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**Clinician and patient characteristics and cognitions that influence weighing practice in  
cognitive-behavioral therapy for eating disorders**

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Running head: WEIGHING PATIENTS IN CBT-ED

1 **Clinician and patient characteristics and cognitions that influence weighing practice in**  
2 **cognitive-behavioral therapy for eating disorders**

3  
4 **Abstract**  
5

6 **Objective:** Clinicians commonly fail to weigh patients appropriately in cognitive-behavioral  
7 therapy for eating disorders (CBT-ED), despite guidelines stressing the need to do so. This  
8 study considered the possible patient- and clinician-based reasons why this element of  
9 treatment is omitted.

10 **Method:** Seventy-four CBT-ED clinicians were presented with vignettes that varied in patient  
11 diagnosis and distress levels, to determine whether those characteristics influenced different  
12 clinician weighing practices. Clinicians' own attitudes to weighing and their anxiety levels were  
13 also assessed, to determine whether they were related to weighing intentions.

14 **Results:** Clinicians were more likely to weigh patients with anorexia nervosa than patients with  
15 bulimia nervosa, probably due to focusing on physical risk. However, they were less likely to  
16 weigh patients who were distressed at the prospect, despite that course of action being  
17 particularly clinically indicated. Clinicians were more likely to weigh patients if they had positive  
18 beliefs about the value of doing so, and if they were not prone to making unsupported  
19 exceptions in delivering this technique.

20 **Discussion:** This study provides evidence that clinicians use weighing differently according to  
21 the patient's presentation and their own beliefs, rather than working within guidelines.  
22 Education, training and supervision are suggested to help clinicians address this failure to  
23 weigh patients in the most therapeutic way.

24  
25 Key words: Weighing; anorexia nervosa; bulimia nervosa; beliefs; distress

1 **Clinician and patient characteristics and cognitions that influence weighing practice in**  
2 **cognitive-behavioral therapy for eating disorders**

3  
4 Eating disorders are serious mental health conditions, which have significant personal  
5 and societal, health and economic costs (Beat, 2015; National Institute for Health and Care  
6 Excellence [NICE], 2017). While they can be life-long if left untreated, eating disorders often  
7 respond to treatment, with over 45% of individuals with anorexia nervosa or bulimia nervosa  
8 making a full recovery (Steinhausen, 2002; Steinhausen, & Weber, 2009). Therefore, it is  
9 important that evidence-based, effective treatment should be offered and delivered to patients  
10 with eating disorders. Cognitive-behavioral therapy for eating disorders (CBT-ED) currently  
11 has the strongest evidence base for adult patients (e.g., Hay, 2013). It is the most widely  
12 recommended treatment for adults with eating disorders, including anorexia nervosa and  
13 bulimia nervosa (NICE, 2017). However, CBT-ED is commonly delivered poorly, with key  
14 elements being omitted in routine practice (e.g., Mulkens, de Vos, de Graaff & Waller, 2018;  
15 Waller, Stringer & Meyer, 2012).

16 A key element of evidence-based CBT-ED is regular, open weighing of the patient, so  
17 that the patient is aware of their weight and can connect it more accurately to their eating  
18 pattern. Such open weighing acts as an exposure-based intervention for anxiety about weight,  
19 as well as allowing the patient to test their beliefs about weight rising out of control, whatever  
20 is eaten (Waller & Mountford, 2015).

21 Unfortunately, when reporting on routine clinical practice, patients and clinicians alike  
22 report that many clinicians offering CBT do not weigh their patients at all (e.g., Cowdrey &  
23 Waller, 2015; Mulkens et al., 2018; Waller et al., 2012) or weigh them blindly, without telling  
24 the patient their weight (Forbush, Richardson & Bohrer, 2015). These deviations from protocol  
25 are likely to mean that many patients do not get the optimum experience of CBT-ED, as they  
26 do not experience the emotional or cognitive challenges that open weighing can afford them.

27 Such failure to deliver the behavioral elements of an intervention is a common pattern  
28 when clinicians 'drift' from evidence-based treatment (Waller, 2009). Therapist drift has been

1 linked to a number of clinician characteristics (Waller & Turner 2016) – particularly their  
2 cognitions and emotions (especially anxiety). Therefore, it is possible that these clinician  
3 characteristics might influence clinicians' weighing behaviors when delivering CBT-ED.  
4 However, it is also possible that clinicians' weighing practices are influenced by patients'  
5 characteristics. One such characteristic is diagnosis, where the patient's level of physical risk  
6 due to being underweight (e.g., collapse, cardiac complications) might mean that clinicians are  
7 more likely to weigh the patient (Forbush et al., 2015). Another potential characteristic that  
8 might influence clinicians' weighing behaviors is the patient's emotional state, where greater  
9 distress might make clinicians withdraw from asking the patient to undertake any task that they  
10 fear might worsen that distress (e.g., Turner et al., 2014). Such concerns on the part of  
11 clinicians are likely to result in their making 'broken leg exceptions' (Meehl, 1973), whereby  
12 they conclude that open weighing is not applicable to this particular client, despite a lack of  
13 evidence to justify such exceptions (Meyer, Farrell, Kemp, Blakey & Deacon, 2014).

