

This work has been submitted to **NECTAR**, the **Northampton Electronic Collection of Theses and Research**.

Article

Title: Development and validation of the Negative Attitudes towards CBT Scale

Creators: Parker, Z. J. and Waller, G.

DOI: [10.1017/S1352465817000170](https://doi.org/10.1017/S1352465817000170)

Example citation: Parker, Z. J. and Waller, G. (2017) Development and validation of the Negative Attitudes towards CBT Scale. *Behavioural and Cognitive Psychotherapy*. 1352-4658.

It is advisable to refer to the [publisher's version](#) if you intend to cite from this work.

Version: Accepted version

Official URL: <https://doi.org/10.1017/S1352465817000170>

<http://nectar.northampton.ac.uk/9284/>



BEHAVIOURAL AND
COGNITIVE PSYCHOTHERAPY



**Development and validation of the Negative Attitudes
towards CBT Scale**

Journal:	<i>Behavioural and Cognitive Psychotherapy</i>
Manuscript ID	BCP-01226-16.R2
Manuscript Type:	Main
Keywords:	cognitive behavioural therapy, clinician attitudes, clinician anxiety, treatment adherence

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Development and validation of the Negative Attitudes towards CBT Scale

Zachary J. Parker¹ and Glenn Waller²

University of Northampton and University of Sheffield

Author Note

¹Zachary J. Parker, Department of Psychology, University of Northampton

²Glenn Waller, Department of Psychology, University of Sheffield

Correspondence concerning this article should be addressed to Zachary Parker, Department
of Psychology, Boughton Green Road, Northampton, NN2 7AL, UK. Contact:
zachary.parker@northampton.ac.uk

Development and validation of the Negative Attitudes towards CBT Scale

Abstract

Background: Clinicians commonly fail to use cognitive-behavioural therapy (CBT) adequately, but the reasons for such omissions are not well understood.

Aims: The objective of this study was to create and validate a measure to assess clinicians' attitudes towards CBT - the Negative Attitudes towards CBT Scale (NACS).

Method: The participants were 204 clinicians from various mental healthcare fields. Each completed the NACS, measures of anxiety and self-esteem, and a measure of therapists' use of CBT and non-CBT techniques and their confidence in using those techniques. Exploratory factor analysis was used to determine the factor structure of the NACS, and scale internal consistency was tested.

Results: A single, 16-item scale emerged from the factor analysis of the NACS, and that scale had good internal consistency. Clinicians' negative attitudes and their anxiety had different patterns of association with the use of CBT and other therapeutic techniques.

Conclusions: The findings suggest that clinicians' attitudes and emotions each need to be considered when understanding why many clinicians fail to deliver the optimum version of evidence-based CBT. They also suggest that training effective CBT clinicians might depend on understanding and targeting such internal states.

Keywords: cognitive behavioural therapy; clinician attitudes; clinician anxiety; treatment adherence

Development and validation of the Negative Attitudes towards CBT Scale

There is substantial evidence that, despite its effectiveness, cognitive behavioural therapy (CBT) is used less often than would be expected (e.g., Tobin, Banker, Weisberg, & Bowers, 2007). Even when they plan to use CBT, clinicians either avoid or underutilize key techniques (Becker, Zayfert, & Anderson, 2004; Finley et al., 2015; Stobie, Taylor, Quigley, Ewing, & Salkovskis, 2007). Several emotional and behavioural factors have been shown to account for this deviation from empirically-supported treatments (EST), including clinician lack of knowledge, clinician anxiety, and poor use of manuals (e.g., Becker et al., 2004; Deacon et al., 2013). However, it will also be important to understand how clinicians’ attitudes to CBT interact with those emotional and behavioural factors.

There is clear evidence that many clinicians hold negative attitudes towards specific elements of EST, and that such attitudes are associated with poorer use of those elements. For example, negative attitudes to exposure therapy (Olatunji, Deacon, & Abramowitz, 2009) and negative attitudes towards therapy manuals in general (Addis, Wade, & Hatgis, 1999) are each associated with a lower likelihood of using the necessary tools. There are well-validated measures of these attitudes to specific elements of EST, such as the Therapist Beliefs about Exposure Scale (TBES; Deacon et al., 2013) and Addis & Krasnow’s (2000) measure of clinicians’ negative and positive attitudes to manuals. These measures confirm that negative attitudes are associated with clinicians’ failure to use elements of EST that are commonly employed in CBT (Addis & Krasnow, 2000; Deacon et al., 2013). However, such measures are limited by their focus on specific CBT tools.

Given humans’ internal drive for consistency of attitudes (Festinger, 1957), it is possible that such beliefs about specific techniques reflect a more general pattern of attitudes towards CBT, and that it might be important and potentially simpler to measure negative attitudes to CBT as a whole, rather than individual elements or techniques. Given the

VALIDATION OF THE NACS

4

underutilization of CBT outlined above, a more general measure of attitudes towards CBT has the potential to improve the quality of services offered by clinicians. It could allow the training of clinicians to be tailored to address any inappropriately negative beliefs about CBT. Similarly, it could guide supervision, providing the supervisor with an awareness of where a supervisee needs support.

Any such measure of attitudes to CBT needs to be understood in the context of other factors that influence such clinical practice. Previous research has indicated the role of clinician anxiety and low self-esteem as factors that are associated with the under-delivery of techniques such as exposure (Feeney, Hembree, & Zoellner, 2003; Koch, Gloster, & Waller, 2007; Levita, Salas Duhne, Girling, & Waller, 2016; Simpson-Southward, Hardy, & Waller, under consideration). It is important to determine the levels to which attitudes and emotional factors might each explain the underutilization of CBT techniques. Obviously, CBT itself has developed as the result of a process of critical analysis of what does and what does not work in therapies. That process of critical analysis is an important one for the continued development of therapies, including CBT. Therefore, any measure of such attitudes should be seen as helping to advance the use of CBT through understanding why individual clinicians do or do not use it appropriately, rather than accepting CBT protocols as being prescriptive lists of what should be done. That approach allows for the possibility that clinician attitudes should be considered as indicating ways in which the evidence might be developed, in order to determine whether recommended practice should be amended in the future.

