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Madeleine Irish, 1405428

Oxford Institute of Clinical Psychology Training and Research
Harris Manchester College, University of Oxford

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Critical review of the literature (CRL)	5765
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Abstracts

Critical review of the literature: Personality as a predictor of biological and psychological outcomes in bariatric surgery amongst an adult population: a systematic review.

Background: Certain personality traits have previously been found to be associated with successful bariatric surgery prognosis, however, research has been conflicting. Therefore, the aim of this systematic review was to assess the longitudinal associations between personality traits and biological or psychological outcomes amongst an adult population. **Method:** PsychINFO, Embase, Medline and PubMed were searched for studies published between 1994 and 2023 with a follow-up period of at least one year post-surgery. Studies were screened according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and results were reviewed using a narrative synthesis approach. **Results:** Twenty-one articles, including 6 730 participants, were analysed. The results suggest that lower levels of persistence and higher externalising dysfunction most consistently predict poorer weight loss outcomes post-surgery. **Conclusions:** Given these findings, assessing personality traits preoperatively could help guide post-surgery support and monitoring for a subgroup of people. Future studies would benefit from measuring outcomes beyond weight loss, such as psychosocial adjustment and quality of life. In addition, given the substantial variability on how weight outcomes were reported across studies, standardised guidance would be beneficial.

Service improvement project: Evaluation of the delivery of individual therapy in the Oxford Talking Space Plus Improving Access to Psychological Therapies (IAPT) service before and during the Covid-19 pandemic and how best to inform the future service model.

The mitigations put in place to reduce the spread of COVID-19 caused widespread disruption to people's lives and their mental health. It also led to the transition from face-to-face to remote working for many psychological therapies. Although evidence has indicated that remote therapy (i.e., videoconferencing) is effective, little is known about the added impact of a pandemic on treatment outcomes, and the effectiveness for different clinical presentations and demographic characteristics. This service improvement project compared therapy outcomes for 1,047 patients who received high intensity psychological input from an Increasing Access to Psychological Therapy (IAPT) service before the Covid-19 pandemic and during the pandemic (when the majority of therapy was delivered remotely). In addition, the experiences of groups that showed poorer outcomes during the Covid-19 period were explored using qualitative interviews. Despite the psychological impact of the pandemic, and its associated restrictions, the Covid-19 period was not associated with poorer clinical outcomes for many clinical presentations and client demographics. However, recovery rates for those receiving therapy for obsessive compulsive disorder were significantly lower during Covid-19 when compared to pre-Covid-19. Possible reasons for this are explored. The findings suggest that, overall, Covid-19 did not have a significant impact on treatment outcomes, and that remote therapy may be an effective option within an IAPT setting, and could be offered on a permanent basis as part of patient choice.

Theory driven research project: Investigating self-blame and trauma symptoms in parents of young people with Anorexia Nervosa - “Traumatised by the past, desperately trying to keep them well in the present, and worried about the future”.

Caring for a young person with anorexia nervosa (AN) has been associated with psychological distress and found to be a traumatic experience. This can have an impact on patient and family outcomes. **Objective:** This study aimed to investigate whether self-blame cognitions contribute to post-traumatic stress disorder (PTSD) symptoms in parents of young people with AN, and what the experiences were of those showing high self-blame and PTSD symptoms. **Methods:** A mixed-methods, cross-sectional design was used. One hundred and twenty-three parents of children with AN completed a range of questionnaires, and an additional 56 with high self-blame and PTSD symptoms provided qualitative feedback. **Results:** Overall, levels of self-blame cognitions were significantly higher in those experiencing higher levels of PTSD symptoms compared to low levels. Additionally, levels of self-blame cognitions significantly predicted PTSD symptoms over and above demographic factors and illness severity, accounting for 22% of unique variance in PTSD symptoms. **Conclusions:** The findings suggest that negative appraisals regarding self-blame for their child’s eating disorder (ED) contributed to the potential development and/or maintenance of PTSD symptoms. Parents presenting with thoughts of self-blame would benefit from further support to reduce these feelings and, subsequently, reduce carer distress.

Critical Review of the Literature

Personality as a predictor of biological and psychological outcomes in bariatric surgery amongst an adult population: a systematic review.

Madeleine Irish (1405428)

Department of Psychology, University of Oxford, Isis Education Centre, Warneford Hospital, Oxford, OX3 7JX

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Internal Supervisor: Dr Myra Cooper, Oxford Institute of Clinical Psychology Training and Research, University of Oxford

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Proposed journal: This project is intended for submission to the International Journal of Obesity and has been formatted in accordance with the guidelines (Appendix A2). This journal has been selected as it is recognised for publishing research into the psychological aspects of obesity and related disorders.

Conflict of interest: No conflict of interests declared.

Abstract

Background: Certain personality traits have previously been found to be associated with successful bariatric surgery prognosis, however, research has been conflicting. Therefore, the aim of this systematic review was to assess the longitudinal associations between personality traits and biological or psychological outcomes amongst an adult population. **Method:** PsychINFO, Embase, Medline and PubMed were searched for studies published between 1994 and 2023 with a follow-up period of at least one year post-surgery. Studies were screened according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines and results were reviewed using a narrative synthesis approach. **Results:** Twenty-one articles, including 6 730 participants, were analysed. The results suggest that lower levels of persistence and higher externalising dysfunction most consistently predict poorer weight loss outcomes post-surgery. **Conclusions:** Given these findings, assessing personality traits preoperatively could help guide post-surgery support and monitoring for a subgroup of people. Future studies would benefit from measuring outcomes beyond weight loss, such as psychosocial adjustment and quality of life. In addition, given the substantial variability on how weight outcomes were reported across studies, standardised guidance would be beneficial.

Keywords: bariatric surgery, personality, predictor, obesity

Introduction

The prevalence of obesity has been increasing worldwide (1), and often people go through numerous weight loss attempts with little success (2). To date, bariatric surgery, a form of forced behavioural modification which makes the stomach smaller (3), is one of the most effective treatments for sustained weight loss (4). Not only is bariatric surgery associated with successful weight loss, but also improvements in psychological wellbeing, such as reduced depression and anxiety symptoms and improved self-esteem (5). For a proportion of people, however, positive outcomes of bariatric surgery are not sustained in the long-term (6-9), with one study reporting that up to 50% of patients showed weight regain in the first 24 months post-surgery (8), and one review finding psychosocial outcomes to be variable (10).

Given the variability in bariatric surgery outcomes, and the risks and resources associated, it is important to understand predictors in order to best support patients pre- and post-surgery. Many individual predictive factors have been indicated, including: demographic factors such as age and gender; health variables such as pre-operative BMI and physical co-morbidities; pre-surgical psychiatric symptoms such as depression; and eating behaviours such as the presence of binge eating (11-13).

Other predictor variables explored in the literature include personality characteristics. Many health psychology theories indicate the influence of individual and environmental factors on health-related factors (e.g., Social Cognitive Theory, Theory of Planned Behaviour; 14). Theories such as the Social Cognitive Theory, which proposes personality as a complex and dynamic system, are thought to be more compatible with Cognitive Behavioural Therapies (CBT) due to the acknowledgment of the interaction between traits and situations (15, 16), and therefore, could be beneficial to consider to improve health outcomes. It is also understood that individual factors, such as coping or self-efficacy, are influenced by personality characteristics. For instance, when considering the five-factor model of personality (5FM; 17), a trait-theoretic approach describing the basic traits of personality, neuroticism has been related to a more passive coping style, whereas conscientiousness has been related to more active strategies (18), which in turn could impact behaviours related to sustained weight loss.

Other common personality theories include the psychobiological model that divides traits into ‘character’ – the environmental aspects (e.g., cooperativeness) – and ‘temperament’ – the biological, inherited aspects (e.g., novelty seeking; 19). Based on this model, The Temperament and Character Inventory was developed (TCI; 20), which has commonly been used in obesity and weight loss research (21).

To date, the evidence investigating personality as a predictor for successful bariatric surgery outcomes has been inconsistent and inconclusive. The most comprehensive systematic review conducted by Bordignon et al. (22) concluded that externalising personality factors measured by the Minnesota Multiphasic Personality Inventory–2–Restructured Form (MMPI-2-RF; 23), which is related to control of impulses and low tolerance of frustration, was associated with poorer weight loss outcomes at 12 months. In addition, they and Generali et al. (24) reported that traits of persistence (the ability to persevere despite the absence of positive reinforcement) and self-transcendence (the expansion of personality boundaries; e.g., personal growth and reflectiveness) were associated with better weight outcomes. On the other hand, Herpertz et al. (12), Wimmelmann et al. (25) and Wimmelmann et al. (26) could not conclude that personality traits predicted postoperative weight loss or quality of life outcomes due to the lack of consistency in the evidence, however, few studies were identified.

However, previous reviews come with their limitations, which could account for the inconsistencies described. Firstly, the majority of the reviews have not included any restrictions on papers with shorter follow-up lengths. This may hinder the ability to draw firm conclusions due to the variability in outcomes during the first year after surgery (6). The only review to have assessed the quality of the studies included was Bordignon et al. (22). Although Herpertz et al. (12) excluded studies with large drop-out rates (>50%) to reduce bias, no other general assessment of bias/quality of these studies were undertaken. Finally, in recent years, additional studies with longer follow-ups and larger sample sizes have been published (27-29). A review including these might enable a clear and more robust picture of outcomes in the longer term.

Although personality factors in adults are reported to be relatively stable (30), gaining a clearer understanding of how and what personality factors contribute to poorer bariatric surgery outcomes could help inform psychological evaluation prior to surgery or help direct pre- and post-operative interventions and support. For instance, one outcome might be that increased monitoring for a sub-group of patients could be beneficial in optimising longer-term success, both in terms of weight loss and psychosocial adjustment.

The aim of this review is to build on the existing understanding and to systematically examine whether certain personality/temperament traits can predict biological and psychological bariatric surgery outcomes amongst an adult population, including studies with a follow-up longer than one year post surgery. Both weight and psychosocial outcomes will be identified.

