Getting entangled with body image: Development and validation of a new measure

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Objectives. Several studies have highlighted the role of cognitive fusion on human suffering and a wide range of psychopathological conditions. Namely, this process has been regarded as a core aspect in eating disorders. Nevertheless, the study of cognitive fusion on eating psychopathology is scarce and a measure that specifically concerns body image was still to be created. The present study aimed therefore at developing and validating such measure, the Cognitive Fusion Questionnaire – Body Image (CFQ-BI).

Design and methods. The current study was conducted using different samples of both genders, collected in the general and student populations. The dimensionality of the CFQ-BI was tested through an exploratory factor analysis and a confirmatory factor analysis (CFA). The scale's internal reliability and other psychometric qualities were also analysed.

Results. The CFQ-BI's final structure was one-dimensional and comprised 10 items that assess body image-related cognitive fusion. This final structure explained a total of 73.41% of the variance. The adequacy of the questionnaire was corroborated through a CFA which revealed that CFQ-BI presents good global and local adjustment values and goodness-of-fit indices. Results also showed that the CFQ-BI holds a very good internal consistency (a = .96), convergent, divergent and temporal reliabilities, and is able to discriminate cases from non-cases of eating psychopathology.

Conclusions. The CFQ-BI was thus established as a short, robust, and reliable measure of body image-related cognitive fusion. This new measure may correspond to a significant contribution to research and clinical practice in the field of body image and eating-related difficulties.

Practitioner points
- A new measure of body image-related cognitive fusion (CFQ-BI) was developed.
- The CFQ-BI was proved to be a short, robust, and reliable measure.
- Body image-related cognitive fusion was strongly linked to eating psychopathology.
- CFQ-BI may be useful in eating psychopathology's research and clinical practice.

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Cognitive fusion, a key concept of acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999), can be described as the human tendency to get entangled with the private events' content (e.g., thoughts) and consequently responding to them as if they were literally true, instead of an interpretation of reality (Hayes, Strosahl, Bunting, Twohig, & Wilson, 2004; Luoma & Hayes, 2003). From this perspective, one's behaviours and experience becomes predominantly regulated and dominated by cognition, rather than by previous experience or direct consequences. The relationship an individual has with his/her cognitive events may vary from being overly entangled and regulated by them – cognitive fusion – to experiencing such events as transient mental contents that do not necessarily reflect reality and that do not need to be acted upon – cognitive defusion (Gillanders *et al.*, 2014).

Cognitive fusion is related to, but is distinct of, other processes of the ACT model. Actually, when an individual is fused with his/her unwanted internal events (i.e., sensations, behavioural impulses, thoughts, and emotions), perceiving them as trustworthy presentations of reality, he/she may engage in ineffective attempts to avoid them (Barnes-Holmes, Hayes, & Dymond, 2001; Hayes, 2004). These attempts to escape or control the frequency, intensity or valence of these events is denominated as experiential avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). This process has, however, a

paradoxical effect, increasing the frequency and impact of these events and is, therefore, potentially harmful, by diminishing quality of life and even instigating the development and maintenance of psychopathology (e.g., Hayes, 2004; Hayes *et al.*, 1999; Kashdan & Rottenberg, 2010; Merwin & Wilson, 2009).

Furthermore, research has shown that cognitive fusion and experiential avoidance are related to the inability to change one's behaviours, even when that change is beneficial and compatible with one's values and goals (Hayes *et al.*, 1999). These processes are key aspects of psychological inflexibility which also entails an inability to contact with the present moment and with one's values, and where one is subjugated by a conceptualized self. Several studies have demonstrated the maladaptive role of psychological inflexibility in well being and psychopathology (e.g., Greco, Lambert, & Baer, 2008; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Kashdan & Rottenberg, 2010).