14 To summarise, despite the clear importance of weighing patients (Waller & Mountford,  
15 2015), the evidence to date suggests that weighing practices are inconsistent in CBT-ED.  
16 Clinicians' decisions about whether and how to weigh their patients in CBT-ED appear to be  
17 influenced by patient and clinician characteristics. A number of clinician characteristics should  
18 be considered. For example, older and male clinicians are more likely to use exposure-based  
19 methods such as weighing (van Minnen et al., 2010). Professions where training includes more  
20 behavioural elements (psychology, nursing, dietetics) are also more likely to use weighing. In  
21 contrast, clinicians who have higher levels of anxiety, do not value open weighing and who  
22 tend to make exceptions for patients are less likely to use weighing appropriately. However,  
23 the evidence to date is largely correlational.

24 Therefore, this study aimed to determine the links between patient characteristics  
25 (diagnosis and distress) and clinicians' stated intentions to weigh the patient. The design  
26 involved manipulating case detail via vignette presentations. The study also examined the role  
27 of clinician emotion (anxiety) and beliefs in determining those intentions to weigh. The beliefs  
28 included 'broken leg exceptions' (irrelevant pseudo-justifications for not using a therapeutic

1 method) and broader beliefs about the benefits and drawbacks of open weighing. It was  
2 hypothesised that: 1) clinicians would weigh patients differently according to whether they were  
3 diagnosed with anorexia nervosa or bulimia nervosa; 2) clinicians would be less likely to weigh  
4 patients who were highly distressed, particularly if that distress was specifically focused on  
5 weight; and 3) clinician characteristics (age, gender, experience, discipline, anxiety, beliefs  
6 about open weighing, and 'broken leg exceptions') would be associated with their planned  
7 weighing behaviors. Given the clear task demands, it was expected that the overall level of  
8 reported appropriate weighing behavior would be higher than is reported in surveys (e.g.,  
9 Mulkens et al., 2018). However, the manipulation should be effective over and above any  
10 elevation of overall reporting of appropriate weighing.

## 11 **Method**

### 12 **Ethics**

13 Ethical approval for this project was granted by the University of Sheffield's Research  
14 Ethics Committee. Participants gave informed consent, and data were fully anonymised.

### 15 **Design**

16 This study employed a quantitative, within-subjects design. In an online survey, self-  
17 report questionnaires and a series of vignettes were used to assess the impact of patient and  
18 clinician characteristics on clinicians' anticipated weighing behaviors.

### 19 **Participants**

20 A sample size analysis (G\*Power) was used to determine the sample size needed to  
21 minimize the risk of type 2 error. Assuming a medium effect size ( $f = 0.25$ ), a power of 0.8, and  
22 an alpha of .05, the within subject design required a sample of 28 clinicians. If the effect size  
23 were lower ( $f = 0.20$ ), then the necessary sample size would be 42 clinicians. Therefore, the  
24 recruitment target was set at 42.

25 The sample consisted of 74 clinicians who reported that they used CBT for eating  
26 disorders with adults. Thus, the study was adequately powered. They were recruited via  
27 snowball sampling, using contacts in eating disorder services in different countries. Eight  
28 clinicians were male (10.8%), 65 were female (87.8%), and one chose not to disclose their

1 gender. Clinicians ranged in age from 24 to 64 years, with a mean age of 38.65 years (SD =  
2 10.27). Their years of experience using CBT for eating disorders ranged from 0 to 27 years,  
3 with a mean experience of 7.30 years (SD = 6.71). (One person indicated that they had less  
4 than one year's experience, but the remainder all reported at least one year's experience.)  
5 Clinicians described themselves as psychologists (n = 36, 48.6%), CBT therapists (n = 12,  
6 16.2%), psychotherapists (n = 6, 8.1%), nurses (n = 5, 6.8%), or 'other' professionals (n = 15,  
7 20.3%, including assistant psychologists, psychiatrists, social workers, an occupational  
8 therapist and a dietitian). Clinicians practiced in a range of countries, including the UK (n = 35,  
9 47.3%), Canada (n = 18, 24.3%), USA (n = 7, 9.5%), Italy (n = 7, 9.5%), and others New  
10 Zealand (n = 7, 9.5%).

### 11 **Measures and Procedure**

12 Participants completed an online survey, using Qualtrics. Initially, they provided  
13 demographic information (e.g., age, gender, duration in practice). Participants were each  
14 shown six patient vignettes (varying in patient diagnosis and level of distress), presented in a  
15 randomised order to exclude order effects. For each vignette, they rated the likelihood that  
16 they would engage in each of six different weighing behaviors with the patient (see below).  
17 They then completed self-report questionnaire measures assessing their cognitive and  
18 emotional characteristics.

19 **Vignettes.** A core clinical vignette was developed by the authors to provide basic  
20 information about an adult female patient presenting to eating disorder services for CBT. Six  
21 vignettes were created by varying the clinical material, with three clients described as being  
22 diagnosed with anorexia nervosa and three with bulimia nervosa (no body mass index was  
23 stated for patients with either diagnosis). For each diagnosis, one patient was described as  
24 calm, one was described as distressed about general life events, and one was described as  
25 distressed about their weight. These vignettes were reviewed and approved by two consultant  
26 clinical psychologists working in eating disorder services. Each participant was presented with  
27 all six vignettes, to determine their intended weighing behaviour under each condition.

