p-ISSN: 2184-2205 e-ISSN: 2184-3414 ISBN: 978-989-35728-4-9 © 2025
https://doi.org/10.36315/2025inpact021

IT IS NOT JUST ABOUT FLEXIBILITY: EXAMINING THE ASSOCIATIONS BETWEEN PSYCHOLOGICAL FLEXIBILITY, BODY NEUTRALITY AND DISORDERED EATING BEHAVIOURS

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Abstract

Background: Disordered eating behaviours (DEB) refers to a spectrum and consisting of irregular eating habits, and distorted attitudes around food, weight, shape, and appearance and are one of the primary risk factors for an eating disorder (Pereira & Alvarenga, 2007). Understanding what tools could best intervene and alleviate DEB can help individuals *before* they develop more serious behaviours associated with eating disorders. Psychological flexibility encourages people to be consciously present in the moment and to engage in behaviours that align with personal values (Harris, 2006) and has been linked to fewer DEBs (Givehki et al., 2018). Body neutrality is a newer concept focusing on functional appreciation, body image flexibility, and compassion around appearance (Pellizzer & Wade, 2023). Although body neutrality shares commonalities with psychology flexibility, it has not been empirically evaluated. Thus, the purpose of the present study was to examine how the elements of body neutrality and psychological flexibility affected DEB in young adults. *Method:* In total, 418 participants completed an online questionnaire package that included the Eating Disorder Examination Questionnaire (Fairburn & Beglin, 1994), the Functional Appreciation Scale (Alleva et al., 2017), the Body Image Flexibility and Inflexibility Scale (Brichacek et al., 2023), the Body Compassion Questionnaire (Beadle et al., 2021) and the Comprehensive Assessment of Acceptance and Commitment Therapy Processes (Francis et al., 2016). *Results:* Twenty-nine percent (29%) of participants met the clinical severity cut-off for an eating disorder based on EDE-Q scores (Velkoff et al., 2023). Pearson's correlations revealed a strong, moderate positive correlation between EDE-Q scores and body image inflexibility as well as moderate, negative correlations with body compassion and functional appreciation. A hierarchical linear regression indicated that all aspects of psychological flexibility and body kindness were associated with lower disordered eating. *Conclusion:* Aspects of psychological flexibility and body compassion predicted DEB and could be used in clinical interventions. Furthermore, it is evident that body image inflexibility may play a key role in the maintenance of DEB.

Keywords: *Disordered eating behaviours, psychological flexibility, body neutrality, body image inflexibility.*

1. Introduction

Eating disorders (ED) have increased in prevalence since the onset of the COVID-19 pandemic; in Ontario, Canada, for instance, there was a 121% increase in emergency department visits and a 54% in hospitalizations for EDs in adolescents (Qian et al., 2021). This poses a problem for overburdened healthcare systems, especially in rural areas, which typically lack the proper knowledge or resources to aid people who exhibit severe levels of disordered eating. Disordered eating behaviours (DEB) are a spectrum of behaviours and attitudes including irregular eating habits, and distorted attitudes around food, weight, shape, and appearance. DEBs are a necessary precursor and a primary risk factor for the development of an ED (Pereira & Alvarenga, 2007). Much of the research on EDs has focused on individuals who have a clinical diagnosis, with fewer studies examining etiology of DEB prior to the point of clinical severity. Thus, one purpose of this research was to examine how psychosocial factors can affect DEB in a non-clinical sample of young adults.

Acceptance and Commitment Therapy (ACT) is a third-wave cognitive behavioural therapy that focuses on increasing psychological flexibility by promoting understanding and evaluation of one's current state, accepting both positive and negative emotions without judgement, and choosing to act in line with personal values (Harris, 2006). ACT is amenable to change and has been associated with increased life satisfaction, weight acceptance (Sairanen et al., 2017), and lowered DE symptoms (Givehki et al., 2018).