Specifically, psychological inflexibility has been highlighted as relevant in the development and maintenance of eating psychopathology. In fact, recent research has suggested that eating disorders may be conceptualized as illnesses of psychological inflexibility (Merwin *et al.*, 2011). In accordance, there is clinical evidence that in anorexia nervosa, patients tend to get fused with negative thoughts about their body image, which increases the impact

of these cognitions and results in the attempt of controlling them through rigid behavioural and attitudinal patterns typical of these disorders (Hayes & Pankey, 2002). Moreover, other areas of the patient's life become frequently overpowered by cognitive fusion as well (e.g., perfectionism, hyper-responsibility, obsessive patterns; Hayes & Pankey, 2002). To sum up, cognitive fusion has been regarded as an important mechanism in eating disorders, reflected in these patients through rigid beliefs about the importance of thinness to define their self-worth, and by the inflexible adherence to rules in relation to their eating, weight, and body shape (e.g., body checking, exercising). However, the role of cognitive fusion in eating disorders remains not wholly clear.

Besides the lack of studies about cognitive fusion's influence on eating disorders, there is also an absence of specific measures of cognitive fusion related to weight, body shape, and body image issues. In contrast, there are several instruments that assess broad cognitive fusion. In particular, the Cognitive Fusion Questionnaire (CFQ; Gillanders *et al.*, 2010, 2014) evaluates the general propensity to enrol and accept as true one's private events, the dominance in awareness, the inability to take perspective, and the degree to which behaviour is mainly regulated by cognitive events. This scale asks individuals to rate how each item reflects his/her experience in relation to his/her cognitions. Even though this is a valuable measure assessing

how individuals, it is possible that when answering this measure, different individuals may complete the scale considering different areas of functioning (e.g., academic issues, relational problems). This may not be deliberately chosen by the respondent, but may depend on which areas cognitive fusion causes more impact in this individual. Thus, as the authors of the CFQ (Gillanders *et al.*, 2014) suggest, content-specific measures would allow for a more accurate assessment of particular areas of cognitive fusion, such as body image. Research has indeed emphasized the importance of using modified versions of measures assessing overall processes of the ACT model (e.g., AAQ; Bond *et al.*, 2011) in order to target specific areas (e.g., weight problems with the AAQW; Lillis & Hayes, 2008; body image difficulties with the BIAAQ; Sandoz, Wilson, Merwin, & Kellum, 2013). Namely, the construction of an instrument that would assess body image-related cognitive fusion seems important to contribute for the knowledge of the effect of this specific process on eating psychopathology. For these reasons, a new scale, CFQ – Body Image (CFQ-BI), was developed to assess body image-related cognitive fusion. Thereby, this study examines the factor structure of the CFQ-BI through an exploratory factor analysis (EFA) and through a confirmatory factor analysis (CFA). Additionally, the psychometric qualities of this new measure were analysed.

Material and method

Participants

Sample 1

The sample used to perform the CFQ-BI's EFA and to test the validities of the measure was composed of 361 middle schools (31%) and college (69%) students of both genders (147 males and 214 females), presenting ages between 16 and 30 years old ($M = 18.52$; $SD = 2.11$) and a mean of 12.07 ($SD = 1.64$) years of education. The majority of the participants presented a normal BMI ($M = 21.88$; $SD = 2.83$).

Sample 2

In order to confirm the adequacy of the tested model, an additional sample was collected within the student and general populations to conduct the CFQ-BI's CFA. This sample was comprised by 517 participants (223 males and 294 females), presenting ages ranging from 16 to 56 years old, with a mean age of 26.02 years old ($SD = 8.64$) and 13.64 ($SD = 2.29$) years of education. The majority of the participants presented a normal BMI ($M = 23.27$; $SD = 3.52$).

Sample 3

The sample used for the temporal reliability analysis consisted of 51 college students (14 males, 37 females), with a mean age of 19.82 ($SD = 2.26$)

years old, that completed the CFQ-BI twice within a 3- to 4-week interval. The majority of the participants also presented a normal BMI ($M = 21.18$; $SD = 2.69$).

Procedures

Participants were recruited in Portuguese middle schools, universities, and superior institutes. Participants from the general population were recruited within the staff of the educational institutions involved and other institutions (e.g., business and retail companies). The collection of data was approved by the ethical committees and boards of the institutions enrolled in this study. Participants were properly informed about their voluntary participation in this investigation and about the purpose and confidentiality of the collected data. Participants provided their written informed consent (an informed consent was also obtained from the guardian of the underage participants) prior to data collection. The measures were completed by the students at the end of a lecture, and by the participants from the general population at a break of their work schedule. One of the researchers administered the self-report measures, provided standardized instructions to all participants, and was present during the measures completion.