Methods

This systematic review was conducted using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) criteria (31), and a review protocol was registered in advance on PROSPERO, registration number CRD42021290167.

Inclusion criteria

(i) The paper was written in English
(ii) The paper was published in a peer reviewed journal
(iii) The paper reported on the longitudinal predictive value of personality characteristics on bariatric surgery outcomes
(iv) The paper reported on outcomes at least one-year post-surgery
(v) The paper reported on adults aged 18 years and older
(vi) The paper reported on either biological outcomes (including, but not limited to, weight change) or psychological outcomes (including, but not limited to, quality of life, mental health and eating behaviours)
(vii) The paper was published from 1994 onwards.

Exclusion criteria

(i) The paper did not report novel findings (e.g., reviews)
(ii) Papers including sample sizes of less than 30.

Definition of personality

Personality is a complex concept which has had many different definitions across history (32). For the purpose of this review, we define personality as individual characteristics and patterns which influence thoughts, emotions, and behaviours (32, 33).

Search strategies

Papers were identified by searching on the following databases: PsycINFO, Embase, Medline and PubMed. The search was conducted on 7th March 2022 and an additional, identical search was conducted on 7th February 2023 to check for any new publications. Search terms included key words such as ‘bariatric surgery’, ‘personality’ and ‘pre-operative’. The full search strategy can be found in Appendix A1. Reference lists of all papers included, and of previous reviews (12, 22, 24-26, 34) were checked to ensure papers were not missed. No additional papers meeting the inclusion criteria were identified through reference searching.

Study selection

A PRISMA flowchart (31; Figure 1) describes the systematic process of study selection. Firstly, all duplicates were removed from the search. All titles and abstracts were reviewed according to the inclusion and exclusion criteria, and a random sample of 20% of papers were double rated. There was excellent agreement between the two reviewers, k = 0.83 (95% CI 0.71 to 0.95), $p<0.001$. Any paper included by either reviewer advanced to the next stage. As shown in Figure 1., 87 papers were retained and included for full text screening. A random sample of 25% of papers were double rated at the full text screening stage. There was excellent agreement between the two reviewers, k = 0.83 (95% CI 0.43 to 1.23), $p<0.001$. Any disagreements about inclusion at the full text stage were reviewed by both reviewers, and a third reviewer was consulted for any outstanding differences.

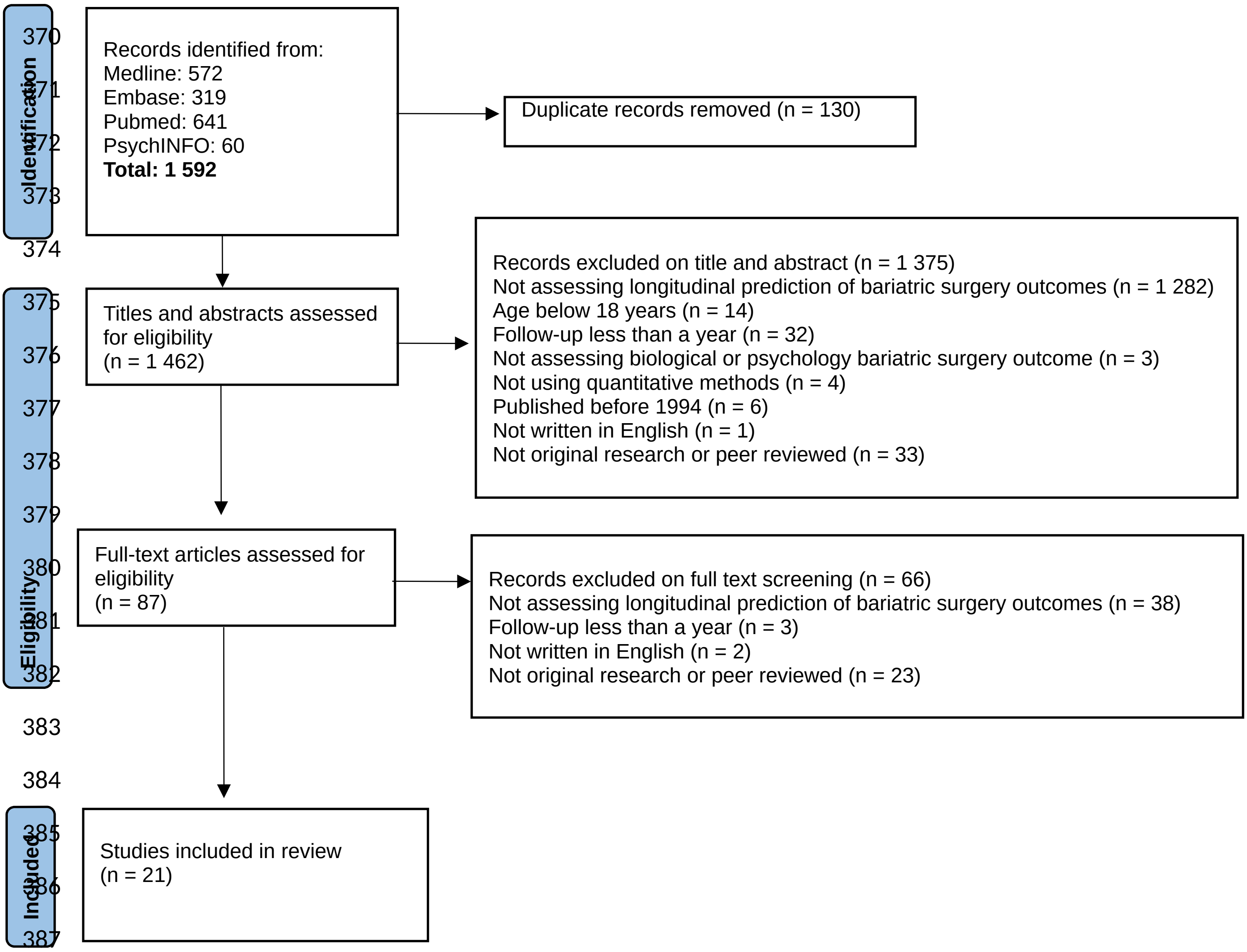
Data extraction and quality assessment

A data extraction spreadsheet was developed and piloted to increase reliability. Data were extracted from each paper meeting inclusion criteria. Data included personality and outcome measures, length of follow-up, type of surgery, number of participants, dropout rates, participant characteristics (sex, mean age and baseline BMI), and the results. A random selection of data points were independently checked for accuracy. For papers with multiple follow-up timepoints, only data relevant to the 12+ month timepoints were extracted. Due to the heterogeneity of studies, a meta-analysis was not deemed appropriate, and data were instead reviewed using narrative synthesis. Data were synthesised according to the personality measure used and where possible, effect sizes were calculated.

The studies methodological quality was assessed using The Standard quality assessment criteria for evaluating primary research papers (35). Three items on the quality appraisal tool were excluded as they applied to intervention studies (e.g., items assessing random allocation and blinding). Each paper was individually marked against the checklist to assess risk of bias, and an overall quality score was given. Items on the checklist were rated on a 3-point scale (0 = no, 1 = partial, 2 = yes) with a maximum score of 22. Thirty percent of papers were independently quality assessed by a second reviewer. There was substantial agreement between the two reviewers, $k = 0.73$ (95% CI 0.52 to 0.95), $p<0.001$. Disagreements were resolved in discussion with a third reviewer. Studies were divided into three separate groups based on the overall quality score: (a) low, score of 0-11; (b) average, score of 12-17 and, (c) high, score of 18-22.

Figure 1.

PRISMA flow chart of study selection process.



Results

Description of results

As seen in Table 1 and 2, 21 studies met the inclusion criteria and included a total of 6 730 participants (sample size range of 35 to 2 267). The majority of papers assessed weight related outcomes, with only two of the studies assessing QoL (36, 37) and one assessing eating disorder symptoms (38). Different weight outcome measures were used and included BMI change (BMI at baseline line minus BMI at follow-up; 46, 61, 47, 41), total weight loss (baseline weight minus follow-up weight; 28, 36, 38, 40, 42, 44, 45, 57), excess weight loss (weight loss minus excess weight [defined according to individuals ‘ideal weight’]; 13, 29, 43, 44, 45, 58, 59, 62), weight regain ([current weight minus nadir weight] divided by [preoperative weight minus nadir weight]; 36) and excess BMI loss (baseline BMI minus follow-up BMI; 37). The mean reported participant age ranged from 35.4 to 54.1 years and the samples were predominately female (range of 64% to 90.2% female). The mean baseline BMI ranged from 43.3 to 50.4, which falls within the ‘severely obese’ range of 40 or above (39). There are several bariatric surgery techniques. The majority of patients received Roux-en-Y gastric bypass (RYGB) and only ten studies were homogenous in the type of surgery performed, with five performing RYGB (40-44), two performing sleeve gastrectomy (SG; 29, 45), two performing laparoscopic adjustable gastric banding (LAGB; 46, 47), and one performing vertical banded gastroplasty (VGB; 37). RYGB involves connecting the top part of the stomach to the small intestine, LAGB involves placing a band around the stomach, and SG involves removing a part of the stomach (3). RYGB has been associated with the most successful weight loss outcomes (48). The length of follow-up ranged from 12 to 60 months post-bariatric surgery.

