthemes were identified. The three general themes developed from the data are the relationship between the HCP and the HCU, the interactions of the HCU with the healthcare system, and health information. The research questions that this study addressed are:

1. How is the relationship between the healthcare providers and the healthcare users in Nigeria?
2. What are the interactions of the healthcare users with health information in Nigeria?
3. How is the experience of the healthcare users with the healthcare system in Nigeria?
4. What is the relationship between COVID-19 knowledge and Health literacy among adults in Nigeria?

The qualitative and quantitative data findings were combined equally to address research questions one to three. Additionally, the findings from the correlational analysis were utilised to address the fourth research question.

## 9.3 Conclusions from the Study

The conclusions that could be drawn in answering the research questions are presented as follows:

### 9.3.1 Research Question 1: What is the relationship between the Healthcare Providers and the Healthcare Users in Nigeria?

The two domains used to address these questions are "feeling understood and supported by a healthcare provider" and "ability to engage with healthcare providers actively." From the data collected, it can be inferred that more work is needed on the relationship between the HCP and the HCU. Starting with the first domain that was explored, which is "feeling understood and respected by the HCP," of importance to this domain is the need for a good interpersonal relationship between the HCP and the HCU. It is important to understand the HCU's needs from the HCU's own point of view, not from the HCPs'. This is necessary, considering the trend of patient-centred care and "no decision about me without me", which are being advocated across the globe now. Of significance to the patient's "feeling" of being understood and respected by the HCP is their financial status, with those who are financially disadvantaged scoring lower in this domain. This calls for a better healthcare system structure that accommodates everyone without anyone feeling judged based on their financial status. Also, there may be a need for specialised training for the HCP on how to make the HCU feel welcomed and unjudged.

Interestingly, the HU's level of education does not determine whether they feel understood or respected by the HCP. While having no disability is related to the domain, having a disability is unimportant. There may be a need to explore the issue of disability and patients' feelings regarding being understood and respected in more depth. For the domain "ability to actively engage with the HCP", the effect of gender as related to the personalities of the HCU was found to be significant. The two identified genders are male and female. While males enjoy a level of understanding with the HCP, even when they are arrogant and tend to be violent, females are regarded as being manipulative and sometimes uncooperative. This can serve as a pointer to the need to investigate gender inequality in the engagement of the HCP with the HCU in Nigeria. The same level of understanding should be applied to all, regardless of gender. Also

significantly related to this domain are the employment and the educational status of the HCU. Completing the survey without help is also a measure of the HCU's ability to engage with the HCP actively. Having one chronic disease or the other and having used the emergency service in the last year also affects the relationship between the HCP and the HCU.

### **9.3.2 Research Question 2: What are the interactions of Healthcare Users with Health Information in Nigeria?**

This was addressed using the findings from the domains "Having sufficient information to manage my health," "Appraisal of health information," "Ability to find good health information," and "Understanding health information well enough to know what to do."

For the domain "having sufficient health information to manage my health," age was found to be a determining factor. However, it may be worthwhile to explore this further, given the different age groups in this domain. Health literacy is always linked to education and financial status in the literature. The higher the HCU's level of education, the better their understanding of the HCP. Being financially stable also helps the HCU relate freely with the HCP. This can be a pointer to the need to ensure that children are encouraged to go to school, seeing that Nigeria was one of the countries with more out-of-school children. Having a chronic disease or some disabilities was shown to be of importance in the HCU having sufficient health information. This also applies to the use of emergency services in the last year. This may be due to their ongoing needs and interactions with the healthcare system. However, other studies have linked the use of emergency services to poor health literacy. This is because the use of emergency services can be due to poor health practices. There may be a need to explore the use of emergency services and their impact on HCU information gathering.

The geopolitical zone is a determining factor for the HCU, and having sufficient health information to manage their health may not be treated singularly as other factors can contribute to this. One of such is education and finances. The northern part of Nigeria is known to have more out-of-school children because of its preference for religious study over Western education. There may be a need to consider means to incorporate literacy into the Quranic study to address this challenge. Also, more people live below the poverty line in the northern regions of Nigeria than in the other areas.

Measures to combat this challenge should contribute to the HCU having sufficient information to manage their health.

For the domain “critical appraisal of health information,” geopolitical zones and education came into play again. There are skills needed in appraising health information. Some of these are knowing and finding the right source for health information, and interpreting it correctly to meet health needs. Some cognitive skills required for this are developed through education, so geopolitical zones with low education uptake may have challenges around this domain. Age was also significant to this domain. Different age groups source, access, and are exposed to disease burdens differently. Also, in terms of location, various age groups are distributed differently. There is a need to explore critical appraisal of health information and age in Nigeria. It is also important to consider health literacy in relation to the migration status of the HCU and the critical appraisal of health information, as immigrants across the geopolitical zones in Nigeria appear to be at a disadvantage in health literacy. Having no disability and having some disabilities being of significance shows that there may be a need for more actions in providing information based on the specific disabilities being suffered by individuals in Nigeria, which is the focus of patient-centred care.

In exploring the domain “ability to find good health information,” a crucial point addressed is the need to critically assess the patient’s health record keeping in Nigeria, considering the concerns raised about it. In sourcing health information, the importance of the HCU in finding suitable health information may determine the effort they are ready to put into it. There has been an increasing availability of health information. However, the quality differs and cannot be generally guaranteed. The different sources of health information that are available to the HCU, such as the internet, social media, media, publications, family and friends, traditional healers, and the HCP, to mention a few, are of different qualities, with the location of the HCU being a determinant to the sources that the HCU could access. The age of the HCU is a factor in their ability to find good health information, while speaking English does not count. This is contrary to what was found in other studies where those speaking different languages at home have lower health literacy than English-speaking folks. However, the peculiarity of this study compared to that one is that Nigeria uses English as its official language. At the same time, other local languages are used in the country, unlike the country in the other study, which is English-speaking. As regards language, however, emphasis is the need for the HCP to choose their words based on their understanding of their patients, most

eventually avoiding medical terminologies that the patient may find hard to understand.

Employment status has a role in the HCU's ability to find good health information. There are benefits associated with being employed, which those on benefits or out of a job may not have access to. This may indicate the need to encourage those who can still work but are on benefits to consider returning to work to improve their health literacy. Needing help to fill out the survey can imply challenges in finding good health information, depending on the reason for needing help. Whatever the reason why the HCU needed help to fill out the survey, which can be physical or cognitive, there may be a need to consider it in the accessibility of the available health information to the HCU.

For the domain "understand health information well enough to know what to do," the HCP in Nigeria could attest to the increased availability of health information, as it is the trend globally; however, there is a concern about the HCU's understanding of the information. This can be attributed to concerns about most health information sources that do not allow for clarification. The influence of culture in the interpretation of health information can also affect the utilisation of health information, which can be misinterpreted as the HCU not understanding the information gathered. While the HCU finds it difficult to understand health information and know what to do, older adults may be at a better advantage due to the source of health information they tend to choose, which is the HCP. Choosing the HCP as the source of their information allows for interactions and allows asking questions as needed. The information can also be tailored to their needs, unlike the younger adults who rely on the internet, even though they may still patronise the HCP.

The effect of education in understanding health information well enough can be seen in the influence of education on a man's mind. Being educated implies that the HCU can read and write health information, which are components of health literacy. Also, education can affect the cognitive power of a person, helping their understanding of information. While education can determine the sources of health information that the HCU can explore, it also affects how they interact with the sources. Furthermore, the higher the level of education, the better the cognitive skills that can be developed, which can help understand health information. Another identified factor in this domain is the level of employment of the HCU. Better health literacy is related to employment, while those on benefits or not working are likelier to suffer low health literacy. This is

because there is the possibility of increased reasoning power due to the exposure to the day-to-day challenges at work. No or low employment status can translate to low economic power, an identified factor in determining health literacy. Financial status and level of education can also be related in some ways, as those with low economic power may find it difficult to fund their education, which makes the two factors worth further exploration regarding their effect on understanding health information well enough to make decisions.

### **9.3.3 Research Question 3: How is the Healthcare users' Experience with Nigeria's Healthcare system?**

The healthcare system describes the physical and organisational structures that supply health resources and services. Three tiers of healthcare in Nigeria (primary, secondary, and tertiary) are identified, each saddled with different scopes of care. However, the HCUs still struggle to determine the right level to contact for their health concerns. There is also concern about the accessibility of the secondary and tertiary levels of care. At the same time, primary healthcare, which is the most accessible, lacks the essential equipment and personnel.

Of concern are the disparities that are noticeable in the private compared to the government-funded care. Individually or privately funded care is better in terms of the quality of care, the structures, and the personnel, while government-funded care is plagued with an incomparable ratio of the healthcare personnel to the patients, long waiting hours, and overall poor quality of care. What could be part of the solution to the long waiting hours and queues at government-funded healthcare is online consultations instead of having all care rendered face-to-face. However, challenges have been identified to its maximisation due to its limitations and lack of the necessary equipment for its utilisation. Additionally, health policies in Nigeria have been faulty in that most lack thorough investigations and planning, leading to problems with their actualisation. There is also ambiguity around some of them. For instance, government-funded care has been causing chaos in some settings in that, even though the care is said to be government-funded, it is only available at different levels of subsidisation, which most HCUs do not understand. This sometimes leads to misunderstandings between the HCU and the HCP, which should not be so.

There is a level of inequity associated with navigating the healthcare system by

the HCU. One of the causes of this is finances. For instance, the employment/economic status of the HCU has been identified as one of the determining factors for navigating the healthcare system. This is quite understandable when considering how healthcare can be funded. Those who are financially low may need healthcare more because they may not be able to get the appropriate information or take the necessary precautions for healthy living. This can, in turn, result in their needing expensive medical interventions, which they may not be able to afford. In terms of interactions with the HCPs, who are also part of the healthcare system, the HCUs that are financially unstable find it difficult to interact with them, unlike those that are financially stable. This can also be seen in the patronisation of private versus public care, which is not determined by the healthcare needs of the people but by their financial capacity.

While gender is not a determining factor for navigating the healthcare system, age is found to be of importance. As society is ageing more due to improvement in healthcare and technology, there is also an increase in the cases of chronic diseases and conditions associated with old age. This makes the older adults need the healthcare system more, and this can make them feel the challenges around navigating the healthcare system, from sourcing information to practically moving around in the physical structures. This calls for the need to explore older adults in Nigeria and their navigation of the healthcare system while incorporating age-sensitive services and activities.

Although having a disability is not a factor in navigating the healthcare system, not having a disability is crucial to it. This calls for further probe into the navigation of the healthcare system by those with disabilities. This is because those with disabilities, either physical or mental, most of the time need the healthcare system more, and they should be able to access it with ease.

To navigate the healthcare system, the HCU needs education. The higher their education level, the easier it can be for them. Education helps the interactions between the HCP and the HCU. It is also needed to access most health information sources and can help the HCU move around the healthcare system's physical structures. However, the right considerations should be put in place to help all healthcare users, no matter their level of education.

## 9.4 Conclusion

### 9.4.1 Introduction

In this section, the strength of this study will be explored. The study's limitations will follow this, while its contributions to knowledge will be highlighted. The researcher's general recommendations and suggestions for future studies will then be presented.

### 9.4.2 Contributions of the Study to the Body of Knowledge

This study explored health literacy in Nigeria among the general population and from the perspective of healthcare providers in Nigeria. Health literacy is regarded as one of the determinants of health, with its acceptance and exploration across both developed and developing countries (Wang et al., 2020; Simpson et al., 2020). The field of health literacy is expanding, with quality of life and healthcare increasingly measured against it (Nguyen and Gilbert, 2019; Allen-Meares et al., 2020). Health literacy is also a broad field of research for professionals in healthcare and other fields, such as the librarians (Nwafor-Orizu et al., 2020; Ekoko, 2020). Nigeria is not left out in using health literacy to measure health and health issues. Different studies have sought to explore different aspects of health literacy in Nigeria, such as diseases related to health literacy (Nwafor-Orizu, Emelumadu and Nwabueze, 2020; Olayemi, Madukoma and Yacob, 2022; Afolabi and Ilesanmi, 2022; Aluh, Okonta and Odili, 2019); age group as related to health literacy (Ofole and Ohakwe, 2021); gender (Ekoko, 2020); locality (Afolabi and Ilesanmi, 2022; Kuyinu et al, 2020); and so on.

The identified gaps in the study of health literacy in Nigeria that this study addresses begin with the scope. Unlike other studies, this study examined health literacy among the general adult population in Nigeria. Also, in terms of the research population, this study was conducted across three of Nigeria's geopolitical zones, which has not been done in any other study. Additionally, a mixed-methods approach was adopted for this study, given the advantages of a large quantitative dataset and rich, in-depth qualitative data. While a survey was conducted among the general population, healthcare providers were interviewed to explore their perspectives on the' health literacy of adults in Nigeria. This is essential because the HCP are the ones who deal with HCU first-hand. With this approach, as much overall information as possible about health literacy among Nigerian adults could be captured. Notably, the researcher, a nurse, explores health literacy from a nurse's perspective within the Nigerian healthcare system. This is unlike

the other studies, which were carried out primarily by non-medical professionals. Also, a health literacy study attributed to a nurse in Nigeria is yet to be found. Another contribution of this study to understanding health literacy in Nigeria is its coverage of three important aspects of health literacy. Three aspects of health literacy explored in this study are the relationship between the HCU and the HCP, the interaction between the HCU and health information, and the HCU's navigation of the healthcare system. This study revealed different types of relationships that could exist between the HCP and the HCU. It also highlighted the challenges in the relationship between the HCP and the HCU, with suggested ways to improve it. The importance of the HCU–HCP relationships could not be overemphasised (Sabety, 2023), from determining where the HCU will seek care to how well they can engage with and understand the HCP, including their outcomes. This study has shed more light on the topic, providing a better understanding of health literacy in Nigeria.

This study revealed different ways the HCU interact with health information, providing a better understanding of how the HCU sources and applies health information. Having the correct information can help the patient to actively participate in their care, which is important in the delivery of healthcare.

Navigating the healthcare system is beyond the scope of human resources. It includes the structures, their accessibility, the choice of words used for signposting and so on. A health organisation may not be health-literate, as evidenced in its structures, activities, policies, services, processes, and so on. Health literacy goes beyond medical care and encompasses how care is delivered, which ultimately shapes patients' experiences of the healthcare system. This is another area that makes the study highly relevant to understanding health literacy in Nigeria, as it reveals the current state of this aspect.

Overall, this study has contributed to the understanding of health literacy in Nigeria, opening up a wide area for further studies, as discussed in a later section.

### **9.4.3 Limitations of the Study**

The study aims to explore health literacy in Nigeria. Starting with the qualitative data, the interview conducted among the HCP provided only the opinions of the interviewees and may not be generalised to all HCP in Nigeria. However, it can provide direction on what health literacy in Nigeria can be from the perspective of the HCP. Furthermore, the convenient purposive sampling method employed in this study was

particularly useful for selecting appropriate participants, which may have influenced the selected participants. Also, the researcher being a licensed nurse in Nigeria, which the participants were aware of, might affect the responses. This can be inferred from some of their word choices. For example, instead of explaining further on a point, they sometimes use the phrase “you know”, although this was controlled by ensuring that the participant explained further what they were trying to communicate. Another limitation of this study is that not all participants were able to put on their videos during the interviews due to network issues. The concern is that some nonverbal communication cues might have been missed. However, this was compensated for by listening actively and probing further when it seemed the participant was not expressing themselves fully. For the participants, only three types of professionals were considered: doctors, nurses, and pharmacists. The implication is that the other HCPs’ thoughts are not captured in this study, so it cannot represent all the HCPs. There are also more nurses among the participants than in the other two professions. This may not be far-fetched, as nurses consistently have higher numerical values than all other HCPs. Also, there is the possibility that the researcher, being a nurse, could have influenced this. This may mean that the opinion expressed is more from the nurses’ perspective than from the others’.

One of the beauties of quantitative studies is the possibility for generalisation due to the substantial number of participants that could be gathered. Over three thousand adults took part in this study, which is an advantage to this study. However, it is important to mention that with large data, there can be a multiplication of any biases within the study, which were well guided against. The figure would have been higher, but some questionnaires with incomplete data had to be removed. The concern around this is that some of those participants might have contributions to make to the study, but that could not be harvested. Also, those questionnaires with missing values replaced with the mean could cause exaggeration or under-reporting of the findings.

Data could not be collected from some of Nigeria’s geographic zones due to limited resources and time constraints. This is coupled with security issues in these zones, which can limit the generalisation of the findings from this study to the general adults in Nigeria. However, it is important to note that all the geopolitical zones in Nigeria were represented in the study, which may be due to migration from zones of violence to other zones.