Statistical analyses

The factorial structure of the CFQ-BI was first examined through a principal

component analysis with a Varimax rotation. The obtained structure was further examined through a CFA, with maximum likelihood as the estimation method. A series of analyses were then conducted to examine the scale's validity. The scale's internal reliability was confirmed by examining the Cronbach's alpha value. The temporal stability of the scale was examined through Pearson correlation coefficients and paired samples t-test between the first and second assessment moments.

The CFQ-BI ability to discriminate cases with and without eating psychopathology was tested through t-tests for independent samples. These two samples were selected considering the cut-off score >4 of the Eating Disorder Examination Questionnaire (EDE-Q), suggested by previous research as a good guide for screening for eating disorders (Carter, Stewart, & Fairburn, 2001; Mond, Hay, Rodgers, & Owen, 2006). Pearson correlation coefficients were performed to explore CFQ-BI's relationship with other measures. Finally, a hierarchical regression analysis was conducted to examine CFQ-BI's incremental validity over a global measure of cognitive fusion in the prediction of eating psychopathology. IBM SPSS Statistics 20 (IBM Corp, 2011) was the software used to perform the principal component analysis and the scale's psychometric analyses. The software AMOS (IBM Corp, 2011) was additionally used to assess the confirmatory factorial structure of CFQ-BI.

Measures

Participants answered to the Portuguese versions of the following measures, which were previously translated and validated in samples with similar features to this study's samples.

Cognitive Fusion Questionnaire-28 (Gillanders et al.*, 2010; Pinto-Gouveia, Dinis, Gregório, & Pinto, 2014)* This is a 28-item self-report instrument that assesses cognitive fusion and cognitive defusion in a broad way. The respondent is asked to estimate how much he relates to the items using a 7-point Likert scale (1 = *never true*; 7 = *always true*). The scale showed a good internal consistency in the original study and in the Portuguese validation study (α= .94 on the fusion component; α = .77 on the defusion component; α = .92 on the overall scale).

Acceptance and Action Questionnaire-II (Bond et al.*, 2011; Pinto-Gouveia, Gregorio, Dinis, & Xavier, 2012)* The AAQ-II is a 10 item scale, with a 7-point Likert-type response format (1 = *never true*; 7 = *always true*), to assess one's psychological flexibility. This scale was proved to have good internal consistency in the original study (with a mean Cronbach's alpha coefficient of .84 across six samples) and in the Portuguese study (α = .90).

Depression Anxiety Stress Scales (DASS-21; Lovibond & Lovibond, 1995; Pais-Ribeiro, Honrado, & Leal, 2004) This questionnaire consists in 21 statements regarding the participant's last week negative emotional symptoms and aims

to evaluate levels of depression (DEP), anxiety (ANX), and stress (STR). The Cronbach's alpha coefficients of the Portuguese study were similar to the original ones for all subscales: DEP = .88, ANX = .82 and STR = .90 in the original version, and of .85, .74, and .81 in the Portuguese study, respectively.

Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994; Machado, 2007) The EDE-Q is a self-report measure of the frequency and intensity of eating disorders' psychological and behavioural characteristics. It holds four subscales (restraint, eating concern, shape concern and weight concern). This scale was developed in order to diminish the limitations of the Eating Disorder Examination interview such as the unsuitability for group assessment, the long administration time and the need of very qualified interviewers (Fairburn & Beglin, 1994; Luce, Crowther, & Pole, 2008). The EDE-Q has been shown to hold good reliability and to be able to differentiate cases from non-cases of eating disorders (see also Fairburn, 2008).