28 **Weighing behaviors.** The weighing behaviors assessed were selected to reflect: two

1 guideline-compliant behaviors (weigh the patient; weigh the patient and tell them their weight);  
2 and four commonly reported (Waller & Mountford, 2015) clinician behaviors that were non-  
3 compliant with guidelines (rely on patient self-reported weight; ask someone else to weigh;  
4 judge patient weight by eye; delay weighing until another session). For each of the six  
5 vignettes, the participants rated their anticipated likelihood of engaging in each weighing  
6 behavior on an 11-point Likert-scale, using 10% intervals from 0% to 100% likelihood.

7 **Anxiety.** Clinician anxiety was assessed using the Intolerance of Uncertainty Scale-  
8 Short Form (IUS-12; Carleton, Norton, & Asmundson, 2007). This 12-item self-report measure  
9 assesses two factors: prospective anxiety (the anticipation of uncertainty) and inhibitory  
10 anxiety (inaction when faced with uncertainty) (McEvoy & Mahoney, 2011). Responses are  
11 based on a five-point Likert scale. The IUS-12 has strong psychometric properties, with clear  
12 factor loadings for the items in each subscale, very strong correlation with the original 27-item  
13 version ( $r = .96$ ), excellent internal consistency ( $\alpha = .85-.91$ ), and good discriminative and  
14 clinical validity relative to measures of anxiety and depression (Carleton et al., 2007). In this  
15 study, it showed good internal consistency for the prospective anxiety ( $\alpha = .84$ ) and inhibitory  
16 anxiety subscales ( $\alpha = .88$ ). Clinicians' scores were slightly below the mean for a non-clinical  
17 sample (Carleton et al., 2007) for prospective anxiety ( $M = 14$ ,  $SD = 4.56$ ) and inhibitory anxiety  
18 ( $M = 7.55$ ,  $SD = 3.19$ ).

19 **Beliefs about open weighing** were assessed by asking clinicians to rate their  
20 agreement with six statements, using a 7-point Likert scale (item range = 1-7). Four  
21 statements consisted of negative beliefs about open weighing ('Someone other than the CBT  
22 therapist should weigh the patient'; 'Weighing the patient and telling them their weight  
23 damages the therapeutic relationship in CBT'; 'In CBT sessions, weighing the patient and  
24 telling them their weight is harmful to them'; 'In CBT sessions, weighing the patient and  
25 telling them their weight makes them angry or confrontational'). The remaining two items  
26 consisted of positive beliefs about open weighing ('In CBT sessions, weighing the patient and  
27 telling them their weight helps to reduce the patient's anxiety about weight'; 'In CBT sessions,  
28 weighing the patient and telling them their weight helps them understand the relationship



1 between food and weight'). These questions were developed by the authors based on clinical  
2 experience, so no previous psychometrics were available. In this study, these questions  
3 demonstrated adequate internal consistency for positive beliefs ( $\alpha = .76$ ) and negative beliefs  
4 ( $\alpha = .71$ ), though it is recognised that the low number of items makes Cronbach's alpha  
5 unreliable. Clinicians' mean scores were lower for negative beliefs, ranging from 1.50 (SD =  
6 .94) to 2.72 (SD = .1.26), and higher for positive beliefs, ranging from 5.74 (SD = .86) to 6.45  
7 (SD = 1.01).

8 **'Broken leg exceptions'**. The Broken Leg Exception Scale (BLES, Meyer et al., 2014)  
9 assesses patient characteristics that might lead clinicians to exclude that patient from exposure  
10 tasks. The original measure was adapted to make it specific to open weighing. The adapted  
11 BLES was termed The Broken Leg Exception Scale for Open Weighing (BLES-OW), and was  
12 a 16-item self-report scale (available from the authors). Items were scored on a 4-point Likert  
13 scale (item range = 0-3), with a higher score indicating a greater tendency to make such  
14 exceptions. The BLES-OW has strong internal consistency ( $\alpha = .95$ ) and strong average inter-  
15 item correlation (mean = .641), each of which indicates some item redundancy. The mean  
16 score on the BLES-OW was 5.46 (SD = 7.47). Considering the convergent validity of the BLES-  
17 OW, the mean score on this measure was moderately to strongly correlated in the expected  
18 directions with all six of the Beliefs about Open Weighing ( $r = \pm .36$  to  $.71$ ,  $P < .001$  in all cases).  
19 However, it was not associated with scores on the IUS Prospective Anxiety ( $r = .02$ , NS) or  
20 Inhibitory Anxiety scales ( $r = .14$ , NS). Therefore, it appears that the BLES-OW has convergent  
21 validity relative to beliefs about weighing, but not relative to general anxiety features.

## 22 **Data Analysis**

23 Data were analysed using SPSS (version 23). A large proportion of the data violated  
24 the assumption of normality. Therefore, non-parametric statistics were utilized. Where  
25 appropriate, the acceptable alpha level was set at  $p = .001$ , to minimize the likelihood of Type  
26 1 error. To address the key within-subject hypotheses, Wilcoxon and Friedman tests (with post  
27 hoc Wilcoxon tests) were used to address hypotheses 1 and 2. The effect size (tau – Pallant,  
28 2007) was calculated for any significant pairwise differences. Hypothesis 3 was tested using

1 Spearman's rho correlations.

## 2 **Results**

3 As expected, given the task demands, clinicians' reported weighing behavior intentions  
4 were strongly in the direction of guideline compliance. They reported a high intended likelihood  
5 of weighing (M = 91.62%, SD = 1.55) or openly weighing the patient (M = 92.28%, SD = 1.32).  
6 In contrast, they reported a low likelihood of relying on self-reported weight (M = 7.08%, SD =  
7 1.77), judging weight by eye (M = 7.08%, SD = 1.77), delaying weighing (M = 11.03%, SD  
8 =1.54), or asking someone else to weigh the patient (M = 5.47%, SD =1.79).