A number of different personality measures were used. Five studies used the TCI or TCI-Revised (20) which assesses three character dimensions (cooperativeness: the ability to get along with others; self-directedness: the ability to control, regulate and adapt behaviour towards goals and values; self-transcendence: the ability to feel part of a greater whole), and four temperament dimensions (novelty seeking: the tendency to approach/be excited by novel things; harm avoidance: the tendency to inhibit behaviour/feel anxious in response to potentially adverse novel stimuli; persistence: the ability to maintain behaviour despite limited short-term rewards; reward dependence: the tendency to respond to social reward). Five studies used the MMPI-2-RF which measures maladaptive personality traits, such as externalising dysfunction and neuroticism (23, 49). Three studies used the Personality Assessment Inventory which is a multidimensional personality inventory (PAI; 50). Only the interpersonal scales of the PAI (warmth: the extent to which someone is empathetic and engaging; dominance: the extent to which someone is controlling, submissive or autonomous) were used for the review due to their relevance to personality, as defined above. The excluded scales included clinical scales (e.g., anxiety etc.) and treatment scales (e.g., suicidal ideation and treatment rejection). Three studies used the Barratt Impulsiveness Scale-11 (BIS-11; 51) to measure trait-impulsivity. Other measures used in single studies included the Neuroticism Extraversion Openness-Five Factor Inventory (NEO-FFI; 52), the Dutch Personality Questionnaire (DPQ; 53), The Behavioural Inhibition System (BIS) scale and the Behavioural Activation System (BAS) scale (54), and the Zimbardo Time Perspective Inventory-Short Form (ZTPI-SF; 55).

Table 1

Study characteristics and baseline patient demographics for potential preoperative personality predictors of bariatric surgery outcomes.

Article	Sample size receiving BS*	Dropout rates (%)	Mean age at T0 (SD)	Sex - % females	Mean BMI at T0 (SD)	Follow-up length in months**	Type of surgery (%)
De Panfilis et al. (46)	35	0	41.2 (8.3)	88.6	45.5 (4.8)	12	LAGB
De Panfilis et al. (40)	49	0	37.8 (9.9)	89.8	46.4 (6.7)	12	RYGB
Gordon et al. (43)	333	27.0 at 12m; 54.7 at 24m; 32.1 at 44.4m	35.4 (9.5)	84.7	43.3 (4.8)	12 and 24	RYGB
García-Ruiz-de-Godejuela et al. (56)	115	Not stated	41.2 (10.2)	73.9	46.4 (6.6)	12	33.9 RYGB; 19.1 BPD/DS; 41.7 SG; 5.2 LGCP
Agüera et al. (13)	139	Not stated	40.6 (10.3)	77.7	46.3 (6.4)	12, 18 and 24	30.9 RYGB; 20.1 BPD/DS; 41.7 VSG; 7.2 LGCP
Miras et al. (57)	90	Not stated	46.5 (10.1)	81	48.5 (7.5)	12	80 RYGB; 13.3 GB; 6.7 SG
Muraca et al. (45)	177	40.1	43 (11)	72.6	46.4 (5.6)	12	100 SG
Testa et al. (29)	69	0	42.6 (11.6)	86.9	43.6 (6.2)	12	100 SG
Walter et al. (58)	194	N/A	40.8 (12.2)	90.2		12, 18, 24, 36, 48, and 60	60 RYBG; 30 SG; 10 LAGB
Oltmanns et al. (59)	2 267	34.5 at 12m; 86 at 18m; 73 at 24m; 86 at 36m; 90 at 48m; 93 at 60m	48.6 (11.2)	76.4	Not stated	12, 18, 24, 36, 48 and 60	50.6 RYGB; 45.7 SG; 3.6 LAGB

Hoyt et al. (60)	194	3.1 at 12m; 10.8 at 18m; 13.9 at 24m; 19.6 at 36m; 28.9 at 48m; 28.1 at 60m	40.8 (12.2)	90.2	43.7 (7.2)	12, 18, 24, 36, 48, and 60	60 RYGB; 30 SG; 10 LAGB
Dasher et al. (28)	127	22 at 12m	45.0 (10.0)	82.3	49.1 (8.3)	12	78 LSG; 20 RYGB; 2 LAGB
Marek et al. (44)	498	31.1	46.4 (11.6)	72.9	47.1 (8.2)	12	RYGB
Marek et al. (61)	446	N/A	46.8 (11.6)	74.2	49.1 (9.5)	60	RYGB
Martin-Fernandez et al. (27)	145	N/A	54.1 (9.9)	69.0	46.2 (7.7)	60+	79.3 RYGB; 20.7 SG
Marek et al. (42)	849	Not stated	46.7 (11.7)	71.3[a]	49.7 (11.0)	36	75.0 RYGB; 13.1 SG; 10.2 LAGB
Peterhänsel et al. (62)	198	34.3	Cluster 1 = 47.3, (10.6); cluster 2 = 47.5 (10.4)	72.3	Cluster 1 = 50.4 (8.2); cluster 2 = 49.5 (7.7)	12	RYGB: 86.2 in cluster 1, 87.7 in cluster 2; SG: 13.8 in cluster 1, 12.3 in cluster 2.
Larsen et al. (47)	168	17.9 at 24m	37.3 (8.7)	85.1	45.9 (5.6)	Up to 48	100 LAGB
Schäfer et al. (38)	317	49.8	46.1 (10.5)	70.7	49.0 (7.7)	3 years	68.1 RYGB; 29.6 SG; 1.8 gastric balloon with a subsequent SG 6 to 7 months later; 0.4 LAGB
Alfonsson et al. (41)	191	17.3	47.5 (9.0)	64	44.6 (5.8)	12	RYGB
Van Hout et al. (37)	146	23.3	38.8 (8.3)	87.5	45.3 (5.1)	24	VBG

Note. *Sample size referring to those eligible for bariatric surgery. **Follow up length only including 12+ months' time point. T0: baseline; LAGB: Laparoscopic adjustable gastric banding; RYGB: Roux-en-Y gastric bypass; BPD/DS: Biliopancreatic diversion with duodenal switch; SG: Sleeve gastrectomy; LGCP: Laparoscopic gastric sleeve plication; VSG: Vertical sleeve gastrectomy; GB: Gastric band; VBG: Vertical banded gastroplasty. [a]: For prediction analysis.

Table 2

Main findings of studies that assessed potential preoperative personality predictors of bariatric surgery outcomes.

Article	Personality assessment	Outcome measure	Main findings
De Panfilis et al. (46)	TCI	BMI change (BMI at baseline - BMI at follow-up)	TCI Persistence scale was found to be positively related to post-surgical BMI reduction (β = 0.69, *p* = 0.004), after controlling for the effect of baseline BMI, age, gender, level of education, presence of psychiatric disorders, Ham-D, Ham-A and EDI-BU scales, and other TCI scales. This regression model accounted for >40% of variance of post-surgical BMI reduction (adjusted R^2 = .44, *F* = 12.1, *p* = 0.004).
De Panfilis et al. (40)	TCI	%TWL	Higher persistence scores uniquely predicted %TWL [*B* = 2.3 (*CI* = 1–3.5), β = .44, *p* ≤ .000; R^2 = .41, *p* < .000; *r* = 0.49]. When persistence scores were categorised according to standardised norms (low vs average/high), the low persistence group achieved significantly less %TWL (*m* = 26, *SD* = 8.6) compared to the average/high group (*m* = 33.7, *SD* = 7.3; *t*(47) 3.34, *p* = .002).
Gordon et al. (43)	TCI	%EWL	Lower persistence scores correlated with less %EWL at 1- and 2-year follow-up and on last clinical observation (β = 0.13, *p* = 0.023; β = 0.26, *p* = 0.001, *r* = 0.31; β = 0.14, *p* = 0.025, *r* = 0.19, respectively). Novelty seeking independently and positively predicted %EWL at 1- and 2-years (β = 0.16, *p* = 0.007, *r* = 0.05; β = 0.16, *p* = 0.038, respectively), whilst self-transcendence negatively predicted %EWL at 1- and 2-year follow-up (β = −0.16, *p* = 0.005; β = −0.18, *p* = 0.026, respectively).
García-Ruiz-de-Godejuela et al. (56)	TCI-R - Spanish version	BMI	Higher cooperativeness scores associated with greater and greater/faster WL compared to the 'low' and 'low-slow' trajectory (*p* = 0.049, *d* = 0.51 and *p* = 0.049, *d* = 0.75, respectively). Low novelty seeking and self-

			transcendence scores were associated with greater/faster WL. Low persistence scores associated with low/slow WL ($d = 0.55$, $p = 0.048$). Highest scores of self-transcendence associated with low WL ($p = 0.010$, $d = 0.76$). Highest novelty seeking and lowest persistence and cooperativeness scores associated with low/slow WL.
Agüera et al. (13)	TCI-R - Spanish version & BIS-11	%EWL	Higher cooperativeness scores associated with better outcomes (>50% EWL; $\beta = 0.05$, $SE = 0.02$, $X^2 = 4.63$, $p = 0.022$, $OR = 1.05$, $CI = 1\text{-}1.1$, $d = 0.371$). No correlation between impulsivity and %EWL.
Miras et al. (57)	BIS-11	%TWL	No significant correlation between impulsivity and %WL ($r = -0.12$, $p = 0.32$).
Muraca et al. (45)	BIS-11	%TWL and %EWL (categorically split around the median)	Patients with higher %TWL (≥34%) showed lower total impulsivity ($p = 0.043$). Patients with higher %EWL (≥76%) showed lower total impulsivity ($p = 0.024$), which was mainly due to lower motor impulsivity ($p = 0.024$). The regression analysis showed that %TWL was associated with lower impulsivity ($\beta = -0.228$, $p = 0.002$) - when accounting for age, HbA1c and Hypercortisolism, it accounted for 31.5% of the variability of the %TWL (adjusted $R^2 = 0.315$).
Testa et al. (29)	BIS-11	%EWL; success = ≥50% EWL	Poorer %EWL was related to lower scores in the BIS-11 non-planning and attentional impulsivity scales (although not significant, the effect sizes were in the moderate range; $d = 0.66$, $p = 0.079$ and $d = 0.52$, $p = 0.154$, respectively). Higher scores on the BIS-11 attentional scale predicted successful EWL ($B = 0.286$, $p = 0.047$, $OR = 1.33$, 95% CI: 1.01-1.83).
Walter et al. (58)	PIA	%EWL; success = ≥50% EWL	No significant differences between patients who had a surgical success and those who were not successful.
Oltmanns et al. (59)	PIA	%EWL	Dominance predicted 5-year BMI change ($\beta = -.06$, $p = .018$; $r = -0.06$)
Hoyt et al. (60)	PIA	BMI	No significant correlation with dominance or warmth scales and WL.
Dasher et al. (28)	MMPI-2-RF	%TWL	Internalizing scales of stress/worry, anxiety, and anger proneness were significantly and negatively correlated with %WC at 12 months. Scales of