Mindful Attention Awareness Scale (Brown & Ryan, 2003; Gregório & Pinto-Gouveia, 2014) The Mindful Attention Awareness Scale (MAAS) is a measure of mindfulness dispositional characteristics with 15 statements concerning everyday experiences about the ability of being in the present moment. The respondent is asked to rate the frequency of those experiences using a 6-

point Likert scale (1 = *almost always*; 6 = *almost never*). This scale revealed good Cronbach's alpha values both in the original study (.84) and the Portuguese study (.90).

Experiences Questionnaire (Fresco et al.*, 2007; Pinto-Gouveia, Gregório, Duarte, & Simões, 2012)* The Experiences Questionnaire (EQ) evaluates the participant's capability for decentra- tion and disidentification with negative thoughts. It consists of 20 items, distributed over two subscales, rumination and wider perspective, evaluated on a 5-point Likert scale (1 = *never*;5 = *always*). The questionnaire was shown to have good internal consistency both for the original study (.83) as for the Portuguese validation study (.81).

In the current study, these measures revealed adequate to very good internal reliability (Table 3).

Scale development

Cognitive Fusion Questionnaire – Body Image

The CFQ-BI was developed to measure the extent to which individuals become 'fused' with their cognitions concerning body image. It was developed through the adaptation of the CFQ-28 (Gillanders *et al.*, 2010), after the respective approval from the original authors. A shorter 7-item version of the CFQ was recently published revealing that this briefer

version is a psychometrically sound measure of cognitive fusion assessed as a one-dimensional construct (Gillanders *et al.*, 2014). Nevertheless, we opted to follow the structure of the 28-item version since it included a wider pool of items to develop and validate a new measure of cognitive fusion focused on the specific domain of body image. Thus, the CFQ-28 items were adapted to specifically assess body image-related cognitive fusion (e.g., the item 'My thoughts cause me distress or emotional pain' on CFQ-28 was adapted as 'My thoughts relating to my body image cause me distress or emotional pain' in CFQ-BI). Besides, based on their clinical experience, the authors decided to add four more items to the scale. The instructions of the CFQ-BI ask participants to evaluate the veracity of several statements, on a 7-point Likert scale (1 = *never true*; 7 = *always true*).

Results

Preliminary analysis

Analysis of Skewness and Kurtosis' values revealed that the items did not present a significant bias¯to normal distribution, with Skewness values ranging from .112 to 1.136 and Kurtosis values ranging from 1.446 to .416; additionally, the visual inspection of the distributions confirmed the assumption of normality (Kline, 2005).

Factor structure of the CFQ-BI

In order to uncover CFQ-BI's factor structure, an EFA was performed,

following the same procedure used in the validation study of the original CFQ-28 (Gillanders *et al.*, 2010). Therefore, a principal component analysis with a Varimax rotation was conducted.

The Kaiser Meyer-Olkin test (.96) and the Bartlett's sphericity test ($v^2{}_{(496)} = 9{,}228.28$; $p < .001$) confirmed the adequacy of the data for posterior analysis. Three factors with eigenvalues superior to 1 were revealed and explained a total of 63.77% of the variance. Nonetheless, a parallel analysis was conducted and results indicated that two components had eigenvalues exceeding the 95th percentile of the eigenvalues obtained from a random data matrix. Furthermore, considering the two-factor solution of the original CFQ-28 and since the third factor only explained 4.6% of the variance, we decided to compromise on two factors only. Thereby, the analysis was repeated with a Varimax rotation forcing a two-factor solution, which explained 59.2% of the variance and showed communalities values superior to .40 on all items. This analysis also revealed that the first factor, relating to cognitive fusion (with 23 items), explained 43.97% of the variance. The second factor, cognitive defusion (with nine items) explained 4.88% of the variance. The factor loadings of all items were proven to be higher than .59. We then selected the 10 items with the highest factorial loadings. This approach allowed for achieving a short but reliable measure that is able to incorporate the variability of the construct under analysis, while being less exhaustive for the respondents (Cudeck, 2001). All of these items corresponded to the cognitive fusion dimension. The final

analysis tested a one-factor structure and results indicated that this solution explained a total of 73.41% of the variance. Thus, the EFA results indicated that CFQ-BI converted into a one-factor measure of cognitive fusion towards body image.

