

Expanding our understanding of eating disorders through a wellbeing lens

Katharine Scutt · Elizabeth Rieger · Kathina Ali · Conal Monaghan

Abstract:

Objectives: Mental health encompasses more than the absence of symptoms and includes positive mental health assets. While previous research typically reports averaged inverse associations between mental wellbeing and eating disorder (ED) psychopathology, emerging evidence suggests this relationship operates with greater complexity. This study investigated the relationship between mental wellbeing and ED psychopathology alongside other indicators of positive mental health and mental illness. **Method:** Young women ($N = 554$, aged 18-35 years) completed measures of positive mental health and mental illness including ED psychopathology. A dual continua model approach categorised participants based on their joint mental wellbeing and ED psychopathology status, with comparisons among groups on depression, anxiety, body appreciation, intuitive eating, ED-related clinical impairment, and total comorbidity. **Results:** Among participants with equivalent clinically elevated ED symptoms ('ED-cases'; $n = 94$), three distinct mental wellbeing levels emerged: high, moderate, and low. Among ED-cases, those with moderate to high mental wellbeing reported better outcomes on all measures compared to those experiencing low wellbeing with an ED, with the low wellbeing group being 15 times more likely to experience severe psychological distress compared to those with an ED and high mental wellbeing. However, all ED groups reported poorer outcomes than their non-ED counterparts with equivalent wellbeing levels. **Discussion:** Mental wellbeing and ED psychopathology are related but distinct dimensions of overall mental health. The findings suggest that mental wellbeing may explain differences in functioning over and above ED status, potentially offering protective mental health benefits. However, further research is needed to understand this relationship given the complex functions ED symptoms serve. These findings demonstrate that incorporating mental wellbeing assessment into ED research and treatment is essential for understanding individual differences in mental health functioning. The markedly low presence of vulnerable individuals (low wellbeing and absence of mental illness) compared to established rates may reflect developmental influences whereby earlier vulnerability to mental illness may be realised by young adulthood. This finding, and the distinct comorbidity patterns, offer insights for dual continua model development.

Keywords: mental wellbeing, wellbeing, eating disorders, dual continua model

1. Introduction

Overall mental health encompasses more than an absence of psychopathology and impairment (i.e., mental illness) and includes positive psychological assets and functioning (i.e., mental wellbeing) (Bohlmeijer & Westerhof, 2021; Jahoda, 1958; Keyes, 2002). With this understanding, researchers and health practitioners are increasingly calling for positive mental health to be seen

as a fundamental outcome of health care (Bohlmeijer et al., 2021; Jankowski et al., 2020; Slade, 2010) and included in clinical psychology practice (Bohlmeijer et al., 2021), mental health services (Bohlmeijer et al., 2021), and mental health research (Forsman et al., 2015). This includes the field of eating disorders (EDs) where Miller (1996) was one of the first to call for the definition of “success” in ED treatment to include indicators of quality of life and positive functioning in addition to symptom remission. Despite this, the relationship between mental wellbeing and ED symptoms, and the unique role of mental wellbeing, remains underexplored, leaving clinicians without evidence-based guidance on how to effectively address both dimensions of mental health.

Research demonstrates that ED symptoms impact all areas of an individual’s functioning—psychological, emotional, social, physical, financial, and occupational (e.g., Butterfly, 2024; Engel et al., 2009; Hudson et al., 2007; Klump et al., 2009; PWC, 2015; Treasure et al., 2020; van Hoeken & Hoek, 2020; Winkler et al., 2014). Economic analyses of ED impacts differentiate between direct healthcare costs and wellbeing-related costs, reflecting growing recognition of mental wellbeing as a distinct dimension of health. In Australia, the economic consequences of EDs totalled AUD \$66.9 billion annually (approximately 2.6% of gross domestic product in 2023), with wellbeing impacts (\$46.1 billion) far outweighing direct treatment and healthcare costs (Butterfly, 2024). Similar patterns of disproportionate wellbeing costs versus direct treatment costs have been observed internationally (Streatfeild et al., 2021). These economic analyses highlight the need for a shift in how we conceptualise the full impact of EDs—moving beyond symptom-focused assessments to recognise mental wellbeing as a substantial aspect of mental health that warrants dedicated research and intervention efforts.

Indeed, studies examining the mental wellbeing of ED patients consistently find that general wellbeing (De Vos et al., 2018), psychological wellbeing (Tomba et al., 2014), and subjective wellbeing (Doll et al., 2005) are below that of healthy controls and often remain below controls after ED symptoms remit (Tomba et al., 2017). Further supporting the importance of mental wellbeing, a systematic review and meta-analysis of patient perspectives on ED recovery found that both clinical (i.e., symptom remission) and personal (i.e., regaining of mental wellbeing domains) aspects are viewed as distinct and necessary components of recovery (de Vos et al., 2017). The significance of personal recovery alongside symptom reduction has also been emphasised in transdiagnostic approaches to mental health treatment and recovery models (Leamy et al., 2011; Slade, 2010). These findings collectively highlight mental wellbeing as an important element in understanding the overall mental health of individuals with ED symptoms, consistent with economic data, and underscore the need for further research exploring the relationship between mental wellbeing and ED psychopathology to guide assessment, prevention, and intervention efforts.

The dual continua model of mental health provides a framework for investigating this relationship. According to this model, mental wellbeing and mental illness are separate but related continua that together contribute to one’s overall mental health, rather than as opposite ends of the same continuum (Iasiello et al., 2023; Keyes, 2002; Mason Stephens et al., 2023). A dual continua model approach to mental health allows for the possibility that an individual may experience varying levels of both continua— from high to low mental wellbeing and high to low ED psychopathology.

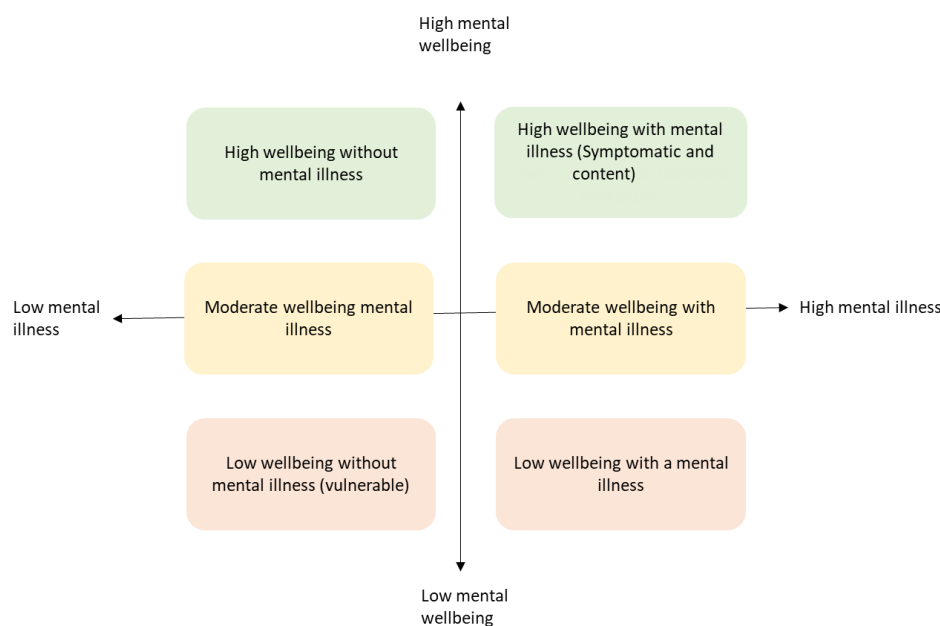
Empirical research examining EDs through the lens of the dual continua model has found support for conceptualising mental wellbeing and ED psychopathology as separate but related constructs, providing a more nuanced understanding of mental health in these populations. Studies have found modest correlations between these domains, consistent with them