			emotional/internalizing dysfunction (β = -.202, $p = 0.025$), demoralization (β = -.191, $p = 0.036$), hypomanic activation (β = -.301, $p = 0.002$), family problems (β = -.189, $p = 0.038$), dysfunctional negative emotions (β = -.224, $p = 0.006$), and shyness (β = -.220, $p = 0.015$) were significantly related to postoperative WL at 12 months. When combining scales into composite scores, the insecurity component (combined with internalising scales) reached significance at 12 months (β = -.234, $p = 0.01$).
Marek et al. (44)	MMPI-2-RF	%TWL and %EWL	Higher scores on the scales Behavioural/Externalizing Dysfunction (β = -.12, $p < .050$), hypomanic activation (β = -.12, $p < .050$) and aggression (β = -.10, $p < .050$) were associated with lower %WL. Higher scores on Behavioural/Externalizing Dysfunction (β = .16, $p < .001$), antisocial behaviour (β = -.16, $p < .001$), juvenile behaviour problems (β = -.12, $p < .050$) and disconstraint (β = -.16, $p < .001$) were associated with non-adherence at follow-up.
Marek et al. (61)	MMPI-2-RF	BMI change	Patients who scored higher on the MMPI-2-RF scales Behavioural/Externalizing Dysfunction (β = .11, $p = .030$), Low Positive Emotion (β = .13, $p = .032$), and Hypomanic Activation (β = .13, $p = .028$) showed higher BMIs at the 5-year outcome, after controlling for age and BED. Patients who scored higher on MMPI-2-RF scales Hypomanic Activation (β = .24, $p = .002$), anger proneness (β = .16, $p = .004$), and activation (β = .17, $p = .036$) before surgery evidenced a slower rate of BMI-reduction over 5-years after controlling for age, BED, and the correlation between presurgical BMI and BMI reduction over time.
Martin-Fernandez et al. (36)	MMPI-2-RF	%WR; %TWL; WRQoL	Percentage of WR was negatively associated with Low Positive Emotions and Introversion/Low Positive Emotionality-revised, and positively associated with Anxiety and Disconstraint-revised. Scores on emotional/internalising dysfunction ($p < .001$), demoralisation ($p < .001$), negative emotionality/neuroticism revised ($p < .001$), self-doubt ($p = .001$) and stress ($p = .010$) predicated negative overall QoL at 5 years ($r = -.16$ to $-.48$) and accounted for an additional 17%–24% of the variability in overall postoperative QoL above and beyond preoperative BMI. Scale scores on emotional/internalising dysfunction ($p = .03$), aggression ($p = .002$), negative

			emotionality/neuroticism revised (*p* = .01), Behavioural/Externalizing Dysfunction (*p* = .02) and hypomanic activation (*p* = .01) were positively associated with and accounted for an additional 3%–8% of the variability in global EDE-Q scores above and beyond the preoperative problematic eating variables (*r* = .15 to .33).
Marek et al. (42)	MMPI-2-RF	%TWL	Patients with higher presurgical scores on the ideas of persecution scale of the MMPI-2-RF showed lower %TWL (β = −.14, *p* = .011) and had a slower course of WL by the 3-year outcome (β = −.16, *p* = .005).
Peterhänsel et al. (62)	NEO-FFI	%EWL QoL	No significant differences in 12 month %EWL between emotionally dysregulated/undercontrolled and resilient/high functioning group. The emotional dysregulated/undercontrolled group reported more severe depression (*F* = 6.336; *p* = .005; *d* = 0.45) and less mental HR-QoL (*F* = 6.162; *p* = .004; *d* = 0.44) at 12 months compared to the resilient/high functioning group. No differences were found in terms of eating disorder psychopathology and physical HRQoL at 12 months.
Larsen et al. (47)	DPQ	BMI change	Higher scores on egoism were associated with less long-term WL (>24 months; *d* = -0.13, *SE* = 0.03, *p* < 0.05). No associations found for short-term WL.
Schäfer et al. (38)	BIS, BAS & Effortful Control subscale of the Adult Temperament Questionnaire-Short Form	%TWL Eating disorder symptoms	No pre-bariatric subtype predicted WL or WR at T2. Pre-bariatric 'severely RC' and 'moderately RC' subtypes significantly predicted levels of depression at T2 (R^2 = 0.16). Pre-bariatric 'severely RC' significantly predicted levels of eating disorder psychopathology at T2 (R^2 = 0.12).
Alfonsson et al. (41)	ZTPI-SF	BMI change and %BMI change	ZTPI Hedonistic subscale significantly predicted BMI loss and %BMI loss at a 12-month follow-up (β = -0.20, *p* = .010; β = -0.22, *p* = .030, respectively).
Van Hout et al. (37)	DPQ	EWL; EBL; HRQoL	No significant predictors of EWL or EBL at 2 years.

Note. TCI: Temperament and Character Inventory; TCI-R: Temperament and Character Inventory Revised; BIS-11: Barratt Impulsivity Scale-11; PAI: Personality Assessment Inventory; MMPI-2-RF: Minnesota Multiphasic Personality Inventory–2–Restructured Form; NEO-FFI: Neuroticism Extraversion Openness-Five-Factor Inventory; DPQ: Dutch Personality Questionnaire; BIS: The Behavioural Inhibition System Scale; BAS: Behavioural Activation System Scale; ZTPI-SF: The Zimbardo Time

Perspective Inventory-Short Form. %TWL: Percentage total weight loss; %EWL: Percentage excess weight loss; %WR: Percentage weight regain; EBL: Excess BMI loss; WRQoL: weight related quality of life; HRQoL: Health related quality of life

Table 3 lists the results from the quality assessment of studies. Overall scores on the quality ratings ranged from 16 to 22 (*M* = 19.3), indicating good methodological quality. One study was rated as medium (47) and 20 were rated as high (13, 28, 29, 36-38, 40-46, 56-62).

Excluded studies

A number of studies that could be deemed to be eligible were excluded from analysis. Wedin et al. (63), Lanyon et al. (64) and Tsushima et al. (65) were excluded due to the use of the MMPI-2 (66). It has been reported that the MMPI-2 Clinical Scales assess psychiatric syndromes, whereas the restructured scales (MMPI-2-RF) assess psychological constructs such as maladaptive personality traits (23). Thus, it was felt the MMPI-2 did not fit the definition of personality used. Shamseddeen et al. (67) was excluded due to the limited information about the follow-up length. The authors stated that follow-up was at least 10-months post-bariatric surgery, however, the mean length was not provided. Thus, the proportion of patients whose follow-up was 12 months or longer was unclear. Lee et al. (68) was excluded as the methodological quality of the study was rated as low (10 out of 22).

Table 3

Quality assessment of studies

Article	1	2	3	4	5	6	7	8	9	10	11	Total	Quality
De Panfilis et al. (46)	2	2	2	2	2	0	2	2	2	2	2	20	High
De Panfilis et al. (40)	2	2	2	2	2	1	2	2	2	2	2	21	High
Gordon et al. (43)	2	2	2	2	2	2	1	2	2	2	1	20	High
García-Ruiz-de-Godejuela et al. (56)	1	1	2	2	1	1	2	2	2	2	2	18	High
Agüera et al. (13)	2	2	2	2	2	2	2	2	2	1	2	21	High
Miras et al. (57)	2	2	2	2	1	2	2	2	0	2	2	19	High
Muraca et al. (45)	2	2	2	2	2	2	2	2	0	2	2	20	High
Testa et al. (29)	2	1	1	2	2	1	2	2	2	2	2	19	High
Walter et al. (58)	2	2	2	2	2	2	2	2	2	2	2	22	High
Oltmanns et al. (59)	1	1	2	2	2	2	2	2	2	2	2	20	High
Hoyt et al. (60)	1	2	2	2	2	2	2	2	1	2	2	20	High
Dasher et al. (28)	2	2	1	2	1	1	2	2	2	2	2	19	High
Marek et al. (44)	2	2	1	2	2	2	2	2	2	2	2	21	High
Marek et al. (61)	2	2	2	2	2	2	2	2	2	2	2	22	High
Martin-Fernandez et al. (36)	2	2	2	2	2	2	2	2	2	1	1	20	High
Marek et al. (42)	2	2	2	2	1	2	1	2	2	2	1	19	High
Peterhänsel et al. (62)	2	2	2	2	2	2	2	2	0	2	2	20	High
Larsen et al. (47)	2	1	2	2	1	1	2	1	1	1	2	16	Medium
Schäfer et al. (38)	2	2	1	2	2	2	2	2	0	2	2	19	High
Alfonsson et al. (41)	2	1	1	2	2	2	1	2	1	2	2	18	High
Van Hout et al. (37)	1	2	1	2	2	2	2	2	2	2	2	20	High

Note. 1: Question/ objective sufficiently described? 2: Study design evident and appropriate? 3: Method of subject selection or source of information/input variables described and appropriate? 4: Subject characteristics sufficiently described? 5: Outcome and (if applicable) exposure measure(s) well defined and robust to measurement /misclassification bias? Means of assessment reported? 6: Sample size appropriate? 7: Analytic methods described/justified and appropriate? 8: Some estimate of variance is reported for the main results? 9: Controlled for confounding? 10: Results reported in sufficient detail? 11: Conclusions supported by the results? Scores of 0 = no/ criteria not met, 1 = partial/ criteria partially met and 2 = yes/ criteria met.