This study reports the development and validation of a measure to assess negative attitudes towards CBT – the Negative Attitudes to CBT Scale (NACS). Its utility was tested among clinicians treating anxiety disorders. Psychometric properties (factor structure; internal consistency) were tested. A two-factor structure was hypothesised - impact on the

patient experience, and impact on the therapist experience. The clinical validity of the measure was tested against several self-reported variables - first, relative to clinicians' characteristics (e.g., age, gender, anxiety, self-esteem); second, relative to clinicians' reported use of specific treatment techniques (e.g., behavioural techniques). Given previous literature (e.g., Levita et al., 2016), it was hypothesized that clinicians reporting higher anxiety and lower self-esteem would be less likely to use behavioural techniques. However, it is unclear if mood would affect the use of other methods. It was hypothesized that clinicians' higher levels of anxiety and poorer self-esteem would be associated with negative attitudes. However, it was also hypothesized that the effects of attitudes towards CBT on the implementation of behavioural techniques would be above and beyond those of anxiety.

Methods

Ethics

This study received ethical approval from the University of Sheffield, Department of Psychology Research Ethics Committee. The authors of this paper abided by the Ethical Principles of Psychologists and Code of Conduct set out by the American Psychological Association.

Design

This was a cross-sectional study of mental healthcare providers working with anxious clients. The study was conducted using a survey and self-report inventories. Data were analysed using correlational and comparative methods.

Participants

The sample consisted of 204 clinicians who reported that they were working with patients with anxiety disorders. A total of 1965 clinicians were approached directly to participate in this study, via two online databases and four workshops. Five hundred and thirty-seven clinicians from the British Association for Behavioural and Cognitive

VALIDATION OF THE NACS

6

1
2
3 Psychotherapies and 1286 clinicians from the British Psychological Society were approached
4
5 by email to take part in the online version. Of these, 280 clinicians started the study.

6
7
8 Following removal of those who failed to complete the measure, 123 were included for
9
10 analysis.

11
12 A further 142 clinicians were approached via teaching workshops across the UK. Of
13
14 those clinicians, 82 started a paper version of the measure, and 77 were eligible for analysis.
15
16 Four additional responses were collected via snowball sampling methods. All four completed
17
18 the survey online and were included in analysis. Thus, a total of 366 responses (from both
19
20 online and workshops) were collected. Of these, 204 were useable.

21
22
23 The mean age of the 204 participants was 45.92 years ($SD = 10.9$), and 68.1% were
24
25 female. Sixty-four (31.4%) reported being clinical psychologists, 28 (13.7%) were
26
27 counselling psychologists, two (1%) were psychiatrists, 30 (14.7%) were psychiatric nurses,
28
29 four (2%) were clinical social workers, nine (4.4%) were licensed counsellors, 63 (30.9%)
30
31 belonged to some other mental healthcare profession, and four (2%) did not report a core
32
33 profession. Regarding primary theoretical orientation, 161 clinicians (78.9%) reported using
34
35 CBT, six (2.9%) reported using psychodynamic/psychoanalytic approaches, two (1%)
36
37 reported using a humanistic approach, five (2.5%) reported using an existential approach, and
38
39 30 (14.7%) reported using other approaches. The group's mean time qualified was 11.94
40
41 years ($SD = 10.19$). Clinicians worked on average 30.53 hours ($SD = 12.44$) a week.
42
43 Regarding clinical time spent with clients, clinicians reported an average of 12.47 hours (SD
44
45 = 6.78) per week. Clinicians reported a mean of 13 sessions ($SD = 10.91$; range = 1-100)
46
47 with each anxious client before treatment was complete. Regarding supervision, clinicians
48
49 reported receiving 2.61 hours ($SD = 1.92$) of supervision per month, and reported supervising
50
51 others for an average of 5.03 hours ($SD = 9.80$) per month. Regarding session length, the
52
53 most common response ($n = 195$) was that sessions were between 45 and 90 minutes long.
54
55
56
57
58
59
60

Nine clinicians reported session lengths under 45 minutes, and none reported sessions of over 90 minutes.

Measures and Procedure

Each participant completed self-report measures of demographic details, attitudes to CBT, therapy methods used, anxiety, and self-esteem. Responses were included for analysis if participants completed the Negative Attitudes towards CBT Scale (NACS). Considering the unusable responses, most were excluded because the participant did not complete any part of the survey after of the demographics section. A few participants skipped the therapy methods questionnaire (TMQ; see below) but still completed the NACS. Any answers given as a range were averaged (e.g., ‘2-3’ was treated as ‘2.5’). If a written response was unreadable, the item was treated as a missing value. No substitution for missing data points was carried out.

Demographics. All participants were asked to report demographic information. This included details of age, gender, ethnicity, core profession, theoretical orientation, professional accreditation, hours worked per week, hours spent with clients per week, hours spent in supervision (given or receiving), and average session length (i.e., ‘under 45 minutes’, ‘45-90 minutes’, or ‘90 minutes or longer’).

Negative Attitudes towards CBT Scale (NACS). The NACS was developed for this study. The participants completed 20 items that reflect attitudes to CBT (see items in Table 1). Those items were identified from the literature and from clinician and patient online discussion forums (e.g., patient.info, socialanxietysupport.com, anxietyuk.org.uk, etc.). Items were generated based on the theme of concerns and complaints, to avoid excessive overlap between the items. Therefore, some of the items originated from complaints that did not coincide with other complaints or misbeliefs regarding CBT (e.g., 'CBT does not focus on specific disorders'). Each item is rated on a 1-7 scale, with higher scores reflecting more

negative attitudes to CBT (1 = strongly disagree; 4 = neither agree or disagree; 7 = strongly agree). The NACS's preliminary psychometric properties are addressed in this paper.