functioning as distinct but related dimensions rather than opposite ends of a single continuum (De Vos et al., 2018; Scutt et al., 2023). Research applying more complex statistical methods draws similar conclusions. For example, confirmatory factor analysis in community (Scutt et al., 2023) and ED outpatient samples (De Vos et al., 2018) finds that mental wellbeing and ED symptoms function as separate but related factors. Network analyses further strengthen this evidence by examining the structure of mental health in ED patients. These analyses demonstrate that ED psychopathology is only weakly connected to mental wellbeing both cross-sectionally (de Vos et al., 2021) and longitudinally (de Vos et al., 2023). Additionally, mental wellbeing and ED symptoms change at different rates in treatment (de Vos et al., 2022) providing further evidence of their related but separate nature. These findings collectively highlight that mental wellbeing operates as an important dimension of mental health in ED populations, explaining unique aspects of functioning that ED symptom severity alone cannot account for (de Vos et al., 2017; de Vos et al., 2021; Scutt et al., 2023).

More broadly, empirical evidence from 83 studies supports the dual continua approach across diverse populations and mental health conditions (Iasiello et al., 2020). However, to translate this framework into evidence-based ED practice, further research is needed to understand how mental wellbeing and ED symptoms interact, what factors influence these relationships, and how dual continua approaches can be effectively integrated into treatment.

A common approach to applying the dual continua model in research is combining mental wellbeing and illness status to determine a person’s overall mental health status (shown in Figure 1), reflecting the model's premise that complete mental health comprises both mental wellness and the absence of mental illness (Keyes, 2005). Among the resulting groups, there are two theoretically and clinically important mental health groups that cannot exist within a unidimensional framework: the 'vulnerable' profile (low mental wellbeing despite the absence of mental illness) and the 'symptomatic but content' profile (high mental wellbeing despite the presence of mental illness). These mental health groups highlight the dual continua model’s potential explanatory power beyond traditional approaches.

Figure 1. Dual continua mental health profiles



Note. Adapted from Mason Stephens et al. (2023).

Understanding the classification methods used to identify dual continua mental health groups is fundamental for interpreting research findings and comparing results across studies. Three primary classification methods exist for identifying these groups. Rationally derived approaches, developed by Keyes (2005), apply diagnostic-style categorical criteria to "diagnose" mental wellbeing status (as flourishing, moderate, or languishing) and then combine these with established clinical cut-points for mental illness to result in an overall mental health status. This approach typically yields six distinct groups (as per Figure 1), including accounting for those with moderate mental wellbeing with and without illness. Theoretically derived approaches achieve a similar outcome using researcher-determined cut-off points (often median splits or percentile thresholds) to categorise mental wellbeing and illness status, resulting in four to six distinct groups (Eklund et al., 2010; Renshaw & Cohen, 2014; Suldo et al., 2016). In contrast, empirically derived approaches make no *a priori* assumptions about group boundaries, instead applying person-centered statistical techniques like latent profile analysis to identify naturally occurring patterns in how individuals respond to mental wellbeing and illness measures (Moore et al., 2019; Scutt et al., 2023). Each classification method offers distinct advantages, with selection typically guided by the specific research question.

To date, only two studies have applied the dual continua framework and its classification methods specifically to ED symptoms, each seeking to understand how mental wellbeing varies within ED populations and what factors might protect or enhance mental wellbeing despite the presence of ED psychopathology. Using a rationally derived approach, De Vos et al. (2018) identified ED outpatients with high (13%), moderate (61%), and low (26%) levels of mental wellbeing. Several factors were associated with higher mental wellbeing in these patients: lower general psychopathology (i.e., comorbidity), not having a history of hospitalisation for an ED, and adaptive personal functioning. Of note, categorical mental wellbeing "diagnosis" varied by ED diagnosis type in that individuals with anorexia nervosa reported a higher proportion of languishing, and those with binge eating disorder reported a higher proportion of flourishing, compared to the other ED types. These findings demonstrate that, while on average, ED patients report lower overall mental wellbeing compared to the general population, mental wellbeing varies substantially between the different types of EDs. This pattern aligns with dual continua model predictions that mental wellbeing can operate separately from ED symptoms, allowing mental wellbeing to vary even when ED symptoms are at a clinical level. However, as this study focused purely on a clinical sample, it is unclear how these patterns extend across the full continuum of ED symptom severity in the community.

The second study employed an empirically derived approach to investigate the relationship between mental wellbeing and ED symptoms. Specifically, Scutt et al. (2023) used latent profile analysis to examine ED symptoms and mental wellbeing in a community sample. In contrast to De Vos et al. (2018), Scutt et al. (2023) was unable to identify a clear "symptomatic but content" group using an ED case cut-off score of ≥ 4 on the Eating Disorder Examination Questionnaire (EDE-Q). Instead, the authors reported a partially symptomatic but content group with high mental wellbeing and moderately elevated ED symptoms that comprised 30% of the sample. These conflicting findings regarding the identification of a symptomatic but content group underscore the need for future research to clarify the existence and characteristics of this theoretically and clinically meaningful dual continua profile. Consistent with De Vos et al. (2018), Scutt et al. (2023) identified a low wellbeing/high ED group (approximately 22% of their sample). Scutt et al. (2023) also identified a vulnerable group, however, acknowledged limitations in their assessment of other mental health conditions, as this group showed elevated depression, anxiety,

and stress scores, indicating the potential presence of broader psychopathology that would be contrary to a classification as 'vulnerable'.

The present study applies the dual continua model to examine the relationship between mental wellbeing and ED psychopathology in a community sample. We extend previous research by taking a comprehensive view of mental health by examining other aspects of positive functioning (e.g., intuitive eating, body appreciation) and negative functioning (e.g., other mental illnesses). The present study expands on existing research by undertaking a comprehensive mental illness screening process across eight disorders to robustly investigate the presence of a vulnerable mental health group (expanding on Scutt et al. (2023)) and use theoretically derived classification criteria to resolve the discrepancy in findings of the symptomatic but content group (De Vos et al., 2018; Scutt et al., 2023). We address two overarching research questions through a series of specific hypotheses.

Research question 1. Do mental wellbeing and ED psychopathology operate on separate but related continua consistent with a dual continua model of mental health?

Hypothesis 1a. There will be an overall negative relationship between mental wellbeing and ED psychopathology in line with previous research, but this correlation will be moderate (less than .40), supporting a bivariate relationship rather than a unidimensional construct (Tay et al., 2011).

Hypothesis 1b. The six theoretical dual continua model mental health groups will emerge using a theoretically derived approach based on sample tertiles and clinical cut-offs for ED symptoms.

Hypothesis 1c. A group of individuals classified as having an ED and high levels of mental wellbeing will be identified, replicating findings of De Vos et al. (2018). This is a group uniquely accounted for using a dual continua model approach.

Hypothesis 1d. A group of individuals classified as having low levels of mental wellbeing and no psychopathology after excluding a broad range of mental illnesses will be identified (i.e., a vulnerable group). This is a group uniquely accounted for using a dual continua model approach (Scutt et al., 2023).

Hypothesis 1e. Three ED groups with equivalent ED symptom severity and significantly different levels of mental wellbeing (i.e., high, moderate, and low) will be identified, demonstrating that mental wellbeing can fluctuate separately from ED symptoms.