#### **9.4.4 Areas for Further Studies.**

Given the purpose of this study, which is to explore health literacy among general adults in Nigeria, it is necessary to further investigate the findings, especially in the areas commonly highlighted across all domains of health literacy on the HLQ. There is a need to critically consider age and age groupings across all domains of health literacy. This will allow for a further understanding of how age and ageing relate to health literacy in Nigeria. Disability has diverse effects on health literacy in Nigeria, given its global increase among the general population. This can result from improved healthcare and technologies now available. Furthermore, there is an increase in the aged population, with the burden of health challenges associated with old age. This emphasises the need to probe health literacy in Nigeria with respect to disability, using each domain of the HLQ. Gender needs to be investigated further in relation to all domains, especially the “ability to actively engage the HCP.” Other areas that need to be explored include financial status, education, the need to help complete the HLQ via the survey, and the attendant effects on health literacy.

#### **9.4.5 Recommendations**

##### **Relationship between the HCP and the HCU**

1. Regarding the HCP’s relationship with the HCU, there is a need to assess those things that can cause friction between the HCP and the HCU to tackle the issue of aggression and violence. This is important because the HCPs should be able to work without fear, while the HCUs should also receive the best care available.
2. Continuous professional training will be of great benefit. It will go a long way in guarding against inequality and prejudices.
3. Education for all should also be continually advocated, while regions that value religious education over literacy can incorporate a literacy curriculum into their schedules. This should mitigate the effect of no or low education on health literacy.

##### **Health Information and the HCU**

1. Even though health information is more readily available than it used to be in the past, there is a need to enlighten people on checking the quality of health information before adopting it for their decision-making.

2. Healthcare stakeholders, especially government agencies, to ensure that health information is made available in different formats that everyone can access. There should be health education and information based on the preferred sources that the different groups in society tend to utilise so that no one is at a disadvantage or risk of misinformation.
3. The other side of this issue of health information is health record keeping in healthcare facilities. Training and equipment for effective health record management should be put in place at all levels of healthcare services, while patients should be allowed access to their health records as may be required. This will promote patient-centred care and involvement.

#### **Interaction of the HCU with the Healthcare system.**

1. There is a need to educate the healthcare users on the different levels of care and their focus. This will help to reduce burdens on the secondary and tertiary levels of care, which are sometimes burdened with conditions that could be treated at the primary healthcare level.
2. Primary healthcare is supposed to be the first point of call for care for the general population. Currently, most people have lost trust in this level of care. This can be corrected by supplying better equipment and workforces to these centres.
3. To avoid exploitation of the HCU, investigations and better regulation of private hospital operations in Nigeria should be conducted.
4. The government is to ensure a proper process for policy establishment, ensuring that only workable policies are made.
5. Regarding the physical structures of the healthcare facilities, buildings should be marked with simple language that people can understand and not some ambiguous medical terminology.
6. Healthcare structures should be designed to account for different age groups.

#### **Pandemic Preparation through Health Literacy**

Governments at all levels should deliberate about preparing their people for pandemics. One measure to achieve this is to strategise to improve people's health literacy, especially as regards health information and navigating the healthcare system. Of importance is

also ensuring good interpersonal relationships between the HCU and the HCP.

Conflict of interest declaration: This is to declare that the conduct of this study was not influenced in any way by public or governmental involvement; also, no conflict of interest was declared.

# Bibliography

- [1] Sanusi Abubakar. Using Participatory Methods To Improve Health Literacy Of Mothers In Northern Nigeria: An Action Research Project. 4 2019.
- [2] Olukemi Grace Adebola. Universal Health Coverage In Nigeria And Its Determinants: The Case Of National Health Insurance Scheme. *Academic Review of Humanities and Social Sciences*, 3(1), 2020.
- [3] Adebola A. Adedimeji, David Lounsbury, Oluwafemi Popoola, Chioma Asuzu, Akinmayowa Lawal, V. Oladoyin, Cassandra Crifase, Ilir Agalliu, Viswanathan Shankar, and Akindele Adebisi. Improving outcomes in cancer diagnosis, prevention and control: barriers, facilitators and the need for health literacy in Ibadan Nigeria. *Psycho-Oncology*, 26(10):1455–1462, 10 2017.
- [4] T. O. Adekoya-Cole, O. I. Akinmokin, G. O. Enweluzo, O. O. Badmus, and E. O. Alabi. Poor Health Literacy in Nigeria: Causes, Consequences and Measures to improve it. *Nigerian quarterly journal of hospital medicine*, 25(2), 2015.
- [5] Taiwo Aderemi Ajiboye, Modupe O Oyetunde, Adelani Wakili Tijani, Rahmat, and Adejumo Sanusi. Effects of Health Literacy on Medication Adherence Among Patients with Glaucoma in Two Ophthalmic Clinics in Oyo State. Technical report, 2016.
- [6] David Adewole, Bolaji Adedeji, Segun Bello, and John Taiwo. Access to healthcare and social determinants of health among female migrant beggars in Ibadan, Nigeria. *Journal of migration and health*, 7:100160, 2023.
- [7] Aanuoluwapo Adeyinka Afolabi and Olayinka Stephen Ilesanmi. COVID-19 Health Literacy in Rural and Urban Communities in Nigeria: A Key Strategy for Improving the COVID-19 Outbreak Response. *Global Biosecurity*, 4, 2022.
- [8] Agency for Healthcare Research and Quality. About Health Literacy | Content last reviewed February. 2025.
- [9] Nilsah Cavdar Aksoy, Ebru Tumer Kabadayi, and Alev Kocak Alan. An unintended consequence of Covid-19: Healthy nutrition. *Appetite*, 166:105430, 11 2021.
- [10] Shatha A Alduraywish, Lamees A Altamimi, Rawan A Aldhuwayhi, Lama R AlZamil, Luluh Y Alzaghayer, Futoon S Alsaleh, Fahad M Aldakheel, and Shabana Tharkar. Sources of Health Information and Their Impacts on Medical

- Knowledge Perception Among the Saudi Arabian Population: Cross-Sectional Study. *Journal of medical Internet research*, 22(3):e14414, 3 2020.
- [11] Nathan Alexander and Kenya Haugen. Medical Paternalism vs Patient Autonomy. *Radiologic Technology*, 95(1), 2023.
  - [12] Paula Allen-Meares, Brienne Lowry, Mayra L Estrella, and Sudaba Mansuri. Health Literacy Barriers in the Health Care System: Barriers and Opportunities for the Profession. *Health & social work*, 45(1):62–64, 1 2020.
  - [13] Sibel Vildan Altin, Isabelle Finke, Sibylle Kautz-Freimuth, and Stephanie Stock. The evolution of health literacy assessment tools: A systematic review, 11 2014.
  - [14] Deborah O. Aluh, Obinna C. Anyachebelu, Chibueze Anosike, and Ezinne L. Anizoba. Mental health literacy: What do Nigerian adolescents know about depression? *International Journal of Mental Health Systems*, 12(1), 2 2018.
  - [15] Deborah Oyine Aluh, Matthew Jegbefume Okonta, and Valentine Uche Odili. Cross-sectional survey of mental health literacy among undergraduate students of the University of Nigeria. *BMJ Open*, 9(9), 2019.
  - [16] Chittaranjan Andrade. Sample Size and its Importance in Research. *Indian Journal of Psychological Medicine*, 42(1):102–103, 1 2020.
  - [17] Monique Ann-Marie Lynch and Geovanni Vincero Franklin. Health Literacy: An Intervention to Improve Health Outcomes. In *Strategies to Reduce Hospital Mortality in Lower and Middle Income Countries (LMICs) and Resource-Limited Settings*. IntechOpen, 9 2019.
  - [18] Vera Araújo-Soares, Nelli Hankonen, Justin Presseau, Angela Rodrigues, and Falko F. Sniehotta. Developing Behavior Change Interventions for Self-Management in Chronic Illness, 1 2019.
  - [19] Nicholas C. Arpey, Anne H. Gaglioti, and Marcy E. Rosenbaum. How Socioeconomic Status Affects Patient Perceptions of Health Care: A Qualitative Study. <http://dx.doi.org/10.1177/2150131917697439>, 8(3):169–175, 3 2017.
  - [20] Samuel R Atcherson, Samuel R Atcherson<sup>1</sup>, Richard I Zraick<sup>1</sup>, and Kristie Hadden<sup>2</sup>. A Need for Health Literacy Curriculum: Knowledge of Health Literacy Among US Audiologists and Speech-Language Pathologists in Arkansas. *Education for Health* •, 26(2), 2013.
  - [21] Bola Atulomah and Nnodimele Onuigbo Atulomah. HEALTH NEEDS OF INTERNAL DISPLACED ELDERLY IN INTERNAL DISPLACED CAMPS View project Medical libraries View project. *Ozean Journal of Social Sciences*, 5(3), 2012.
  - [22] Bola Christie Atulomah and Nnodimele Onuigbo Atulomah. Information Need, Health Literacy, and Preventive-Health Behaviour among Individuals in a Rural Community of Ikenne Local Government Area, Nigeria. *Texila International Journal of Public Health*, 8(1), 2020.

- [23] Atulomah B. and Atulomah O. (PDF) Health Literacy, Perceived-Information Needs and Preventive-Health Practices among Individuals in a Rural Community of Ikenne Local Government Area, Nigeria. *Ozean Journal of Science*, 5(3), 2012.
- [24] Al-Mansur Sumayya Auwal, Lawal Abdulwahab Oluwatomisin, Tijani Yusuf Olatunji, Adeniji Abdur-Rahman Adekunle, and Ogunleke Praise Oluwatobi. Achieving Universal Health Coverage in Nigeria: Current Challenges and Recommendations. *International Journal of TROPICAL DISEASE & Health*, 44(7), 2023.
- [25] Sunday Joseph Ayamolowo, Lydia Feyisayo Akinrinde, Monisola Omoyeni Oginni, and Love Bukola Ayamolowo. The Influence of Health Literacy on Knowledge of Cervical Cancer Prevention and Screening Practices among Female Undergraduates at a University in Southwest Nigeria. *Africa Journal of Nursing and Midwifery*, 22(1), 5 2020.
- [26] Azi H. Y. *Exploration of women's lived experiences and perspectives of maternal stakeholders on the utilisation of maternal healthcare services in Bauchi State, Nigeria*. PhD thesis, University of Northampton, United Kingdom, Northampton, 2023.
- [27] Kunal Bailoor, Thomas Valley, Chithra Perumalswami, Andrew G. Shuman, Raymond DeVries, and Darin B. Zahuranec. How acceptable is paternalism? A survey-based study of clinician and nonclinician opinions on paternalistic decision making. *AJOB empirical bioethics*, 9(2):91, 4 2018.
- [28] David W. Baker, Mark V. Williams, Ruth M. Parker, Julie A. Gazmararian, and Joanne Nurss. Development of a brief test to measure functional health literacy. In *Patient Education and Counseling*, volume 38, pages 33–42. Elsevier, 9 1999.
- [29] Susan C. Baker, Bernadette M. Watson, Barbara Jamieson, and Raymond Jamieson. How Do Patients Define Satisfaction? The Role of Patient Perceptions of Their Participation and Health Provider Emotional Expression. *Health Communication*, 36(14):1970–1979, 12 2021.
- [30] Meenakshi P. Balakrishnan, Jill Boylston Herndon, Jingnan Zhang, Thomas Payton, Jonathan Shuster, and Donna L. Carden. The Association of Health Literacy With Preventable Emergency Department Visits: A Cross-sectional Study. *Academic Emergency Medicine*, 24(9):1042–1050, 9 2017.
- [31] Pat F. Bass, John F. Wilson, and Charles H. Griffith. A Shortened Instrument for Literacy Screening. *Journal of General Internal Medicine*, 18(12):1036–1038, 12 2003.
- [32] R. W. Batterham, M. Hawkins, P. A. Collins, R. Buchbinder, and R. H. Osborne. Health literacy: Applying current concepts to improve health services and reduce health inequalities, 3 2016.
- [33] Annika Baumeister, Digo Chakraverty, Angela Aldin, Ümran Sema Seven, Nicole Skoetz, Elke Kalbe, and Christiane Wopen. “The system has to be health literate, too” - perspectives among healthcare professionals on health literacy in transcultural treatment settings. *BMC Health Services Research*, 21(1), 12 2021.

- [34] Alison Beauchamp, Rachelle Buchbinder, Sarity Dodson, Roy W. Batterham, Gerald R. Elsworth, Crystal McPhee, Louise Sparkes, Melanie Hawkins, and Richard H. Osborne. Distribution of health literacy strengths and weaknesses across socio-demographic groups: A cross-sectional survey using the Health Literacy Questionnaire (HLQ), 2015.
- [35] Tom Beauchamp and James Childress. Principles of Biomedical Ethics: Marking Its Fortieth Anniversary. *The American Journal of Bioethics*, 19(11):9–12, 11 2019.
- [36] Marie-Dominique Beaulieu, Jeannie L Haggerty, Christine Beaulieu, Fatima Bouharaoui, Jean-Frédéric Lévesque, Raynald Pineault, Frederick Burge, and Darcy A Santor. Interpersonal communication from the patient perspective: comparison of primary healthcare evaluation instruments. *Healthcare policy = Politiques de sante*, 7(Spec Issue):108–23, 12 2011.
- [37] Sim Bee. HEALTH LITERACY AND FOOD BELIEFS AMONG IBANS, SARAWAK. *Med. J. Malaysia*, 40:41985, 1985.
- [38] Tolulope Bella, Olayinka Omigbodun, and Olayinka Atilola. Towards school mental health in Nigeria: Baseline knowledge and attitudes of elementary school teachers. *Advances in School Mental Health Promotion*, 4(3):55–62, 2011.
- [39] Tolulope Bella-Awusah, Cornelius Ani, Ademola Ajuwon, and Olayinka Omigbodun. Should Mental Health Be Addressed in Schools? Preliminary Views of In-School Adolescents in Ibadan, Nigeria. *International Journal of School Health*, 6(2), 4 2019.
- [40] Eva Maria Berens, Dominique Vogt, Melanie Messer, Klaus Hurrelmann, and Doris Schaeffer. Health literacy among different age groups in Germany: results of a cross-sectional survey. *BMC Public Health*, 16(1), 2016.
- [41] Paula Berstad, Edoardo Botteri, Inger Kristin Larsen, Magnus Løberg, Mette Kalager, Øyvind Holme, Michael Bretthauer, and Geir Hoff. Lifestyle changes at middle age and mortality: A population-based prospective cohort study. *Journal of Epidemiology and Community Health*, 71(1), 2016.
- [42] Andrea J. Bingham. From Data Management to Actionable Findings: A Five-Phase Process of Qualitative Data Analysis. *International Journal of Qualitative Methods*, 22, 10 2023.
- [43] Johanna Birkhäuser, Jens Gaab, Joe Kossowsky, Sebastian Hasler, Peter Krummenacher, Christoph Werner, and Heike Gerger. Trust in the health care professional and health outcome: A meta-analysis. *PLoS ONE*, 12(2), 2017.
- [44] Peter Blanck. On the Importance of the Americans with Disabilities Act at 30. *Journal of Disability Policy Studies*, 34(3), 2023.
- [45] BMA. COVID-19: Impact of the pandemic on healthcare delivery, 2024.
- [46] BMJ. The Nuremberg Code (1947). *BMJ*, 313(7070):1448–1448, 12 1996.