Insert Table 1 about here

Therapy Methods Questionnaire (TMQ). This scale was designed for a series of studies on clinicians' behaviours in the treatment of anxiety disorders. The TMQ addressed 26 therapy techniques, which clinicians rated (on a 0-100% scale) for how often they used them in clinical work with anxiety disorders (0% = never used, 50% = used in half of such sessions, 100% = used in every session). They were then asked to report (on a 0-100% scale) on how confident they were in using that skill with this group of patients. The 26 items were selected from the current literature and from treatment manuals (Abramowitz, Taylor, McKay, 2012; Clark 2007; Clark & Beck, 2010; Craske & Barlow, 2008; Franklin & Foa, 2008; Kearney 2005; Martin, 2013; Resick, Monson, & Rizvi, 2008; Turk, Heimberg, & Magee 2008; Whittal & Robichaud, 2012). Table 2 shows how the techniques were grouped into scales (e.g., behavioural techniques, cognitive techniques, etc.), and the means and standard deviations for the frequency of use and confidence using those techniques. Each scale had an internal consistency that was in the acceptable range (Cronbach's $\alpha = .71 - .87$) with the exception of the 'confidence in using psychoeducation and general CBT techniques' scale ($\alpha = .59$), suggesting that any results related to this scale should be interpreted with caution.

This measure was included to assess how often techniques were used and the confidence clinicians had using those techniques, and to test the predictive validity of the NACS. The scope of this paper was not to validate this measure, and the study had too few

participants to run a valid factor analysis on a measure with this many items. Nor would it be appropriate to validate two measures at once, as the validity of each would be dependent on the other. This measure was not used to measure competency with individual techniques. In addition to this, the TMQ is retrospective in nature. Therefore, the clinicians’ ratings might not reflect what actually occurs in therapy.

Insert Table 2 about here

Intolerance of Uncertainty Scale – Short form (IUS-12). The IUS-12 (Carleton, Norton, & Asmundson, 2007) is a 12-item self-report measure of intolerance of uncertainty – a core cognitive component of anxiety. It uses five-point Likert scales. It has strong psychometric properties (Carleton et al. 2007; Khawaja & Lai, 2010), and higher scores on the two subscales indicate greater levels of prospective and inhibitory anxiety. Prospective anxiety is uncertainty about future outcomes, while inhibitory anxiety reflects inaction when faced with uncertainty.

Rosenberg Self-Esteem Scale (RSES). The RSES (Rosenberg, 1965) is a 10-item self-report measure of global self-worth. It uses four-point Likert scales, and higher scores indicate greater self-esteem. The RSES is widely used and has strong psychometric properties (Schmitt & Allik, 2005; Sinclair, Blais, Gansler, Sandberg, Bistis, & LocCicero, 2010).

Data Analysis

SPSS version 22 was used for all analyses. Cronbach’s *alpha* was used to determine the internal consistency of the *a priori* subsets of items that were extracted from the Therapy Methods Questionnaire (see above). Exploratory factor analysis was used to determine the

factor structure of the NACS. Principal Axis Factoring was used as the extraction method. No Rotation, Direct Oblimin and Varimax rotations were also carried out to determine whether more meaningful factors emerged¹. Items were accepted as part of a scale if they had an item loading of $\geq .5$ and if the item loading was at least .2 above the loading on any other scale (Comrey & Lee, 1992; Tabaschnick & Fidell, 2007). In order to determine whether any rotation improved factor structure, that rotation would have to result in a more meaningful loading of items onto the resulting factors. However, as none of the above rotations changed which items loaded onto the scales (see below), the original unrotated solution was used. The resulting scales were tested for internal consistency, using Cronbach's *alpha*.

Pearson's correlations (*r*) and *t*-tests were used to determine whether clinicians' dimensional and categorical characteristics (e.g., age, gender) were associated with NACS scores. Pearson's *r* correlations (one-tailed, where applicable) were used to determine the association between clinicians' internal factors (e.g., self-esteem and anxiety) and the NACS. Multiple linear regressions were used to determine which internal states (anxiety, attitudes, self-esteem) were better predictors of technique use and confidence. Finally, multiple linear regressions were used to determine the associations of internal states and theoretical orientation with technique use and confidence.

Results

Factor Structure of the Negative Attitudes towards CBT Scale

Extraction. Table 3 shows results of the factor analysis of the NACS items among the 204 clinicians who completed the measure. Principal Axis Factor Analysis is reported, though it should be noted there was no substantive difference in eigenvalues between extraction methods. Based on recommendations from the literature (eigenvalue > 1 and scree

¹ Additional exploratory factor analysis was run using Principal Component Analysis with no rotation and with a Direct Oblimin rotation. The factor and item loadings were the same as those found with the Principal Axis Factoring, as reported in this paper.

analysis - Kaiser, 1960; Tabaschnick et al. 2007; Yong et al., 2013), two factors emerged. The Kaiser-Meyer-Olkin measure of sampling adequacy was conducted and yielded a result of .934, indicating that the sampling was more than adequate for this testing. Additionally, a Bartlett's test of sphericity was conducted ($\chi^2(190) = 2376.06, P < .001$), indicating that this sample was adequate for factor analysis.

Insert Table 3 about here

Rotation. In addition to no rotation, Varimax and Direct Oblimin rotations were used to determine the best possible factorial structure. Neither rotation improved upon the factor structure found with no rotation, in terms of factors and eigenvalues. Nor did any rotation change the loadings of individual items onto the factors. Given that there is a single valid unitary factor (see below), remaining rotations did not improve upon the factor structure.

Completed scale. While two factors emerged, the second factor consisted of only two items, and was therefore judged to be too small to be meaningful (Tabaschnick et al., 2007; Yong et al., 2013). Consequently, those two items were omitted. In addition, two other items were omitted due to not fitting either factor adequately (item loadings < .5). The remaining 16 items were used to form a single scale, which had a high level of internal consistency (Cronbach's $\alpha = .95$). The NACS score was the mean score on those 16 items (range = 1-7), where higher scores indicated more negative attitudes to CBT. The final measure and scoring system are given in Appendix A.

For the purpose of establishing whether the scale would still be valid if items were missed by respondents, multiple reliability tests were run with items missing. These analyses established that any one or two items can be omitted without impacting the internal

consistency of the resulting scales (Cronbach's $\alpha > .90$ in all cases). Therefore, the scoring system (see appendix A) allows up to two items to be omitted by the respondent, if the item mean is adjusted accordingly (total score/number of items completed).