Temperament and Character Inventory/ Temperament and Character Inventory-Revised

Persistence, according to the TCI/TCI-R, was found to be the most consistent predictor of bariatric surgery outcomes, with four out of five of the studies measuring the dimension finding a positive association (40, 43, 46, 56). More specifically, higher levels of persistence were associated with greater percent total weight loss (%TWL;

40, 56), percent excess weight loss (%EWL; 43) and BMI change (46), after controlling for baseline variables, such as psychiatric disorders (40, 46). When considering the strength of this association, García-Ruiz-de-Godejuela et al. (56) found persistence was associated with a ‘good-fast’ weight loss trajectory when compared with a ‘low-slow’ trajectory with a medium effect size ($d = 0.55$, $p = 0.048$). This association appeared to weaken over the longer term ($r = 0.188$ at the last clinical observation [$M = 44.4$ months] compared to $r = 0.308$ at 2 years; 43). Aguera et al. (69), however, found no association between persistence and %EWL after controlling for bariatric surgery procedure.

Cooperativeness was found to be associated with better bariatric surgery outcomes in two out of five of the studies (56, 69). Aguera et al. (69), however, only found this association when looking at a binary outcome, with ‘success’ defined as >50% EWL ($B = 0.05$, SE = 0.02, $X^2 = 4.63$, $p = 0.022$, $OR = 1.05$, $CI = 1.0 - 1.1$) and not when looking as %EWL as a continuous variable ($p = 0.062$). When considering %TWL trajectories (56), the ‘good-fast’ trajectory showed higher levels of cooperativeness compared to the ‘low’ and ‘low-slow’ trajectory, with a moderate effect size ($d = 0.51$, $p = 0.049$ and $d = 0.75$, $p = 0.049$, respectively).

Self-transcendence was found to be associated with bariatric surgery outcomes in two out of the five studies (43, 56) – with higher scores on the self-transcendence scale associated with less %EWL and %TWL. This association was found at 12 months (43, 56) and 24 months ($\beta = -0.175$, $p = 0.026$; 43). García-Ruiz-de-Godejuela et al. (56) only found this association between the ‘good-fast’ and the ‘low’ weight loss trajectory, with a moderate effect size ($d = 0.76$, $p = 0.010$).

The picture for novelty seeking was somewhat mixed, with two out of five studies finding an association with bariatric surgery outcomes (43, 56). Gordon et al. (43), found that higher novelty seeking scores on the TCI were associated with higher %EWL at 1- and 2-year follow-up ($\beta = 0.49$, $p = 0.007$; $\beta = 0.56$, $p = 0.038$, respectively), whereas García-Ruiz-de-Godejuela et al. (56) found that the ‘good-fast’ WL trajectory had lower novelty seeking scores on the TCI-R compared to the ‘low-slow’ trajectory ($d = 0.5$, $p = 0.132$).

Across all studies, no associations were found between harm avoidance, reward dependence or self-directedness and surgery outcomes (13, 40, 43, 46, 56).

Although all studies measuring personality using the TCI/TCI-R were of high quality, according to the Kmet et al. (35) criteria, there was considerable variability in sample sizes, with samples ranging from 35 (46) to 333 (43). No studies included a power analysis, but two studies did seem to be somewhat underpowered, and therefore, could have resulted in a Type II error (40, 46). No studies using the TCI/TCI-R measured outcomes beyond weight loss.

Impulsivity (BIS-11)

Four studies measured impulsivity using the BIS-11 (51), two of which found no association between impulsivity and %EWL or %TWL at 12-, 18- and 24-months post-bariatric surgery (13, 57). Testa et al. (29) found that higher attentional impulsivity (although still within the normative range; 70) predicted successful bariatric surgery outcomes (defined as achieving at least 50% EWL; $B = 0.29$, $p = 0.047$). Attentional impulsivity, along with psychopathological symptoms accounted for 46% of the variance in outcome after controlling for baseline variables (29). On the other hand, Muraca et al. (45) found that lower overall impulsivity scores predicted better weight loss outcomes, when assessing %TWL. Overall, all four studies were of high quality. However, both Miras et al. (57) and Muraca et al. (45) were rated poorly in terms of controlling for confounding variable (e.g., type of surgery).

Minnesota Multiphasic Personality Inventory–2–Restructured Form (MMPI-2-RF)

Dasher et al. (28) found that emotional/internalising dysfunction, demoralisation, hypomanic activation, family problems, dysfunctional negative emotions and shyness significantly predicted %WL at 12 months. When combining scales into composite scales, only the insecurity component (indicating internalising personality difficulties) predicted %WL at 12 months ($\beta = -.234$, $p=0.010$).

Marek et al. (44) found that behavioural/externalising dysfunction predicted %WL, with higher scores on the behavioural/externalising dysfunction scale associated with lower %WL ($\beta = -.12$, $p < .050$). Hypomanic activation (excessive drive, activation and grandiosity; 49) and aggression ($\beta = -.10$, $p < .050$) predicted lower %WL ($\beta = -.12$, $p < .050$) when controlling for covariates (e.g., age and baseline weight). Although significant, associations were small (r ranging from -0.1 to 0.21). Many of these associations are linked with externalising personality difficulties – in particular, those scoring 65T or higher on behavioural/externalising dysfunction were at a 2.14 times greater risk for achieving suboptimal %EWL (defined at < 50%). Although adherence does not fit with the inclusion criteria (i.e., biological, or psychological outcomes), Marek et al. (44) also found that behavioural/externalising dysfunction, antisocial behaviour, Juvenile conduct problems and Discontraint (associated with impulsivity, risk taking and disinhibited behaviour) predicted poorer adherence to follow-up appointments at 12 months (β = .16, *p* < .001; β = -.16, *p* < .001; β = -.12, *p* < .050; β = -.16, *p* < .001, respectively).

Similar associations were found by Marek et al. (61), when looking at BMI change. More specifically, patients who scored higher on the MMPI-2-RF scales Behavioural/Externalizing Dysfunction (β = .11, *p* = .030), Low Positive Emotion (associated with anhedonia and disengagement; β = .13, *p* = .032), and Hypomanic Activation (β = .13, *p* = .028) showed higher BMIs at 5 years. Patients who scored higher on Hypomanic Activation (β = .24, *p* = .002), anger proneness (associated with anger control and frustration intolerance; β = .16, *p* = .004), and activation (associated with increased energy levels, and racing thoughts; β = .17, *p* = .036) before surgery evidenced a slower rate of BMI-reduction over 5-years after including covariates such as age and binge eating disorder. Again, although significant, the associations were small (*r* ranging from 0.16 to 0.29).

In contrast, Marek et al. (42) found few predictors of bariatric surgery outcome – with only higher scores of ideas of persecution associated with less and slower course of weight loss at 3 years (β = −.14, *p* = .011; β = −.16, *p* = .005, respectively). The quality of this study was rated high and showed consistency across most categories when compared to other studies using the MMPI-2-RF (Table 3).

Martin-Fernandez et al. (36) looked at a wider range of bariatric surgery outcomes, including weight regain (%WR), QoL and eating behaviours. Percentage of WR was negatively associated with Low Positive Emotions (*r* = -.18) and the Introversion/Low Positive Emotionality-revised scales (*r* = -.15), and positively associated with Anxiety (*r* = .20) and Disconstraint (*r* = .16). No scales were associated with %TWL after controlling for bariatric surgery procedure type. Scores on emotional/internalising dysfunction, demoralisation, negative emotionality/neuroticism revised, self-doubt and stress predicted negative overall QoL at 5 years (*r* = -.16 to -.48, small to large effects) and accounted for an additional 17%–24% of the variability in overall postoperative QoL above and beyond preoperative BMI. Scores on emotional/internalising dysfunction, aggression, negative emotionality/neuroticism revised, Behavioural/Externalising Dysfunction and hypomanic activation were positively associated with global eating disorder scores (according to the EDE-Q; 71) at 5 years (*r* = .15 to .33), but accounted for little variability (an additional 3%–8%, above and beyond the preoperative problematic eating variables).

Personality Assessment Inventory (PAI)

When considering only the interpersonal scales from the PAI (50), results were mixed. Hoyt et al. (60) and Walter et al. (58) found no significant association with BMI or %EWL success (defined as > 50%). Oltmanns et al. (59), however, found dominance predicted 5-year change in BMI (β = -.06, *p* = .018). The effect size for this association was small. The quality of studies using the PAI were rated as high, with consistency across all categories (Table 3).

Other

Only one study (62) measured personality using the NEO-FFI, and in which participants were categorised into pre-bariatric personality subtypes based on scores from the NEO-FFI and the ‘Locus of Control’ questionnaire (IPC; 72). It was found that there were no significant differences in %EWL at 12 months between the emotionally dysregulated/ undercontrolled subtype (defined by higher neuroticism, less extraversion, openness, agreeableness and conscientiousness, and more external locus of control) and the resilient/ high functioning subtype (defined as lower neuroticism, higher extraversion, openness, agreeableness and conscientiousness, and lower external locus of control). The emotional dysregulated/ undercontrolled group, however, was associated with more severe depression (*F* = 6.336; *p* = .005) and less mental health related-QoL (*F* = 6.162; *p* = .004) at 12 months. The effect size for these associations were small (*d* = 0.45 for depression, *d* = 0.44 for QoL). On the other hand, when Van Hout et al. (37) and Larsen et al. (47) looked at the predictive value of neuroticism (measured using the DPQ; 73), no association with EWL or excess BMI loss was found at 2 years. It is worth noting that, although rated high quality, there was limited evidence of Peterhänsel et al. (62) controlling for demographic variables that may have impacted weight loss.

Schäfer et al. (38) also assessed the predictive value of pre-bariatric subtypes based on temperament traits (self-control, dispositional sensitivity to punishment and dispositional approach tendencies), emotion dysregulation, and disinhibited eating behaviours. Again, no pre-bariatric subtype predicted weight loss or WR 3 years after surgery, however, dropout was substantially high at 46%. Subtypes showing the lowest levels of self-control and increased levels of emotion dysregulation and disinhibited eating significantly predicted levels of depression (PHQ-9: R^2 = .16, $p < .001$) and ED psychopathology (EDE-Q global score: R^2 = .12, $p <.010$) at 3 years, to a medium effect.