- [47] Anne Bo, Karina Friis, Richard H. Osborne, and Helle Terkildsen Maindal. National indicators of health literacy: Ability to understand health information and to engage actively with healthcare providers - A populationbased survey among Danish adults, 2014.
- [48] Walton Bohanny, Shu-Fang Vivienne Wu, Chieh-Yu Liu, Shu-Hui Yeh, Shiow-Luan Tsay, and Tsae-Jyy Wang. Health literacy, self-efficacy, and self-care behaviors in patients with type 2 diabetes mellitus. *Journal of the American Association of Nurse Practitioners*, 25(9):495–502, 9 2013.
- [49] Guglielmo Bonaccorsi, Maddalena Grazzini, Luca Pieri, Francesca Santomauro, Maria Ciancio, and Chiara Lorini. Assessment of Health Literacy and validation of single-item literacy screener (SILS) in a sample of Italian people. *Annali dell'Istituto superiore di sanita*, 53(3):205–212, 2017.
- [50] Guglielmo Bonaccorsi and Chiara Lorini. Improving health literacy at individual and organisational levels-Creating a solid alliance between stakeholders to promote human rights. Technical report, Council of Europe, 11 2024.
- [51] Guglielmo Bonaccorsi, Chiara Lorini, Alberto Baldasseroni, Barbara Rita Porchia, and Leonardo Capecchi. Health services and health literacy: from the rationale to the many facets of a fundamental concept. A literature review. *Annali dell'Istituto superiore di sanita*, 52(1):114–118, 2016.
- [52] Sophie Bostock and Andrew Steptoe. Association between low functional health literacy and mortality in older adults: Longitudinal cohort study. *BMJ (Online)*, 344(7852), 4 2012.
- [53] Allison Bourne, Shehzaad Peerbux, Rebecca Jessup, Margaret Staples, Alison Beauchamp, and Rachelle Buchbinder. Health literacy profile of recently hospitalised patients in the private hospital setting: A cross sectional survey using the Health Literacy Questionnaire (HLQ). *BMC Health Services Research*, 18(1):1–11, 11 2018.
- [54] Allison Bourne, Shehzaad Peerbux, Rebecca Jessup, Margaret Staples, Alison Beauchamp, and Rachelle Buchbinder. Health literacy profile of recently hospitalised patients in the private hospital setting: A cross sectional survey using the Health Literacy Questionnaire (HLQ). *BMC Health Services Research*, 18(1):1–11, 11 2018.
- [55] Cindy Brach, Debra Keller, Lyla M Hernandez, Cynthia Baur, Ruth Parker, Benard Dreyer, Paul Schyve, Andrew J Lemerise, and Dean Schillinger. Ten Attributes of Health Literate Health Care Organizations. 2012.
- [56] Saskia Brand-Gruwel and Marc Stadler. Solving information-based problems: Evaluating sources and information. *Learning and Instruction*, 21(2), 2011.
- [57] Angela G. Brega, Megan A.G. Freedman, William G. LeBlanc, Juliana Barnard, Natabhona M. Mabachi, Maribel Cifuentes, Karen Albright, Barry D. Weiss, Cindy Brach, and David R. West. Using the Health Literacy Universal Precautions Toolkit to Improve the Quality of Patient Materials. *Journal of health communication*, 20 Suppl 2(Suppl 2):69–76, 10 2015.

- [58] Anders Breidlid. *Education, indigenous knowledges, and development in the global south: Contesting knowledges for a sustainable future*, volume 27. Taylor and Francis, 6 2013.
- [59] Linda B. Bresolin. Health literacy: Report of the council on scientific affairs. *JAMA*, 281(6):552–557, 2 1999.
- [60] Alan Bryman. Integrating quantitative and qualitative research: How is it done? *Qualitative Research*, 6(1):97–113, 2 2006.
- [61] Shyam Sundar Budhathoki, Paras K Pokharel, Nilambar Jha, Emma Moselen, Robyn Dixon, Meika Bhattachan, and Richard H Osborne. Health literacy of future healthcare professionals: a cross-sectional study among health sciences students in Nepal. *International Health*, 11(1):15–23, 1 2019.
- [62] Pippa Burns, Sandra C. Jones, Don. C. Iverson, and Peter Caputi. Where do older Australians receive their health information? Health information sources and their perceived reliability. *Journal of Nursing Education and Practice*, 3(12), 2013.
- [63] Rachel Burns, Claire X. Zhang, Parth Patel, Ida Eley, Ines Campos-Matos, and Robert W. Aldridge. Migration health research in the United Kingdom: A scoping review. *Journal of Migration and Health*, 4:100061, 2021.
- [64] Jennifer Cable, David L. Heymann, Amra Uzicanin, Oyewale Tomori, Maria Julia Marinissen, Rebecca Katz, Larry Kerr, Nicole Lurie, Gerald W. Parker, Syra Madad, Beth Maldin Morgenthau, Michael T. Osterholm, and Luciana Borio. Pandemic diseases preparedness and response in the age of COVID-19—a symposium report. *Annals of the New York Academy of Sciences*, 1489(1):17–29, 4 2021.
- [65] Patrícia Caeiros, Patrícia Pita Ferreira, José Chen-Xu, Rita Francisco, and Miguel Telo de Arriaga. From Health Communication to Health Literacy: A Comprehensive Analysis of Relevance and Strategies. *Portuguese Journal of Public Health*, 42(2):159–164, 6 2024.
- [66] Madeline Cafiero. Nurse Practitioners’ Knowledge, Experience, and Intention to Use Health Literacy Strategies in Clinical Practice. *Journal of Health Communication*, 18(sup1):70–81, 12 2013.
- [67] David Cantor, Jina Swartz, Bayard Roberts, Aula Abbata, Alastair Ager, Zulfiqar A. Bhutta, Karl Blanchet, Derebe Madoro Bunte, John Bosco Chika Chukwuorji, Nihaya Daoud, Winifred Ekezie, Cecilia Jimenez-Damary, Kiran Jobanputra, Nino Makhashvili, Diana Rayes, Maria Helena Restrepo-Espinosa, Alfonso J. Rodriguez-Morales, Bukola Salami, and James Smith. Understanding the health needs of internally displaced persons: A scoping review. *Journal of Migration and Health*, 4:100071, 2021.
- [68] Lauren N. Carroll, Sandra A. Smith, and Nicole R. Thomson. Parents as Teachers Health Literacy Demonstration Project. *Health Promotion Practice*, 16(2):282–290, 3 2015.

- [69] CDC. Develop & Test Materials | Health Literacy | CDC, 10 2024.
- [70] Center for Health Ethics - MU School of Medicine. Clinical Ethics.
- [71] Central Intelligence Agency (CIA). Africa :: Nigeria — The World Factbook, 2019.
- [72] Centre For Disease Country. <https://www.cdc.gov/healthliteracy/education-support/healthcareproviders.html>.
- [73] Centre for Healthcare Strategies. Improving Verbal Communication to Promote Patient Health Literacy - Center for Health Care Strategies, 2024.
- [74] K Charmaz. *An introduction to grounded theory*:. Sage Publications, London, 2017.
- [75] Pamela Chen, Michele Callisaya, Karen Wills, Timothy Greenaway, and Tania Winzenberg. Cognition, educational attainment and diabetes distress predict poor health literacy in diabetes: A cross-sectional analysis of the SHELLED study. *PLoS ONE*, 17(4 April), 2022.
- [76] Anna Cheshire, Damien Ridge, Lucy V. Clark, and Peter D. White. Sick of the Sick Role: Narratives of What “Recovery” Means to People With CFS/ME. *Qualitative Health Research*, 31(2):298–308, 1 2021.
- [77] L. D. Chew, K. A. Bradley, and E. J. Boyko. Brief questions to identify patients with inadequate health literacy - PubMed. *Family medicine*, pages 588–594, 2004.
- [78] Lisa D. Chew, Joan M. Griffin, Melissa R. Partin, Siamak Noorbaloochi, Joseph P. Grill, Annamay Snyder, Katharine A. Bradley, Sean M. Nugent, Alisha D. Baines, and Michelle Vanryn. Validation of screening questions for limited health literacy in a large VA outpatient population. *Journal of General Internal Medicine*, 23(5):561–566, 5 2008.
- [79] Lisa D. Chew, Joan M. Griffin, Melissa R. Partin, Siamak Noorbaloochi, Joseph P. Grill, Annamay Snyder, Katharine A. Bradley, Sean M. Nugent, Alisha D. Baines, and Michelle Vanryn. Validation of screening questions for limited health literacy in a large VA outpatient population. *Journal of General Internal Medicine*, 23(5):561–566, 5 2008.
- [80] Deborah Chinn and Catherine McCarthy. All Aspects of Health Literacy Scale (AAHLS): Developing a tool to measure functional, communicative and critical health literacy in primary healthcare settings. *Patient Education and Counseling*, 90(2):247–253, 2 2013.
- [81] Byeong Young Cho. Competent Adolescent Readers’ Use of Internet Reading Strategies: A Think-Aloud Study. *Cognition and Instruction*, 32(3), 2014.
- [82] Joon Sig Choi, Kihoon Nam, Jong-Yeun Park, Jung-Bin Kim, Ja-Kyeong Lee, and Jong-Sang Park. Enhanced transfection efficiency of PAMAM dendrimer by surface modification with L-arginine. *Journal of controlled release : official journal of the Controlled Release Society*, 99(3):445–56, 10 2004.

- [83] Sean AP Clouston, Diana Kuh, Pamela Herd, Jane Elliott, Marcus Richards, and Scott M Hofer. Benefits of educational attainment on adult fluid cognition: international evidence from three birth cohorts. *International Journal of Epidemiology*, 41(6):1729–1736, 12 2012.
- [84] Maria Coelho, Aieshwarya Davis, Alexander Klemm, Carolina Osorio Buitron, by Qiaoe Chen, Matthew Commey, Ruud de Mooij, Liz Gavin, Caren Grown, Gayatri Koolwal, Cindy Negus, Alpa Shah, Alberto Soler, Nikola Spatafora, Janet Stotsky, Xin Tang, Marina Mendes Tavares, Solo Zerbo, Qianqian Zhang, and Nta seminar participants. Gendered Taxes: The Interaction of Tax Policy with Gender Equality FEB \* We are grateful for helpful comments Gendered Taxes: The Interaction of Tax Policy with Gender Equality Prepared by. Technical report, 2022.
- [85] Ruvette Coelho. Perceptions and Knowledge of Health Literacy among Healthcare Providers in a Community Based Cancer Centre. *Journal of Medical Imaging and Radiation Sciences*, 49(1):S11–S12, 3 2018.
- [86] Clifford A. Coleman, Stan Hudson, and Lucinda L. Maine. Health literacy practices and educational competencies for health professionals: A consensus study. *Journal of Health Communication*, 18(SUPPL. 1):82–102, 12 2013.
- [87] Karen Colorafi, Laura Cupples, Davi Kallman, and Jae Kennedy. Disability stories: personal perspectives of people with disabilities on navigating the U.S. health system. *Disability and Society*, 38(9), 2023.
- [88] Melanie Connor, Sarah Mantwill, and Peter J. Schulz. Functional health literacy in Switzerland–validation of a German, Italian, and French health literacy test. *Patient education and counseling*, 90(1):12–17, 1 2013.
- [89] Cahps Consortium. CAHPS ® Clinician & Group Surveys and Instructions About the CAHPS ® Item Set for Addressing Health Literacy About the CAHPS ® Item Set for Addressing Health Literacy. Technical report, 2012.
- [90] Jordan A. Conwell and Natasha Quadlin. Race, Gender, Higher Education, and Socioeconomic Attainment: Evidence from Baby Boomers at Midlife. *Social Forces*, 100(3):990–1024, 1 2022.
- [91] Michael Cooper, Ryan Blucker, David Thompson, Elaine Griffeth, Michael Grassi, Kelsey Damron, Colleen Parrish, Stephen Gillaspay, and Marianne Dunlap. Health Literacy Estimation of English and Spanish Language Caregivers. *HLRP: Health Literacy Research and Practice*, 2(2):e107–e114, 6 2018.
- [92] Council of Europe’s Committee of Ministers. Council of Europe adopts Gender Equality Strategy for 2024-2029 - Portal, 2024.
- [93] Laura M. Curtis, Michael S. Wolf, Kevin B. Weiss, and Leslie C. Grammer. The impact of health literacy and socioeconomic status on asthma disparities. *Journal of Asthma*, 49(2), 2012.

- [94] Sholadoye Dada. AN OVERVIEW OF THE PRIMARY HEALTHCARE SYSTEM IN NIGERIA. *International Journal of Applied and Scientific Research*, 1(3), 2023.
- [95] Stacy N. Davis, Jonathan W. Wischhusen, Steven K. Sutton, Shannon M. Christy, Enmanuel A. Chavarria, Megan E. Sutter, Siddhartha Roy, Cathy D. Meade, and Clement K. Gwede. Demographic and psychosocial factors associated with limited health literacy in a community-based sample of older Black Americans. *Patient Education and Counseling*, 103(2):385–391, 2 2020.
- [96] T. C. Davis, M. A. Crouch, S. W. Long, R. H. Jackson, P. Bates, R. B. George, and L. E. Bairnsfather. Rapid assessment of literacy levels of adult primary care patients. *Family medicine*, 23(6):433–5, 1991.
- [97] T. C. Davis, S. W. Long, R. H. Jackson, E. J. Mayeaux, R. B. George, P. W. Murphy, and M. A. Crouch. Rapid estimate of adult literacy in medicine: A shortened screening instrument. *Family Medicine*, 25(6):391–395, 1993.
- [98] D'Eath M, Barry MM, and Sixsmith J. A rapid evidence review of interventions for improving health literacy. Technical report, European Centre for Disease Prevention and Control, Stockholm, 2012.
- [99] Dennis Raphael. *Social Determinants of Health: Canadian Perspectives*. Brown Bear Press, 3rd edition, 6 2016.
- [100] Department of Health. Liberating the NHS: No decision about me without me - Government response. *Department of Health*, 2012.
- [101] Maryam Derakhshan, Mohammad Hassanzadeh, and Maryam Nazari. Developing Information Literate Librarians: A Study of LIS Academics Pedagogical Approaches in the Development of Information Literacy Competencies. *Journal of Academic Librarianship*, 41(6), 2015.
- [102] Radhika Devraj and Gireesh V. Gupchup. Knowledge of and barriers to health literacy in Illinois. *Journal of the American Pharmacists Association*, 52(6):e183–e193, 11 2012.
- [103] Cinzia Di Novi, Matija Kovacic, and Cristina Elisa Orso. Online health information seeking behavior, healthcare access, and health status during exceptional times. *Journal of Economic Behavior & Organization*, 220:675–690, 4 2024.
- [104] Carolyn Dickens, Bruce L. Lambert, Terese Cromwell, and Mariann R. Piano. Nurse Overestimation of Patients' Health Literacy. *Journal of Health Communication*, 18(sup1):62–69, 12 2013.
- [105] Eline M. Dijkman, Wouter W.M. ter Brake, Constance H.C. Drossaert, and Carine J.M. Doggen. Assessment Tools for Measuring Health Literacy and Digital Health Literacy in a Hospital Setting: A Scoping Review. *Healthcare*, 12(1):11, 1 2023.

- [106] Ha T.T. Dinh, Nguyet T. Nguyen, and Ann Bonner. Healthcare systems and professionals are key to improving health literacy in chronic kidney disease. *Journal of Renal Care*, 48(1), 2022.
- [107] Nicola Diviani, Jelena Obrenovic, Cassandra L. Montoya, and Katarzyna Karcz. Disentangling health information appraisal competence: Results from an interdisciplinary scoping review and online consultation among Swiss stakeholders. *PLoS ONE*, 15(7), 2020.
- [108] Sarity Dodson, Suvajee Good, and Richard Osborne. Health literacy toolkit for low- and middle-income countries. A series of information sheets to empower communities and strengthen health systems. *National Network of Libraries of Medicine Southeastern/Atlantic Region*, 2014.
- [109] Sarity Dodson, Suvajee Good, and Richard Osborne. Health literacy toolkit for low- and middle-income countries. A series of information sheets to empower communities and strengthen health systems. *National Network of Libraries of Medicine Southeastern/Atlantic Region*, 2014.
- [110] Ros Dowse. The limitations of current health literacy measures for use in developing countries. *Journal of Communication in Healthcare*, 9(1):4–6, 1 2016.
- [111] David Dranove. DEMAND INDUCEMENT AND THE PHYSICIAN/PATIENT RELATIONSHIP. *Economic Inquiry*, 26(2):281–298, 4 1988.
- [112] Douglas A. Drossman and Johannah Ruddy. Improving Patient-Provider Relationships to Improve Health Care. *Clinical Gastroenterology and Hepatology*, 18(7):1417–1426, 6 2020.
- [113] Tuyen V Duong, Altyn Aringazina, Gaukhar Baisunova, Thuc V Pham, Khue M Pham, Tien Q Truong, Kien T Nguyen, Win Myint Oo, Emma Mohamad, Tin Tin Su, Hsiao-Ling Huang, Kristine Sørensen, Jürgen M Pelikan, Stephan Van den Broucke, and Peter Wushou Chang. Measuring health literacy in Asia: Validation of the HLS-EU-Q47 survey tool in six Asian countries-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>). 2016.
- [114] Tuyen Van Duong, Khue M Pham, Binh N Do, Giang B Kim, Hoa T B Dam, Vinh-Tuyen T Le, Thao T P Nguyen, Hiep T Nguyen, Trung T Nguyen, Thuy T Le, Hien T T Do, and Shwu-Huey Yang. Digital healthy diet literacy and self-perceived eating behavior change during COVID-19 pandemic among undergraduate nursing and medical students: a rapid. *mdpi.com TV Duong, KM Pham, BN Do, GB Kim, HTB Dam, VTT Le, TTP Nguyen, HT Nguyen International journal of environmental research and public health*, 2020 • *mdpi.com*, 17:7185, 2020.
- [115] Eakin Healthcare. Health Literacy: A Guide To Improving Patient Communication | Eakin Respiratory, 2 2024.
- [116] Phyllis Easton, Vikki A. Entwistle, and Brian Williams. How the stigma of low literacy can impair patient-professional spoken interactions and affect health: Insights from a qualitative investigation. *BMC Health Services Research*, 13(1), 2013.