Confirmatory factor analysis

A CFA was conducted to corroborate the previous estimated CFQ-BI one-factor structure in an additional sample (Sample 2), with maximum likelihood as the estimation method. Additionally, different goodness-of-fit indices were used to confirm the scale factor structure. The chi-square goodness-of-fit was shown to be significant ($p < .001$), which would indicate that the data are not consistent with the model. Nonetheless, the chi-square is especially vulnerable to sample size, commonly contributing in biases in the results' interpretation (DeCoster, 1998). In order to overcome this constraint, we used the Comparative Fit Index (CFI), the Tucker and Lewis Index (TLI), and the Incremental Index of Fit (IFI) that indicate adequate fit when values are superior or equal to .9 (Brown, 2006). The Normed Fit Index (NFI), in which an acceptable adjustment is translated by values superior or equal to .8 was considered. Additionally, the Parsimony Normed CFI (PCFI), in which values between .6 and .8 indicate a good fit (Byrne, 2010), was analysed. The tested structure presented good to excellent goodness-of-fitness indices (see Table 1).

The quality of the model was also evaluated by examining the local

adjustment indices. The standardized regression weights ranged between .71 (item 25) and .92 (item 14), all above the cut-off point of .40 suggested by Tabachnick and Fidell (2007). The results from the squared multiple correlations corroborated the instrument's reliability, with values ranging from .51 (item 25) to .86 (item 13).

A multigroup analysis was further conducted to test the model invariance between genders. Results showed that the restricted model, with constrained structural weights and variances/covariances had an adequate fit to the data (CFI = .94; TLI = .93; IFI = .94; NFI = .93; PCFI = .73) and was not significantly worse than the uncon- strained estimated model (i.e., with free parameters). That is, the comparison between the models resulted in a non-significant chi-square difference ($\Delta v^2_{(9)} = 10.02$; $p = .349$), which indicates that the CFQ-BI structure is equivalent for both male and female gender.

Reliability analysis

CFQ-BI showed a very good internal reliability, with a Cronbach's alpha value of .96. As exposed in Table 2, the item-total correlations of the 10 items of this factor, diverged from.76 to .88. Moreover, results indicated that the deletion of any of these items would not increase the factor's internal consistency.

Table 1. CFQ-BI's goodness-of-fitness indices

	CFI	TLI	IFI	NFI	PCFI
CFQ-BI	.95	.94	.95	.95	.74

Note. CFI = Comparative Fit index; TLI = Tucker and Lewis Index; IFI = Incremental Index of Fit; NFI = Normed Fit Index; PCFI = Parsimony Normed Comparative Fit Index; CFQ-BI = Cognitive Fusion Questionnaire – Body Image.

Table 2. CFQ-BI final factor items' means, standard deviations, and reliability ($n = 361$)

Items	M	SD	Factor loadings	Item-total correlation	Cronbach's a if item deleted
1. My thoughts relating to my body image cause me distress or emotional pain	2.46	1.69	.85	.81	.95
10. I tend to get very entangled in my thoughts concerning my body or body image	2.36	1.75	.88	.85	.95
12. I feel upset when I have negative thoughts about my body (or physical appearance)	2.61	1.80	.81	.77	.96
13. I get very focused on distressing thoughts about my body image	2.15	1.62	.91	.88	.95
14. It's such a struggle to let go of upsetting thoughts about my body shape even when I know that letting go would be helpful	2.11	1.59	.91	.88	.95
15. My thoughts regarding my body image distract me from what I'm actually doing	1.92	1.42	.87	.81	.96
16. I get so caught up in my thoughts about my physical appearance that I am unable to do the things that I most want to	1.77	1.34	.85	.83	.95
17. I over-analyse my physical appearance or my body shape to the point where it's unhelpful to me	2.08	1.45	.81	.76	.96
22. I struggle with my thoughts related to my body or physical appearance	1.94	1.51	.86	.82	.95
25. Once I've thought about my body or body shape in an upsetting way it's difficult for me to focus on anything else	2.03	1.43	.83	.79	.96

Temporal reliability

To test the temporal reliability of CFQ-BI, 51 students (14 males and 37 females), completed the questionnaire twice within a 3- to 4-week interval. Pearson correlation coefficients between test and retest moments revealed a very good temporal reliability ($r = .72$). Additionally, no significant differences were found between test and retest ($t_{(50)} = 0.29$; $p = .776$).