Association of Negative Attitudes to CBT with Clinician Characteristics

Demographics. Pearson's correlations and t -tests were used to determine whether negative attitudes to CBT (NACS scores) were associated with demographic characteristics (age, years qualified, hours worked, clinical contact hours, average number of sessions with a client, and hours spent giving or receiving supervision). Whatever the therapy offered by the individual clinician, negative attitudes to CBT were associated with the clinician spending fewer hours per week with clients ($r[204] = -.218, P = .002$) and with the clinician spending more sessions with each client before treatment was completed ($r[191] = .153, P = .035$). There were no significant correlations with any other demographic characteristic ($P > .15$ in all cases). Nor was there any association of therapist gender with negative attitudes to CBT (t -test; $t = 1.06, P = .786$).

Theoretical orientation. The therapists were divided into those who described their work as CBT-based ($n = 161$) and all others ($n = 43$). The CBT therapists had a mean NACS score of 1.97 ($SD = .87$), while the non-CBT therapists had a mean score of 3.90 ($SD = 1.1$). An independent-samples t -test showed that the non-CBT clinicians held more negative attitudes towards CBT than the CBT clinicians ($t[202] = 11.6, P < .001$).

Clinicians' internal states. Pearson's correlations were used to determine whether negative attitudes to CBT (NACS scores) were associated with the clinicians' levels of anxiety (IUS scores; prospective anxiety $M = 12.83, SD = 4.11$; inhibitory anxiety $M = 8.18, SD = 3.01$) and self-esteem (RSES scores; $M = 32.55, SD = 4.90$). Prospective anxiety was positively associated with NACS scores ($r = .128, n = 202$, one-tailed $P = .034$). However, neither inhibitory anxiety or RSES scores correlated significantly with NACS scores (IUS

Inhibitory anxiety: $r = .045$, $P = .52$; RSES: $r = -.081$, $P = .25$).

Associations between internal states and techniques

Multiple linear regressions were used to determine whether attitudes (NACS scores) or other internal traits (i.e., anxiety and self-esteem) predicted technique use. Table 4 shows the associations between clinician internal traits and each cluster of technique types.

Insert Table 4 about here

Considering the clinicians’ reported use of the different types of technique, there were two patterns of association. First, more negative attitudes towards CBT (i.e., higher scores on the NACS) predicted less frequent use of psychoeducation and cognitive techniques. In contrast, higher levels of clinician anxiety predicted lower use of behavioural techniques.

The pattern of findings relating to confidence in using CBT methods was different. Table 3 shows that both high self-esteem and low anxiety were associated with clinicians having greater confidence in using all techniques (CBT or non-CBT). Negative attitudes towards CBT (NACS score) were predictive only of greater confidence in using non-CBT techniques.

Associations between clinician characteristics and techniques used

In order to determine whether clinicians’ theoretical orientation added to these effects of emotions and attitudes, further multiple linear regressions were conducted, as shown in Table 5 (‘CBT’ as an orientation was omitted, to reduce the risk of multicollinearity). The existing effects of NACS scores and mood were essentially unchanged. However, it is noteworthy that clinicians who described their orientation as ‘psychodynamic’ were less likely to use a range of CBT techniques, though there was no impact of this orientation on

confidence in use of the different techniques.

Insert Table 5 about here

Discussion

This study has developed a measure to assess clinicians' attitudes towards CBT – the Negative Attitudes toward CBT Scale (NACS). Clinicians treating anxiety disorders were asked to complete the NACS and to report on the therapy techniques that they used. The NACS had a single factor, with strong internal consistency. Validation included testing associations with clinicians' characteristics and with their reported use of CBT and non-CBT techniques. Clinicians who reported CBT as their primary theoretical orientation reported less negative attitudes towards CBT than clinicians who reported using other approaches, while clinicians' prospective anxiety was associated with negative attitudes to CBT. More time spent with patients overall and fewer sessions offered to patients were also correlated with less negative attitudes to CBT.

Attitudes to CBT and emotional factors appeared to play different roles in clinicians' implementation of CBT and non-CBT techniques. Negative attitudes to CBT were associated with less frequent use of general/psychoeducational and cognitive methods, while anxiety (intolerance of uncertainty) was associated with lower use of behavioural methods. In contrast, confidence in using CBT methods was more consistently associated with low anxiety and positive self-esteem. Confidence using non-CBT methods was associated with negative attitudes to CBT, low anxiety, and positive self-esteem.

Overall, these findings support and extend the conclusion (e.g., Deacon et al., 2013) that negative attitudes to CBT affect how clinicians deliver this empirically-supported

therapy, taking it away from protocol. This relationship could be bidirectional in nature. For example, negative attitudes could cause a decreased use of CBT techniques, while an increased use of techniques could cause a decrease in negative attitudes. However, such attitudes need to be considered alongside other factors. A particular concern is the association of a higher level of clinician anxiety with a reduced use of behavioural CBT methods for the treatment of anxiety disorders, as has been shown elsewhere for anxiety and other disorders (e.g., Meyer, Farrell, Kemp, Blakey, & Deacon, 2014; Turner, Tatham, Lant, Mountford, & Waller, 2014; Waller, Stringer, & Meyer, 2012). Given research into the role anxiety plays in the use of exposure techniques (e.g., Feeney et al., 2003; Koch et al., 2007; Levita, et al., 2016), it is not surprising that clinician anxiety (and not negative attitudes) is strongly associated with the less frequent delivery of behavioural techniques. Therefore, the utility of the NACS as a means of understanding the general attitudes that underpin clinicians' delivery of therapy is likely to be enhanced by combining it with measures of their emotional status (e.g., anxiety). The NACS's clinical utility might also be enhanced by combining it with measures of more technique-specific attitudes (e.g., Addis & Krasnow, 2000; Deacon et al., 2013).

Clinically, the NACS has the potential to be used in a number of ways to enhance the delivery of CBT. In supervision and training in the delivery of CBT, the NACS and IUS in combination give clinicians and teachers a means of identifying likely issues with adherence to different elements of empirically-supported treatment. Therefore, this tool could be used to enhance the learning and delivery of CBT. Such attitudes and emotional factors could be addressed through appropriate adjustments to training programmes, including didactic methods (e.g., Deacon et al., 2013) or more complex packages of educational and experiential methods (e.g., Farrell et al., 2013). This tool can also be used as pre/post measure for CBT educators and supervisors to identify the impact of their teaching and supervision. Similarly,

a focus on such attitudinal and emotional measures might help clinicians to terminate therapy at an appropriate point rather than continuing seeing patients for longer (e.g., Turner et al., 2014). Finally, the NACS and IUS might be used as means of determining whether particular individuals are a good or bad fit for CBT-specific training programmes.