- [117] Economist Intelligence Unit. Health literacy around the world: policy approaches to wellbeing through knowledge and empowerment. Technical report, 2021.
- [118] Ed Mitchell. The sick role, 9 2013.
- [119] ONOME NORAH EKOKO. AN ASSESMENT OF HEALTH INFORMATION LITERACY AMONG RURAL WOMEN IN DELTA STATE, NIGERIA. *Library Philosophy and Practice*, 2020, 2020.
- [120] Gerald R. Elsworth, Alison Beauchamp, and Richard H. Osborne. Measuring health literacy in community agencies: a Bayesian study of the factor structure and measurement invariance of the health literacy questionnaire (HLQ). *BMC health services research*, 16(1):1–14, 9 2016.
- [121] Glyn Elwyn, Dominick Frosch, Richard Thomson, Natalie Joseph-Williams, Amy Lloyd, Paul Kinnersley, Emma Cording, Dave Tomson, Carole Dodd, Stephen Rollnick, Adrian Edwards, and Michael Barry. Shared decision making: A model for clinical practice, 10 2012.
- [122] Osahon Enabulele. Achieving Universal Health Coverage in Nigeria: Moving Beyond Annual Celebrations to Concrete Address of the Challenges. *World Medical and Health Policy*, 12(1):47–59, 3 2020.
- [123] R. S. Evans. Electronic Health Records: Then, Now, and in the Future. *Yearbook of Medical Informatics*, 25(S 01):S48–S61, 8 2016.
- [124] Chidi Ezegwu, adewole Adedokun, o, and Chioma Ezegwu. *Street children, integrated education and violence in northern Nigeria*. Routledge, 2017.
- [125] Angela Fagerlin, Brian J. Zikmund-Fisher, Peter A. Ubel, Aleksandra Jankovic, Holly A. Derry, and Dylan M. Smith. Measuring numeracy without a math test: development of the Subjective Numeracy Scale. *Medical decision making : an international journal of the Society for Medical Decision Making*, 27(5):672–680, 9 2007.
- [126] Federal Republic of Nigeria. FEDERAL REPUBLIC OF NIGERIA DRAFT NATIONAL HUMAN RESOURCES FOR HEALTH STRATEGIC PLAN. Technical report, 7 2007.
- [127] Yang Feng and Wenjing Xie. Digital Divide 2.0: The Role of Social Networking Sites in Seeking Health Information Online From a Longitudinal Perspective. *Journal of Health Communication*, 20(1):60–68, 1 2015.
- [128] Giovanni Ferreira, Adrian C. Traeger, Gustavo MacHado, Mary O’Keeffe, and Christopher G. Maher. Credibility, Accuracy, and Comprehensiveness of Internet-Based Information About Low Back Pain: A Systematic Review. *Journal of medical Internet research*, 21(5), 5 2019.
- [129] Michael D. Fetters, Leslie A. Curry, and John W. Creswell. Achieving Integration in Mixed Methods Designs—Principles and Practices. *Health Services Research*, 48(6 Pt 2):2134, 2013.

- [130] Sarah Finlay, Elizabeth Meggetto, Anske Robinson, and Claire Davis. Health literacy education for rural health professionals: shifting perspectives. *Australian health review : a publication of the Australian Hospital Association*, 43(4):404–407, 2019.
- [131] Lila C. Fleming and Kathryn H. Jacobsen. Imported from [https://scholar.google.co.id/scholar?hl=id&as\\_sdt=0%2C5&q=article+about+healthy&btnG=#c](https://scholar.google.co.id/scholar?hl=id&as_sdt=0%2C5&q=article+about+healthy&btnG=#c) *Health Promotion International*, 25(1):73–84, 2010.
- [132] Susannah Fox and Maeve Duggan. One in three American adults have gone online to figure out a medical condition, 2013.
- [133] Karina Friis, Mathias Lasgaard, Richard H Osborne, and Helle T Maindal. Gaps in understanding health and engagement with healthcare providers across common long-term conditions: a population survey of health literacy in 29473 Danish citizens. *BMJ Open*, 6(1):e009627, 1 2016.
- [134] Oriol Garcia-Codina, Dolors Juvinyà-Canal, Paloma Amil-Bujan, Carmen Bertran-Noguer, María Asunción González-Mestre, Eulàlia Masachs-Fatjo, Sebastià J. Santaeugènia, Pilar Magrinyà-Rull, and Esteve Saltó-Cerezuela. Determinants of health literacy in the general population: results of the Catalan health survey. *BMC Public Health*, 19(1):1122, 12 2019.
- [135] Luz M. Garcini, Ryan Daly, Nellie Chen, Justin Mehl, Tommy Pham, Thuy Phan, Brittany Hansen, and Aishwarya Kothare. Undocumented immigrants and mental health: A systematic review of recent methodology and findings in the United States. *Journal of Migration and Health*, 4:100058, 2021.
- [136] Talayeh Ghofrani. I won’t buy that for a dollar: Orientalist representation of masculinity in remake of RoboCop movie. *Cogent Arts and Humanities*, 10(1), 2023.
- [137] Sara L. Gill. Qualitative Sampling Methods. *Journal of Human Lactation*, 36(4):579–581, 11 2020.
- [138] Farzaneh Golboni, Haidar Nadrian, Sarisa Najafi, Shayesteh Shirzadi, and Hassan Mahmoodi. Urban–rural differences in health literacy and its determinants in Iran: A community-based study. *Australian Journal of Rural Health*, 26(2):98–105, 4 2018.
- [139] Patricia A. Grady and Lisa Lucio Gough. Self-management: A comprehensive approach to management of chronic conditions, 2018.
- [140] Gloria R. Grice, Nicole M. Gattas, Jill Sailors, Julie A. Murphy, Amy Tiemeier, Peter Hurd, Theresa Prosser, Tricia Berry, and Wendy Duncan. Health literacy: use of the Four Habits Model to improve student pharmacists’ communication. *Patient education and counseling*, 90(1):23–28, 1 2013.
- [141] Sanya Grover, Aoife Fitzpatrick, Farah Tabassum Azim, Patrocinio Ariza-Vega, Paule Bellwood, Jane Burns, Elissa Burton, Lena Fleig, Lindy Clemson, Christiane A. Hoppmann, Kenneth M. Madden, Morgan Price, Dolores Langford,

- and Maureen C. Ashe. Defining and implementing patient-centered care: An umbrella review. *Patient Education and Counseling*, 105(7):1679–1688, 7 2022.
- [142] Timothy C. Guetterman and Milisa Manojlovich. Grand rounds in methodology: designing for integration in mixed methods research. *BMJ Quality & Safety*, 33(7):470–478, 7 2024.
- [143] Daniela Haluza, Marlene Naszay, Andreas Stockinger, and David Jungwirth. Digital Natives Versus Digital Immigrants: Influence of Online Health Information Seeking on the Doctor–Patient Relationship. *Health Communication*, 32(11):1342–1349, 11 2017.
- [144] Natalie Hamilton, Oluwatoyin Olumolade, Madelyn Aittama, Olivia Samoray, Maham Khan, Jason Adam Wasserman, Kirsten Weber, and Neli Ragina. Access barriers to healthcare for people living with disabilities. *Journal of Public Health (Germany)*, 30(5), 2022.
- [145] Marcus Hammann and Ross H. Nehm. Teleology and evolution education: Introduction to the special issue. *Evolution: Education and Outreach*, 13(1), 7 2020.
- [146] Jill Hanass-Hancock. Tangible skill building and HIV youth prevention intervention in rural South Africa. *African Journal of AIDS Research*, 13(3), 2014.
- [147] Wuri Handayani. Gender communication: Gender mainstreaming and gender differences in the age of gender equality. *Informasi*, 53(1), 2023.
- [148] Annegret F. Hannawa, Albert W. Wu, Anastasia Kolyada, Anastasia Potemkina, and Liam J. Donaldson. The aspects of healthcare quality that are important to health professionals and patients: A qualitative study. *Patient Education and Counseling*, 105(6):1561–1570, 6 2022.
- [149] E. Christine Hanson-Divers. Developing a medical achievement reading test to evaluate patient literacy skills: a preliminary study. *Journal of health care for the poor and underserved*, 8(1):56–69, 1997.
- [150] Kathleen F. Harrington and Melissa A. Valerio. A conceptual model of verbal exchange health literacy. *Patient Education and Counseling*, 94(3):403–410, 3 2014.
- [151] Melanie Hawkins, Stephen D. Gill, Roy Batterham, Gerald R. Elsworth, and Richard H. Osborne. The Health Literacy Questionnaire (HLQ) at the patient-clinician interface: a qualitative study of what patients and clinicians mean by their HLQ scores. *BMC Health Services Research*, 17(1), 4 2017.
- [152] England. Health Education. HEE 2020/21 Review of the Year. Technical report, NHS, 2021.
- [153] Health Northern NSW Local District. Northern NSW Health Literacy Framework. Technical report, 7 2016.

- [154] World Health Organization and Regional Office for Europe. *Health literacy : The solid facts*. 2013.
- [155] Celayne Heaton-Shrestha, Kristin Hanson, Sophia Quirke-McFarlane, Nancy Delaney, Tushna Vandrevalla, and Lindsay Bearne. Exploring how members of the public access and use health research and information: a scoping review. *BMC Public Health*, 23(1), 2023.
- [156] Heijmans M., Uiters E., Rose T., Hofstede J., Deville W., Van der Heide I., Boshuisen H., and Rademakers J. Study on sound evidence for a better understanding of health literacy in the European Union. Technical report, European Union, Luxemborg, 6 2015.
- [157] Lyla Hernandez, Melissa French, and Ruth Parker. Roundtable on Health Literacy: Issues and Impact. *Studies in health technology and informatics*, 240:169–185, 2017.
- [158] Kathleen T. Hickey, Ruth M. Masterson Creber, Meghan Reading, Robert R. Sciacca, Teresa C. Riga, Ashton P. Frulla, and Jesus M. Casida. Low health literacy: Implications for managing cardiac patients in practice. *The Nurse practitioner*, 43(8):49, 8 2018.
- [159] Jessica Hill, Darlene Xiomara Rodriguez, and Paul N. McDaniel. Immigration status as a health care barrier in the USA during COVID-19. *Journal of Migration and Health*, 4:100036, 2021.
- [160] Neil. Hogan and Connie Varnhagen. Critical appraisal of INformation on the Web in Practice: Undergraduate Students’ Knowledge, Reported Use, and Behaviour. *Canadian Journal of Learning and Technology*, 38(1), 2012.
- [161] Idescat. Anuari estadístic de Catalunya. Població 1 gener. *European Journal of Public Health*, 26(6):1006–1010, 12 2016.
- [162] Ihuoma C. Bridging the Literacy Gap in Nigeria, 10 2024.
- [163] Macellina Y. Ijadunola, Ezeomu A. Olotu, Moseme I. Makhele, Jimoh A. Audu, Moses G. Longe, and Soliu A. Lawal. Reproductive health challenges of male and female street beggars and use of reproductive health services by female street beggars in Ife-Ijesa, Nigeria. *The European Journal of Contraception & Reproductive Health Care*, 25(4):279–284, 7 2020.
- [164] Hirono Ishikawa, Kyoko Nomura, Mikiya Sato, and Eiji Yano. Developing a measure of communicative and critical health literacy: A pilot study of Japanese office workers. *Health Promotion International*, 23(3):269–274, 9 2008.
- [165] Tessa Jansen, Jany Rademakers, Geeke Waverijn, Robert Verheij, Richard Osborne, and Monique Heijmans. The role of health literacy in explaining the association between educational attainment and the use of out-of-hours primary care services in chronically ill people: a survey study. *BMC Health Services Research*, 18(394), 2018.

- [166] M Jasper. *013) Beginning Reflective Practice*. CENGAGE Learning., 2. 2nd ed edition, 2017.
- [167] Melanie A Jasper. Using reflective writing within research. Technical report, 2005.
- [168] Zahraa Abed Jassem and Ibrahim Alwan Ai-Ashour. Correlation between health literacy and level of education in hemodialysis patients. *Rawal Medical Journal*, 48(4), 2023.
- [169] jcoleman. The 2011 Skills for Life Survey: A Survey of Literacy, Numeracy and ICT Levels in England. Technical report, 2012.
- [170] Jimoh J.B. Geography and Insecurity in Northern Nigeria. *International Journal of Research in Geography*, 6(2):43–51, 2020.
- [171] Johnson A. Health literacy: how nurses can make a difference. *The Australian Journal of Advanced Nursing.*, 33(2), 2015.
- [172] UNICEF UNDP UNESCO UNAIDS ITU UN Global Pulse Joint statement by WHO, UN and IFRC. Managing the COVID-19 infodemic: Promoting healthy behaviours and mitigating the harm from misinformation and disinformation, 2020.
- [173] Joanne E. Jordan, Richard H. Osborne, and Rachelle Buchbinder. Critical appraisal of health literacy indices revealed variable underlying constructs, narrow content and psychometric weaknesses, 4 2011.
- [174] Joanne E. Jordan, Richard H. Osborne, and Rachelle Buchbinder. Critical appraisal of health literacy indices revealed variable underlying constructs, narrow content and psychometric weaknesses. *Journal of Clinical Epidemiology*, 64(4):366–379, 4 2011.
- [175] Dele Joseph. Investigating Literacy and Health Literacy in Nigerian Prisons. Technical Report 8, 2014.
- [176] Aleksandra Jović-Vraneš, Vesna Bjegović-Mikanović, Jelena Marinković, and Dejana Vuković. Evaluation of a health literacy screening tool in primary care patients: Evidence from Serbia. *Health Promotion International*, 29(4):601–607, 12 2014.
- [177] Tanisha Jowsey, Laurann Yen, and Paul Mathews W. Time spent on health related activities associated with chronic illness: A scoping literature review, 2012.
- [178] R. Kaba and P. Sooriakumaran. The evolution of the doctor-patient relationship. *International Journal of Surgery*, 5(1):57–65, 2 2007.
- [179] Marise S. Kaper, Andrea F. de Winter, Roberta Bevilacqua, Cinzia Giammarchi, Anne McCusker, Jane Sixsmith, Jaap A.R. Koot, and Sijmen A. Reijneveld. Positive Outcomes of a Comprehensive Health Literacy Communication Training for Health Professionals in Three European Countries: A Multi-centre Pre-post

- Intervention Study. *International Journal of Environmental Research and Public Health*, 16(20):3923, 10 2019.
- [180] Suvi Karuranga, Kristine Sørensen, Clifford Coleman, and Amina Jama Mahmud. Health Literacy Competencies for European Health Care Personnel. *HLRP: Health Literacy Research and Practice*, 1(4):e247–e256, 12 2017.
  - [181] Nicholas J Kassebaum, Megha Arora, Ryan Barber, and et al. Global, regional, and national disability-adjusted life-years (DALYs) for 315 diseases and injuries and healthy life expectancy (HALE), 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, 388(10053):1603–1658, 10 2016.
  - [182] Ilona Kickbusch, Jurgen M. Pelikan, Franklin Apfel, Agis D. Tsouros, and World Health Organization. Regional Office for Europe. *Health literacy : the solid facts*. 2013.
  - [183] Madison K. Kilbride and Steven Joffe. The New Age of Patient Autonomy. *JAMA*, 320(19), 2018.
  - [184] Jennifer Knight, Juddy Wachira, Catherine Kafu, Paula Braitstein, Ira B. Wilson, Abigail Harrison, Regina Owino, Jacqueline Akinyi, Beatrice Koech, and Becky Genberg. The Role of Gender in Patient–Provider Relationships: A Qualitative Analysis of HIV Care Providers in Western Kenya with Implications for Retention in Care. *AIDS and Behavior*, 23(2), 2019.
  - [185] Lindsay C. Kobayashi, Jane Wardle, Michael S. Wolf, and Christian Von Wagner. Aging and Functional Health Literacy: A Systematic Review and Meta-Analysis, 2016.
  - [186] Francis Koce, Gurch Randhawa, and Bertha Ochieng. Understanding healthcare self-referral in Nigeria from the service users’ perspective: A qualitative study of Niger state, 4 2019.
  - [187] Sanjiv Kumar and G. S. Preetha. Health promotion: An effective tool for global health. *Indian Journal of Community Medicine*, 37(1):5–12, 1 2012.
  - [188] Yetunde Abiola Kuyinu, Toriola Temitope Femi-Adebayo, Bisola Ibrinke Adebayo, Ibipo Abdurraheem-Salami, and Olumuyiwa Omotola Odusanya. Health literacy: Prevalence and determinants in Lagos State, Nigeria. *PLoS ONE*, 15(8 August), 2020.
  - [189] Michelle Lambert, Joanne Luke, Bernice Downey, Sue Crengle, Margaret Kelaher, Susan Reid, and Janet Smylie. Health literacy: health professionals’ understandings and their perceptions of barriers that Indigenous patients encounter. *BMC Health Services Research*, 14(1):614, 12 2014.
  - [190] R.J. Lawrence. Understanding Environmental Quality Through Quality of Life (QOL) Studies. *Reference Module in Earth Systems and Environmental Sciences*, 2014.