Recently, the concept of body neutrality has emerged among dietitians, therapists, and ED recovery groups as a possible tool to help alleviate symptoms of ED.

Body neutrality is a relatively new concept that has been gaining popularity across social media platforms (Seekis & Lawrence, 2023). This concept differs from related ones such as body dissatisfaction, body positivity, or body appreciation (Mulgrew & Tiggeman, 2018; Pellizzer & Wade, 2023). Pellizzer and Wade (2023) identified three elements of body neutrality: 1) Attitudes towards the body that are flexible, mindful, and realistic but not value laden; 2) Respecting the functionality of one's body and trying to care for it; 3) Understanding that one is more than their appearance. These factors are similar to ACT principles that are focused on body concerns instead of a general approach focused on a broader assessment of current circumstances. Given the commonalities between body neutrality and psychological flexibility, specifically being non-judgmental about one's body, understanding that an individual is more than their circumstances, and being goal-oriented, it is important to assess specific relationships between the two concepts.

1.1. Purpose of the current study

Given that Pellizzer and Wade's (2023) definition of body neutrality was recently proposed, we examined how body neutrality and psychological flexibility affect behaviours typically associated with disordered eating. We examined the following research questions: 1) How are aspects of body neutrality, specifically body compassion, functional appreciation, and body image flexibility and inflexibility correlated with ED symptoms? and 2) What is the relationship between psychological flexibility and body compassion, functional appreciation, and body image flexibility and inflexibility?

2. Method

2.1. Participants

In total, 418 people were recruited (312 females, 98 males, 8 identified as another identity). The average age of participants was 21.11 years (sd = 5.40), with no differences according to gender. Overall, 29% of participants met the clinical cutoff for an eating disorder (2.8; Velkoff et al., 2023), and 5.2% reported a previous diagnosis for an eating disorder.

2.2. Measures

The **Eating Disorder Examination Questionnaire** (EDE-Q; Fairburn & Beglin, 1994) is a 28-item self-report questionnaire based on a pre-existing set of interview questions. It assesses DEB and attitudes using a 7-point Likert scale from 0 (*no days*) to 6 (*every day*). A score greater than 2.8 suggests the presence of a clinically significant condition (Velkoff et al., 2023) and has high internal consistency ($\alpha = .95$).

The **Comprehensive Assessment of Acceptance and Commitment Therapy Processes** (CompACT; Francis et al., 2016) is a 23-item measure used to assess psychological flexibility across three ACT processes: Openness to Experience, Behavioural Awareness, and Valued Action. Items are scored using a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with higher scores indicating greater psychological flexibility. The CompACT scale has demonstrated strong internal consistency ($\alpha = .91$).

The **Functional Appreciation Scale** (FAS; Alleva et al., 2017), is a 7-item measure that assesses appreciation for what the body is capable of doing. Participants use a 5-point Likert scale with responses ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate greater appreciation. The FAS has good internal consistency ($\alpha = .89$).

The **Body Compassion Questionnaire** (BCQ; Beadle et al., 2021) examines the compassion taken towards one's appearance. Across 29 items, participants indicate how often they have agreed with each statement from 1 (*almost never*) to 5 (*almost always*). The BCQ has demonstrated good internal consistency ($\alpha = .86$).

The **Body Image Flexibility and Inflexibility Scale** (BIFIS; Brichacek et al., 2023) assays participants' ability to adapt to their self-image through 36 items. The scale consists of two subscales body image flexibility (ability to adapt body image) and body image inflexibility (inability to alter body image when changes arise). This scale has demonstrated good internal consistency overall ($\alpha = .82$) and across its subscales: Body Image Inflexibility ($\alpha = .90$) and Body Image Flexibility ($\alpha = .89$).

2.3. Procedure

The current research project was reviewed by the Research Ethics Board at the University of New Brunswick, Canada. Prior to completing the online questionnaire package, all participants provided informed consent. The demographics questionnaire was always completed first, followed by the questionnaires, which were presented in randomized order. After completing the package, participants were presented with debriefing information that explained the full purpose of the study.