Despite the NACS's potential for clinical use, as outlined above, it is important to consider the developing nature of CBT and the need to accept the case for change when it is justified. The NACS reflects best practice as it is currently understood in CBT for anxiety disorders, but should not be seen as prescriptive. Many clinical developments result from the work of clinicians who evaluate their own outcomes and demonstrate new approaches that can improve those outcomes more widely. Thus, negative attitudes to existing practice cannot be seen as wrong in themselves. However, if they result in therapist drift without such justification, then they are potentially problematic. Supervision and training should encourage clinicians to support their negative attitudes with empirical evidence, rather than simply accepting or rejecting those attitudes.

These findings need to be replicated and extended. It will be important to determine whether the NACS is useful when applied to understanding how clinicians work with other disorders (e.g., depression; psychosis), and to determine whether the NACS's utility generalises across professional groups (and potentially even theoretical orientations). Such studies would be augmented by the use of real-world longitudinal methods and experimental vignette designs, each of which would give clearer evidence of the validity of the conclusion that clinicians' attitudes and emotional states have a causal impact on their use of CBT techniques. It is also important to consider how well the NACS predicts the actual use of techniques before using it in training or supervision. As this study only details what clinicians reported using, it will be necessary to validate the NACS in tandem with observation of actual practice. Given the relatively few non-CBT therapists involved in this

study, future studies would need to address the generalizability of these findings by ensuring the inclusion of other orientations not represented here. The impact of training of clinicians might be assessed using the NACS before and after teaching sessions, to determine whether changes in attitudes to CBT result in more effective delivery of evidence-based CBT methods.

Conflict of interest

The authors have no conflict of interest with respect to this publication.

References

- Abramowitz, J. S., Taylor, S., & McKay, D.** (2012). Exposure-based treatment for obsessive compulsive disorder. In G. Steketee (Ed.), *The Oxford handbook of obsessive compulsive and spectrum disorders* (pp. 322-344). New York, NY: Oxford University Press.
- Addis, M. E., & Krasnow, A. D.** (2000). A national survey of practicing psychologists' attitudes towards psychotherapy treatment manuals. *Journal of Consulting and Clinical Psychology, 68*, 331-339. doi: 10.1036//0022-006x.68.2
- Addis, M. E., Wade, W. A., & Hatgis, C.** (1999). Barriers to dissemination of evidence-based practices: Addressing practitioners' concerns about manual-based psychotherapies. *Clinical Psychology, 6*, 430-441. doi: 10.1093/clipsy.6.4.430
- Becker, C. B., Zayfert, C., & Anderson, E.** (2004). A survey of psychologists' attitudes towards and utilization of exposure for PTSD. *Behavioural Research and Therapy, 42*, 277-292. doi: 10.1016/S0005-7967(03)00138-4
- Carleton, R. N., Norton, M. A., & Asmundson, G. J. G.** (2007). Fearing the unknown: A short version of the Intolerance of Uncertainty Scale. *Journal of Anxiety Disorders, 21*, 105-117. doi: 10.1016/j.janxdis.2006.03.014
- Clark, D. A., & Beck, A. T.** (2010). *Cognitive therapy of anxiety disorders: Science and practice* (paperback ed.). New York, NY: The Guilford Press.
- Comrey, L. A., & Lee, H. B.** (1992). *A first course in factor analysis* (2nd ed.). Hillside, NJ: Lawrence Erlbaum Associates.
- Craske, M. G., & Barlow, D. H.** (2008). Panic disorder and agoraphobia. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed. pp. 1-64). New York, NY: The Guilford Press.
- Deacon, B. J., Farrell, N. R., Kemp, J. J., Dixon, L. J., Sy, J. T., Zhang, A. R., &**

McGrath, P. B. (2013). Assessing therapist reservations about exposure therapy for anxiety disorders: The Therapist Beliefs about Exposure Scale. *Journal of Anxiety Disorders*, 27, 772-780. doi: 10.1016/j.janxdis.2013.04.006.

Farrell, N. R., Deacon, B. J. Dixon, L. J., & Lickel, J. J. (2013). Theory-based training strategies for modifying practitioner concerns about exposure therapy. *Journal of Anxiety Disorders*, 27,781-787. doi: 10.1016/j.janxdis.2013.09.003

Feeny, N. C., Hembree, E. A., & Zoellner, L. A. (2003). Myths regarding exposure therapy for PTSD. *Cognitive and Behavioral Practice*, 10, 85-90.

Festinger, L. (1957). *A Theory of cognitive dissonance*. Stanford, CA: Stanford University Press.

Finley, E. P., Garcia, H. A., Ketchum, N. S., McGeary, D. D., McGeary, C. A., Stirman, S., & Peterson, A. L. (2015). Utilization of evidence-based psychotherapies in veterans affairs posttraumatic stress disorder outpatient clinics. *Psychological Services*, 12, 73-82. doi: 10.1037/ser0000014

Franklin, M. E., & Foa, E. B. (2008). Obsessive-compulsive disorder. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed. pp. 164-215). New York, NY: The Guildford Press.

Kaiser, H. F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement*, 20, 141-151. doi: 10.1177/001316446002000116

Kearney, C. A. (2005). *Social anxiety and social phobia in youth: Characteristics, assessment, and psychological treatment*. Available from <http://www.springer.com/us/book/9780387225913>

Koch, E. I., Gloster, A. T., & Waller, S. A. (2007). Exposure treatments for panic disorder with and without agoraphobia. In D. S. Richard & D. Lauterbach (Eds.). *Comprehensive Handbook of Exposure Therapies*. New York, NY: Academic Press.