One study found a small negative association between hedonistic time-perspective (a disposition to be influenced by immediate consequences and events; 55) and BMI loss at a 12-month (β = -.20, *p* = .007; 41), and another study found a small negative association between egoism and long-term weight loss (*d* = -0.13; 47).

Discussion

The aim of this systematic review was to build on the existing understanding and to examine whether personality traits can predict bariatric surgery biological and psychological outcomes amongst an adult population. Not only did this review provide updated evidence, but it also included stricter inclusion criteria to account for limitations seen in previous reviews (e.g., longer follow-ups). A total of 21 papers of medium to high methodological quality, were identified and included in this review, including a total of 6 730 participants. It is important to note that only four studies, using different personality measures, investigated psychological outcomes (37, 38, 62), and therefore, no conclusions were able to be drawn in relation to this aspect of the review question.

Previous reviews have drawn conflicting conclusions about whether personality traits can predict bariatric surgery outcomes, with some concluding they are not predictive (12, 25) and others finding traits, such as persistence and those indicative of impulse control, are associated with weight loss outcomes after bariatric surgery (22, 24, 74).

In line with previous evidence, the current study found that higher levels of persistence were associated with better weight loss outcome after surgery, even after accounting for pre-surgery psychopathology (40, 46). Persistence refers to the ability to persevere despite the absence of positive reinforcement. This has relevance to bariatric surgery outcome where immediate reinforcement may not be present, particularly for longer-term outcomes where weight loss may plateau (48) and the social reinforcement (i.e., compliments) may reduce. Despite the lack of positive reinforcement, healthy lifestyle and eating habits still need to continue in the longer term to ensure maintenance of any weight loss. In addition, persistence enables us to continue working towards a goal even when faced with fatigue (20) and thus, more consistent lifestyle changes may be possible for those that show high levels of this characteristic.

Some behaviours indicative of poor impulse control and risk taking were found to be relatively reliable indicators of bariatric surgery outcomes. For instance, higher scores on the MMPI-2-RF behavioural/externalising dysfunction scale and higher levels of hedonism were associated with poorer outcomes (36, 41, 43, 44, 56, 61). Hedonism (being influenced by immediate consequences or events) has also been linked to impulsivity and has been found to predict health behaviours (75). Poor dietary or health habits (e.g., lack of physical exercise) often do not accompany immediate consequences (76), thus someone with hedonistic traits may be more at risk of inadequate choices and thus, less long-term weight loss may occur. It has been suggested that there is an indirect association between impulsivity and weight loss, which is mediated by depressive symptoms and maladaptive eating behaviours (77). This highlights the importance of taking into account other outcome parameters when looking at predictors.

That being said, the studies measuring impulsivity directly found somewhat conflicting results. Testa et al. (29) found that higher levels of attentional impulsivity (the tendency to quickly shift attention) were associated with successful EWL, whereas Muraca et al. (45) found low levels of impulsivity were associated with better outcomes. However, levels of impulsivity reported for the ‘successful’ group at baseline for Testa et al. (29) were within normative ranges (78), which could suggest that high levels above normative ranges result in poor outcomes (supporting the findings from a recent systematic review; 79). It is important to note that Testa et al.

(29) and Muraca et al. (45) defined ‘successful’ EWL differently, which could contribute to these differences (EWL more than 50% versus EWL more than 76%).

The findings with regards to novelty seeking were also somewhat conflicting. Gordon et al. (43) found higher novelty seeking scores were associated with better weight loss outcomes, whereas García-Ruiz-de-Godejuela et al. (56) found the opposite. However, both samples scored within the normative ranges (80, 81). Novelty seeking has been associated with maladaptive eating and difficulties in following weight loss guidance (82, 83) which could act as mediating factors between novelty seeking and poorer post-bariatric surgery outcomes.

Traits within the ‘internalising’ domain of the MMPI-2-RF, associated with mood and affect, were also found to predict outcomes. For instance, emotional/internalising dysfunction, demoralisation and low positive emotion were all found to be associated with bariatric surgery outcomes. Such traits have been associated with pessimism and disengagement (49) which could impact one’s perceived capacity in reaching goals and engagement in the ongoing treatment process (28).

Limitations

There are some limitations of this systematic review that need to be considered when interpretating the results presented. Firstly, there is large variation in how studies report outcomes. For instance, it is difficult to compare the magnitude of predictors when having to consider excess weight loss, total weight loss, weight regain and BMI. Many studies also measured bariatric surgery outcomes categorically (e.g., those that show EWL of more than 50% compared to those showing EWL of less than 50%) which provides a somewhat reductionist approach when considering outcomes. This makes it difficult to draw meaningful comparisons (84) and future research would benefit from having a consensus about the most appropriate outcomes to use. It was also surprising how studies predominantly assessed weight loss as the outcome, with little mention of psychosocial outcomes. Given the potentially life changing implications of bariatric surgery, it is important to consider outcomes beyond weight, such as mood, QoL and eating behaviours. Such factors could contribute to motivation in adhering to health behaviours (85, 86).

Personality is difficult to define and there have been a number of proposed definitions and theories over the years (32), many of which are very broad, including that which we used in the current review. This complicated interpretation introduced a challenge as to which personality measures should be included as many measured maladaptive personality traits indicative of psychiatric illness (49, 50). This resulted in certain subscales being extracted from measures (e.g., with the PIA), or a broader approach being taken (e.g., with regards to the MMPI-2-RF). The variability of measures used also meant that conclusions about certain traits are drawn on a limited amount of evidence (i.e., few studies using the same measures and covering the same traits). In addition, the current personality measures appear to fit into the trait-theoretical perspective (e.g., NEO-FFI, TCI etc.). This approach can be limited due to within-person variability (i.e., variation in different situations; 16), and the idea of trait stability. Therefore, it may be beneficial to consider taking a social-cognitive approach when looking at the predictive value of personality. This approach may have more interventional value (e.g., due to the increased compatibility with CBT) and may be more modifiable compared to the trait-theoretical approach (15).

Personality measures rely on self-report which could introduce a bias into the results. All personality measures were taken as a screening procedure before bariatric surgery. Due to bariatric surgery being an invasive surgery associated with risks, exclusion criteria are in place (87), which could include the disclosure of severe psychiatric illness (e.g., 40, 46, 60). Given this, it is possible that patients may underreport maladaptive personality traits if pursuing the possibility of surgery.

Future research and implications

Although a couple of notable personality predictors, such as higher levels of persistence and lower externalising behaviours, were found to result in better bariatric surgery outcomes, results still remain unclear. Based on this, no personality predictor should act as a contraindication to surgery but may instead be used to guide post-surgery monitoring and follow-up. Pre-surgical intervention may also be a consideration to build on traits such as persistence or improve impulse control. However, interventions may be more applicable for traits that are more behaviourally based, such as hedonism and impulsivity, given that treatments such as CBT focus on changes in behaviour, emotion and cognitions.

Personality traits are reported to be relatively stable throughout life, however, traits can change after significant life events (88), particularly when considering the more recent personality theories, such as the social-cognitive theory. Bariatric surgery could be deemed enough of a significant event to result in changes in personality traits, and thus, it could be suggested that post-bariatric surgery personality traits could possibly be a better predictor of longer-term outcomes. This is supported by Schäfer et al. (38), who found that post-bariatric surgery subtypes explained more variance in psychosocial bariatric surgery outcomes 3 years after surgery compared to pre-surgery traits. Future studies would benefit from exploring whether post-bariatric surgery personality traits would act as a better indicator for longer-term outcomes.

Conclusion

This systematic review analysed articles that investigated the predictive value of personality characteristics in the outcomes of bariatric surgery.

The main findings indicate that there were few traits that consistently predicted bariatric surgery outcomes in the longer-term. The most consistent findings were with persistence and traits indicative of poor impulse control and externalising dysfunctions. According to these findings, preoperative personality assessments have some value in helping professionals support and monitor people after bariatric surgery to improve outcome and prognosis.

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Author contributions:

MI and MC conceived and designed the study. MI, MC and HH completed the statistical analysis. MI and MC were responsible for the interpretation of the data. MI drafted the manuscript, and MI, MC, HH were involved in revisions. MC provided study supervision.

Conflict of interest: none declared.

References

1. World Health Organization. Obesity and overweight. 2021 [Available from: https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight.

2. MacLean PS, Bergouignan A, Cornier M-A, Jackman MR. Biology's response to dieting: the impetus for weight regain. *American Journal of Physiology-Regulatory, Integrative and Comparative Physiology*. 2011;301(3): R581–R600. https://doi.org/10.1152/ajpregu.00755.2010.

3. NHS. Weight Loss Surgery 2020 [Available from: https://www.nhs.uk/conditions/weight-loss-surgery/.

4. O'Brien PE, Hindle A, Brennan L, Skinner S, Burton P, Smith A, et al. Long-term outcomes after bariatric surgery: a systematic review and meta-analysis of weight loss at 10 or more years for all bariatric procedures and a single-centre review of 20-year outcomes after adjustable gastric banding. *Obesity Surgery*. 2019;29(1): 3-14. https://doi.org/10.1007/s11695-018-3525-0.

5. Herpertz S, Kielmann R, Wolf A, Langkafel M, Senf W, Hebebrand J. Does obesity surgery improve psychosocial functioning? A systematic review. *International Journal of Obesity*. 2003;27(11): 1300-14. https://doi.org/10.1038/sj.ijo.0802410.

6. Courcoulas AP, King WC, Belle SH, Berk P, Flum DR, Garcia L, et al. Seven-year weight trajectories and health outcomes in the Longitudinal Assessment of Bariatric Surgery (LABS) study. *JAMA surgery*. 2018;153(5): 427-34. doi:10.1001/jamasurg.2017.5025.