### 9 **Impact of patient characteristics on clinicians' weighing intentions**

10 Hypothesis 1 was tested by comparing rated likelihood of engaging in each of the  
11 weighing behaviors according to the patient's diagnosis. Table 1 demonstrates that clinicians  
12 were significantly more likely to anticipate weighing a patient who was diagnosed with anorexia  
13 nervosa, though they were no more likely to do so openly. Conversely, clinicians were  
14 significantly more likely to rely on the patient's self-reported weight if they were diagnosed with  
15 bulimia nervosa. The effect sizes for those differences (tau) were small to moderate.

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17 Insert Table 1 about here

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20 To test hypothesis 2, the likelihood of engaging in each weighing behavior was  
21 compared across patients' emotional states (calm; generally distressed; distressed about  
22 weight). Table 2 demonstrates that clinicians were significantly less likely to intend to weigh or  
23 open weigh if the patient was distressed specifically about weight than if the patient was calm.  
24 Such weight distress was also more likely to result in the clinician being more likely to delay  
25 weighing the patient. Again, the effect sizes for all those differences (tau) were small to  
26 moderate.

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28 Insert Table 2 about here

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### Impact of clinician characteristics on clinicians' weighing intentions

Hypothesis 3 was tested by using a range of statistical tests to determine whether clinician characteristics were related to their intended weighing behaviors. Preliminary analyses (Mann-Whitney tests; Kruskal-Wallis tests; Spearman's correlations) showed that there was no effect of clinician gender, profession, age or duration of clinical experience ( $p > .05$  in all cases). Therefore, the remaining analyses did not control for those factors.

**Beliefs about open weighing.** Table 3 shows the association between clinicians' beliefs about open weighing and their likelihood of engaging in different weighing behaviors. The pattern of correlations (Spearman's rho,  $p > .001$ ) shows that clinicians' negative beliefs about open weighing were not linked to their likelihood of weighing the patient. In contrast, clinicians' intended weighing behaviors were linked to their positive beliefs about open weighing of the patient (particularly that open weighing results in better patient understanding). Clinicians with more positive beliefs about weighing were more likely to intend to engage in guideline-compliant behaviors (weighing/openly weighing), and were less likely to engage in non-compliant behaviors.

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Insert Table 3 about here

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**Broken leg exceptions and anxiety.** Table 4 shows the associations between the clinicians' likelihood of using weighing behaviors and their anxiety (intolerance of uncertainty) and tendency to make 'broken leg exceptions'. Clinicians' anxiety was unrelated to their likelihood of undertaking any of the weighing behaviors. In contrast, clinicians who endorsed more broken leg exceptions were less likely to intend to weigh or openly weigh the patient, but they were more likely to intend to rely on the patient's self-reported weight, judge patient weight by eye or delay weighing. In short, while clinician anxiety was not relevant to their intended

1 weighing behaviors, those clinicians who tend to find reasons for not treating their patient in a  
2 routine way were less likely to follow guidelines.

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4 Insert Table 4 about here

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## 7 **Summary**

8 Clinicians are less likely to weigh patients who present with bulimia nervosa than if they  
9 have anorexia nervosa, and are also less likely to do so if the patient expresses distress about  
10 being weighed. However, they are more likely to use weighing appropriately if they who have  
11 stronger beliefs about the benefit of open weighing (regardless of their negative beliefs) and if  
12 they are less likely to assume that patients should be excluded from routine treatment  
13 approaches ('broken leg exceptions'). Clinician anxiety was not related to anticipated weighing  
14 practices.

15

## **Discussion**

16 This study examined the factors that influence clinicians' weighing intentions when  
17 working with patients with eating disorders. The findings provided evidence that clinicians'  
18 weighing of patients is not simply related to guidelines, but varies with patient and clinician  
19 characteristics.

20 Clinicians were more likely to weigh patients with anorexia nervosa than those with  
21 bulimia nervosa, but were no more likely to weigh them openly. They were more likely to rely  
22 on the patients with bulimia nervosa to self-report their weight. This pattern suggests that  
23 clinicians are responding to the greater risk that is likely when a patient is underweight (e.g.,  
24 that the patient might need significant medical intervention if their weight is very low), but not  
25 in a way that means that they are more likely to give the anorexia nervosa patient more  
26 feedback on their weight. Thus, the clinicians generally respond to risk, but not to any related  
27 cognitive needs of the anorexia nervosa patient (Waller & Mountford, 2015).

28 The other patient characteristic that clinicians responded to was distress about their

1 weight, which made the clinicians less likely to weigh the patient, less likely to weigh openly,  
2 and more likely to delay weighing. In each case, the CBT model would stress that the opposite  
3 would be the appropriate clinical course of action, as reduction in the patient's weight distress  
4 requires exposure with response prevention – weighing the patient openly, at the time. The  
5 outcome of the clinician not weighing the patient is likely to be a short-term reduction in patient  
6 distress, but a longer-term enhancement of that distress.