Research question 2. How do dual continua model mental health groups differ on constructs known to be important in understanding ED psychopathology?

Hypothesis 2a. ED groups with different levels of mental wellbeing will significantly differ in their scores on ED-related clinical impairment, depression, anxiety, intuitive eating, body appreciation, and total comorbidity. Groups reporting higher mental wellbeing will report relatively better scores.

Hypothesis 2b. ED groups with different levels of mental wellbeing will report relatively poorer scores than comparison groups that have equivalent levels of mental wellbeing with no ED.

2. Method

2.1 Participants

Women ($N = 554$) between the ages of 18 and 35 years ($M = 22.08$, $SD = 3.89$) participated in the study (Table 1). Inclusion criteria consisted of women aged 18-35 years living in English-speaking countries (Australia, New Zealand, Canada, the United States, and the United Kingdom). We focused our research on young women for three reasons. First, this demographic experiences the highest prevalence of EDs and related symptoms such as shape and weight concerns and weight control behaviours compared to men and other age groups (Brown et al., 2020; Hay et al., 2023). This gender disparity is most salient in late adolescence and young adulthood (Brown et al., 2020). Second, young women report the highest rates of psychological distress among all demographic groups (ABS, 2022). Third, restricting our sample to one gender allowed for a more precise interpretation of the results, as ED symptoms and their expression can differ across genders (Nagata, Compte, et al., 2020; Nagata, Murray, et al., 2020; Schaefer et al., 2018).

Our sample's ethnic composition was predominantly White/European (70.76%) and Asian (20.22%) (Table 1). This distribution broadly parallels census data from the target countries, where White/European ethnicities comprise the majority (57-82%) followed by Asian ethnicities (6-17%) (Australian Bureau of Statistics, 2021; Office for National Statistics, 2021; Statistics Canada, 2021; United States Census Bureau, 2020; Stats New Zealand, 2023).

Table 1. Key demographic characteristics of the sample

	Frequency	Percent
<i>Ethnicity</i>		
Asian	112	20.22
Black or African American	4	0.72
Indigenous/First Nations	6	1.08
Hispanic or Latino	3	0.54
Middle Eastern	5	0.90
Pacific Islander	2	0.36
White or European	392	70.76
Prefer not to say	2	0.36
Other	28	5.05
<i>Country of Residence</i>		
Australia	354	63.90
New Zealand	45	8.12
UK	69	12.45
USA	44	7.94
Canada	39	7.04
Other	3	0.54
<i>Education</i>		
Secondary school or less	273	49.28
Trade/Tech/Vocational	2	0.36
Advanced diploma/diploma	72	13.00
Bachelor (including honors)	132	23.83
Masters	61	11.01
Doctorate	11	1.99
Prefer not to say	3	0.54

Although the ethnic composition was broadly comparable to national data, our primary goal was to recruit a sample representing the full continuum of both mental wellbeing and ED symptoms. This approach allows for an examination of the varying relationships between different levels of wellbeing across different levels of ED severity. In the present study, 17% of participants met the clinical cut-off for an ED (as described in the Procedure section), which is consistent with a review of epidemiological studies that found ~22% ED prevalence in young people (Hay et al., 2023).

The research received ethical approval from Australian National University Human Ethics Research Committee.

2.2 Measures

Participants answered demographic, mental health, and treatment history questions in addition to a battery of psychometrically validated self-report measures (Table 2). All measures demonstrated adequate internal consistency in the present research as measured through Cronbach's α ranging from .90 to .96 (Table 3). In the questionnaire battery, mental wellbeing and ED psychopathology measures informed categorisation of mental health status. To understand comorbidity and identify a truly vulnerable mental health group, we measured major depressive disorder, generalised anxiety disorder, social anxiety disorder, panic disorder, post-traumatic stress disorder, obsessive compulsive disorder, substance misuse, and positive symptoms of psychosis. Constructs relevant to EDs included measures of ED-related clinical impairment, body appreciation, intuitive eating, depression, generalised anxiety, psychological distress, and total comorbidity. Notably, depression and anxiety disorders are the most prevalent comorbid conditions with EDs and thus are of particular interest (Hudson et al., 2007). The Conscientious Responders Scale (CRS; Marjanovic et al., 2014) was used to control for response bias or inattentive responding.

2.3 Procedure

Women aged 18-35 years were invited to participate through paid social media (Facebook) advertising and the Australian National University psychology research participant pool. Recruitment information about the study centered on its aim of understanding the mental health of young women and did not specifically refer to EDs or any specific mental illness. Participants completed the questionnaire through the online survey platform Qualtrics after providing informed consent. Incentives to participate in the research were either course credit ($n = 278$) or a donation to a not-for-profit organisation once a certain participant number threshold was met ($n = 276$). Country-specific help-seeking resources were provided.

2.4 Mental health classification

Participants were classified into mental health groups through a three-step process that involved determining both mental wellbeing status and ED-status, then combining these classifications to identify specific dual continua mental health groups.

Step 1. Determine ED-status. This was determined using the Eating Disorder Examination Questionnaire (EDE-Q) global score, with participants scoring ≥ 4 classified as "ED cases" and those scoring < 4 as "non-ED cases." We selected this conservative threshold for three reasons. First, an EDE-Q score ≥ 4 represents the 95th percentile and above in community norms for young women (Mond et al., 2006), providing high specificity in identifying clinically significant cases. Second, this threshold matches the mean EDE-Q score in De Vos et al. (2018)'s clinical sample, enhancing comparability between our community sample findings and previous clinical

research. Third, while a lower threshold of 2.8 (representing ≥ 80 -85th percentile) provides optimal sensitivity-specificity balance for detecting ED cases (Mond et al., 2008), our research specifically aimed to identify with high confidence a "symptomatic but content" group—requiring stringent criteria for determining ED-status. This conservative approach means our ED prevalence estimates are likely lower than would be found using less stringent criteria, but provides greater certainty that participants classified as "ED cases" truly experience clinically significant eating pathology.

Step 2. Determine mental wellbeing status. Participants were classified into three mental wellbeing groups using sample-based tertile splits of Mental Health Continuum-Short Form scores. The sample was divided into three equal groups: low mental wellbeing (lowest third, scores < 41), moderate mental wellbeing (middle third, scores 41-53), and high mental wellbeing (highest third, scores > 53). This approach converts continuous wellbeing scores into the necessary categories to form dual continua mental health groups.

Step 3. Allocate participants to dual continua mental health groups. The mental wellbeing and ED-status classifications were combined to allocate participants into one of six dual continua model mental health groups. This categorical approach to mental health classification is consistent with established research in this area (for a review, see Iasiello et al., 2020) and directly addresses Hypotheses 1a, 1b, and 1c. Within this framework, we define "ED-groups" as the three dual continua model mental health groups that include ED-cases: ED/high wellbeing, ED/moderate wellbeing, and ED/low wellbeing. These groups are central to our analysis of how wellbeing levels vary within individuals experiencing significant ED symptoms.