- Kosmerly, S., Waller, G., & Robinson, A. L.** (2015). Clinician adherence to guidelines in the delivery of family-based therapy for eating disorders. *International Journal of Eating Disorders*, 48, 223-229. doi: 10.1002/eat.22276.
- Khawaja N. G., & Lai, N. H.** (2010). A comparison of the 27-item and 12-item Intolerance of Uncertainty Scales. *Clinical Psychologist*, 14, 97-106.
- Levita, L., Salas Duhne, P. G., Girling, C., & Waller, G.** (2016). Facets of clinicians' anxiety and the delivery of cognitive behavioral therapy. *Behaviour Research and Therapy*, 77, 157-161. doi: 10.1016/j.brat.2015.12.015
- Martin, B.** (2013). Treatment of anxiety. *Low intensity cognitive behaviour therapy: A practitioner's guide* (pp. 218-252). Los Angeles: LA: Sage.
- Meyer, J. M., Farrell, N. R., Kemp, J. J., Blakey, S. M., & Deacon, B. J.** (2014). Why do clinicians exclude anxious clients from exposure therapy? *Behaviour Research and Therapy*, 54, 49-53. doi: 10.1016/j.brat.2014.01.004
- Olantunji, B. O., Deacon, B. J., & Abramowitz, J. S.** (2009). The cruelest cure? Ethical issues in the implementation of exposure-based treatments. *Cognitive and Behavioural Practice*, 16, 172-180. doi: 10.1016/j.cbpra.2008.07.003
- Resick, P. A., Monson, C. M., & Rizvi, S. L.** (2008). Posttraumatic stress disorder. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed. pp. 65-122). New York, NY: The Guilford Press.
- Rosenberg, M.** (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Schmitt, D. P., & Allik, J.** (2005). Simultaneous administration of the Rosenberg Self-Esteem Scale in 53 nations: Exploring the universal and culture-specific features of global self-esteem. *Journal of Personality and Social Psychology*, 89, 623-642. doi: 10.1037/0022-3514.89.4.623

Simpson-Southward, C., Hardy, G., & Waller, G. (under consideration). The impact of case presentation and intra-individual factors on how supervisors guide clinicians in treatment of depressed cases. *The Cognitive Behaviour Therapist*.

Sinclair, S. J., Blais, M. A., Gansler, D. A., Sandberg, E., Bistis, K., & LoCicero, A. (2010). Psychometric properties of the Rosenberg Self-Esteem Scale: Overall and across demographic groups living within the United States. *Evolution and the Health Professions*, 33, 56-80. doi: 10.1177/0163278709356187

Stobie, B., Taylor, T., Quigley, A., Ewing, S., & Salkovskis, P. M. (2007). “Contents may vary”: A pilot study of treatment histories of OCD patients. *Behavioural and Cognitive Psychotherapy*, 35, 272-282

Tabaschnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). Boston, MA: Allyn & Bacon.

Tobin, D. L., Banker, J. D., Weisberg, L., & Bowers, W. (2007). I know what you did last summer (and it was not CBT): A factor analytic model of international psychotherapeutic practice in eating disorders. *International Journal of Eating Disorders*, 40, 754-757. doi: 10.1002/eat.20426.

Turk, C. L., Heimberg, R. G., & Magee, L. (2008). Social anxiety disorder. In D. H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step-by-step treatment manual* (4th ed. pp. 123-163). New York, NY: The Guilford Press.

Turner, H., Tatham, M., Lant, M., Mountford, V. A., & Waller, G. (2014). Clinicians’ concerns about delivering cognitive-behavioural therapy for eating disorders. *Behaviour Research and Therapy*, 57, 38-42. doi: 10.1016/j.brat.2014.04.003

Yong, A. G., & Pearce, S. (2013). A beginner’s guide to factor analysis: Focusing on exploratory factor analysis. *Tutorials in Quantitative Methods in Psychology*, 9, 79-94.

Waller, G., Stringer, H., & Meyer, C. (2012). What cognitive behavioural techniques do therapist report using when delivering cognitive behavioral therapy for eating disorders? *Journal of Consulting and Clinical Psychology*, 80, 171-175. doi: 10.1037/a0026559

Whittal, M. L., & Robichaud, M. (2012) Cognitive treatment for OCD. In G. Steketee (Ed.), *The Oxford handbook of obsessive compulsive and spectrum disorders* (pp. 345-364). New York, NY: Oxford University Press.

Table 1
Means (*SD*) and ranges of scores on the Negative Attitudes towards CBT Scale (*N* = 204).

Items		Mean (<i>SD</i>)	Range
Cognitive behaviour therapy (CBT)...			
1	is too complicated	2.0 (1.24)	5
2	focuses too much on large and/or complicated psychological problems	1.76 (1.14)	6
3	is dehumanizing	1.80 (1.44)	6
4	limits the therapist	2.59 (1.88)	6
5	uses a one-size-fits-all approach	2.85 (1.93)	6
6	is no more effective than using interventions that are based on my clinical expertise	2.59 (1.68)	6
7	has conflicting research on what methods/interventions to use	3.33 (1.64)	6
8	asks the client to do homework that is too hard	2.02 (1.23)	5
9	is a simplified version of psychodynamic therapy	1.66 (1.07)	5
10	does not work as well among patients from minority groups	2.81 (1.59)	6
11	is restricted by the use of treatment manuals and protocols	2.89 (1.84)	6
12	does not work for comorbid cases	2.41 (1.55)	6
13	is the therapist telling the client what to do	2.14 (1.57)	6
14	is too hard to implement in real-life settings	1.99 (1.33)	6
15	downplays emotions and over-emphasizes logical thought	2.69 (1.84)	6
16	doesn't focus on specific disorders	1.73 (1.12)	5
17	offers no hard evidence to support many of its claims	1.91 (1.36)	6
18	is superficial and does not get at the underlying core problems	2.46 (1.89)	6
19	only works for those who fit a specific profile	2.69 (1.73)	6
20	is too stressful for clients	2.09 (1.33)	5

Table 2

Mean levels of use of and confidence in using each therapy technique (grouped by subscale).