7 Two clinician characteristics enhanced their likelihood of weighing patients  
8 appropriately – positive beliefs about the value of openly weighing the patient (reducing  
9 anxiety; enhancing understanding), and a low tendency to find irrelevant reasons to bypass  
10 the guidelines (making 'broken leg exceptions'). Negative beliefs did not have the opposite  
11 effect, suggesting that clinician actions are driven by positive rather than negative attitudes, in  
12 the case of weighing patients. The failure of anxiety to predict the specific practice of weighing  
13 is consistent with the findings of previous surveys (Mulken et al., 2018; Waller et al., 2012).  
14 This finding confirms that whilst clinician anxiety has its impact on the implementation of other  
15 CBT techniques, the clinician safety behavior of not weighing distressed patients is a general  
16 one, and not only found in relatively anxious clinicians.

17 Guidelines for CBT-ED and most evidence-based therapies for eating disorders stress  
18 the importance of weighing patients routinely (Waller & Mountford, 2015), ensuring safety and  
19 patient learning. However, guidelines are routinely under-used (e.g., Shafran et al., 2009),  
20 meaning that open weighing of patients with eating disorders is not used by the majority of  
21 clinicians in routine practice (e.g., Forbush et al., 2015; Mulken et al., 2018; Waller et al.,  
22 2012). While demand characteristics mean that the proportion of clinicians stating an intention  
23 to weigh patients was much higher in this study, the patterns of difference and association  
24 allow us to reach firm conclusions about the patient factors (diagnosis; weight distress) and  
25 clinician factors (lower belief in the positive value of weighing; making broken leg exceptions)  
26 that reduce compliance with guidelines on weighing patients.

27 This study had a number of limitations, which should be addressed in future research.  
28 These included the cross-sectional design, the use of questionnaire measures, and the use of

1 vignettes. An observational study in real life settings would be an important next step in this  
2 research. First, the manipulation in the vignettes was based on diagnosis, but did not address  
3 body mass index or weight. It is possible that clinicians would respond differently if the patient  
4 with anorexia nervosa had a low versus a very low body mass index, or if the patient with  
5 bulimia nervosa had a healthy body mass index versus being overweight. Second, it is possible  
6 that the role that the clinician played with the patient (e.g., lead/sole therapist; part of a wider  
7 team where other people weigh the patient outside the CBT) would influence the likelihood of  
8 weighing the patient or doing so openly, so that should be considered in future development  
9 of this research. On a related note, it would be useful to understand the service context that  
10 clinicians work in (e.g., in-patient, day-patient, out-patient) in order to understand whether  
11 some clinical contexts do or do not encourage open weighing by the CBT clinician. It would  
12 also be valuable to recruit from a wider range of countries, and to be able to calculate the  
13 participation rate (which could not be done in this study, due to the snowball recruitment  
14 method). The snowball recruitment method might have had the effect of biasing the findings,  
15 as the initial contacts were known to the authors. This means that the participants might  
16 already have had a greater likelihood of weighing their patients, and of passing on the survey  
17 to colleagues who practiced similarly. Thus, the relatively high overall rate of reported likelihood  
18 of weighing might be accounted for in part by this specific task demand. Further details relating  
19 to the participants would also have been valuable, including information on the training,  
20 licensure and expertise of the participants, and the differences that might have been found  
21 between different professionals. These could be considered as grouping variables in future  
22 studies, to determine whether they influence clinicians' weighing intentions. Future research  
23 might consider the implementation of a control condition, comparing these findings with those  
24 relating to a patient without fear of weight gain (e.g., a patient with Avoidant/Restrictive Food  
25 Intake Disorder), to test whether clinicians respond to such patients by weighing the patient  
26 more or less. A wider issue is that simply weighing the patient is not as powerful as doing so  
27 within the broader context of therapy. Therefore, future research in this field should consider  
28 not just whether the clinician weighs the patient, but whether it is done as per the evidence-

1 based protocols for therapies such as CBT for eating disorders (e.g., Waller & Mountford,  
2 2015).

3         These findings suggest that clinicians should routinely be educated, trained and  
4 supervised to ensure that they openly weigh all patients with eating disorders, and understand  
5 the importance of using exposure-based approaches to reduce patient distress. They also  
6 suggest that key elements of such clinician training will be developing their positive attitudes  
7 towards weighing patients (rather than attempting to reduce their negative attitudes), and  
8 overcoming the tendency to exclude some patients from being weighed on unsupported  
9 grounds. Farrell et al. (2013) have suggested a number of ways in which these changes could  
10 be achieved. Even straightforward training sessions on the subject of exposure therapy are  
11 relatively effective in changing such attitudes (Deacon et al., 2013; Waller et al., 2016), and  
12 should be considered in changing clinician weighing practice. However, creating behavioural  
13 change is a complex issue, requiring more than changing beliefs, skills and attitudes. For  
14 example, the Theory of Planned Behaviour (Ajzen, 1991) suggests that change also requires  
15 the individual to plan and action changes. Therefore, it will also be important to determine  
16 whether the proposed training or other interventions (e.g., the use of established behavior  
17 change techniques, such as implementation intentions) result in more consistent, guideline-  
18 compliant clinician weighing practices.