The dual continua model also identifies a "vulnerable" mental health group—individuals who report low mental wellbeing despite the absence of diagnosable mental illness. This group has been found to have higher risk for developing mental illness in the future, making them an important population to identify and understand (Keyes et al., 2010). To rigorously identify truly vulnerable individuals (addressing Hypothesis 1d), we first identified all individuals in our sample categorised as low mental wellbeing. We then screened for a comprehensive range of mental illnesses beyond ED symptoms, using empirically validated cut-offs for each disorder (Table 2). This screening included (in the following order) major depressive disorder, generalised anxiety disorder, eating disorders, social anxiety, panic disorder, and post-traumatic stress disorder using the RMT-20; obsessive compulsive disorder (OCI-4); positive symptoms of psychosis (PQ-B); and substance misuse (AUDIT-C). Participants were classified as vulnerable only if they reported low mental wellbeing while not exceeding the clinical cut-offs for any of these conditions.

We also created a total Comorbidity variable to use in our analysis. As comorbidity is common in ED presentations (Hudson et al., 2007) and may influence the relationship between ED symptoms and wellbeing, we created a "Comorbidity Count" variable representing the total number of mental illnesses (excluding ED) for which each participant exceeded empirical cut-offs. This continuous variable allowed us to examine how mental health status corresponds to overall psychiatric burden, providing additional context for interpreting differences between mental health groups (addressing Hypothesis 2a).

Table 2. Self-report measures and scoring methods used in the present study

Construct	Measure	Score range	Interpretation	Scoring methodology	Psychometric sources
Eating Disorder Symptoms	Eating Disorder Examination Questionnaire (EDE-Q) – 28 items	0-6	Higher scores represent higher psychopathology in the last 28 days. Scores range from 0 (no days) to 6 (every day)	Mean of the 22 core items Global EDE-Q scores were used with a score ≥ 4 (equating to symptoms occurring most days per month or of at least moderate intensity) indicating a probable ED. This is a conservative approach for classifying ED status that maximizes the number of true positives and is above other recommended cut-offs.	Primary: Fairburn and Beglin (1994) Additional: (Aardoom et al., 2012; Mond et al., 2006; Mond et al., 2004; Mond et al., 2008).
Eating Disorder Related Clinical Impairment	Clinical Impairment Assessment Scale (CIA)	0-48	Higher scores represent greater impact of eating disorder beliefs and behaviors on cognitive, social, and personal domains in the last 28 days. Scores range from not at all to a lot.	Sum all items Scores ≥ 16 classify likely ED-status	Primary: Bohn et al. (2008). Additional: (Jenkins, 2013; Raykos et al., 2019).
Mental Wellbeing	Mental Health Continuum Short-Form (MHC-SF) – 14 items	Continuous 14-70 Categorical: languishing, moderate wellbeing, flourishing.	Higher scores represent greater frequency of events that contribute to mental wellbeing in the past month. Items range from never to almost every day/every day.	Sum all items for a continuous total score.	Primary: (Keyes, 2002, 2005) Additional: (Franken et al., 2018; Iasiello et al., 2022; Lamers et al., 2012; Lamers et al., 2011; Žemojtel-Piotrowska et al., 2018)

Construct	Measure	Score range	Interpretation	Scoring methodology	Psychometric sources
Major Depressive Disorder (MDD)	Rapid Measurement Toolkit-20 (RMT20) MDD sub-scale – 4 items	4-20	Higher scores represent higher frequency of depression symptoms in the last 30 days ranging from never to always.	Sum all items Scores ≥ 13 represent likely MDD Continuous measure and cut-off scores used.	Primary: Batterham et al. (2020)
Generalized Anxiety Disorder (GAD)	RMT-20 GAD sub-scale – 4 items	4-20	Higher scores represent higher frequency of general anxiety symptoms in the last 30 days ranging from never to always.	Sum all items Scores ≥ 11 represent likely GAD Continuous measure and cut-off scores used.	Primary: Batterham et al. (2020)
Panic Disorder (PD)	RMT-20 PD sub-scale – 4 items	4-20	Higher scores represent higher frequency of panic symptoms in the last 30 days ranging from never to always.	Sum all items Scores ≥ 9 represent likely PD Cut-off scores used.	Primary: Batterham et al. (2020)
Social Anxiety Disorder (SAD)	RMT-20 SAD sub-scale – 4 items	4-20	Higher scores represent higher frequency of social anxiety symptoms in the last 30 days ranging from never to always.	Sum all items Scores ≥ 12 represent likely SAD Cut-off scores used.	Primary: Batterham et al. (2020)
Post Traumatic Stress Disorder (PTSD)	RMT-20 PTSD sub-scale – 4 items	4-20	Higher scores represent higher frequency of PTSD symptoms in the last 30 days ranging from never to always.	Sum all items Scores ≥ 8 represent likely PTSD Cut-off scores used.	Primary: Batterham et al. (2020)
Obsessive Compulsive Disorder (OCD)	Obsessive Compulsive Inventory 4 (OCI) – 4 items	0-16	Higher scores represent higher severity of OCD symptoms in the last month ranging from not at all to extremely.	Mean of all 4 items Scores ≥ 4 represent likely OCD Cut-off scores used.	Primary: Abramovitch et al. (2021)

Construct	Measure	Score range	Interpretation	Scoring methodology	Psychometric sources
Psychosis (Positive Symptoms)	Prodromal Questionnaire Brief Version (PQ-B) – 21 items	0-21	Higher scores represent more positive symptoms experiences associated with distress in the last month.	Sum number of experiences that are associated with distress. Scores ≥ 4 represent likely psychosis case.	Primary: Loewy et al. (2011) Additional: (Fonseca-Pedrero et al., 2016; Kline & Schiffman, 2014)
Alcohol Use	Alcohol Use Disorders Identification Test (AUDIT-C) – 3 items	0-12	Higher scores represent higher frequency and intensity of alcohol use in the last 12 months.	Scores ≥ 5 represent likely risky drinking or alcohol use disorder for a female sample.	Primary: (Bush et al., 1998) Additional: (Campbell & Maisto, 2018; Dawson et al., 2005; Saunders et al., 1993)
Psychological Distress	Kessler Psychological Distress Scale (K10)	10-50	Higher scores represent higher frequency of psychological distress symptoms in the last 30 days. Scores range from none of the time to all of the time.	Sum all items. Scores ≥ 30 indicate severe psychological stress	Primary: (Kessler et al., 2002) Additional: (Andrews & Slade, 2001; NovoPsych, 2023; Sunderland et al., 2012)
Body Appreciation	Body Appreciation Scale-2 (BAS-2) – 10 items	0-5	Higher scores represent higher frequency of body appreciation beliefs and behaviors (over no specified time period). Scores range from never to always.	Mean of all 10 items.	Primary: Tylka and Wood-Barcalow (2015) Additional: Homan (2016)

Construct	Measure	Score range	Interpretation	Scoring methodology	Psychometric sources
Intuitive Eating	Intuitive Eating Scale-2 (IES-2) – 23 items	1-5	Higher scores represent stronger beliefs and behaviors indicative of intuitive eating (over no specified time period). Scores range from strongly disagree to strongly agree.	Mean of all 23 items for a global score	Primary: Tylka and Kroon Van Diest (2013)
Conscientious Responding	Conscientious Responders Scale (CRS) – 5 items	0-5	Higher scores represent greater conscientious responding.	Sum the number of correct responses Scores ≥ 3 are acceptable for conscientious responding	Primary: Marjanovic et al. (2014)

Table 3. Correlation matrix and internal consistency (Cronbach’s α) for continuous variables used in the present research

Variable	EDE-Q	MHC-SF	MDD	GAD	CIA	K10	IES	BAS
EDE-Q	.96 [.96-.96]							
MHC-SF	-.33	.94 [.93-.95]						
MDD	.39	-.73	.93 [.92-.94]					
GAD	.33	-.47	.58	.91 [.90-.93]				
CIA	.81	-.41	.48	.38	.96 [.96-.97]			
K10	.44	-.64	.81	.67	.55	.92 [.90-.93]		
IES	-.63	.39	-.38	-.32	-.58	-.44	.90 [.89-.91]	
BAS	-.64	.63	-.53	-.42	-.61	-.52	.63	.96 [.95-.96]

Note. All correlations are significant $p < .001$. Cronbach’s α and its 95% confidence interval are on the diagonal. EDE-Q = Eating Disorder Examination Questionnaire; MHC-SF = Mental Health Continuum Short Form; MDD = Major Depressive Disorder Scale of the Rapid Measurement Toolkit; GAD = Generalised Anxiety Disorder Scale of the Rapid Measurement Toolkit; CIA = Clinical Impairment Assessment; K10 = Kessler Psychological Distress Scale; IES = Intuitive Eating Scale II; BAS = Body Appreciation Scale.