Cluster Technique	Frequency		Confidence	
	Mean	SD	Mean	SD
<i>Psychoeducation and General CBT Techniques</i>				
Set an agenda for the session	63.05	36.14	77.41	27.61
Give the client homework	74.33	29.36	84.58	18.23
Draw diagrams explaining the problem, which link thoughts, feelings and behaviours	62.83	31.18	85.71	17.05
Draw diagrams showing the patterns your client has in relating to people	32.79	29.75	63.35	33.93
Have your client do reading on their anxiety problem	49.88	32.36	79.27	25.27
Help your client to develop new skills or to regain former skills	66.72	27.84	81.53	18.17
Overall mean for subscale	58.37	19.87	78.64	15.02
<i>Cognitive Techniques</i>				
Have your client keep thought records or diaries	57.51	30.30	82.94	19.63
Address the meaning attached to thoughts	71.98	26.43	83.02	18.09
Work with your client to alter interpretation of thoughts	62.85	34.10	76.87	26.86
Concentrate on anxiety-producing beliefs	64.29	28.57	80.73	19.86
Overall mean for subscale	64.19	23.76	80.87	16.11
<i>Behavioural Techniques</i>				
Use <i>in vivo</i> exposure techniques in your office	43.35	30.19	74.62	24.40
Use imaginal exposure techniques in your office	44.80	31.85	72.28	28.53
Have your client do exposure exercises outside the office with you present	29.64	30.64	73.14	28.46
Use flooding as a form of exposure	13.01	25.87	43.84	40.45
Use systematic desensitization as a form of exposure	46.28	34.03	70.45	32.76
Overall mean for subscale	35.33	23.13	66.67	24.08
<i>Non-CBT Techniques</i>				
Explore patterns of relating to people in the client's life	59.43	31.90	76.70	26.26
Use reflective listening	82.43	27.63	84.82	21.70
Offer unconditional positive regard	77.65	28.66	84.83	21.29
Explore the client's childhood, in order to understand the present better	46.46	31.28	76.60	26.95
Use silence as a therapeutic tool	27.52	29.68	59.56	36.39
Remain silent for most of the session, allowing your clients to talk freely about whatever was on their mind at the time	16.23	24.72	49.59	41.19
Focus on transference and the emotional relationship in the room	32.69	31.81	57.34	33.97
Focus on defence mechanisms	34.15	32.28	58.28	34.76
Spend time in sessions looking at problems other than the anxiety disorder itself (e.g., relationship problems)	39.69	29.30	70.25	30.15
Role-play where the client plays someone else and the therapist plays the client	24.62	25.91	63.18	32.58
Overall mean for subscale	43.96	15.38	66.05	20.72

Table 3
Principal Axis Factoring Analysis of the Negative Attitudes towards CBT Scale (*N* = 204),
with item mean score and internal consistency (Cronbach’s *alpha*) of resulting scale.

Items		Factor 1	Factor 2	Extracted
		Negative	Scope of	Communalities
Cognitive behaviour therapy (CBT)...		Attitudes	CBT	
1	is too complicated	.374	.801	.782
2	focuses too much on large and/or complicated psychological problems	.371	.601	.500
3	is dehumanizing	.715	-.063	.516
4	limits the therapist	.776	-.070	.606
5	uses a one-size-fits-all approach	.818	-.119	.682
6	is no more effective than using interventions that are based on my clinical expertise	.601	-.008	.361
7	has conflicting research on what methods/interventions to use	.453	.141	.225
8	asks the client to do homework that is too hard	.679	.045	.463
9	is a simplified version of psychodynamic therapy	.421	.025	.178
10	does not work as well among patients from minority groups	.570	.147	.347
11	is restricted by the use of treatment manuals and protocols	.695	-.037	.484
12	does not work for comorbid cases	.763	-.108	.594
13	is the therapist telling the client what to do	.734	-.060	.542
14	is too hard to implement in real-life settings	.783	.058	.617
15	downplays emotions and over-emphasizes logical thought	.776	-.148	.624
16	doesn’t focus on specific disorders	.652	-.154	.449
17	offers no hard evidence to support many of its claims	.667	-.012	.446
18	is superficial and does not get at the underlying core problems	.855	-.114	.744
19	only works for those who fit a specific profile	.785	-.152	.640
20	is too stressful for clients	.698	.052	.489
Eigenvalue		9.57	1.54	-
Variance explained		47.85%	7.7%	-
Cronbach’s <i>alpha</i>		.945	.742	-
Item mean (<i>SD</i>)		2.35 (1.19)	3.75 (2.13)	-

Table 4.

Associations between clinicians' internal states (anxiety, attitudes, self-esteem) and techniques (use and confidence).

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
<i>Use of techniques</i>						
All CBT techniques	14.01***	17.1	NACS	6.20	-.413	<.001
			IUS	1.30	-.102	.181
			RSES	0.82	-.062	.411
Psychoeducation and general CBT techniques	17.97***	21.0	NACS	7.16	-.462	< .001
			IUS	0.80	-.059	.427
			RSES	1.64	-.121	.102
Cognitive techniques	8.45***	10.3	NACS	4.98	-.341	<.001
			IUS	0.79	.062	.429
			RSES	0.52	-.040	.607
Behavioural techniques	4.31**	4.90	NACS	1.59	-.113	.113
			IUS	2.22	-.180	.028
			RSES	0.72	.058	.473
Non-CBT techniques	3.98**	4.50	NACS	2.03	.145	.044
			IUS	1.81	-.147	.073
			RSES	1.28	.104	.203
<i>Confidence using techniques</i>						
All CBT techniques	12.44***	15.8	NAC	1.04	-.071	.300
			IUS	2.61	-.202	.010
			RSES	3.40	.263	.001

VALIDATION OF THE NACS

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
Psychoeducation and general CBT techniques	9.22***	11.5	NACS	1.27	.088	.205
			IUS	2.18	-.172	.030
			RSES	2.81	.220	.006
Cognitive techniques	4.92**	5.80	NACS	1.20	-.085	.230
			IUS	.872	-.071	.384
			RSES	2.53	.204	.012
Behavioural techniques	10.38***	13.2	NACS	0.59	-.041	.554
			IUS	2.78	-.219	.006
			RSES	2.77	.217	.006
Non-CBT techniques	15.82***	19.6	NACS	3.14	.210	.002
			IUS	2.24	-.171	.027
			RSES	4.22	.001	.321

Note: IUS = total scores on the Intolerance to Uncertainty scale. NACs = scores on the Negative Attitudes towards CBT scale. RSES = scores on the Rosenberg Self-Esteem Scale.
** *P* < .01 (2- tailed), *** *P* < .001 (2-tailed)

Table 5.