19         This study has addressed the reasons why clinicians do or do not use weighing  
20 appropriately in cognitive-behavioral treatment of eating disorders. Weighing is key in a much  
21 wider range of treatments for eating disorders (Waller & Mountford, 2015). Therefore, further  
22 research is needed to extend this work to the delivery of other therapies, and for a wider range  
23 of eating disorder diagnoses and patient age groups. This research has the potential to ensure  
24 that weighing patients is driven by clinical need, rather than patient or clinician characteristics.

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2 **Data availability**

3           The data that support the findings of this study are available from the corresponding  
4 author upon reasonable request.

5

6

7 **Acknowledgements**

8           The authors would like to thank the clinicians who took part in this study.

9

10

11 **Conflict of interest**

12           The authors have no financial or other conflicting interests to declare.

13



## References

- 1
- 2 Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human*  
3 *Decision Processes*, 50, 179–211. doi:10.1016/0749-5978(91)90020-T
- 4 Beat (2015). *The costs of eating disorders Social, health and economic impacts*. London,  
5 UK: PricewaterhouseCoopers.
- 6 Carleton, R. N., Norton, M. A., & Asmundson, G. J. G. (2007). Fearing the unknown: A short  
7 version of the intolerance of uncertainty scale. *Journal of Anxiety Disorders*, 21, 105-  
8 117. doi:10.1016/j.janxdis.2006.03.014
- 9 Cowdrey, N. D., & Waller, G. (2015). Are we really delivering evidence-based treatments for  
10 eating disorders? How eating-disordered patients describe their experience of  
11 cognitive behavioural therapy. *Behaviour Research and Therapy*, 75, 72–77.  
12 doi:10.1016/j.brat.2015.10.009
- 13 Deacon, B. J., Farrell, N. R., Kemp, J. J., Dixon, L. J., Sy, J. T., Zhang, A. R., & McGrath, P.  
14 B. (2013). Assessing therapist reservations about exposure therapy for anxiety  
15 disorders: The Therapist Beliefs about Exposure Scale. *Journal of Anxiety Disorders*,  
16 27, 772-780. doi: 10.1016/j.janxdis.2013.04.006.
- 17 Farrell, N. R., Deacon, B. J., Dixon, L. J., & Lickel, J. J. (2013). Theory-based training  
18 strategies for modifying practitioner concerns about exposure therapy. *Journal of*  
19 *Anxiety Disorders*, 27, 781-787.
- 20 Forbush, K. T., Richardson, J., & Bohrer, B. K. (2015). Clinicians' practices regarding blind  
21 versus open weighing among patients with eating disorders. *International Journal of*  
22 *Eating Disorders*. 48, 905-911. doi:1002/eat.22369
- 23 Hay, P. (2013). A systematic review of evidence for psychological treatments in eating  
24 disorders: 2005–2012. *International Journal of Eating Disorders*, 46, 462–469.  
25 doi:10.1002/eat.22103
- 26 McEvoy, P. M., & Mahoney, A. E. J. (2011). Achieving certainty about the structure of  
27 intolerance of uncertainty in a treatment-seeking sample with anxiety and depression.  
28 *Journal of Anxiety Disorders*, 25, 112-122. doi:10.1016/j.janxdis.2010.08.010

- 1 Meehl, P. E. (1973). Why I do not attend case conferences. In P.E. Meehl (Ed)  
2 Psychodiagnosis: Selected papers (pp. 225-302). Minneapolis, MN: University of  
3 Minnesota Press.
- 4 Meyer, J. M., Farrell, N. R., Kemp, J. J., Blakey, S. M., & Deacon, B. J. (2014). Why do  
5 clinicians exclude anxious clients from exposure therapy? *Behaviour Research and*  
6 *Therapy*, 54, 49-53. doi:10.1016/j.brat.2014.01.004
- 7 Mulkens, S., de Vos, C., de Graaff, A., & Waller, G. (2018). To deliver or not to deliver  
8 cognitive behavioral therapy for eating disorders: Replication and extension of our  
9 understanding of why therapists fail to do what they should do. *Behaviour Research*  
10 *and Therapy*, 106, 57-63. doi: 10.1016/j.brat.2018.05.004.
- 11 National Institute for Health and Care Excellence (2017). *Eating disorders: Recognition and*  
12 *treatment*. London, UK: National Institute for Health and Care Excellence.
- 13 Pallant, J. (2007). *SPSS Survival Manual*. Maidenhead, UK: Open University Press.
- 14 Shafran, R., Clark, D. M., Fairburn, C. G., Arntz, A., Barlow, D. H., Ehlers, A., Freeston. M.,  
15 Garety, P., Hollon, S., Ost, L.-G., Salkovskis, P. M., Williams, J., & Wilson, G. T.  
16 (2009). Mind the gap: Improving the dissemination of CBT. *Behaviour Research and*  
17 *Therapy*, 47, 902–909. doi:10.1016/j.brat.2009.07.003
- 18 Steinhausen, H. C. (2002). The outcome of anorexia nervosa in the 20th century. *American*  
19 *Journal of Psychiatry*, 159, 1284-1293. doi:10.1176/appi.ajp.159.8.1284
- 20 Steinhausen, H. C., & Weber, S. (2009). The outcome of bulimia nervosa: Findings from one-  
21 quarter century of research. *The American Journal of Psychiatry*, 166, 1331-1341.  
22 doi:10.1176/appi.ajp.2009.09040582
- 23 Turner, H., Tatham, M., Lant, M., Mountford, V. A., & Waller, G. (2014). Clinicians' concerns  
24 about delivering cognitive-behavioural therapy for eating disorders. *Behaviour*  
25 *Research and Therapy*, 57, 38-42. doi: 10.1016/j.brat.2014.04.003
- 26 van Minnen, A., Hendriks, L., & Olf, M. (2010). When do trauma experts choose exposure  
27 therapy for PTSD patients? A controlled study of therapist and patient factors.  
28 *Behaviour Research and Therapy*, 48, 312–320. doi:10.1016/j.brat.2009.12.003