CFQ-BI's ability to discriminate cases from non-cases of eating psychopathology

To study the ability of CFQ-BI to discriminate cases with and without eating psychopathology we compared two convenience female samples (selected within Sample 1 and Sample 2), with similar demographic characteristics and age ($t_{(77)} = 0.65$; $p = .950$). The sample of the general population ($n = 48$) presented a mean age of 18 years old ($SD = 4.46$) and the sample with severe eating difficulties ($n = 31$) had a mean age of 17.94 years old ($SD = 4.11$). This lastly referred sample was obtained using the cut-off score >4 of the EDE-Q.

Table 3. CFQ-BI's final factor correlations with other measures and their respective Cronbach's alphas ($n = 361$)

	CFQ-BI	CFQ_F	AAQ-II	DEP	ANX	STR	EDE-Q	MAAS	EQ
α	.96	.96	.74	.86	.81	.89	.95	.89	.83
CFQ-BI	–	.65***	.53***	.46***	.41***	.35***	.74***	-.22***	-.53***

Note. CFQ_BI = Cognitive Fusion Questionnaire – Body Image; CFQ_F = Cognitive Fusion Questionnaire (Fusion Dimension); AAQ-II = Acceptance and Action Questionnaire; DEP, ANX, STR

Regarding the CFQ-BI's final score, the eating problems sample obtained a
mean of 51.74 (SD = 12.12), while the control group presented a mean of
31.43 (SD = 12.30). Additionally, it was found that CFQ-BI discriminates
($t_{(59)}$ = 6.50; p < .001) cases with and without eating psychopathology.

CFQ-BI's relationship with other measures

Pearson correlation coefficients (Cohen, Cohen, West, & Aiken, 2003) were
performed in order to explore CFQ-BI's relationship with other measures
(Table 3). The convergent validity was assessed through the calculation of
product-moment correlation coefficients between the CFQ-BI and CFQ-
28's fusion dimension. Additionally, the relationship between CFQ-BI and
MAAS, EQ, AAQ-II, DASS-21, and EDE-Q was tested.

Results showed that CFQ-BI's final factor correlated positively and
significantly with the fusion factor of CFQ-28. On the other hand, CFQ-BI
showed negative and significant correlations with characteristics of
dispositional mindfulness (MAAS) and decentring (EQ). Furthermore,
results indicated that CFQ-BI was positive and moderately linked to
psychological inflexibility (AAQ-II) and also to self-reported symptoms of
depression, anxiety, and stress (DASS-21). Finally, and also a positive and
strong correlation was found between CFQ-BI and a global index of eating
psychopathology (EDE-Q).

CFQ-BI's incremental validity

To test whether CFQ-BI has incremental validity over a global measure of cognitive fusion, a hierarchical regression analysis was conducted. EDE-Q was considered as a criterion variable and the fusion factor of CFQ-28 was included as predictor at step one, and CFQ-BI was further added as a predictor at step two.

Results indicated that cognitive fusion assessed by CFQ-28 accounted for 16.9% of EDE-Q variance – b = .41; $F(1, 339) = 70.25$; $p < .001$. On step two, when CFQ-BI was added, results revealed a significant model that accounted for 53.6% – $F(1,338) = 269.191$; $p < .001$, with CFQ-BI emerging as the best global predictor (b = .80; $p < .001$), followed by CFQ-28 (b = -.11; $p = .026$).