- [191] Marzia Lazzerini, Egidio Barbi, Andrea Apicella, Federico Marchetti, Fabio Cardinale, and Gianluca Trobia. Delayed access or provision of care in Italy resulting from fear of COVID-19, 2020.
- [192] Jette V. Le, Line B. Pedersen, Helle Riisgaard, Jesper Lykkegaard, Jørgen Nexøe, Jeanette Lemmergaard, and Jens Søndergaard. Variation in general practitioners' information-seeking behaviour—a cross-sectional study on the influence of gender, age and practice form. *Scandinavian Journal of Primary Health Care*, 34(4):327–335, 10 2016.
- [193] Noemí E. Terrero Ledesma, Alberto Nájera, Ricardo Enrique Reolid-Martínez, and Francisco Escobar-Rabadán. Internet health information seeking by primary care patients. *Rural and Remote Health*, 22(4), 2022.
- [194] Hee Yun Lee, Jiwoo Lee, and Nam Keol Kim. Gender Differences in Health Literacy Among Korean Adults: Do Women Have a Higher Level of Health Literacy Than Men? *American Journal of Men's Health*, 9(5), 2015.
- [195] Shouou Yih D. Lee, Deborah E. Bender, Rafael E. Ruiz, and Ik Cho Young. Development of an easy-to-use Spanish Health Literacy test. *Health services research*, 41(4 Pt 1):1392–1412, 8 2006.
- [196] Lewis J. and Sauro J. Four Types of Potential Survey Errors – MeasuringU, 4 2021.
- [197] Lim A. Big 5 Personality Traits: The 5-Factor Model of Personality, 2023.
- [198] Chenxi Liu, Dan Wang, Chaojie Liu, Junnan Jiang, Xuemei Wang, Haihong Chen, Xin Ju, and Xinpeng Zhang. What is the meaning of health literacy? A systematic review and qualitative synthesis, 5 2020.
- [199] Hongyan Liu, Huan Zeng, Yang Shen, Fan Zhang, Manoj Sharma, Weiyun Lai, Yu Zhao, Genhui Tao, Jun Yuan, and Yong Zhao. Assessment tools for health literacy among the general population: A systematic review, 8 2018.
- [200] Jane Lloyd, Louise Thomas, Gawaine Powell-Davies, Regina Osten, and Mark Harris. How Can Communities and Organisations Improve Their Health Literacy, 6 2018.
- [201] Jane E. Lloyd, Hyun J. Song, Sarah M. Dennis, Nicola Dunbar, Elizabeth Harris, and Mark F. Harris. A paucity of strategies for developing health literate organisations: A systematic review. *PLOS ONE*, 13(4):e0195018, 4 2018.
- [202] Johanna Sophie Lubasch, Mona Voigt-Barbarowicz, Sonia Lippke, Rudy Leon De Wilde, Frank Griesinger, Djordje Lazovic, Paloma Citlálili Ocampo Villegas, Julia Roeper, Daniela Salzmann, Gesine H Seeber, Luz-Angela Torres-de-la Roche, Dirk Weyhe, Lena Ansmann, and Anna Levke Brütt. Improving professional health literacy in hospitals: study protocol of a participatory codesign and implementation study. *BMJ Open*, 11(8):e045835, 8 2021.

- [203] Jennifer Cd Macgregor and C. Nadine Wathen. 'My health is not a job': A qualitative exploration of personal health management and imperatives of the 'new public health'. *BMC Public Health*, 14(1), 2014.
- [204] Eva Magnusson and Jeanne Marecek. Doing interview-based qualitative research: A learner's guide. *Doing Interview-Based Qualitative Research: A Learner's Guide*, pages 1–189, 1 2015.
- [205] Stephen T. Mahoney, Dahlia Tawfik-Sexton, Paula D. Strassle, Timothy M. Farrell, and Meredith C. Duke. Effects of Education and Health Literacy on Postoperative Hospital Visits in Bariatric Surgery. *Journal of Laparoendoscopic and Advanced Surgical Techniques*, 28(9), 2018.
- [206] Joelle Mak, Cathy Zimmerman, and Bayard Roberts. "I had tears in my eyes but I just left without looking back". A qualitative study of migration-related stressors amongst Nepali male labour migrants. *Journal of Migration and Health*, 4:100042, 2021.
- [207] Leslie J Malloy-Weir, Cathy Charles, Amiram Gafni, and Vikki Entwistle. A review of health literacy: Definitions, interpretations, and implications for policy initiatives. *Journal of Public Health Policy*, 37:334–352, 2016.
- [208] Sarah Mantwill and Peter J. Schulz. Health literacy in Mainland China: Validation of a functional health literacy test in simplified Chinese. *Health promotion international*, 31(4):742–748, 2016.
- [209] Chipiwa Marimwe and Ros Dowse. Development of an item bank of health literacy questions appropriate for limited literacy public sector patients in South Africa. *Journal of Communication in Healthcare*, 10(4):273–284, 10 2017.
- [210] Chipiwa Marimwe and Ros Dowse. Health literacy test for limited literacy populations (HELT-LL): Validation in South Africa. *Cogent Medicine*, 6(1), 8 2019.
- [211] Loren Loving Marquez and Dana L. Ladd. Promoting Health Literacy: Finding Consumer Health Resources and Writing Health Materials for Patients. *Journal of Hospital Librarianship*, 19(2):156–164, 4 2019.
- [212] Colin D. Mathers. History of global burden of disease assessment at the World Health Organization. *Archives of Public Health*, 78(1):77, 12 2020.
- [213] C. E. Mbada, O. E. Johnson, O. O. Oyewole, O. J. Adejube, C. Fatoye, O. A. Idowu, R. V. Odeyemi, K. B. Akinirinbola, D. Ganiyu, and F. Fatoye. Cultural adaptation and psychometric evaluation of the Yoruba version of the Health Literacy Questionnaire. *Annali di igiene : medicina preventiva e di comunita*, 34(1):54–69, 1 2022.
- [214] Brendan McCormack, Marit Borg, Shaun Cardiff, Jan Dewing, Gaby Jacobs, Nadine Janes, Bengt Karlsson, Tanya Mccance, Elin Mekki, Davina Porock, Famke Van Lieshout, and Val Wilson. Person-centredness-the 'state' of the art. Technical report, 2015.

- [215] Lauren McCormack, Veronica Thomas, Megan A. Lewis, and Rima Rudd. Improving low health literacy and patient engagement: A social ecological approach. *Patient Education and Counseling*, 100(1):8–13, 1 2017.
- [216] McCormack L. Measures of Health Literacy. *RTI International*, 11 2009.
- [217] Shannon McKinn, Duong Thuy Linh, Kirsty Foster, and Kirsten McCaffery. Communication Between Health Workers and Ethnic Minorities in Vietnam. *HLRP: Health Literacy Research and Practice*, 1(4):e163–e172, 10 2017.
- [218] Patrícia Medina, Ana Catarina Maia, and Andreia Costa. Health Literacy and Migrant Communities in Primary Health Care. *Frontiers in Public Health*, 9, 1 2022.
- [219] Stephanie Medlock, Saeid Eslami, Marjan Askari, Derk L Arts, Danielle Sent, Sophia E de Rooij, and Ameen Abu-Hanna. Health Information–Seeking Behavior of Seniors Who Use the Internet: A Survey. *Journal of Medical Internet Research*, 17(1):e10, 1 2015.
- [220] Xin Mei, Qing Zhong, Gong Chen, Yuanxia Huang, and Junlin Li. Exploring health literacy in Wuhan, China: a cross-sectional analysis. *BMC Public Health*, 20(1), 9 2020.
- [221] Menabde Nata. Health literacy and the SDGs. Technical report, WHO, 2017.
- [222] Miriam J. Metzger, Andrew J. Flanagin, Alex Markov, Rebekah Grossman, and Monica Bulger. Believing the unbelievable: Understanding young people’s information literacy beliefs and practices in the United States. *Journal of Children and Media*, 9(3), 2015.
- [223] Rhona Millar. Self management network scotland. *International Journal of Integrated Care*, 19(4), 2019.
- [224] Wayne Mitic, Ed D Adjunct, and Irving Rootman. Acknowledgments Lead Editors. Technical report.
- [225] Wayne Mitic, Ed D Adjunct, and Irving Rootman. Acknowledgments Lead Editors. Technical report.
- [226] Tewodaj Mogues and Tolulope Olofinbiyi. Budgetary influence under information asymmetries: Evidence from Nigeria’s subnational agricultural investments. *World Development*, 129:104902, 5 2020.
- [227] Sandra Moll, Andrea Frolic, and Brenda Key. Investing in compassion: exploring mindfulness as a strategy to enhance interpersonal relationships in healthcare practice. *Journal of Hospital Administration*, 4(6):36, 8 2015.
- [228] Joanna Moncrieff. ‘Freedom is more important than health’: Thomas Szasz and the problem of paternalism. *International Psychiatry*, 11(2), 2014.
- [229] Victor M. Montori, Merel M. Ruissen, Ian G. Hargraves, Juan P. Brito, and Marleen Kunneman. Shared decision-making as a method of care. *BMJ Evidence-Based Medicine*, 28(4):213, 8 2022.

- [230] Nancy S. Morris, Charles D. MacLean, Lisa D. Chew, and Benjamin Littenberg. The Single Item Literacy Screener: Evaluation of a brief instrument to identify limited reading ability. *BMC Family Practice*, 7(1):1–7, 3 2006.
- [231] Suleiman E. Mshelia, Chukwudi V. Analo, and Andrew Booth. Factors influencing the utilisation of facility-based delivery in Nigeria: a qualitative evidence synthesis. *Journal of Global Health Reports*, 4, 2020.
- [232] Sadiq Mukhtar, Rosniza Aznie Che Rose, Lam Kuok Choy, and Amina Ummulkhair Ibrahim Bibi-Farouk. Boko Haram and the Geopolitics of Forced Migration in Nigeria. *Journal International Studies*, 14, 2018.
- [233] Lucija Murgic, Philip C. Hébert, Slavica Sovic, and Gordana Pavlekovic. Paternalism and autonomy: Views of patients and providers in a transitional (post-communist) country. *BMC Medical Ethics*, 16(1), 2015.
- [234] Sara A. Murphy, Peter A. Fisher, and Chet Robie. International comparison of gender differences in the five-factor model of personality: An investigation across 105 countries. *Journal of Research in Personality*, 90, 2 2021.
- [235] Jessica Gall Myrick and Jessica Fitts Willoughby. Educated but anxious: How emotional states and education levels combine to influence online health information seeking. *Health Informatics Journal*, 25(3), 2019.
- [236] René Möttus, Wendy Johnson, Catherine Murray, Michael S. Wolf, John M. Starr, and Ian J. Deary. Towards understanding the links between health literacy and physical health. *Health Psychology*, 33(2):164–173, 2014.
- [237] Hye Jin Nam, Sujin Lee, Han Nah Park, Bohye Kim, and Ju Young Yoon. A mixed-method systematic literature review of health literacy interventions for people with disabilities, 2023.
- [238] NATIONAL BUREAU OF STATISTICS. Corruption in nigeria: patterns and trends. Technical report, Nigeria, 2024.
- [239] Maryam Nesari, Joanne K. Olson, Alireza Nikbakht Nasrabadi, and Colleen Norris. Registered Nurses’ Knowledge of and Experience with Health Literacy. *HLRP: Health Literacy Research and Practice*, 3(4):e268–e279, 12 2019.
- [240] Marie Neunez, Michel Goldman, and Pietro Ghezzi. Online Information on Probiotics: Does It Match Scientific Evidence? *Frontiers in Medicine*, 6, 2020.
- [241] New York State Department of Health. Disease Screening - Statistics Teaching Tools - .
- [242] Daniel A. Newman. Missing Data: Five Practical Guidelines. *Organizational Research Methods*, 17(4):372–411, 10 2014.
- [243] Jenn Nguyen and Lauren Gilbert. Health Literacy among Individuals with Disabilities: A Health Information National Trends Survey Analysis. *Permanente Journal*, 23(4), 2019.

- [244] Tam H Nguyen, Michael K Paasche-Orlow, and Lauren A McCormack. The state of the science of health literacy measurement. *Information Services & Use*, 37:189–203, 2017.
- [245] NHS. Involving people in their own health and care. Technical report, 2019.
- [246] NHS. Health literacy - NHS digital service manual, 2023.
- [247] NHS Education for Scotland. Techniques.
- [248] Lynn Nielsen-Bohlman, Allison M. Panzer, and David A. Kindig. Introduction. *Literacy, Institute of Medicine (US) Committee on Health*, 2004.
- [249] Lynn. Nielsen-Bohlman, Allison M. Panzer, David A. Kindig, and Institute of Medicine (U.S.). Committee on Health Literacy. *Health literacy : a prescription to end confusion*. National Academies Press, 2004.
- [250] Nielsen-Bohlman L., Allison M. Panzer, and David A. Kindig. Health Literacy: A Prescription to End Confusion. *National Library of MEDICINE*, 2004.
- [251] NMC. NMC - The Code. *NMC*, 18, 2018.
- [252] Onome Norah, Ekoko Dr, and Norah Ekoko. An Assessment Of Health Information Literacy Among Rural Women In Delta State, Nigeria. Technical report, 2020.
- [253] Sofyan Nurdiansyah, Nurfika Asmaningrum, Retno Purwandari, Anisah Ardiana, Kholid Rosyidi, and Muhammad Nur. The Health Literacy Level among Adult Patients in Rural and Urban Public Health Centers of Pandalungan Region: A Dual-Center Comparative Study. *Jurnal Kesehatan dr. Soebandi*, 10(1), 2022.
- [254] Sofyan Nurdiansyah, Nurfika Asmaningrum, Retno Purwandari, Anisah Ardiana, Kholid Rosyidi, and Muhammad Nur. The Health Literacy Level among Adult Patients in Rural and Urban Public Health Centers of Pandalungan Region: A Dual-Center Comparative Study. *Jurnal Kesehatan dr. Soebandi*, 10(1):17–25, 2022.
- [255] Nursing and United Kingdom Midwifery Council. Standards of proficiency for registered nurses. Technical report, 2018.
- [256] D. Nutbeam. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International*, 15(3):259–267, 9 2000.
- [257] D. Nutbeam and I. Kickbusch. Health promotion glossary. *Health Promotion International*, 13(4):349–364, 1998.
- [258] Don Nutbeam. The evolving concept of health literacy. *Social Science and Medicine*, 67(12), 2008.
- [259] Don Nutbeam. Defining and measuring health literacy: what can we learn from literacy studies? *International Journal of Public Health*, 54(5):303–305, 10 2009.