- 1 Waller, G. (2009). Evidence-based treatment and therapist drift. *Behaviour Research and*  
2 *Therapy*, 47, 119-127. doi:10.1016/j.brat.2008.10.018
- 3 Waller, G., D'Souza Walsh, K., & Wright, C. (2016). Impact of education on clinicians'  
4 attitudes to exposure therapy for eating disorders. *Behaviour Research and Therapy*,  
5 76, 76-80. doi: 10.1016/j.brat.2015.11.014
- 6 Waller, G., & Mountford, V. A. (2015). Weighing patients within cognitive behavioural  
7 therapy for eating disorders: how, when and why. *Behaviour Research and Therapy*,  
8 70, 1-10. doi: 10.1016/j.brat.2015.04.004
- 9 Waller, G., Stringer, H., & Meyer, C. (2012). What cognitive behavioral techniques do  
10 therapists report using when delivering cognitive behavioral therapy for the eating  
11 disorders? *Journal of Consulting and Clinical Psychology*, 80, 171-175. doi:  
12 10.1037/a0026559
- 13 Waller, G., & Turner, H. (2016). Therapist drift redux: Why well-meaning clinicians fail to  
14 deliver evidence-based therapy, and how to get back on track. *Behaviour Research*  
15 *and Therapy*, 77, 129-137. doi:10.1016/j.brat.2015.12.005
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Table 1

**Clinicians' intended likelihood of engaging in different weighing behaviors for patients diagnosed with anorexia nervosa or bulimia nervosa**

Weighing Behavior	Patient diagnosis				Wilcoxon test		r
	<u>Anorexia nervosa</u>		<u>Bulimia nervosa</u>		z	p	
	M	SD	M	SD			
Weigh patient	92.93	(1.42)	90.32	(1.83)	2.14	.03	.18
Open weigh	92.02	(1.43)	92.64	(1.31)	0.76	ns	-
Rely on self-reported weight	5.99	(1.65)	8.31	(1.97)	2.67	.01	.22
Judge weight by eye	11.62	(2.28)	10.99	(2.25)	0.70	ns	-
Delay weighing	10.50	(1.84)	11.55	(1.96)	1.22	ns	-
Ask someone else to weigh	5.95	(1.94)	5.00	(1.67)	1.29	ns	-

Note. ns = non-significant. Significance level set at  $p < .05$  (two tailed).

Table 2

**Clinicians' intended likelihood of engaging in different weighing behaviors for patients diagnosed with anorexia nervosa and bulimia nervosa who are experiencing different levels of distress**

Weighing Behavior	Patient Diagnosis	Level of Patient Distress						Friedman ANOVA		Multiple comparisons test (Wilcoxon test; p<.05 one tailed)	R
		Calm		General Distress		Weight Distress		$\chi^2$	p (2-tailed)		
		M	SD	M	SD	M	SD				
<b>Guideline-compliant:</b>											
Weigh patient	AN	94.19	(1.69)	93.38	(1.70)	91.22	(1.83)	14.49	.001	NS	-
	BN	93.92	(1.58)	90.14	(2.14)	86.89	(1.65)	29.78	.001	C>WD	.23
Open weigh	AN	95.42	(1.06)	90.97	(1.91)	89.86	(1.65)	31.71	.001	C>WD	.26
	BN	94.25	(1.59)	93.61	(1.31)	90.00	(1.68)	29.12	.001	C>WD	.24
<b>Not guideline-compliant:</b>											
Rely on self-reported weight	AN	6.76	(1.90)	5.14	(1.58)	6.08	(1.69)	0.84	ns	-	-
	BN	8.08	(2.09)	8.51	(2.07)	9.86	(2.22)	1.72	ns	-	-
Judge weight by eye	AN	12.16	(2.50)	11.35	(2.36)	11.35	(2.33)	1.20	ns	-	-
	BN	10.41	(2.22)	10.81	(2.25)	11.76	(2.36)	5.77	ns	-	-
Delay weighing	AN	7.95	(2.03)	9.86	(2.15)	13.38	(2.38)	21.42	.001	C<WD	.21
	BN	7.03	(1.80)	12.88	(2.40)	15.54	(2.43)	22.89	.001	C<WD	.22
Ask someone else to weigh	AN	5.95	(1.99)	5.68	(1.99)	6.22	(1.94)	3.00	ns	-	-
	BN	4.59	(1.65)	4.86	(1.67)	5.54	(1.73)	6.62	ns	-	-

Note: AN = Anorexia nervosa; BN = Bulimia nervosa; C = Calm; GD = General Distress; WD = Weight Distress; ns = Non-significant. Significance level set at  $p < .01$ .