3. Results

To address Research Question 1, we examined differences in elements of body neutrality as a function of the EDE-Q 2.80 clinical cut-off score (see Table 1**).** T-tests were used to determine if aspects of body neutrality and psychological flexibility differed as a function of clinical cutoff. Results indicated statistically significant differences between the groups on all factors except BCQ: Common Humanity. These analyses indicated large effect sizes for differences between the groups on BCQ: Body Kindness, BCQ: Total, and BIFIS: Inflexibility.

Table 1. Means and Standard Deviations for Body Neutrality and Psychological Flexibility Scores Based on the EDE-Q Cut-off.

	EDE-Q Clinical Cutoff					
	Below (*n*=276)		Above (*n*=121)		*t*	*Cohen's d*
	Mean	*SD*	*Mean*	*SD*		
BCQ: Common Humanity	4.15	.72	4.05	.67	1.36	.148
BCQ: Body Kindness	3.48	.59	2.81	.68	10.049***	1.096
BCQ: Motivated Action	3.97	.77	3.52	.80	5.26***	.574
BCQ: Total Score	3.87	.49	3.46	.55	7.39***	.805
Functional Appreciation	4.38	.66	3.85	.75	7.11***	.776
BIFIS: Inflexibility	2.64	.81	3.74	.65	12.73***	1.39
BIFIS: Flexibility	4.12	.86	3.70	.75	5.39***	.531
CompACT: Openness to Experience	3.97	.91	3.47	.74	5.38***	.587
CompACT: Behavioural Awareness	4.12	1.23	3.44	1.03	5.26***	.574
CompACT: Valued Action	5.34	.96	5.02	.79	7.11***	.352
CompACT: Total	4.38	.66	3.85	.75	6.74***	.738

*Note. ***p<.001*

One-tailed correlational analyses, tested at $p<.01$, revealed a positive correlation between EDE-Q: Total and BIFIS: Inflexibility, $r = .69$, and a moderate, negative correlation with the BCQ, $r = -.42$, BIFIS: Flexibility, $r = -.24$, and FAS, $r = -.38$. CompACT: Total had medium correlations with the EDE-Q: Total, $r = -.42$; CompACT: Behavioural Awareness, $r = .15$, and CompACT: Valued Action, $r = -.24$, were significantly correlated with EDE-Q: Total. CompACT: Total was correlated with the BCQ, $r = .35$, FAS, $r = .32$, BIFIS: Flexibility, $r = .34$, and BIFIS: Inflexibility, $r = -.19$.

A hierarchical linear regression was conducted to address Research Question 2. Block 1 control variables included age, gender, and previous history of a psychological disorder. CompACT subscale scores were entered in Block 2 and body neutrality scores were entered in Block 3. Overall, the model was statistically significant, $F(11, 379) = 25.44$, $p \leq .001$, and accounted for 42.5% of the variability (see Table 2). Block 1 was statistically significant, with gender (being female) contributing significantly to the model. Block 2 accounted for an additional 14.9% of the variance in EDE-Q: Total, with variability accounted for by CompACT: Openness to Experience, CompACT: Behavioural Awareness, and CompACT: Valued Action. In Block 3, 23% of the variability was accounted for, with BCQ: Body kindness contributing unique variance to the overall model. Thus, higher EDE-Q: Total was predicted by being female, and lower levels of the three pillars of PF and body kindness.

Table 2. Multiple Hierarchical Regression Model Predicting EDE-Q Total Score.