Discussion

The purpose of this study was to present the development and validation of a new measure, the CFQ-BI, an instrument created in order to assess body image-related cognitive fusion. The present research was conducted using several samples and analyses. Firstly, an EFA was performed using a sample of 361 students of both genders with ages ranging between 16 and 30 years. In order to validate the CFQ-BI, the same procedures used in the development of the original instrument of broad cognitive fusion (CFQ-28; Gillanders *et al.*, 2010) were followed. Similarly to the CFQ-28, the CFQ-

BI initially presented a two-factor solution, with fusion and defusion dimensions. However, with the intent to obtain a shorter and a more psychometrically sound measure, the 10 items with the highest factorial loadings, were selected for the final structure. These 10 items comprised items assessing cognitive fusion (the items comprising the initial cognitive defusion subscale presented the lowest loadings and thereforewerenotincludedinthefinal 10-itemversion). Thus, the CFQ-BI became a one-dimensional measure that assesses body image-related cognitive fusion. This final structure explained a total of 73.41% of the variance.

Furthermore, the one-dimensional structure was additionally corroborated through a CFA using a different sample. Results proved the adequacy of this measure. In fact, according to the suggested standards (Brown, 2006; Tabachnick & Fidell, 2007), the goodness-of-fitness indices regarded in these analyses, as well as the local adjustment indices, confirmed the suitability of the tested structure, which, in turn, was proved to be the same across genders.

The analyses of the present study also demonstrated that the CFQ-BI's reveals a high internal consistency and robustness. The CFQ-BI revealed as well high values of item-total correlations, confirming the preserved items adequacy to the constructs this measure intends to assess.

In addition, the temporal reliability analysis proved that the CFQ-BI is stable over time. Results also revealed that the CFQ-BI is able to discriminate

cases from non-cases of eating psychopathology.

Moreover, the CFQ-BI was associated with other measures in the expected directions. Indeed, it was positively correlated with the CFQ-28's fusion subscale (Gillanders *et al.*, 2010), with results indicating that these two measures are associated but assess distinct constructs. Results also confirmed that cognitive fusion in relation to one's internal experiences related to body image is positively linked to higher psychological inflexibility, which is in line with ACT conceptualizations and prior evidence on the existing link between broad cognitive fusion and psychological inflexibility (e.g., Gillanders *et al.*, 2014; Hayes *et al.*, 1999). On the other hand, body image-related cognitive fusion was negatively associated with mindfulness characteristics (MAAS), an association already expected since the entanglement with thoughts involves a lack of contact with the present moment (Gillanders *et al.*, 2014). As likewise theoretically expected, body image-related cognitive fusion correlated negatively with decentring capabilities (as measured by the EQ). In this way, body image-related cognitive fusion seems to be incompatible with the ability to take a non-judgemental stance regarding thoughts and feelings and to accept them (Fresco *et al.*, 2007).

Body image-related cognitive fusion was also positively associated to symptoms of depression, anxiety, and stress (DASS-21), which may suggest that these symptoms may arise not only from fusion with thoughts in general (Hayes, 2004), but may also be triggered by entanglement with

one's body image-related thoughts. To note was also the positive and strong correlation between the CFQ-BI and eating psychopathology (EDE-Q). Furthermore, results revealed that the CFQ-BI accounted for eating psychopathology's variance, above an overall measure of cognitive fusion, demonstrating therefore the incremental validity of this measure. These findings may suggest that people who get fused with thoughts about their body image tend to present more disordered eating behaviours and attitudes. Thus, this measure may be useful for future research on the role that cognitive fusion, especially when related to body image, plays in eating psychopathology.

These results ought to be interpreted on the light of a few limitations. Despite the fact that the present study sustains the validity of the CFQ-BI, other investigations should be performed in order to assure the adequacy of the measure's factorial structure in different samples. In particular, the structure of this measure was tested in a Portuguese sample and future research should investigate its invariance in other languages (e.g., English). Furthermore, the presence of a diagnosed clinical sample could have also been pertinent, due to the potential significance of this new instrument in eating psychopathology research and clinical practice. Future studies should also investigate how cognitive fusion related to body image interacts with other processes in the ACT model specific for eating and body image-related problems. Nonetheless, the current study supports that the CFQ-BI may be useful in the assessment of therapeutic changes over time, namely in

interventions targeting defusion techniques to develop psychological flexibility towards a valued life.

In conclusion, the CFQ-BI was confirmed to be a short, robust, and reliable measure of body image-related cognitive fusion. This measure seems to be an important contribution to research and clinical practice in the field of body image and eating-related difficulties.

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