- [260] Ejeagwu nwafor orizu, Obiageli Fidelia Emelumadu, and Achunam Simeon Nwabueze. The Association of Socio-demographics of Female Secondary School Teachers with their Cervical Cancer Health Literacy in Nigeria. *Library Philosophy and Practice*, 2020, 2020.
- [261] Ejeagwu O Nwafor-Orizu, Gertrude C Umunnakwe, and Oliver T Onwudinjo. Cervical Cancer Health Literacy Among Female Librarians in Imo State, Nigeria. *Library Philosophy & Practice*, 2018.
- [262] Obianuju E Nwafor-Orizu and Medical Library. Health Literacy for Rapid Development in Nigeria. *MiddleBelt Journal of Library and Information Science*, 13, 8 2015.
- [263] Obianuju E Nwafor-Orizu and Oliver T U Onwudinjo. Information and Knowledge Management Availability and Use of Health Information Resources by Doctors in Teaching Hospitals in South East Nigeria. 5(9), 2015.
- [264] Obianuju E Nwafor-Orizu Oliver TU Onwudinjo Festus. Barriers to Optimal Utilization of Health Information Resources by Doctors in Nigeria. 5(18), 2015.
- [265] Chikezirim Nwoke, Stanley Oyiga, and Logan Cochrane. Assessing the phenomenon of out-of-school children in Nigeria: Issues, gaps and recommendations. *Review of Education*, 12(3), 12 2024.
- [266] Chukwuedo Susan Oburota and Olanrewaju Olaniyan. Health care financing and income inequality in Nigeria. *International Journal of Social Economics*, 47(11):1419–1431, 10 2020.
- [267] Office for Health Improvement and Disparities. Mixed methods study - GOV.UK, 6 2020.
- [268] National Archives Office of the Federal Register and Records Administration. Public Law 111 - 274 - Plain Writing Act of 2010. *govinfo.gov*, 10 2010.
- [269] Ndidi Mercy Ofole and Pauline Clare Nkem Ohakwe. Therapeutic Outcome of Self-Control and Social Interaction Interventions on Negative Body Image among in-school Adolescents with Low Health literacy in Southwest Nigeria. *International Journal of Education and Literacy Studies*, 9(4), 2021.
- [270] Gerald Ohta MPH. National Standards for Culturally and Linguistically Appropriate Services (CLAS) in Health and Health Care. *Hawai'i Journal of Medicine & Public Health*, 74(7 Suppl 1):12, 2015.
- [271] John Sunday Ojo, Samuel Oyewole, and Folahanmi Aina. Forces of Terror: Armed Banditry and Insecurity in North-west Nigeria. *Democracy and Security*, 19(4):319–346, 10 2023.
- [272] Orkan. Okan. *International handbook of health literacy : research, practice and policy across the lifespan*. Policy Press, 2019.

- [273] Henry Okoli, Taiwo Obembe, Kayode Osungbade, Folashayo Adeniji, and David Adewole. Self-Referral patterns among federal civil servants in oyo state, South-Western Nigeria. *Pan African Medical Journal*, 26, 2 2017.
- [274] R. Henry Olaisen, Mark D. Schluchter, Susan A. Flocke, Kathleen A. Smyth, Siran M. Koroukian, and Kurt C. Stange. Assessing the Longitudinal Impact of Physician-Patient Relationship on Functional Health. *The Annals of Family Medicine*, 18(5):422–429, 9 2020.
- [275] Gbolahan Olatunji, Nicholas Aderinto, Emmanuel Kokori, and Israel Charles Abraham. Nigeria’s new policy: solution for the health-care workforce crisis?, 10 2024.
- [276] Olalekan Moses Olayemi, Ezinwanyi Madukoma, and Haliso Yacob. Health information literacy of tuberculosis patients in DOT centers in Lagos state, Nigeria. *Frontiers in Health Informatics*, 11, 2022.
- [277] Tomasz Oleksy, Anna Wnuk, Małgorzata Gambin, Agnieszka Łyś, Kamilla Bargiel-Matusiewicz, and Ewa Pisula. Barriers and facilitators of willingness to vaccinate against COVID-19: Role of prosociality, authoritarianism and conspiracy mentality. A four-wave longitudinal study. *Personality and Individual Differences*, 190:111524, 5 2022.
- [278] Tomasz Oleksy, Anna Wnuk, Dominika Maison, and Agnieszka Łyś. Content matters. Different predictors and social consequences of general and government-related conspiracy theories on COVID-19. *Personality and Individual Differences*, 168:110289, 1 2021.
- [279] Francisco M. Olmos-Vega, Renée E. Stalmeijer, Lara Varpio, and Renate Kahlke. A practical guide to reflexivity in qualitative research: AMEE Guide No. 149. *Medical Teacher*, 45(3):241–251, 3 2023.
- [280] Gert Olthuis, Carlo Leget, and Mieke Grypdonck. Why shared decision making is not good enough: lessons from patients. *Journal of Medical Ethics*, 40(7):493–495, 7 2014.
- [281] I.I. Omoleke and B.A. Taleat. Contemporary issues and challenges of health sector in Nigeria. *Research Journal of Health Sciences*, 5(4), 2018.
- [282] Roundtable on Health Literacy; Board on Population Health, Engineering Public Health Practice; Institute of Medicine; The National Academies of Sciences, and Medicine. Health Literacy: Past, Present, and Future: Workshop Summary. Technical report, Washington, D.C., 8 2015.
- [283] Onimisi T. Democratic Practices and Local Government Elections in Nigeria: Demystifying the Emerging Issues. *Wukari International Studies Journal*, 6(1), 2022.
- [284] Lucky Onotai. A Review of the impact of the health literacy status of patients on health outcomes. *The Nigerian Health Journal*, 8(3 - 4), 2008.

- [285] Win Oo, Pa Soe, and Kay Lwin. Status and determinants of health literacy: a study among adult population in selected areas of Myanmar. *International Journal of Community Medicine and Public Health*, 2015.
- [286] Michael J. Ormshaw, Leena T. Paakkari, and Lasse K. Kannas. Measuring child and adolescent health literacy: A systematic review of literature, 2013.
- [287] Richard H. Osborne, Roy W. Batterham, Gerald R. Elsworth, Melanie Hawkins, and Rachelle Buchbinder. The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). *BMC Public Health*, 13(1):658, 2013.
- [288] Richard H. Osborne, Roy W. Batterham, Gerald R. Elsworth, Melanie Hawkins, and Rachelle Buchbinder. The grounded psychometric development and initial validation of the Health Literacy Questionnaire (HLQ). *BMC Public Health*, 13(1):1–17, 7 2013.
- [289] Raymond L. Ownby, Amarilis Acevedo, Drenna Waldrop-Valverde, Robin J. Jacobs, and Joshua Caballero. Abilities, skills and knowledge in measures of health literacy. *Patient Education and Counseling*, 95(2):211–217, 2014.
- [290] O E Oyewole, I O Dipeolu, G A Ajuwon, and T D Odetola. Blueprint for Health Literacy: Population education, community health innovation. Technical report, 2019.
- [291] L. Paakkari, J. Inchley, A. Schulz, M. Weber, and O. Okan. Holdings: Addressing health literacy in schools in the WHO European Region :: JYX. *Public Health Panorama. WHO Regional Office for Europe*, 2019.
- [292] Leena Paakkari, Jo Inchley, Anette Schulz, Martin W. Weber, and Orkan Okan. Addressing health literacy in schools in the WHO European Region. *Public Health Panorama*, 5(2-3), 2019.
- [293] Michael K. Paasche-Orlow and Michael S. Wolf. Evidence Does Not Support Clinical Screening of Literacy. *Journal of General Internal Medicine*, 23(1):100, 1 2007.
- [294] Dagmara Paiva, Susana Silva, Milton Severo, Pedro Moura-Ferreira, Nuno Lunet, and Ana Azevedo. Validation of the Short Assessment of Health Literacy in Portuguese-speaking Adults in Portugal. *Gaceta Sanitaria*, 34(5):435–441, 9 2020.
- [295] Henk Pander Maat, Marie Louise Essink-Bot, Karlijn Ef Leenaars, and Mirjam P. Fransen. A short assessment of health literacy (SAHL) in the Netherlands. *BMC public health*, 14(1), 9 2014.
- [296] Ruth M. Parker, David W. Baker, Mark V. Willia, and Joanne R. Nurss. The test of functional health literacy in adults: A new instrument for measuring patients' literacy skills. *Journal of General Internal Medicine*, 10(10):537–541, 1995.

- [297] Terri Ann Parnell. Nursing Leadership Strategies, Health Literacy, and Patient Outcomes. *Nurse Leader*, 12(6):49–52, 12 2014.
- [298] Talcott Parsons. *The Social System*. Routledge, 8 2013.
- [299] Amit Patel, Daria Bakina, Jim Kirk, Scott von Lutcken, Tom Donnelly, William Stone, Heather Ashley-Collins, Karen Tibbals, Lynn Ricker, Jeffrey Adler, John Ewing, Michelle Blechman, Sherry Fox, Will Leopold, Daniel Ryan, Donna Wray, and Heather Turkoz. Patient counseling materials: The effect of patient health literacy on the comprehension of printed prescription drug information. *Research in Social and Administrative Pharmacy*, 14(9):851–862, 9 2018.
- [300] Peate Ian. The Health and Social Care Act 2012. *Journal of Paramedic Practice*, 4(5), 2012.
- [301] Dandan Peng, Xiaomin Wang, Yannan Xu, Chenhui Sun, and Xudong Zhou. Antibiotic misuse among university students in developed and less developed regions of China: a cross-sectional survey. *Global health action*, 11(1), 1 2018.
- [302] Sylvia Perkins and Virginia Henderson. The Nature of Nursing: A Definition and Its Implications for Practice, Research and Education. *The American Journal of Nursing*, 66(11), 1966.
- [303] Joseph Pizzorno. Health Medicine. *Integrative Medicine (Boulder)*, 21(6), 2022.
- [304] Andrew Pleasant. Advancing health literacy measurement: A pathway to better health and health system performance. *Journal of Health Communication*, 19(12):1481–1496, 12 2014.
- [305] Andrew Pleasant and Shyama Kuruvilla. A tale of two health literacies: Public health and clinical approaches to health literacy. *Health Promotion International*, 23(2):152–159, 6 2008.
- [306] Andrew Pleasant, Rima E Rudd, Catina O’leary, Michael K Paasche-Orlow, Marin P Allen, Wilma Alvarado-Little, Laurie Myers, Kim Parson, and Stacey Rosen. Considerations for a New Definition of Health Literacy. Technical report, 2016.
- [307] Pleasant A. Health Literacy Around the World: Part 1 Health Literacy Efforts Outside of the United States. 7 2013.
- [308] Preston Medical Library. Verbal Communication - Health Literacy.
- [309] Joanne Protheroe, Rebecca Whittle, Bernadette Bartlam, Emee Vida Estacio, Linda Clark, and Judith Kurth. Health literacy, associated lifestyle and demographic factors in adult population of an English city: a cross-sectional survey. *Health Expectations*, 20(1):112–119, 2 2017.
- [310] Public Health England. Making the case for health literacy: East Midlands national demonstrator site 2016-17 Strategic report Prepared by Health Education England, NHS England, Public Health England, and the Community Health and Learning Foundation. Technical report, 2017.

- [311] Gianluca Quaglio, Kristine Sørensen, Paul Rübig, Luigi Bertinato, Helmut Brand, Theodoros Karapiperis, Irina Dinca, Terje Peetso, Karin Kadenbach, and Claudio Dario. Accelerating the health literacy agenda in Europe. *Health promotion international*, 32(6):1074–1080, 12 2017.
- [312] Jany Rademakers, Geeke Waverijn, Mieke Rijken, Richard Osborne, and Monique Heijmans. Towards a comprehensive, person-centred assessment of health literacy: translation, cultural adaptation and psychometric test of the Dutch Health Literacy Questionnaire. *BMC Public Health*, 20(1):1–12, 12 2020.
- [313] Retha Rajah, Mohamed Azmi Ahmad Hassali, Lim Ching Jou, and Muthu Kumar Murugiah. The perspective of healthcare providers and patients on health literacy: a systematic review of the quantitative and qualitative studies, 3 2018.
- [314] Rapheal Dennis. *Social Determinants of Health: Canadian Perspectives - Dennis Raphael* - Google Books. Canadian Scholars' Press International. Toronto Ontario., 2016.
- [315] Rafia S. Rasu, Walter Agbor Bawa, Richard Suminski, Kathleen Snella, and Bradley Warady. Health literacy impact on national healthcare utilization and expenditure. *International Journal of Health Policy and Management*, 4(11):747–755, 2015.
- [316] Scott C. Ratzan and Ruth M. Parker. Health literacy-identification and response. *Journal of Health Communication*, 11(8):713–715, 12 2006.
- [317] Daniel I. Rees and Joseph J. Sabia. Migraine headache and labor market outcomes. *Health Economics (United Kingdom)*, 24(6), 2015.
- [318] Linda Ross. Facilitating Rapport through Real Patient Encounters in Health Care Professional Education. *Australasian Journal of Paramedicine*, 10:1–11, 1 2013.
- [319] Gill Rowlands, Nina Khazaezadeh, Eugene Oteng-Ntim, Paul Seed, Suzanne Barr, and Barry D. Weiss. Development and validation of a measure of health literacy in the UK: The newest vital sign. *BMC Public Health*, 13(1), 2013.
- [320] Gillian Rowlands, Joanne Protheroe, John Winkley, Marty Richardson, Paul T. Seed, and Rima Rudd. A mismatch between population health literacy and the complexity of health information: an observational study. *British Journal of General Practice*, 65(635):e379–e386, 6 2015.
- [321] Sara Rubinelli, Peter J. Schulz, and Kent Nakamoto. Health literacy beyond knowledge and behaviour: Letting the patient be a patient, 2009.
- [322] Rima Rudd and Kentaro Yamamoto. Literacy and Health in America Irwin Kirsch Center for Global Assessment Educational Testing Service. Technical report, 2004.
- [323] Shiva Sadeghi, Dina Brooks, and Roger S. Goldstein. Patients' and providers' perceptions of the impact of health literacy on communication in pulmonary rehabilitation. *Chronic Respiratory Disease*, 10(2):65–76, 5 2013.

- [324] Mohammad Nazmus Sakib, Shahin Shooshtari, Philip St. John, and Verena Menec. The prevalence of multimorbidity and associations with lifestyle factors among middle-aged Canadians: an analysis of Canadian Longitudinal Study on Aging data. *BMC Public Health*, 19(1):243, 12 2019.
- [325] Bukola Salami, Foluke O. Dada, and Folake E. Adedokun. Human Resources for Health Challenges in Nigeria and Nurse Migration. *Policy, Politics, and Nursing Practice*, 17(2), 2016.
- [326] Julian Samora, Lyle Saunders, and Richard F. Larson. Medical Vocabulary Knowledge Among Hospital Patients. *Journal of Health and Human Behavior*, 2(2):83, 22 1961.
- [327] Peter Sands, Carmen Mundaca-Shah, and Victor J Dzau. The Neglected Dimension of Global Security-A Framework for Countering Infectious-Disease Crises. Technical report, 2016.
- [328] Doris Schaeffer, Eva Maria Berens, and Dominique Vogt. Health literacy in the German population - Results of a representative survey. *Deutsches Arzteblatt International*, 114(4):53–60, 1 2017.
- [329] Lidia Schapira. The essential elements of a therapeutic presence. *Cancer*, 119(9):1609–1610, 5 2013.
- [330] Amand F. Schmidt and Chris Finan. Linear regression and the normality assumption. *Journal of Clinical Epidemiology*, 98:146–151, 6 2018.
- [331] Judith Schoonenboom and R. Burke Johnson. Wie man ein Mixed Methods-Forschungs-Design konstruiert. *Kolner Zeitschrift für Soziologie und Sozialpsychologie*, 69(Suppl 2):107–131, 10 2017.
- [332] Sarah J. Schrauben and Douglas J. Wiebe. Health literacy assessment in developing countries: a case study in Zambia. *Health promotion international*, 32(3):475–481, 6 2017.
- [333] Lisa M. Schwartz, Steven Woloshin, and H. Gilbert Welch. Can patients interpret health information? An assessment of the medical data interpretation test, 5 2005.
- [334] Hanna Elisabeth Schwendemann and Holm Thieme. Health literacy and the role of therapeutic professionals: A scoping review / Gesundheitskompetenz und die Rolle der Therapieberufe: Ein scoping Review. *International Journal of Health Professions*, 10(1):161–172, 1 2023.
- [335] Service Manual - GOV.UK. Getting informed consent for user research , 11 2018.
- [336] Iwok N. Shabi and Fadekemi O. Oyewusi. Health Literacy and Internet Health Information Use among In-school Adolescents in Osun State, South-West, Nigeria. *Journal of Consumer Health on the Internet*, 22(1):25–41, 1 2018.