Variable	*r*	ß	*p*	*Adj.* R^2	ΔR^2
Block 1				.03	.03
Gender	**.12**	**.107**	**.033**		
Age	-.06	-.082	.106		
History of Psychological Disorder	.14	.137	.007		
Block 2				.17	.14
CompACT: Openness to Experience	**-.36**	**-.224**	**<.001**		
CompACT: Behavioural Awareness	**-.31**	**-.143**	**.010**		
CompACT: Valued Action	**-.24**	**-.187**	**<.001**		
Block 3:				.41	.23
BIFIS: Flexibility	-.24	-.004	.925		
FAS	-.37	-.061	.239		
BCQ: Body Kindness	**-.60**	**-.531**	**<.001**		
BCQ: Common Humanity	-.06	.023	.535		
BCQ: Motivated Action	-.26	.023	.654		

Note. *Statistically significant predicted are **bolded**

4. Discussion

Body neutrality is a new concept in the eating disorder literature that has limited empirical research. The current research evaluated elements of Pellizzer and Wade's (2023) definition to determine its relationship to DEB and psychological flexibility. Results revealed significant differences between individuals who exhibited clinically severe DEB and those who exhibited less severe DEB. Those with lower DEB were kinder to their body, had more appreciation for its functionality, were more psychologically flexible, and more likely to change how they think, and act to achieve their goals. Those above the DEB clinical severity cutoff exhibited greater inflexibility around their appearance. These results suggest that those with higher DEB engage in rumination on their thoughts, behaviours associated with their appearance. People with eating disorders typically experience cognitive rigidity (Gottesman & Gould, 2003), which is exemplified in the inability to adapt their image of their body when changes arise. These findings suggest that body image inflexibility may play a role in the maintenance of DEB, particularly DEB relating to weight/shape. Cognitive inflexibility may be an important underlying variable in explaining behavioural awareness through rumination, as well as inflexibility around appearance.

The regression revealed that all aspects of psychological flexibility and body kindness, a component of body neutrality added significantly to the model predicting EDE-Q total scores. This is interesting as previous research has documented a relationship between psychological flexibility and DEB (Sairanen et al., 2017). The conceptual similarity between psychological flexibility and body neutrality may mean that, based on these results, body neutrality may be a specific aspect of psychological flexibility. Pellizzer and Wade's (2023) definition involves thinking about one's body in a flexible way and body acceptance, as well as understanding one's own values all of which are encompassed in some form by psychological flexibility. For DEB specifically, it is possible that psychological flexibility is simply part of the process to achieving body neutrality.

What is most interesting in the current results was that body kindness was the only element from Pellizzer and Wade's (2023) definition of body neutrality that predicted EDE-Q scores. Body kindness refers to acceptance, lack of judgement and criticism and kindness (Beadle et al., 2021). This is the core idea behind body neutrality; however, it also underlines the key point of Pellizzer and Wade (2023) which was acceptance. Based on the results of this study, we would suggest that future researchers examine different aspects of disordered eating behaviours in relation to the components of body neutrality. Given the lack of empirical research focused on body neutrality, the definition underlying body acceptance needs to be better understood. Amidst the discussions of body neutrality versus body positivity, there are lessons to be learned for ways to circumvent attitudes surrounding appearance. Understandably, it is near impossible to avoid forming an opinion on some aspect of one's appearance, although acceptance and kindness seem to be promising aspects by which to help mitigate the criticisms people may form.

5. Conclusion

This study provided valuable insight into the relationship between DEB and aspects of body neutrality and psychological flexibility. It is possible that psychological flexibility is an underlying component of body neutrality. Like psychological flexibility perhaps the aspects of body neutrality proposed by Pellizzer and Wade's (2023) can best be applied as a series of skills to work towards

acceptance. This study suggests that body kindness and acceptance as well as body image inflexibility (through cognitive rigidity) may be two of the most prominent mechanisms by which DEB is influenced. More research on the elements of body neutrality and their relationship to DEB is necessary to determine the limitations of their connection. Future research should examine different DEB in relation to body neutrality and psychological flexibility. Researchers should also consider investigating how to appropriately define and measure acceptance and what that would mean for DEB.

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