2.5 Statistical analysis

2.3 Procedure

Statistical analysis was conducted in JASP version 0.18.1. Data were screened and cleaned in line with standard protocols (Tabachnick & Fidell, 2013). This included screening for statistical outliers on measures of mental wellbeing and ED symptoms, with no participants scoring >3.29 standard deviations above or below the mean. Non-conscientious responders ($n = 12$) and non-female identifying participants ($n = 8$) were removed leaving a total of 554 valid responses. The minimum acceptable statistical significance was $p < .05$ unless otherwise specified.

One-way analysis of variance (ANOVA) and binary logistic regression were used to evaluate differences among the mental health groups (Hypotheses 1d, 2a, and 2b). ANOVA effect sizes were based on Cohen's η^2 benchmarks where .01 is small, .06 is medium, and .14 is large (Cohen, 1988). To correct for multiple ANOVA model comparisons, we applied a Bonferroni correction with an adjusted significance value of $p < .006$. Post-hoc testing used the Scheffe method to correct for multiple comparisons among groups of unequal sizes and is considered a conservative correction method. When the assumption of homogeneity of variance was violated as indicated by a significant Levene's test ($p < .05$), a Welch's correction was applied to the ANOVA model followed by a Games-Howell *post-hoc* test (adjusting for unequal variances and unequal group sizes) with p-values adjusted using the Tukey method. Corrected p values $< .05$ were thus considered significant.

To evaluate whether the observed prevalence of vulnerable individuals differed from established population estimates, a one-sample binomial test was conducted. Previous dual continua research has identified vulnerable group prevalence rates of approximately 10% in both adolescent samples (11.40% in Suldo et al., 2016) and adult samples (10% in adults aged 25-74 years in Keyes, 2005). Accordingly, we tested whether our observed rate in a sample of young women (mean age = 22.08 years) differed significantly from an expected population rate of 10% to confirm presence or absence of a vulnerable group (Hypothesis 1d).

3. Results

3.1 Research question 1: Separate operation of ED psychopathology and mental wellbeing

There was a significant negative correlation between mental wellbeing and ED psychopathology ($r = -.33$, $r^2 = .11$, $p < .001$). This represents a medium effect size and supports Hypothesis 1a. Five of the six dual continua model groups were successfully identified (Table 4) by combining ED status and mental wellbeing classifications as described in the mental health classification method section, partially supporting Hypothesis 1b. This included an ED/high wellbeing group (supporting Hypothesis 1c) that represented 3.43% of the whole sample and 20% of ED-cases (Tables 4 and 5).

We identified a clear group of participants with low mental wellbeing and low ED psychopathology. However, they did not meet the criteria for a pure vulnerable group as all but three participants (0.54% of the sample) exceeded the cut-off for at least one mental illness, representing a statistically negligible proportion compared to established population rates ($p < .001$). Therefore, Hypothesis 1d was not supported. This group will be referred to as non-ED/low wellbeing (rather than vulnerable), acknowledging that other mental illnesses are likely present in this group. Based on our screening process, 96% of individuals (178 out of 186 participants) reporting low mental wellbeing screened positive for major depression and/or generalised anxiety indicating that these conditions were highly prevalent in our sample.

ED psychopathology, as measured by the EDE-Q, differed significantly among the mental health groups with a large effect size (Table 6). Post-hoc testing demonstrated that there were no significant differences between the ED groups with different mental wellbeing classifications in terms of ED psychopathology (means all ≥ 4). As expected, all of the ED groups differed significantly from all non-ED groups in ED psychopathology. All ED groups also reported mean ED-related clinical impairment above the threshold indicative of a clinical ED (Bohn et al., 2008). Mental wellbeing scores differed significantly among the groups with a large effect size (Table 6). *Post hoc* testing revealed no significant differences in mental wellbeing scores between the ED and non-ED groups classified with the same mental wellbeing status except for the low mental wellbeing groups. A medium effect size was observed (Cohen’s $d = .57$), with ED-status individuals reporting poorer mental wellbeing compared to their non-ED low wellbeing counterparts. Overall, mental wellbeing scores differed significantly among the high, moderate, and low wellbeing groups in the same pattern for the ED- and non-ED groups. This confirms that all three ED groups have significantly different mental wellbeing levels and equivalent ED symptom severity (Hypothesis 1e supported).

Table 4. Outcomes of mental health categorisation: Mental wellbeing and eating disorder status

		Eating Disorder Psychopathology	
		Low <i>n</i> = 460 (83.03%)	High <i>n</i> = 94 (16.97%)
Mental wellbeing	High	163 (29.42%)	19 (3.43%)
	Moderate	161 (29.06%)	27 (4.87%)
	Low	136 (24.55%)	48 (8.66%)

Note. *N* = 554

Table 5. Mental wellbeing categorisation: Proportion of high, moderate and low wellbeing by ED-status

	High (%)	Moderate (%)	Low (%)
Non-ED status	35.44	35.00	29.57
ED-status	20.21	28.72	51.06

3.2 Research question 2: Functional differences based on mental health status

Six one-way ANOVAs and *post-hoc* testing examined how the different dual continua model mental health groups differed on depression, anxiety, ED-related clinical impairment, intuitive eating, body appreciation, and comorbidity (Table 6). These analyses enabled two comparisons: 1) between ED groups with different levels of mental wellbeing (Hypothesis 2a), and (2) between ED and non-ED groups with equivalent mental wellbeing status (Hypothesis 2b).

3.2.1 Comparison 1: ED groups with different wellbeing levels (Hypothesis 2a)

ED groups reporting higher mental wellbeing (moderate to high) were associated with better mental health outcomes compared to the ED group reporting low mental wellbeing. This result was seen on measures of depression, anxiety, intuitive eating, ED-related clinical impairment, body appreciation and comorbidity. Binary logistic regression among the ED groups ($n = 94$) examined the odds of experiencing severe psychological distress (i.e., scores ≥ 30). Compared to the ED/high wellbeing group, the odds of reporting severe psychological distress (compared to

not) were 14.74 times higher for those in the ED/low wellbeing group ($B = 2.69$, 95% CI 1.38, 4.01, $\beta = 2.69$, OR 14.74, $p < .001$). Receiver Operating Characteristic analysis indicated that the model could discriminate between true and false positives with an Area Under the Curve of 0.77. ED/high wellbeing and ED/moderate wellbeing groups reported no significant differences on anxiety, ED-related clinical impairment, intuitive eating, body appreciation, comorbidity nor on the odds of reporting severe psychological distress ($p = .21$). The ED/high wellbeing group only reported a significantly better outcome compared to the ED/moderate wellbeing group on depression and mental wellbeing. Together, these results support Hypothesis 2a, such that higher mental wellbeing (moderate to high) in conjunction with an ED is associated with an overall better mental health status compared to those experiencing low mental wellbeing with an ED.