7. Melton GB, Steele KE, Schweitzer MA, Lidor AO, Magnuson TH. Suboptimal weight loss after gastric bypass surgery: correlation of demographics, comorbidities, and insurance status with outcomes. *Journal of Gastrointestinal Surgery*. 2008;12(2): 250-5. https://doi.org/10.1007/s11605-007-0427-1.

8. Magro DO, Geloneze B, Delfini R, Pareja BC, Callejas F, Pareja JC. Long-term weight regain after gastric bypass: a 5-year prospective study. *Obesity Surgery*. 2008;18(6): 648-51. https://doi.org/10.1007/s11695-007-9265-1.

9. Castellini G, Godini L, Amedei SG, Faravelli C, Lucchese M, Ricca V. Psychological effects and outcome predictors of three bariatric surgery interventions: a 1-year follow-up study. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*. 2014;19(2): 217-24. https://doi.org/10.1007/s40519-014-0123-6.

10. Van Hout GC, Boekestein P, Fortuin FA, Pelle AJ, Van Heck GL. Psychosocial functioning following bariatric surgery. *Obesity Surgery*. 2006;16(6): 787-94. https://doi.org/10.1381/096089206777346808.

11. Van Hout GC, Verschure SK, Van Heck GL. Psychosocial predictors of success following bariatric surgery. *Obesity Surgery*. 2005;15(4): 552-60. https://doi.org/10.1381/0960892053723484.

12. Herpertz S, Kielmann R, Wolf A, Hebebrand J, Senf W. Do psychosocial variables predict weight loss or mental health after obesity surgery? A systematic review. *Obesity Research*. 2004;12(10): 1554-69. https://doi.org/10.1038/oby.2004.195.

13. Agüera Z, García-Ruiz-de-Gordejuela A, Vilarrasa N, Sanchez I, Baño M, Camacho L, et al. Psychological and Personality Predictors of Weight Loss and Comorbid Metabolic Changes After Bariatric Surgery. *European Eating Disorders Review*. 2015;23(6): 509-16. 10.1002/erv.2404.

14. Van Heck GL. Personality and physical health: toward an ecological approach to health-related personality research. *European Journal of Personality*. 1997;11(5): 415-43. https://doi.org/10.1002/(SICI)1099-0984(199712)11:5.

15. Merrill KA, Strauman TJ. The role of personality in cognitive-behavioral therapies. *Behavior Therapy*. 2004;35(1): 131-46. https://doi.org/10.1016/S0005-7894(04)80008-X.

16. Cervone D, Shadel WG, Jencius S. Social-cognitive theory of personality assessment. *Personality and Social Psychology Review*. 2001;5(1): 33-51. https://doi.org/10.1207/S15327957PSPR0501_3.

17. McCrae RR, Costa PT. Personality trait structure as a human universal. *American psychologist*. 1997;52(5): 509. https://doi.org/10.1037/0003-066X.52.5.509.

18. Watson D, Hubbard B. Adaptational style and dispositional structure: Coping in the context of the Five-Factor model. *Journal of Personality*. 1996;64(4): 737-74. https://doi.org/10.1111/j.1467-6494.1996.tb00943.x.

19. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. *Archives of general psychiatry*. 1993;50(12): 975-90.

20. Cloninger CR, Przybeck TR, Svrakic DM, Wetzel RD. The Temperament and Character Inventory (TCI): A guide to its development and use. 1994. doi:10.1001/archpsyc.1993.01820240059008.

21. Sullivan S, Cloninger C, Przybeck T, Klein S. Personality characteristics in obesity and relationship with successful weight loss. *International journal of obesity*. 2007;31(4): 669-74. https://doi.org/10.1038/sj.ijo.0803464.

22. Bordignon S, Aparício MJG, Bertoletti J, Trentini CM. Personality characteristics and bariatric surgery outcomes: a systematic review. *Trends in Psychiatry and Psychotherapy*. 2017;39: 124-34. http://dx.doi.org/10.1590/2237-6089-2016-0016.

23. Sellbom M. The MMPI-2-Restructured Form (MMPI-2-RF): Assessment of personality and psychopathology in the twenty-first century. *Annual Review of Clinical Psychology*. 2019;15: 149-77. https://doi.org/10.1146/annurev-clinpsy-050718-095701.

24. Generali I, De Panfilis C. Personality Traits and Weight Loss Surgery Outcome. *Current Obesity Reports*. 2018;7(3): 227-34. 10.1007/s13679-018-0315-x.

25. Wimmelmann CL, Dela F, Mortensen EL. Psychological predictors of weight loss after bariatric surgery: a review of the recent research. *Obesity Research & Clinical Practice*. 2014;8(4): e299-e313. https://doi.org/10.1016/j.orcp.2013.09.003.

26. Wimmelmann CL, Dela F, Mortensen EL. Psychological predictors of mental health and health-related quality of life after bariatric surgery: a review of the recent research. *Obesity Research & Clinical Practice*. 2014;8(4): e314-e24. https://doi.org/10.1016/j.orcp.2013.11.002.

27. Martin-Fernandez KW, Creel DB, Schuh LM. Psychosocial and behavioral correlates of weight loss 12 to 15 years after bariatric surgery. *Journal of Behavioural Medicine*. 2021;45(2): 252–9. 10.1007/s10865-021-00263-5.

28. Dasher NA, Sylvia A, Votruba KL. Internalizing, Externalizing, and Interpersonal Components of the MMPI-2-RF in Predicting Weight Change After Bariatric Surgery. *Obesity Surgery*. 2020;30(1): 127-38. 10.1007/s11695-019-04133-7.

29. Testa G, Granero R, Siragusa C, Belligoli A, Sanna M, Rusconi ML, et al. Psychological predictors of poor weight loss following LSG: relevance of general psychopathology and impulsivity. *Eating Weight Disorders*. 2020;25(6): 1621-9. 10.1007/s40519-019-00800-x.

30. Terracciano A, Costa Jr PT, McCrae RR. Personality plasticity after age 30. *Personality and Social Psychology Bulletin*. 2006;32(8): 999-1009. https://doi.org/10.1177/0146167206288599.

31. Page, M.J., McKenzie, J.E., Bossuyt, P.M., Boutron, I., Hoffman, T.C., Mulrow, C.D, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Internations Journal of Surgury*. 2021;88: 105906. https://doi.org/10.1186/s13643-021-01626-4.

32. Mayer JD. Asserting the definition of personality. *The Online Newsletter for Personality Science*. 2007;1(1): 1-4.

33. Costa J, McCrae R. *The Revised Neo Personality Inventory (NEO-PI-R)*. In: Boyle GJ, Matthews G, Saklofske DH, ed. The SAGE handbook of personality theory and assessment. 2: Sage Publications, Inc; 2008. p. 179-98.

34. Livhits M, Mercado C, Yermilov I, Parikh JA, Dutson E, Mehran A, et al. Preoperative predictors of weight loss following bariatric surgery: systematic review. *Obesity Surgery*. 2012;22(1): 70-89. 10.1007/s11695-011-0472-4.

35. Kmet LM, Cook LS, Lee RC. Standard quality assessment criteria for evaluating primary research papers from a variety of fields. 2004.

36. Martin-Fernandez KW, Marek R, Heinberg L, Ben-Porath Y. Six-year bariatric surgery outcomes: the predictive and incremental validity of presurgical psychological testing. *Surgery for Obesity and Related Diseases* 2021;17(5): 1008-16. 10.1016/j.soard.2021.01.012.

37. Van Hout GCM, Hagendoren CA, Verschure SK, Van Heck GL. Psychosocial predictors of success after vertical banded gastroplasty. *Obesity Surgery*. 2008;19(6): 701-7. https://doi.org/10.1007/s11695-008-9446-6.

38. Schäfer L, Hübner C, Carus T, Herbig B, Seyfried F, Kaiser S, et al. Pre- and postbariatric subtypes and their predictive value for health-related outcomes measured 3 years after surgery. *Obesity Surgery*. 2019;29(1): 230-8. 10.1007/s11695-018-3524-1.

39. NHS. Obesity 2019 [cited 2022 November 2022]. Available from: https://www.nhs.uk/conditions/obesity/.

40. De Panfilis C, Generali I, Dall'Aglio E, Marchesi F, Ossola P, Marchesi C. Temperament and one-year outcome of gastric bypass for severe obesity. *Surgery for Obesity and Related Diseases*. 2014;10(1): 144-8. 10.1016/j.soard.2013.09.018.

41. Alfonsson S, Weineland-Strandskov S, Sundbom M. Self-reported hedonism predicts 12-month weight loss after Roux-en-Y Gastric Bypass. *Obesity Surgery*. 2017;27(8): 2073-8. 10.1007/s11695-017-2603-z.

42. Marek R, Williams G, Mohun S, Heinberg L. Surgery type and psychosocial factors contribute to poorer weight loss outcomes in persons with a body mass index greater than 60 kg/m2. *Surgery for Obesity and Related Diseases*. 2017;13(12): 2021-6. https://doi.org/10.1016/j.soard.2017.09.513.

43. Gordon PC, Sallet JA, Sallet PC. The impact of temperament and character inventory personality traits on long-term outcome of Roux-en-Y gastric bypass. *Obesity Surgery*. 2014;24(10): 1647-55. 10.1007/s11695-014-1229-7.

44. Marek R, Tarescavage AM, Ben-Porath YS, Ashton K, Rish JM, Heinberg LJ. Using presurgical psychological testing to predict 1-year appointment adherence and weight loss in bariatric surgery patients: predictive validity and methodological considerations. *Surgery for Obesity and Related Diseases*. 2015;11(5): 1171-81. 10.1016/j.soard.2015.03.020.

45. Muraca E, Oltolini A, Binda A, Pizzi M, Ciardullo S, Manzoni G, et al. Metabolic and psychological features are associated with weight loss 12 months after Sleeve Gastrectomy. *Journal of Clinical Endocrinology and Metabolism*. 2021;106(8): E3087-E97. https://doi.org/10.1210/clinem/dgab161.