Associations between clinicians' characteristics (attitudes, emotions and theoretical orientation) and techniques (use and confidence).

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
<i>Use of techniques</i>						
All CBT techniques	8.21***	21.1	NACS	2.73	-.236	.007
			IUS	1.69	-.128	.092
			RSES	0.58	-.044	.563
			Psychodynamic	3.54	-.259	.001
			Humanistic	0.39	-.025	.700
			Existential	1.13	-.079	.260
			Other	1.87	-.148	.063
Psychoeducation and general CBT techniques	11.31***	27.3	NACS	3.05	-.254	.003
			IUS	1.37	-.098	.172
			RSES	1.33	-.096	.184
			Psychodynamic	4.13	-.288	< .001
			Humanistic	1.33	-.083	.186
			Existential	0.66	-.045	.510
			Other	2.77	-.208	.006
Cognitive techniques	4.66***	11.7	NACS	2.10	-.190	.037
			IUS	0.59	.046	.559
			RSES	0.08	-.006	.910
			Psychodynamic	2.04	-.155	.043
			Humanistic	1.11	-.076	.271
			Existential	1.48	-.110	.140
			Other	1.75	-.143	.082

VALIDATION OF THE NACS

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
Behavioural techniques	2.46*	5.1	NACS	1.10	-.104	.271
			IUS	2.13	-.175	.035
			RSES	0.51	.042	.610
			Psychodynamic	1.07	-.085	.288
			Humanistic	1.40	.101	.162
			Existential	0.47	-.036	.640
			Other	0.58	.050	.561
Non-CBT techniques	2.81**	6.3	NACS	0.84	.078	.404
			IUS	1.34	-.110	.181
			RSES	1.41	.117	.159
			Psychodynamic	2.15	.171	.033
			Humanistic	0.25	.018	.803
			Existential	1.25	-.095	.215
			Other	0.73	.063	.464
<i>Confidence using techniques</i>						
All CBT techniques	5.59***	14.9	NACS	1.43	-.132	.155
			IUS	2.41	-.190	.017
			RSES	3.16	.252	.002
			Psychodynamic	0.57	.042	.571
			Humanistic	0.34	.024	.735
			Existential	0.22	-.017	.823
			Other	1.28	.109	.201

VALIDATION OF THE NACS

3

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
Psychoeducation and general CBT techniques	4.60***	11.8	NACS	1.88	-.171	.062
			IUS	2.21	-.175	.029
			RSES	2.59	.208	.010
			Psychodynamic	1.07	.080	.287
			Humanistic	1.15	-.080	.252
			Existential	1.29	.097	.200
			Other	1.00	.084	.319
Cognitive techniques	2.22*	4.3	NACS	0.98	-.092	.327
			IUS	0.85	-.070	.395
			RSES	2.30	.192	.023
			Psychodynamic	0.47	-.036	.638
			Humanistic	0.78	.056	.437
			Existential	0.16	.012	.873
			Other	0.26	.023	.793
Behavioural techniques	5.85***	15.5	NACS	1.44	-.131	.151
			IUS	2.44	-.191	.016
			RSES	2.55	.203	.012
			Psychodynamic	0.99	.074	.321
			Humanistic	0.91	.062	.367
			Existential	1.07	-.080	.288
			Other	2.22	.186	.028

VALIDATION OF THE NACS

Dependent variable	Overall effect		Independent variable	<i>t</i>	<i>Beta</i>	<i>P</i>
	<i>F</i>	% variance explained				
Non-CBT techniques	7.15***	19.1	NACS	0.89	.080	.373
			IUS	2.02	-.157	.045
			RSES	3.44	.271	.001
			Psychodynamic	1.64	.120	.102
			Humanistic	0.22	.015	.829
			Existential	0.62	.045	.535
			Other	2.23	.185	.027

Note: IUS = total scores on the Intolerance to Uncertainty scale. NACs = scores on the Negative Attitudes towards CBT scale. RSES = scores on the Rosenberg Self-Esteem Scale.
* $P < .05$ (2-tailed), ** $P < .01$ (2- tailed), *** $P < .001$ (2-tailed)

Appendix A

Negative Attitudes towards CBT Scale

We are interested on your views on CBT. Please rate how accurate you find the following statements that clinicians have made elsewhere:

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Neither Agree or Disagree	Slightly Agree	Moderately Agree	Strongly Agree
Cognitive behaviour therapy (CBT)...							
1) ... is dehumanizing	1	2	3	4	5	6	7
2) ... limits the therapist	1	2	3	4	5	6	7
3) ... uses a one-size-fits-all approach	1	2	3	4	5	6	7
4) ... is no more effective than using interventions that are based on my clinical expertise	1	2	3	4	5	6	7
5) ... asks the client to do homework that is too hard	1	2	3	4	5	6	7
6) ... does not work as well among patients from minority groups	1	2	3	4	5	6	7
7) ... is restricted by the use of treatment manuals and protocols	1	2	3	4	5	6	7
8) ... does not work for comorbid cases	1	2	3	4	5	6	7
9) ... is the therapist telling the client what to do	1	2	3	4	5	6	7
10) ... is too hard to implement in real-life settings	1	2	3	4	5	6	7
11) ... downplays emotions and over-emphasizes logical thought	1	2	3	4	5	6	7
12) ... doesn't focus on specific disorders	1	2	3	4	5	6	7
13) ... offers no hard evidence to support many of its claims	1	2	3	4	5	6	7
14) ... is superficial and does not get at the underlying core problems	1	2	3	4	5	6	7
15) ... only works for those who fit a specific profile	1	2	3	4	5	6	7
16) ... is too stressful for clients	1	2	3	4	5	6	7

NACS scoring key:

- All items are positively scored 1-7
- The Negative Attitudes towards CBT scale only has one factor.
- The overall score is the mean of all 16 items (total the 16 items and divide by 16).
- Up to two items can be missed from this scale, and the 25 scale mean can be adjusted accordingly. However, if more are missing, then the scores are invalid.