3.2.2 Comparison 2: ED vs. Non-ED groups with equivalent wellbeing (Hypothesis 2b)

ED groups reported poorer outcomes compared to their respective non-ED groups with the same mental wellbeing status. This supports Hypothesis 2b such that ED-status is associated with poorer overall mental health compared to those without an ED despite not differing on mental wellbeing. There are two key findings. The first relates to comparisons between the ED/high wellbeing and non-ED/high wellbeing groups. Despite their comparable levels of mental wellbeing, the non-ED/high wellbeing group reported significantly better outcomes on ED-related clinical impairment, body appreciation, comorbidity, and intuitive eating compared to the ED/high wellbeing group. There was no significant difference in depression and general anxiety between these groups. Overall, this suggests that while reporting equivalent levels of mental wellbeing, the non-ED/high wellbeing group reported relatively better mental health outcomes compared to the ED/high wellbeing group (supporting Hypothesis 2b).

The second finding relates to comparisons between the ED/low wellbeing and non-ED/low wellbeing groups. These two groups were the only groups to report a significant difference in mental wellbeing. These groups also significantly differed on depression, ED-related clinical impairment, intuitive eating, body appreciation, and comorbidity, with the ED/low wellbeing group reporting poorer scores on these measures. Overall, this suggests that those in the ED/low wellbeing group are more impaired than those experiencing low wellbeing without an ED, a result consistent with that observed when comparing non-ED/high wellbeing and ED/high wellbeing groups. These results demonstrate that those experiencing low mental wellbeing combined with an ED are the most vulnerable mental health group in our sample (supporting Hypothesis 2b).

Table 6. One-way analysis of variance results examining functional differences among mental health groups

		High wellbeing/ no ED (<i>n</i> = 163)	Moderate Wellbeing/ no ED (<i>n</i> = 161)	Low Wellbeing/ no ED (<i>n</i> = 136)	High Wellbeing/ ED (<i>n</i> = 19)	Moderate Wellbeing/ ED (<i>n</i> = 27)	Low Wellbeing/ ED (<i>n</i> = 48)	Model	η^2 (effect size)
	Scale range	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)		
ED Psychopathology [#]	0-6	1.52 (1.03) ^a	1.78 (1.08) ^a	2.14 (1.05) ^b	4.62 (.41) ^c	4.59 (.48) ^c	4.93 (.49) ^c	$F(5, 120.86) = 369.48, p < .001$.58 (large)
Mental Wellbeing [#]	14-70	60.72 (4.86) ^a	47.14 (3.74) ^b	32.11 (6.15) ^c	60.79 (4.64) ^a	45.74 (4.07) ^b	28.50 (6.58) ^d	$F(5, 100.87) = 508.02, p < .001$.85 (large)
Depression [#]	4-20	7.82 (2.73) ^a	10.96 (3.29) ^{b, d}	14.53 (2.95) ^e	10.26 (3.90) ^{a, b, c}	11.82 (3.05) ^{c, d}	15.94 (2.84) ^f	$F(5, 100.45) = 108.95, p < .001$.47 (large)
Anxiety	4-20	11.60 (3.49) ^a	13.86 (3.15) ^b	15.61 (3.48) ^{c, d}	13.47 (2.99) ^{a, b, c}	15.70 (3.56) ^{b, c, d}	16.35 (2.81) ^d	$F(5, 548) = 29.73, p < .001$.21 (large)
Clinical impairment [#]	0-48	7.66 (7.78) ^a	9.08 (7.85) ^a	15.09 (10.69) ^b	26.95 (9.03) ^c	26.44 (8.87) ^c	34.85 (7.56) ^d	$F(5, 101.13) = 122.44, p < .001$.49 (large)
Intuitive eating	1-5	3.45 (.58) ^d	3.30 (.59) ^d	3.00 (.54) ^c	2.83 (.61) ^{b, c}	2.65 (.67) ^{a, b}	2.34 (.48) ^a	$F(5, 548) = 37.83, p < .001$.26 (large)
Body appreciation	0-5	3.77 (.73) ^d	3.29 (.67) ^c	2.60 (.76) ^b	2.88 (.72) ^{b, c}	2.40 (.67) ^b	1.74 (.56) ^a	$F(5, 548) = 87.54, p < .001$.44 (large)
Comorbidity count [#]	0-8	2.33 (1.78) ^a	3.88 (1.90) ^b	5.03 (1.95) ^{d, e}	4.11 (1.82) ^{b, c, d}	5.19 (1.30) ^{c, e}	6.15 (1.44) ^f	$F(5, 104.91) = 60.38, p < .001$.32 (large)

Note. Groups with different superscripts in each row are significantly different from each other. Those with the same superscript do not significantly differ at the $p < .05$ level (adjusted). [#] Welch's correction and Games-Howell *post hoc* test with p values corrected by the Tukey method used to correct for a significant Levene's test. *M* = mean, *SD* = standard deviation

4. Discussion

This study used the dual continua model of mental health framework to explore the relationship between mental wellbeing and ED symptoms and how this pattern extends across multiple dimensions of positive and negative functioning. By specifically investigating mental wellbeing, it aimed to enhance our understanding of EDs beyond the traditional unidimensional framework. The investigation consisted of two overarching research questions: 1) do mental wellbeing and ED psychopathology operate on separate but related continua; and 2) how do dual continua model mental health groups differ on constructs known to be important in understanding ED psychopathology?

4.1 *Symptomatic but content*

Our findings were consistent with the premise that ED psychopathology and wellbeing function as separate but related constructs, enabling varying combinations of mental wellbeing and symptoms. The moderate correlation between constructs ($r = -0.33$) supports this dual continua conceptualisation (hypothesis 1a; Tay et al., 2011) and replicates previous research (De Vos et al., 2018; Scutt et al., 2023). The emergence of three distinct mental wellbeing profiles within equivalent ED severity groups reveals meaningful heterogeneity that a symptom-focused approach would miss (Hypothesis 1e). This complexity is most evident in the identification of an ED/high wellbeing group—individuals with clinical levels of ED symptoms yet high mental wellbeing, referred to as ‘symptomatic but content’ in the dual continua model. Identifying individuals reporting high mental wellbeing with clinical-level ED symptoms demonstrates separate construct operation that unidimensional perspectives cannot accommodate, supporting the dual continua model. This adds nuance to research typically reporting averaged ED symptom-outcome associations (Doll et al., 2005; Jenkins et al., 2011). Our community sample revealed that 20% of individuals with clinical-level ED symptoms reported high mental wellbeing, compared to 13% in De Vos et al. (2018)’s clinical sample—a difference likely reflecting the broader severity range captured in community versus treatment-seeking populations.

The current finding of a sizeable ED/high wellbeing group is somewhat inconsistent with the results of Scutt et al. (2023), who did not identify a clear symptomatic but content group using identical EDE-Q ≥ 4 criteria. Rather, Scutt et al. (2023) identified a “partially symptomatic and content” group which experienced moderately elevated ED symptoms and high levels of mental wellbeing. While not a pure symptomatic but content group, individuals in this profile nevertheless reported mean levels of ED symptomatology that were above less conservative but accepted thresholds for ED-caseness (Mond et al., 2004). These somewhat discrepant findings may reflect methodological differences as latent profile analysis can have difficulty identifying individuals at extreme ends (i.e., symptomatic but content using stringent ED-case criteria) whilst maintaining viable and parsimonious profile solutions (Masyn, 2013). Overall, similar patterns across studies, despite methodological variations, support the premise that mental wellbeing and ED symptoms can vary independently and that a group of individuals consistently emerge reporting high mental wellbeing with elevated ED symptoms.