- [337] Rabia Shahid, Muhammad Shoker, Luan Manh Chu, Ryan Frehlick, Heather Ward, and Punam Pahwa. Impact of low health literacy on patients' health outcomes: a multicenter cohort study. *BMC Health Services Research*, 22(1), 2022.
- [338] Aakifa Shahul, A S Hovan George, and A Shaji George. An Overview of Medical Care and the Paternalism Approach: An Evaluation of Current Ethical Theories and Principles of Bioethics in the Light of Physician-Patient Relationships. *Partners Universal International Research Journal*, 2022.
- [339] Sharma Manoj. *Theoretical Foundations of Health Education and Health Promotion - Manoj Sharma - Google Books*. Jones & Bartlett Learning, Burlington, 2017.
- [340] Yoshi Shimizu. Health Promotion in the Sustainable Development Goals (2018-2030). Technical report, 2017.
- [341] Jessica Shum, Iraj Poureslami, Mary M. Doyle-Waters, and J. Mark FitzGerald. The application of health literacy measurement tools (collective or individual domains) in assessing chronic disease management: A systematic review protocol. *Systematic Reviews*, 5(1), 6 2016.
- [342] Jessica Shum, Iraj Poureslami, Mary M. Doyle-Waters, and J. Mark FitzGerald. The application of health literacy measurement tools (collective or individual domains) in assessing chronic disease management: A systematic review protocol. *Systematic Reviews*, 5(1):1–8, 6 2016.
- [343] Lynda Sibson, Ian Peate, Pete Gregory, Tony Bleetman, Malcolm Boyle, Mike Brooke, Kerry Gaskin, Matthew Cooke, David Davis, John Donaghy, Mike Essery, Richard Fairhurst, David Fitzpatrick, Roland Furber, Grayham Mclean, Joanne Mildenhall, Ian Mursell, Mike Page, Tom Quinn, Steven Scholes, Rachael Snowden, Adrian South, Dan Staines, Richard Whitfield, Julia Williams, Ooh Practitioner, Serco Health Cornwall, Malcolm Woollard, Sarah Sedjelmaci, Jon Redmayne Production, Assistant Larry, Oakes Commercial, Tom Pollard, and Ben Allen. The Health and Social Act 2012. *Journal of Paramedic Practice* •, 4:129, 2012.
- [344] Scott K. Simonds. Health Education as Social Policy. *Health Education Monographs*, 2(1\_suppl):1–10, 3 1974.
- [345] Rebecca M. Simpson, Emma Knowles, and Alicia O'Cathain. Health literacy levels of British adults: a cross-sectional survey using two domains of the Health Literacy Questionnaire (HLQ). *BMC Public Health*, 20(1), 12 2020.
- [346] Noël C Slesinger, Kathleen J Yost, Seung W Choi, and Elizabeth A Hahn. Article Label Validation of a Short Form for Health Literacy Assessment Using Talking Touchscreen Technology. *Health Literacy Research and Practice* •, 4(4), 2020.
- [347] Smith Katie. Health literacy – Information Literacy Website, 2 2025.

- [348] Renate Soellner, Norbert Lenartz, and Georg Rudinger. Concept mapping as an approach for expert-guided model building: The example of health literacy. *Evaluation and Program Planning*, 60:245–253, 2 2017.
- [349] Kristine Sørensen, Suvi Karuranga, Eva Denysiuk, and Laryn McLernon. Health literacy and social change: exploring networks and interests groups shaping the rising global health literacy movement. *Global Health Promotion*, 25(4):89–92, 12 2018.
- [350] Kristine Sørensen, Diane Levin-Zamir, Tuyen V. Duong, Orkan Okan, Virginia Visconde Brasil, and Don Nutbeam. Building health literacy system capacity: a framework for health literate systems. *Health Promotion International*, 36(Supplement\_1):i13–i23, 12 2021.
- [351] Kristine Sørensen, Jürgen M. Pelikan, Florian Röthlin, Kristin Ganahl, Zofia Slonska, Gerardine Doyle, James Fullam, Barbara Kondilis, Demosthenes Agrafiotis, Ellen Uiters, Maria Falcon, Monika Mensing, Kancho Tchamov, Stephan Van Den Broucke, and Helmut Brand. Health literacy in Europe: Comparative results of the European health literacy survey (HLS-EU). *European Journal of Public Health*, 25(6), 2015.
- [352] Kristine Sørensen, Stephan Van den Broucke, James Fullam, Gerardine Doyle, Jürgen Pelikan, Zofia Slonska, and Helmut Brand. Health literacy and public health: A systematic review and integration of definitions and models. *BMC Public Health*, 12(1):80, 12 2012.
- [353] Kristine Sørensen, Stephan Van Den Broucke, James Fullam, Gerardine Doyle, Jürgen Pelikan, Zofia Slonska, and Helmut Brand. (HLS-EU) Consortium Health Literacy Project European. Health literacy and public health: A systematic review and integration of definitions and models Article. *Family Medicine*, 12(80), 2012.
- [354] Kristine Sørensen, Stephan Van Den Broucke, Jürgen M. Pelikan, James Fullam, Gerardine Doyle, Zofia Slonska, Barbara Kondilis, Vivian Stoffels, Richard H. Osborne, and Helmut Brand. Measuring health literacy in populations: Illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health*, 13(1), 2013.
- [355] Kristin Spinler, Marie Theres Weil, Richelle Valdez, Carolin Walther, Demet Dingoyan, Udo Seedorf, Guido Heydecke, Berit Lieske, Christopher Kofahl, and Ghazal Aarabi. Oral health literacy of persons with migration background—first results of the MuMi study. *Bundesgesundheitsblatt - Gesundheitsforschung - Gesundheitsschutz*, 64(8), 2021.
- [356] Richard A. Stein, Oana Ometa, Sarah Pachtman Shetty, Adi Katz, Mircea Ionut Popitui, and Robert Brotherton. Conspiracy theories in the era of COVID-19: A tale of two pandemics. *International Journal of Clinical Practice*, 75(2):e13778, 2 2021.

- [357] Une Elisabeth Stømer, Astrid Klopstad Wahl, Lasse Gunnar Gøransson, and Kristin Hjorthaug Urstad. Exploring health literacy in patients with chronic kidney disease: A qualitative study. *BMC Nephrology*, 21(1), 7 2020.
- [358] Hannelore Storms, Bert Aertgeerts, Frank Vandenabeele, and Neree Claes. General practitioners' predictions of their own patients' health literacy: a cross-sectional study in Belgium. *BMJ open*, 9(9), 9 2019.
- [359] Xinying Sun, Shuaishuai Yang, Edwin B. Fisher, Yuhui Shi, Yanling Wang, Qingqi Zeng, Ying Ji, Chun Chang, and Weijing Du. Relationships of health literacy, health behavior, and health status regarding infectious respiratory diseases: Application of a skill-based measure. *Journal of Health Communication*, 19:173–189, 10 2014.
- [360] Ida W. Svendsen, Maria B. Damgaard, Carsten K. Bak, Henrik Bøggild, Christian Torp-Pedersen, Majbritt T. Svendsen, and Gabriele Berg-Beckhoff. Employment Status and Health Literacy in Denmark: A Population-Based Study. *International journal of public health*, 66, 2021.
- [361] Majbritt Tang Svendsen, Carsten Kronborg Bak, Kristine Sørensen, Jürgen Pelikan, Signe Juul Riddersholm, Regitze Kuhr Skals, Rikke Nørmark Mortensen, Helle Terkildsen Maindal, Henrik Bøggild, Gitte Nielsen, and Christian Torp-Pedersen. Associations of health literacy with socioeconomic position, health risk behavior, and health status: A large national population-based survey among Danish adults. *BMC Public Health*, 20(1), 2020.
- [362] Susie Sykes and Jane Wills. Challenges and opportunities in building critical health literacy. *Global Health Promotion*, 25(4):48–56, 12 2018.
- [363] Susie Sykes, Jane Wills, Gillian Rowlands, and Keith Popple. Understanding critical health literacy: A concept analysis. *BMC Public Health*, 13(1):150, 12 2013.
- [364] Thomas S. Szasz and Marc H. Hollender. A Contribution to the Philosophy of medicine: The Basic Models of the Doctor-Patient Relationship. *A.M.A Archives of Internal Medicine*, 97(5), 1956.
- [365] A. Tafida, F. Kyari, M. M. Abdull, S. Sivasubramaniam, G. V. S. Murthy, I. Kana, and Clare E. Gilbert. Poverty and Blindness in Nigeria: Results from the National Survey of Blindness and Visual Impairment. *Ophthalmic Epidemiology*, 22(5):333–341, 9 2015.
- [366] Hamed Taherdoost. What are Different Research Approaches? Comprehensive Review of Qualitative, Quantitative, and Mixed Method Research, Their Applications, Types, and Limitations. *Journal of Management Science & Engineering Research*, 5(1):53–63, 4 2022.
- [367] Zhenbo Tao, Qianqian Xu, Yingying Zhu, Qihong Mei, Hongwei Feng, Qiuyan Jin, Shige Ding, and Ying Dong. Relationship between health literacy and COVID-19 knowledge: A cross-sectional study. *Frontiers in public health*, 11, 2023.

- [368] Task and Finish group of health knowledge and library specialists. Health Literacy Toolkit 2nd Edition, 2023. Technical report, 2023.
- [369] Seyedeh Belin Tavakoly Sany, Fatemeh Behzhad, Gordon Ferns, and Nooshin Peyman. Communication skills training for physicians improves health literacy and medical outcomes among patients with hypertension: a randomized controlled trial. *BMC Health Services Research*, 20(1):60, 12 2020.
- [370] Lourdes Marie S. Tejero, Kathryn Lizbeth L. Siongco, Paul Adrian V. Pinlac, Kim Carmela D. Co, and Ma Carmen C. Tolabing. Associations of functional health literacy with socioeconomic and demographic status among Filipinos. *BMC Public Health*, 22(1):1–9, 12 2022.
- [371] The European Health Literacy Survey HLS-EU. Comparative Report on Health Literacy in Eight EU Member States (Second Extended and Revised Version). This Report was Written by: Background Tables and Calculations for this Report are Available in The Appendix Document: Appendix of the Comparative.REPORT OF HEALTH LITERACY. Technical report, 7 2014.
- [372] David McQueen Thomas Abel. Critical health literacy in pandemics: the special case of COVID-19, 10 2021.
- [373] Tufts Medicine. Health Literacy Tool Shed, 2019.
- [374] Theodore H. Tulchinsky and Elena A. Varavikova. National Health Systems. *The New Public Health*, pages 643–728, 1 2014.
- [375] Gill Turner and Andrew Clegg. Best practice guidelines for the management of frailty: a British Geriatrics Society, Age UK and Royal College of General Practitioners report. *Age and Ageing*, 43(6):744–747, 11 2014.
- [376] U S Department of Health and Human Services. National Action Plan to Improve Health Literacy. Technical report, Office of Disease Prevention and Health Promotion, Washington DC, 2010.
- [377] UCL Institute of Health Equity. Local action on health inequalities. 2015.
- [378] UK - Office for National Statistics. Internet users, 2020.
- [379] UNESCO. *Reading the past, writing the future: fifty years of promoting literacy*. UNESCO, France, 2017.
- [380] UNESCO. Literacy: what you need to know about Literacy, 2025.
- [381] UNFPA. WORLD POPULATION DASHBOARD - nIGERIA <https://www.unfpa.org/data/world-population/NG>. Technical report, 2024.
- [382] UNICEF. Niger Annual Report 2020. Technical report, 2020.
- [383] United States Department of Health and Human Services. Healthy People 2030.

- [384] US Department of Health and Human Services. Health Literacy.
- [385] Sandra Vamos and Paul Yeung. Development of a Core Online Health Literacy Course in Canada. *Pedagogy in Health Promotion*, 3(2):90–99, 6 2017.
- [386] Iris Van Der Heide, Jany Rademakers, Maarten Schipper, Mariël Droomers, Kristine Sorensen, and Ellen Uiters. Health literacy of Dutch adults: A cross sectional survey. *BMC Public Health*, 13(1), 2013.
- [387] Iris van der Heide, Jen Wang, Mariël Droomers, Peter Spreeuwenberg, Jany Rademakers, and Ellen Uiters. The Relationship Between Health, Education, and Health Literacy: Results From the Dutch Adult Literacy and Life Skills Survey. *Journal of Health Communication*, 18(sup1):172–184, 12 2013.
- [388] Zelda Janse van Rensburg. Levels of health literacy and English comprehension in patients presenting to South African primary healthcare facilities. *African Journal of Primary Health Care and Family Medicine*, 12(1), 2020.
- [389] Mona Voigt-Barbarowicz and Anna Levke Brütt. The agreement between patients’ and healthcare professionals’ assessment of patients’ health literacy-a systematic review, 4 2020.
- [390] C.; Arora M. et al. Vos, T.; Allen. Global, regional, and national incidence, prevalence, and years lived with disability for 310 diseases and injuries, 1990–2015: a systematic analysis for the Global Burden of Disease Study 2015. *The Lancet*, 388(10053):1545–1602, 10 2016.
- [391] Kenneth A. Wallston, Courtney Cawthon, Candace D. McNaughton, Russell L. Rothman, Chandra Y. Osborn, and Sunil Kripalani. Psychometric Properties of the Brief Health Literacy Screen in Clinical Practice. *Journal of General Internal Medicine*, 29(1):119, 2013.
- [392] Chien hsing Wang, Yi Ting Ke, Jin Tong Wu, and Wen Hua Hsu. Collaborative Action Research on Technology Integration for Science Learning. *Journal of Science Education and Technology*, 21(1), 2012.
- [393] Wenna Wang, Yulin Zhang, Beilei Lin, Yongxia Mei, Zhiguang Ping, and Zhenxiang Zhang. The Urban-Rural Disparity in the Status and Risk Factors of Health Literacy: A Cross-Sectional Survey in Central China. *International Journal of Environmental Research and Public Health*, 17(11):3848, 5 2020.
- [394] Everlyn Waweru, Tom Smekens, Joanna Orne-Gliemann, Freddie Ssengooba, Jacqueline Broerse, and Bart Criel. Patient perspectives on interpersonal aspects of healthcare and patient-centeredness at primary health facilities: A mixed methods study in rural Eastern Uganda. *PLOS ONE*, 15(7):e0236524, 7 2020.
- [395] Nikki Wedgwood. Connell’s theory of masculinity – its origins and influences on the study of gender. *Journal of Gender Studies*, 18(4), 2009.
- [396] B. J. Weiner, M. A. Lewis, S. B. Clauser, and K. B. Stitzenberg. In Search of Synergy: Strategies for Combining Interventions at Multiple Levels. *JNCI Monographs*, 2012(44):34–41, 5 2012.

- [397] Barry D. Weiss. Progress in Health Literacy-Encouraging, and Not So Encouraging. *Health literacy research and practice*, 1(4), 10 2017.
- [398] Clare Wenham and Sara E. Davies. WHO runs the world—(not) girls: gender neglect during global health emergencies. *International Feminist Journal of Politics*, 24(3), 2022.
- [399] Penny Whiting, Robert Wolff, Susan Mallett, Iveta Simera, and Jelena Savović. A proposed framework for developing quality assessment tools. *Systematic Reviews*, 6(1):204, 10 2017.
- [400] WHO. Health Systems Governance.
- [401] WHO. WHO | Process of translation and adaptation of instruments. *WHO*, 2010.
- [402] WHO. WHO | Track 2: Health literacy and health behaviour. *WHO*, 2010.
- [403] WHO. Health promotion, 2016.
- [404] WHO. Shanghai Declaration on promoting health in the 2030 Agenda for Sustainable Development. Technical report, WHO, Shanghai, 11 2016.
- [405] WHO. World Health Organization, Programme TUND. Policy brief 4: health literacy. The 9th global conference on health promotion. Shanghai, China, 2017: 2–3. Technical report, 11 2017.
- [406] WHO. <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/early-investigations>, 2020.
- [407] WHO. Advice for the public, 2023.
- [408] WHO. health determinants , 10 2024.
- [409] WHO. Health literacy, 8 2024.
- [410] WHO. WHO issues warning on falsified medicines used for diabetes treatment and weight loss, 6 2024.
- [411] WHO. Gender, 2025.
- [412] WHO Europe. Public Health Aspects of Migration in Europe. *Public Health Aspects of Migration in Europe - Newsletter*, (6), 2015.
- [413] Simon J. Williams. Parsons revisited: from the sick role to...? *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 9(2):123–144, 4 2005.
- [414] Taiwo M. Williams. Girl-Child, Health, and Education in Africa. In *The Palgrave Handbook of African Women's Studies*, pages 1–15. Springer International Publishing, Cham, 2019.

- [415] James Wilson. Why It's Time to Stop Worrying About Paternalism in Public Health Policy. *Public Health Ethics (Forthcoming)*.
- [416] World Health Organization. Noncommunicable diseases (WHO 2021), 2021.
- [417] Worldometer. COVID - Coronavirus Statistics - Worldometer.
- [418] Worldometer. Nigeria Population (2025), 2025.
- [419] Heidi Wright. Liberating the NHS - Let's have no decision about me without me! *Pharmaceutical Journal*, 285(7620), 2010.
- [420] Ying Xie, Wenhong An, Chunyuan Zheng, Di Zhao, and Honghong Wang. Multidimensional health literacy profiles and health-related behaviors in the elderly: A cross-sectional survey. *International Journal of Nursing Sciences*, 9(2), 2022.
- [421] Yusrita Yanti. GENDER AND COMMUNICATION: SOME FEATURES OF WOMEN'S SPEECH. *Journal of Cultura and Lingua*, 2(1), 2021.
- [422] Brian J. Zikmund-Fisher, Dylan M. Smith, Peter A. Ubel, and Angela Fagerlin. Validation of the Subjective Numeracy Scale: effects of low numeracy on comprehension of risk communications and utility elicitation. *Medical decision making : an international journal of the Society for Medical Decision Making*, 27(5):663–671, 9 2007.
- [423] Dani Zoorob, Yasmin Hasbini, Katherine Chen, Victoria Wangia-Anderson, Hind Moussa, Brian Miller, and Debi Brobst. Ageism in healthcare technology: The older patients' aspirations for improved online accessibility. *JAMIA Open*, 5(3), 2022.