Table 3

**Correlations between clinicians' beliefs about open weighing and their intended likelihood of engaging in different weighing behaviors for patients diagnosed with anorexia nervosa who are experiencing different levels of distress**

Weighing Behavior	Patient Level of Distress	Clinician Beliefs about Open Weighing (OW)											
		Negative Beliefs						Positive Beliefs					
		Someone else should weigh the patient		OW damages therapeutic relationship		OW is harmful to the patient		OW makes patients angry		OW reduces patient anxiety		OW improves patient understanding	
		AN	BN	AN	BN	AN	BN	AN	BN	AN	BN	AN	BN
<b>Guideline-compliant:</b>													
Weigh patient	Calm	-.04	-.21	-.25	-.36	-.14	-.32	-.02	-.24	.35	.41*	.42*	.47*
	General Distress	-.22	-.36	-.16	-.38	-.23	-.30	-.20	-.24	.31	.48*	.36	.49*
	Weight Distress	-.20	-.38	-.20	-.29	-.21	-.21	-.03	-.12	.30	.37	.34	.42*
Open weigh	Calm	-.26	-.27	-.34	-.36	-.42*	-.39	-.28	-.21	.35	.30	.41*	.34
	General Distress	-.33	-.42*	-.42*	-.45*	-.37	-.39	-.21	-.32	.37	.34	.45*	.38
	Weight Distress	-.33	-.39	-.35	-.45*	-.37	-.42*	-.08	-.22	.33	.29	.33	.35
<b>Not guideline-compliant:</b>													
Rely on self-reported weight	Calm	.26	.24	.26	.34	.21	.29	.10	.18	-.18	-.29	-.32	-.41*
	General Distress	.22	.27	.19	.33	.21	.28	.30	.15	-.12	-.26	-.32	-.40*
	Weight Distress	.21	.25	.27	.26	.22	.27	.11	.09	-.23	-.22	-.32	-.31
Judge weight by eye	Calm	.25	.29	.40*	.33	.38	.40*	.07	.13	-.43*	-.40*	-.52*	-.49*
	General Distress	.29	.28	.36	.32	.42*	.39	.13	.13	-.41*	-.40*	-.49*	-.48*
	Weight Distress	.29	.29	.33	.32	.40*	.38	.09	.13	-.36	-.38	-.42*	-.47*
Delay weighing	Calm	.06	.19	.25	.31	.14	.28	.03	.23	-.34	-.40*	-.43*	-.45*
	General Distress	.26	.36	.13	.49*	.19	.31	.20	.24	-.27	-.52*	-.39	-.58*
	Weight Distress	.21	.40*	.21	.30	.19	.21	.14	.13	-.22	-.27	-.42*	-.43*
Ask someone else to weigh	Calm	.19	.19	.16	.20	.14	.18	.11	.19	-.02	-.09	-.10	-.15
	General Distress	.24	.25	.27	.28	.25	.25	.18	.19	-.11	-.12	-.20	-.21
	Weight Distress	.28	.33	.33	.39	.28	.34	.16	.20	-.11	-.16	-.25	-.32

Note: OW= Open weighing, AN= Anorexia nervosa, BN= Bulimia nervosa. Adjusted significance level set at  $p < .001$  (2-tailed). \*  $p < .001$ .

Table 4

**Correlations between clinicians' intolerance of uncertainty and likelihood of making broken leg exceptions, and their intended likelihood of engaging in different weighing behaviors for patients diagnosed with anorexia nervosa or bulimia nervosa who are experiencing different levels of distress**

Weighing Behavior	Patient Level of Distress	Clinician Characteristics Correlation Coefficients ( $r_s$ )					
		Intolerance of uncertainty				Broken Leg Exceptions	
		Prospective Anxiety		Inhibitory Anxiety		Anorexia Nervosa	Bulimia Nervosa
Anorexia Nervosa	Bulimia Nervosa	Anorexia Nervosa	Bulimia Nervosa				
<b>Guideline-compliant:</b>							
Weigh patient	Calm	-.09	-.12	-.11	-.21	-.39	-.56*
	General	-.01	-.04	-.10	-.22	-.45*	-.43*
	Weight Distress	-.11	-.02	-.18	-.27	-.41*	-.38
Open weigh	Calm	.02	.01	-.10	-.12	.46*	-.34
	General	-.04	-.04	-.20	-.26	-.44*	-.46*
	Weight Distress	-.04	-.02	-.14	-.17	-.39	.46*
<b>Not guideline-compliant:</b>							
Rely on self-reported weight	Calm	.13	.22	.08	.18	.42*	.46*
	General	.14	.20	.15	.15	.45*	.45*
	Weight Distress	.11	.04	.15	.05	.41*	.45*
Judge weight by eye	Calm	.04	.08	.07	.11	.38	.41*
	General	.09	.06	.11	.11	.40*	.40*
	Weight Distress	-.00	.02	.05	.10	.40*	.46*
Delay weighing	Calm	.10	.05	.11	.15	.40*	.50*
	General	.03	.08	.08	.24	.42*	.46*
	Weight Distress	.09	.12	.16	.33	.42*	.46*
Ask someone else to weigh	Calm	.06	.08	.05	.10	.24	.23
	General	.02	.01	.05	.05	.28	.29
	Weight Distress	-.01	.08	.12	.09	.34	.36

Note: Adjusted significance level set at  $p < .001$  (2-tailed). \*  $p < .001$