4.2 *Functional differences based on mental health status*

Our findings suggest mental wellbeing, independent from ED symptom severity, differentiates broader mental health outcomes. Despite comparable ED severity (EDE-Q scores ≥ 4), participants with moderate to high mental wellbeing demonstrated substantially better functioning than those experiencing low mental wellbeing with an ED across all measures, including depression,

anxiety, ED-related clinical impairment, body appreciation, intuitive eating, and comorbidity burden (Hypothesis 2a). These mental wellbeing-related differences were considerable, with the ED/low wellbeing group being 15 times more likely to experience severe psychological distress compared to the ED/high wellbeing group. This suggests that mental wellbeing may operate as a protective factor buffering against the broader mental health impacts of EDs and/or that overall psychiatric burden can exert a toll on mental wellbeing. Indeed, the potentially protective effects of mental wellbeing were evident regardless of ED status, as these same patterns were observed in both ED- and non-ED-status groups.

However, mental wellbeing's potentially protective effects have clear limits, as ED symptoms were associated with overall poorer outcomes regardless of mental wellbeing status. Specifically, all ED groups reported poorer outcomes than their non-ED counterparts with equivalent mental wellbeing levels, suggesting that both dimensions contribute independently to overall mental health (Hypothesis 2b). Even the ED/high wellbeing group showed significantly worse relationships to their bodies (body appreciation) and food (intuitive eating), ED-related impairment, and comorbidity than individuals experiencing high mental wellbeing without an ED. This demonstrates that while mental wellbeing may provide buffering effects, ED symptoms continue exacting measurable impairment.

High self-reported wellbeing coexisting with clinical-level ED symptoms requires careful interpretation, as it may reflect several mechanisms that likely vary depending on the individual. ED symptoms develop as maladaptive attempts to manage distress, providing individuals with a sense of control, emotional regulation, identity, and means of communicating needs (Gagnon-Girouard et al., 2019; Marzola et al., 2016; Nordbø et al., 2006). When these behaviours are perceived as successfully serving their intended functions, they may become ego-syntonic to the individual (becoming part of their identity; Stockford et al., 2007; Vitousek et al., 1998) and potentially contribute to short-term perceived improvements in subjective mental wellbeing. This may help to explain why some, but not all, individuals with EDs report high mental wellbeing. However, this raises questions about whether such mental wellbeing truly reflects authentic psychological health. While further research is needed to understand this relationship, given differences between the non-ED/high wellbeing and ED/high wellbeing groups on measures such as overall comorbidity/psychiatric burden, feelings about one's body (body appreciation), and one's relationship to eating (intuitive eating), we can see that EDs are not pathways to true long-term mental wellbeing as some pro-ED narratives suggest (Hammond, 2014), but rather represent costly coping mechanisms that impair overall functioning in the long-term (Butterfly, 2024).

4.3 Vulnerable group

Our study was unable to identify a "vulnerable" group characterised by low mental wellbeing in the absence of mental illness (Hypothesis 1d) after comprehensively screening across eight mental health conditions. This finding has theoretical implications, as the vulnerable group represents a test of the dual continua model's proposal that low mental wellbeing can exist independently of a diagnosable mental illness, a pattern impossible under unidimensional frameworks. Our results build on the research by Scutt et al. (2023), the only other study attempting to identify a vulnerable group while screening for mental illnesses including EDs. While Scutt et al. (2023) identified a vulnerable group, they acknowledged significant limitations in their mental illness screening that likely failed to identify various types of mental illness and therefore may have resulted in misclassification. As such, our comprehensive eight-illness assessment provides a more rigorous test of the existence of a vulnerable group.

The markedly low presence of vulnerable individuals in the present study that is below previously established population prevalence (~10%) may reflect developmental timing rather than conceptual problems with the dual continua model. That is, a vulnerable group may be most detectable during adolescence, with most individuals transitioning to diagnosable conditions by young adulthood where impacts of mental illness are at their peak (Solmi et al., 2022). Subsequently, trends in mental illness prevalence rates decline again in older age (Reynolds et al., 2015; Thomas et al., 2016). Previous research consistently identifies vulnerable individuals in adolescent samples (e.g., 11.4% in Suldo et al. (2016) and in full adult samples across the lifespan (10% of those aged 25-74 years in Keyes (2005)), yet our sample ($M = 22.08$, $SD = 3.89$ years) showed significantly lower rates (0.54%, $p < .001$). This pattern suggests vulnerable groups exist both before and after our targeted age range, supporting a developmental transition hypothesis. Given that our participants represent a demographic experiencing peak rates of both EDs, psychological distress (ABS, 2022; Brown et al., 2020), and mental illness onset (Solmi et al., 2022), we may be observing a population where earlier vulnerability has manifested as clinical presentation by the early 20s. The marked increase in youth mental health problems over the past decade may exacerbate the absence of a vulnerable group in the present day (Bommersbach et al., 2023; Cybulski et al., 2021; Toigo et al., 2024; Twenge, 2020). Rather than undermining the dual continua model, this finding might demonstrate the model's validity in capturing different mental health patterns across developmental contexts that unidimensional models cannot accommodate.

Another factor that may have contributed to the markedly small vulnerable group in the current study was our use of a conservative ED cut-off creating differential thresholds compared to other mental illness screening. However, our comprehensive screening employed validated measures with excellent psychometric properties specifically designed for accurate case identification. For example, the RMT-20, used for major depression and generalised anxiety disorder screening, demonstrated superior accuracy to established distress measures in large validation samples, with depression and anxiety cut-offs showing optimal balance between sensitivity and specificity, ensuring reliable identification of true cases while minimising false positives (Batterham et al., 2020). That 96 percent of participants with low mental wellbeing met these validated cut-offs for major depression and/or generalised anxiety disorder gives confidence of genuine psychiatric comorbidity rather than methodological artifact. Further research is essential to determine which factors account for the below expected vulnerable group size in this demographic.

4.4 Comorbidity

Our findings reveal a systematic relationship between comorbidity burden and mental health profiles that may provide an additional explanation for the functional differences observed between groups. Comorbidity followed a clear gradient pattern, with burden increasing as wellbeing decreased: non-ED groups ranged from 2.33 (high wellbeing) to 5.03 (low wellbeing) comorbid conditions, while ED groups ranged from 4.11 (high wellbeing) to 6.15 (low wellbeing) comorbid conditions. This suggests that comorbidity burden, alongside mental wellbeing levels, may partially account for the substantial outcome differences between mental health groups, particularly the severe impairment observed in the ED/low wellbeing profile. Further research would be needed to test this interpretation.

This study represents the first dual continua model investigation to comprehensively examine comorbidity patterns across a broad range of mental illnesses, addressing calls from previous ED research to incorporate comorbidity as a factor in dual continua frameworks (De

Vos et al., 2018). Our findings demonstrate that comorbidity burden varies meaningfully across mental health profiles and consistently corresponds to functional outcomes, indicating that future dual continua research must evolve to account for psychiatric comorbidity rather than treating it as peripheral to the model. The elevated comorbidity burden across all ED groups compared to their non-ED counterparts, combined with the particularly concerning levels in the ED/low wellbeing group, has important implications for both mortality risk given recent evidence linking comorbidity to increased mortality in anorexia nervosa (Søeby et al., 2024) and treatment selection approaches (Fairburn, 2008).