## APP 1: Summary of the Health Literacy Tools Reviewed

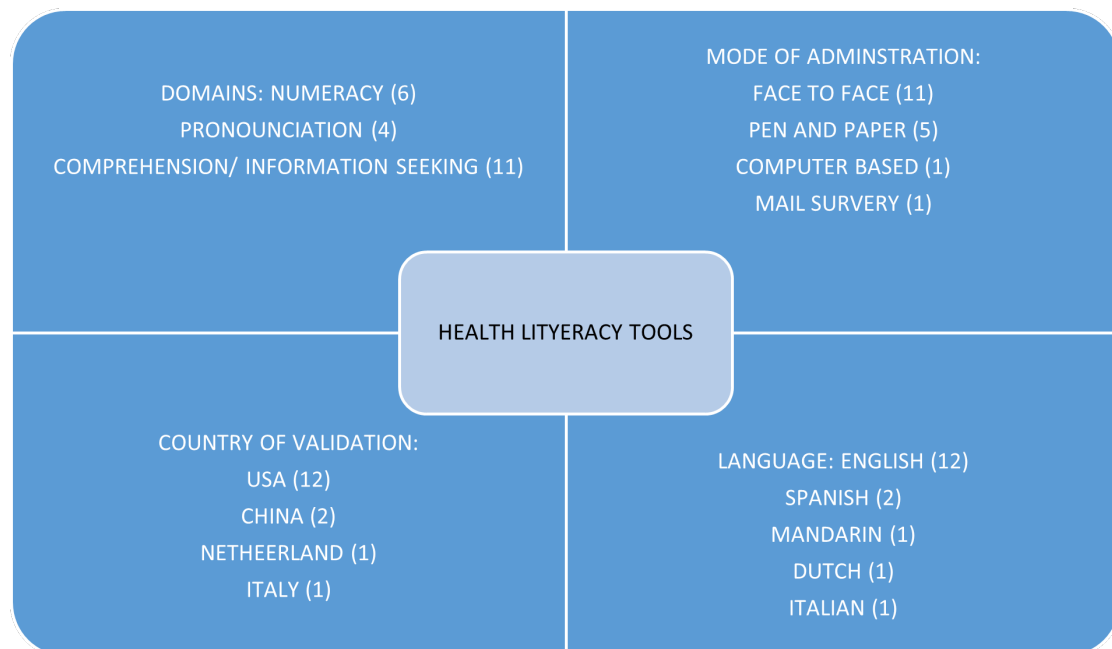


Fig. 1 Summary of the Health Literacy tools reviewed

## APP. 2: Health Literacy Questionnaire

Participant ID Thank you for taking the time to complete this questionnaire. We hope the results will help us to improve the way we provide care for our community.

### Section A

Some details about yourself

1. What is your date of birth?
2. What is your sex?
3. What is your state of origin?
4. What are your languages of communication
5. What is the highest level of education you have attended? (Check only one box):
6. What is your current employment status? (Check only one box)

7. Have you attended a hospital emergency
8. Do you have a long-standing illness or disability? (Check all boxes that apply)

## Section 1

**Understanding Health and Healthcare Questionnaire** We want to learn about how you find, understand and use health information, and how you manage your health and interact with doctors and other healthcare providers. In this questionnaire, the term healthcare providers means doctors, nurses, physiotherapists, dieticians and any other health worker you seek advice or treatment from. Information about this questionnaire and how to fill it in This questionnaire contains two parts. In Part 1 you are asked to indicate how strongly you disagree or agree with a set of statements. In Part 2 you are asked to indicate how difficult or easy you find a set of tasks.

For each statement or task check the box that best describes you now. Please ensure that you check a box for every statement or task.

1. I have at least one healthcare provider who knows me well
2. I compare health information from different sources
3. I spend quite a lot of time actively managing my health
4. I feel I have good information about health
5. I can get access to several people who understand and support me
6. When I feel ill, the people around me really understand what I am going through
7. When I see new information about health, I check up on whether it is true or not
8. I have at least one healthcare provider I can discuss my health problems with.
9. I make plans for what I need to do to be healthy.
10. I have enough information to help me deal with my health problems
11. If I need help, I have plenty of people I can rely on.
12. I always compare health information from different sources and decide what is best for me.

13. Despite other things in my life, I make time to be healthy
14. I am sure I have all the information I need to manage
15. I know how to determine if the health information I receive is right.
16. I have the healthcare providers I need to help me work out what I need to do.
17. I have strong support from family or friends
18. I ask healthcare providers about the quality of the health information I find.

Part 2 of the questionnaire starts here Please indicate how difficult or easy the following tasks are for you now. Remember to check only one box for each statement. Check a box by crossing it like this: Check a box by crossing it

1. Find health information from several different places
2. Get to see the healthcare providers you need to
3. Find the right health care
4. Make sure that healthcare providers understand your problems properly
5. Find information about health problems
6. Feel able to discuss your health concerns with a healthcare provider
7. Confidently fill medical forms in the correct way
8. Have good discussions about your health with doctors
9. Accurately follow instructions from healthcare providers
10. Get information about health so you are up to date with the best information
11. Read and understand written health information
12. Decide which healthcare provider you need to see
13. Make sure you find the right place to get the health care you need
14. Get health information in words you understand
15. Discuss things with healthcare providers until you understand all you need to

16. Find out which healthcare services you are entitled to
17. Read and understand all the information on medication labels
18. Get health information by yourself
19. Work out what the best care is for you
20. Ask healthcare providers questions to get the health information you need
21. Understand what healthcare providers are asking you to do

Section C In this section, you will be asked questions about COVID-19. These will include your knowledge and perception of the virus and the pandemic. Please indicate how strongly you disagree or agree with the following statements

1. COVID-19 is an act of God to destroy some evil people on the earth
2. There are incidences of COVID-19 in Nigeria
3. I believe I have adequate information about COVID-19
4. I am more conscious about my health with the advent of COVID-19
5. I got my information on COVID-19 from the mass media.
6. COVID vaccines have side effects, unlike other vaccines.
7. The general precautions for COVID-19 include hand washing, keeping distance and using a face mask.
8. COVID-19 is a disease of the rich
9. Anyone who contracts COVID-19 will definitely die
10. I seek information about COVID-19
11. I check the accuracy of information that I get about COVID.
12. Signs and symptoms of COVID-19 include loss of sense of taste, coughs and fever.
13. You can have the virus without showing any of the symptoms.
14. My friends and family cannot contract coronavirus.
15. It is rude to be discussing with someone with a face mask on

On the survey

1. Did someone help you complete this questionnaire?
2. If yes, please describe the way in which you were helped.

### **APP 3: Advert for Quantitative (public)**

### **APP.3: Health Literacy Questionnaire (HLQ) SPSS Scoring Algorithm Instructions**

#### **section Overview**

The algorithm produces unweighted scores for each of the 9 scales of the HLQ. The final score for each scale is an average score across all the questions that form that scale. The HLQ does not provide one overall summative score; rather it gives you nine separate scores that indicate a person's strengths and needs in relation to their health literacy. For Scales 1 to 5, the score range is between 1 and 4 (there are 4 possible answers for Scales 1 to 5). For Scales 6 to 9, the score range is between 1 and 5 (there are 5 possible answers for Scales 6 to 9).

Coding Questions Coding for questions P1Q1 to P1Q23 (the 23 questions for Part 1 of the HLQ) are as follows:

- Strongly Disagree = 1
- Disagree = 2
- Agree = 3
- Strongly Agree = 4

Coding for questions P2Q1 to P2Q21 (the 21 questions for Part 2 of the HLQ) are as follows:

- Cannot do or always difficult, = 1
- Usually difficult = 2
- Sometimes difficult = 3
- Usually easy = 4
- Always easy = 5

|                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                          |                                                                                                                                               |
|                                                                                                                                                                                                                                                                           |                                                                                                                                               |
| <p>Research<br/>participants<br/>needed!!!</p>                                                                                                                                                                                                                            | <ul style="list-style-type: none"><li>❖ Are you a Nigerian between the ages of 18 and 65?</li><li>❖ Are you willing to contribute to the healthcare system in Nigeria in your own way?</li></ul> <p>Then this is for you!!!</p> |
| <p>This is a PhD student research study with the aim of <b>exploring health literacy in Nigeria.</b></p> <p>If you will like more information about this study, kindly call this number: 08063999286<br/>Or you can send a mail to Deborah.Babalola@northampton.ac.uk</p> |                                                                                                                                                                                                                                 |

Fig. 2 Advert for Quantitative study

### Missing Values

- This program uses an algorithm to impute missing values (the Expectation Maximisation algorithm). Leave missing values as blank in the template spreadsheet.
- Scales with 4 to 5 questions allow for 2 missing values to be imputed. If there are more than 2 missing values for scales with 4-5 questions, the response will not be included in the results for that participant on that scale.
- Scales with 6 questions allow for 3 missing values to be imputed. If there are more than 3 missing values for scales with 6 questions, the response will not be included in the results for that participant on that scale.

Before running the program, please make the following modifications to the spreadsheet: The SPSS syntax only computes HLQ data. It is not set up to compute the demographic data. You will need to either separate the demographic data before running the scoring syntax, or modify the SPSS syntax accordingly.

If you are changing the naming convention of your excel file - Make the following modifications to the syntax P1Q1 to P2Q21 variables in this program refer to HLQ items in your dataset.

If using a different naming convention for HLQ items, either change question names in your data file or modify this syntax by replacing P1Q1 to P2Q21 with the variable names from your data file. This is necessary for the syntax to run properly.

### Procedure for Running the Syntax

1. Open the SPSS syntax in the 'HLQ Scoring Using SPSS' folder in your HLQ User Package (Filename: HLQ scoring SPSS21v2 no demographics). You will see two files after the SPSS syntax is opened. One is the syntax and the other is the blank data file (untitled).
2. In the syntax file, change the default directory 'C:.sav' to the actual directory and dataset name in which you would like the dataset to be saved (change command lines 40 and 298)
3. In the blank data file, click on File > Open > Data. This will bring up a window of your files on your computer.

Under "Files of type", choose Excel (\*.xls, \*xlsx, \*xlsm) in the drop down

menu. Select the excel spreadsheet where your HLQ data is saved. (Make sure the excel file is closed otherwise SPSS will not be able to import it.) Click Open. A window called Opening Excel Data Source will open.

Click OK and your data will appear in SPSS. You will see two views on the data file. A Data view (which has your data) and a Variable view (which is the naming convention for your data).

4. Go to the SPSS syntax file. Click Run > All from the menu and the syntax will run to produce a new output file.

Your results will appear in the new output file.

For further information on HLQ analysis results, please see paper: Distribution of health literacy strengths and weaknesses across socio-demographic groups: a cross-sectional survey using the Health Literacy Questionnaire (HLQ) Alison Beauchamp, Rachelle Buchbinder, Sarity Dodson, Roy W. Batterham, Gerald R. Elsworth, Crystal McPhee, Louise Sparkes, Melanie Hawkins and Richard H. Osborne <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12914-015-2056-z>

For further queries, please email: [hlq-info@deakin.edu.au](mailto:hlq-info@deakin.edu.au)

## **.1 Consent form**

# **EXPLORING HEALTH LITERACY AMONG THE HEALTH CARE PROVIDERS IN NIGERIA**

## **APP 4:Participant's Information Sheet**

### **Why have I been invited?**

You are being invited to take part in this research study on Health Literacy in Nigeria. You are invited because you are a Nigerian and the study is aimed at inquiring into health literacy among Nigerian adults who by their age can make decisions by themselves according to the World Health Organization lower age limit for adult and the retirement age for workers in Nigeria.

Before you decide whether you wish to participate, it is important for you to understand why the study is being conducted and what it will involve. Please take some time to

|                                                                                                                                                                         | Yes | No |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|
| I have read and understood the information provided to me on the information sheet.                                                                                     |     |    |
| I have had an opportunity to ask questions about this research.                                                                                                         |     |    |
| I understand that I can decline to answer any questions.                                                                                                                |     |    |
| I understand that I can withdraw my answers in part or full, anytime within 15 days of the data being collected.                                                        |     |    |
| I am informed of the process to withdraw my data                                                                                                                        |     |    |
| I understand the project's confidentiality limits. The researcher has explained that there is a small chance that someone else may identify my anonymised contribution. |     |    |
| I agree with my data being used in any subsequent work that builds on this current project.                                                                             |     |    |
| I am informed of the data storage and safe keeping process                                                                                                              |     |    |
| I can confirm that I am a health care provider in Nigeria                                                                                                               |     |    |

Fig. 3 Consent form for qualitative study

read the information provided and discuss it with others if you wish. Please ask if there is anything that is not clear, or if you would like more information.

### What is the purpose of the study?

The aims of this study are to explore the issue of Health Literacy, which has been identified as one of the determinants of health, among the general population in Nigeria. The study is part of the researcher's PhD thesis.

### Why have I been chosen?

You have been asked to take part in the study because as a Nigerian, you are part of the system. It is expected that you are a beneficiary and user of the health care in Nigeria and that you are an adult (above 18 years), with the capacity to make informed decision.

**Do I have to take part?**

Taking part is entirely voluntary. If you decide to take part, you will be asked to sign a consent form to conform that you understand the project and are happy to participate. If you decide to take part and then change your mind, you are free to withdraw from the study or withdraw any data you have given within 30 days of participating.

**What will my participation involve?**

Once you have agreed to take part in the study, you will be supplied with any further information you may need about the study.

**What are the possible benefits of taking part?**

The information obtained from this study will be used to determine the state of health literacy in Nigeria, the findings which can be accessed by the stakeholders in health care in Nigeria. This should contribute to healthcare operations in Nigeria. The study should also serve to inform further studies on health literacy in Nigeria.

**What are the possible risks or disadvantages of taking part?**

Participating in this study is not expected to pose any danger nor cause any harm to the participants. The questions are not sensitive and no identifying information will be collected. However, if you feel uncomfortable about any aspect of the questionnaire, you can withdraw from answering the question (s) or from filling the survey altogether without necessarily having to give any reason.

**What if something goes wrong?**

If you have any concerns about any aspect of the way you have been approached or treated during this study, please contact, the Chair of the Research Ethics Committee (REC) at University of Northampton Professor John Horton available at [John.Horton@northampton.ac.uk](mailto:John.Horton@northampton.ac.uk)

**Will my information be kept confidential?**

All the information collected for this study will be anonymised, encrypted and stored securely on a password-protected computer. The anonymised participants should not be identifiable to readers who know the context of the research and the responses cannot be traced back to the participants.

**Who has responsibility over the data collected?**

The researcher has responsibility to the safe keeping of the data all through the period of the research study. This will be done. The data will be stored on sharedpoint, which is a secured storage for data. The data will be kept for five years, after which it will be transferred to the national data bank.

**What will happen to the results of the study?**

The results from this study will be used in the following ways:

- A report will be produced at the end of the study as part of the researcher's PhD thesis.
- The outcome may be presented at conferences.
- It can also be used in further studies on the subject

If you would like to receive a summary of the findings, then please indicate this on the consent form or contact the researcher.

**Who has reviewed the study?**

This study has been reviewed and approved by the ethic committee, University of Northampton, UK.

**What if I want to withdraw my data after completing the survey?**

You are free to withdraw your data up to a month after completing the survey. You will have to generate a code from your name and your birth month (e.g if my name is Deborah Babalola, born on the 15th of August. My code will be DB158). This is to be written at the space provided for it on your copy of the survey. Note that you are not to write your name or any other personal details on the survey. You are to note this code as it is by this that your survey can be identified and retrieved from the others. Note that the researcher cannot identify any of the code with any participants. This is optional.

**Contact for further information:**

If you have any questions about this study or your possible involvement, then please contact me using the contact details below:

Deborah Babalola [deborah.babalola@northampton.ac.uk](mailto:deborah.babalola@northampton.ac.uk)

You can also contact my supervisors with the details below: Dr Tracey Redwood (Assistant Prof.) [Tracey.redwood@northampton.ac.uk](mailto:Tracey.redwood@northampton.ac.uk) Dr Josephine Chen-Wilson [Josephine.Chen-wilson@northampton.ac.uk](mailto:Josephine.Chen-wilson@northampton.ac.uk).

Thank you for considering taking part in this study.