4.5 Clinical implications

Our findings demonstrate that mental wellbeing is an important dimension of mental health that is associated with outcomes over and above those explained by ED symptom severity, consistent with other studies in the ED field (De Vos et al., 2018; Scutt et al., 2023). Cumulative findings of this kind encourage a re-think of how clinicians approach assessment, formulation, and intervention planning (Bohlmeijer et al., 2021; Slade, 2010). That is, traditional symptom-focused assessment might provide an incomplete clinical picture, missing psychological resources that could support recovery and risk factors that compound the clinical presentation. Our identification of three distinct wellbeing profiles within equivalent ED severity groups reveals that individuals with similar symptom presentations may have vastly different psychological resources and treatment needs which could effectively be integrated into the recovery journey. This heterogeneity suggests that mental wellbeing status could inform more individualised intervention strategies, aligning with patient perspectives emphasising personal recovery (regaining mental wellbeing domains) as distinct from but complementary to clinical recovery (symptom remission) (De Vos et al., 2018; Leamy et al., 2011; Wetzler et al., 2020). For instance, those experiencing high mental wellbeing with an ED may report better functioning but likely remain significantly impaired compared to truly healthy individuals, whilst those experiencing low mental wellbeing with an ED represent a highly distressed and complex group with multiple comorbid issues requiring intensive, multifaceted intervention. The latter has received far greater attention given the traditional focus on psychopathology. However, an acknowledgement of the unique role of mental wellbeing encourages its routine assessment thereby enabling clinicians to identify protective factors that could be leveraged in treatment (while also continuing to recognise high-risk profiles demanding urgent attention).

The co-occurrence of high self-reported mental wellbeing with clinical-level ED symptoms presents complex interpretive challenges with important implications for both treatment and prevention efforts. High mental wellbeing in ED contexts may reflect genuine psychological resources that could support recovery, but they could also represent ego-syntonicity where ED symptoms align with personal values and identity (Stockford et al., 2007; Vitousek et al., 1998), denial of illness (Ali et al., 2020; Fabry et al., 2023), or deeper meaning and function of the ED symptoms themselves (Gagnon-Girouard et al., 2019; Marzola et al., 2016; Nordbø et al., 2006). This may mask significant underlying distress, requiring therapeutic attention despite surface-level contentment. Clinicians must therefore distinguish this from authentic mental wellbeing—derived from, for example, meaningful relationships, personal growth, and life satisfaction. Importantly, ego-syntonicity and denial of illness represent key barriers to help-seeking (Ali et al., 2017; Ali et al., 2020; Fabry et al., 2023), motivation to change (Marzola et al., 2016), and treatment resistance (Stockford et al., 2007) which are important to consider given the ongoing low treatment-seeking rates (Ali et al., 2024). Assessment should therefore explore the sources and sustainability of reported mental wellbeing alongside ED symptoms.

4.6 Limitations and future directions

Our findings should be interpreted within the context of methodological constraints that point toward important research developments. First, the cross-sectional design captures associations rather than causal relationships, limiting our understanding of whether mental wellbeing protects against comorbid problems in those with an ED and/or whether comorbidity results in impaired mental wellbeing. Second, without diagnostic interview confirmation, participants met psychometric rather than confirmed clinical criteria, suggesting future research would benefit from hybrid approaches combining validated self-report screening with clinical interview assessment. Finally, our sample characteristics—young adult females from predominantly Western countries—reflect the highest ED prevalence demographic but limit generalisability across more diverse populations, including males, gender diverse individuals, and older adults who may experience different ED presentations with different relationships to mental wellbeing (Halbeisen et al., 2022; Nagata, Compte, et al., 2020; Nagata, Murray, et al., 2020; Schaefer et al., 2018).

Several research priorities emerge from our findings that could substantially advance understanding and clinical application. Longitudinal research could determine whether the absence of vulnerable groups in young adults reflects developmental transitions, methodological factors, or genuine population differences, and examine how mental wellbeing-ED relationships evolve across development. From a measurement perspective, developing ED-specific mental wellbeing measures represents a priority (Jankowski et al., 2022; Schrank et al., 2013), as ED-specific measures may be able to better distinguish ego-syntonic responses from genuine mental wellbeing (Abraham et al., 2006; Adair et al., 2007). Our identification of systematic comorbidity patterns highlights the need for research explicitly incorporating psychiatric comorbidity into dual continua model development, as this represents an understudied factor that influences mental health profiles. Finally, given the separate operation of mental wellbeing and ED symptoms demonstrated in our findings, research investigating optimal timing and approaches for integrating mental wellbeing interventions (Bohlmeijer et al., 2021) into evidence-based ED treatment is needed to translate these theoretical insights into clinical practice.

5. Conclusion

Mental health in those with elevated ED symptoms operates with far greater complexity than unidimensional approaches acknowledge, highlighting the value of frameworks such as the dual continua model that can accommodate nuanced symptom-mental wellbeing relationships. Consistent with previous research in ED outpatient samples, our findings reveal that mental wellbeing and ED psychopathology function as separate but related constructs, resulting in meaningful heterogeneity among individuals with equivalent symptom severity.

By providing the first mental health examination with comprehensive mental illness screening and an ED focus, this research addresses gaps in understanding how mental wellbeing and ED symptoms interact across the severity spectrum. The identification of theoretically and clinically important groups—particularly individuals reporting high mental wellbeing despite clinical-level ED symptoms—reveals patterns invisible under traditional symptom-focused frameworks. These findings underscore the need to address both dimensions in research and practice.

The findings highlight a paradox in that higher mental wellbeing potentially offers protective benefits and recovery resources while also potentially masking the need for treatment by comprising a pseudo form of mental wellbeing attained through engagement in eating

disordered behaviours. This paradox exemplifies why mental health frameworks must accommodate complexity by incorporating mental wellbeing assessment into ED research and treatment, which will be important for developing more effective, individualised approaches that recognise the full spectrum of human mental health.

Authors

Katharine Scutt
<https://orcid.org/0000-0002-4139-6502>
Australian National University, Australia
Katharine.Scutt@anu.edu.au

Elizabeth Rieger
<https://orcid.org/0000-0002-8865-5831>
Australian National University, Australia

Kathina Ali
<https://orcid.org/0000-0002-5169-0553>
University of the Sunshine Coast, Australia

Conal Monaghan
<https://orcid.org/0000-0003-2949-5038>
Australian National University, Australia

Author contribution statement

Conceptualisation and Methodology: KS, ER, KA, CM; Data curation: KS; Formal Analysis: KS, CM; Investigation: KS; Visualisation: KS; Writing – Original Draft: KS; Writing – Review & Editing: ER, KA, CM; Supervision: ER.

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AI statement

The authors designed the study, conducted data collection and analysis, and performed all interpretation of findings without artificial intelligence assistance. All original writing of the manuscript was completed by the authors without AI involvement.

Artificial intelligence was used solely to assist with editorial improvements at the final stages such as refinements to voice and tone, clarity, and grammar. This editorial assistance was conducted in accordance with Australian Standards for Editorial Practice, specifically Section D - Language and Illustrations guidelines. However, all visualisations and figures were created without AI assistance.

The use of AI for editorial purposes did not influence the study design, data analysis, interpretation of results, or substantive content of the manuscript. All research conclusions and scholarly contributions remain entirely the work of the authors.

Data availability statement

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

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