46. De Panfilis C, Cero S, Torre M, Salvatore P, Dall'Aglio E, Adorni A, et al. Utility of the temperament and character inventory (TCI) in outcome prediction of laparoscopic adjustable gastric banding: preliminary report. *Obesity Surgery*. 2006;16(7): 842-7. 10.1381/096089206777822278.

47. Larsen JK, Geenen R, Maas C, de Wit P, van Antwerpen T, Brand N, et al. Personality as a predictor of weight loss maintenance after surgery for morbid obesity. *Obesity Research*. 2004;12(11): 1828-34. https://doi.org/10.1038/oby.2004.227.

48. Corcelles R, Boules M, Froylich D, Hag A, Daigle CR, Aminian A, et al. Total Weight Loss as the Outcome Measure of Choice After Roux-en-Y Gastric Bypass. *Obesity Surgery*. 2016;26(8): 1794-8. https://doi.org/10.1007/s11695-015-2022-y.

49. Ben-Porath YS, Tellegen A. *MMPI-2-RF: Manual for administration, scoring and interpretation*. Minneapolis: University of Minnesota Press; 2008.

50. Morey L. *Personality Assessment Inventory* Odessa: Psychological Assessment Resources; 1991.

51. Patton JH, Stanford MS, Barratt ES. Factor structure of the Barratt impulsiveness scale. *Journal of clinical psychology*. 1995;51(6): 768-74. https://doi.org/10.1002/1097-4679(199511)51:6.

52. Costa P, McCrae R. Neuroticism extraversion openness five factor inventory. *Lutz, FL: Personality Assessment Resources*. 1992.

53. Luteijn F, Starren J, Dijk H, Van Dijk H. Manual for the Dutch Personality Questionnaire, Revised Edition. *Lisse: Swets en Zeitlinger*. 2000.

54. Carver CS, White TL. Behavioral inhibition, behavioral activation, and affective responses to impending reward and punishment: the BIS/BAS scales. *Journal of personality and social psychology*. 1994;67(2): 319.

55. Zimbardo PG, Boyd JN. *Putting time in perspective: A valid, reliable individual-differences metric*. In: Fieulaine N, van Beek W, ed. Time perspective theory; review, research and application: Springer; 2015. p. 17-55.

56. García-Ruiz-de-Godejuela A, Aguera Z, Granero R, Steward T, Llerda-Barbera A, Lopez-Segura E, et al. Weight loss trajectories in bariatric surgery patients and psychopathological correlates. *European Eating Disorders Review*. 2017;25(6): 586-94. https://doi.org/10.1002/erv.2558.

57. Miras AD, Al-Najim W, Jackson SN, McGirr J, Cotter L, Tharakan G, et al. Psychological characteristics, eating behavior, and quality of life assessment of obese patients undergoing weight loss interventions. *Scandinavian Journal of Surgery*. 2015;104(1): 10-7. 10.1177/1457496914543977.

58. Walter FA, Hoyt T, Martinez H, Dziura J. Preoperative Psychological Assessment and Weight Loss Outcomes in Bariatric Surgery Patients at a Military Treatment Facility: A Retrospective Profile Analysis. *Military medicine*. 2021;187(9-10): e1169–e75. https://doi.org/10.1093/milmed/usab078.

59. Oltmanns JR, Rivera Rivera J, Cole J, Merchant A, Steiner JP. Personality psychopathology: Longitudinal prediction of change in body mass index and weight post-bariatric surgery. *Health Psychology*. 2020;39(3): 245-54. https://doi.org/10.1037/hea0000842.

60. Hoyt T, Walter FA. The relationship of presurgical Personality Assessment Inventory scales to BMI following bariatric surgery. *Health Psychology*. 2022;41(3): 184–92. https://doi.org/10.1037/hea0001142.

61. Marek R, Ben-Porath Y, Dulmen M, Ashton K, Heinberg L. Using the presurgical psychological evaluation to predict 5-year weight loss outcomes in bariatric surgery patients. *Surg Obes Relat Dis*. 2017;13(3): 514-21. https://doi.org/10.1016/j.soard.2016.11.008.

62. Peterhänsel C, Linde K, Wagner B, Dietrich A, Kersting A. Subtypes of personality and 'locus of control' in bariatric patients and their effect on weight loss, eating disorder and depressive symptoms, and quality of life. *European Eating Disorders Review*. 2017;25(5): 397-405. https://doi.org/10.1002/erv.2534.

63. Wedin S, Madan A, Correll J, Crowley N, Malcolm R, Karl Byrne T, et al. Emotional eating, marital status and history of physical abuse predict 2-year weight loss in weight loss surgery patients. *Eating Behaviours*. 2014;15(4): 619-24. https://doi.org/10.1016/j.eatbeh.2014.08.019.

64. Lanyon RI, Maxwell BM. Predictors of outcome after gastric bypass surgery. *Obesity Surgery*. 2007;17(3): 321-8. https://doi.org/10.1007/s11695-007-9059-5.

65. Tsushima WT, Bridenstine MP, Balfour JF. MMPI-2 scores in the outcome prediction of gastric bypass surgery. *Obesity Surgery*. 2004;14(4): 528-32. https://doi.org/10.1381/096089204323013550.

66. Butcher J, Dahlstrom W, Graham J, Tellegen A, Kaemmer B. Manual for the restandardized Minnesota multiphasic personality inventory: MMPI-2. Minneapolis: University of Minnesota Press; 1989.

67. Shamseddeen H, Getty JLZ, Hamdallah I, Ali M. Psychological predictors of weight loss success following Roux-en-Y gastric bypass. *Surgery for Obesity and Related Diseases*. 2011;7(3): 361-2. DOI: 10.19080/CRDOJ.2017.3.555612.

68. Lee YC, Lee CK, Liew PL, Lin YC, Lee WJ. Evaluation of quality of life and impact of personality in Chinese obese patients following laparoscopic sleeve gastrectomy. *Hepato-gastroenterology*. 2011;58(109): 1248-51. 10.5754/hge10619.

69. Aguera Z, Garcia-Ruiz-de-Gordejuela A, Granero R, Vilarrasa N, De Bernabe MMG, Sanchez I, et al. Weight loss trajectories in bariatric surgery patients and psychopathological correlates. *European Eating Disorders Review*. 2017;25(6): 586-94. https://doi.org/10.1002/erv.2558.

70. Stanford MS, Mathias CW, Dougherty DM, Lake SL, Anderson NE, Patton JH. Fifty years of the Barratt Impulsiveness Scale: An update and review. *Personality and individual differences*. 2009;47(5): 385-95. https://doi.org/10.1016/j.paid.2009.04.008.

71. Fairburn CG, Beglin SJ. Assessment of eating disorders: Interview or self-report questionnaire? *International journal of eating disorders*. 1994;16(4): 363-70. https://doi.org/10.1002/1098-108X(199412)16:4.

72. Levenson H. Distinctions within the concept of internal-external control: Development of a new scale. 1973.

73. Luteijn F, Starren J, Van Dijk H. Herziene Handleiding bij de NPV [Revised manual Dutch personality questionnaire]. Lisse: Swets & Zeitlinger; 2000.

74. Dalle Grave R, Calugi S, El Ghoch M. Are personality characteristics as measured by the Temperament and Character Inventory (TCI) associated with obesity treatment outcomes? A systematic review. *Current Obesity Reports*. 2018;7(1): 27-36. https://doi.org/10.1007/s13679-018-0294-y.

75. Daugherty JR, Brase GL. Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*. 2010;48(2): 202-7. https://doi.org/10.1016/j.paid.2009.10.007.

76. Husted M, Ogden J. Emphasising personal investment effects weight loss and hedonic thoughts about food after obesity surgery. *Journal of Obesity*. 2014;2014. https://doi.org/10.1155/2014/810374.

77. Schag K, Mack I, Giel KE, Ölschläger S, Skoda E-M, Von Feilitzsch M, et al. The impact of impulsivity on weight loss four years after bariatric surgery. *Nutrients*. 2016;8(11): 721. https://doi.org/10.3390/nu8110721.

78. Fossati A, Di Ceglie A, Acquarini E, Barratt ES. Psychometric properties of an Italian version of the Barratt Impulsiveness Scale-11 (BIS-11) in nonclinical subjects. *Journal of Clinical Psychology*. 2001;57(6): 815-28. https://doi.org/10.1002/jclp.1051.

79. Yeo D, Toh A, Yeo C, Low G, Yeo J, Aung M, et al. The impact of impulsivity on weight loss after bariatric surgery: a systematic review. *Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity*. 2021;26(2): 425-38. https://doi.org/10.1007/s40519-020-00890-y.

80. Gutiérrez-Zotes J, Bayón C, Montserrat C, Valero J, Labad A, Cloninger C, et al. Temperament and Character Inventory-Revised (TCI-R). Standardization and normative data in a general population sample. *Actas españolas de psiquiatría*. 2004;32(1): 8-15.

81. Fountoulakis KN, Rozsa S, Siamouli M, Moutou K, Pantoula E, Cloninger CR. Standardization and normative data of the Greek version of the Temperament and Character Inventory (TCI). *Annals of General Psychiatry*. 2015;14(1): 1-7. https://doi.org/10.1186/s12991-015-0067-x.

82. Fassino S, Abbate-Daga G, Amianto F, Leombruni P, Boggio S, Rovera GG. Temperament and character profile of eating disorders: a controlled study with the Temperament and Character Inventory. *International Journal of Eating Disorders*. 2002;32(4): 412-25. https://doi.org/10.1002/eat.10099.

83. Montesi L, El Ghoch M, Brodosi L, Calugi S, Marchesini G, Dalle Grave R. Long-term weight loss maintenance for obesity: a multidisciplinary approach. *Diabetes, Metabolic Syndrome and Obesity*. 2016;9: 37-46. 10.2147/DMSO.S89836.

84. Grover BT, Morell MC, Kothari SN, Borgert AJ, Kallies KJ, Baker MT. Defining weight loss after bariatric surgery: a call for standardization. *Obesity Surgery*. 2019;29(11): 3493-9. https://doi.org/10.1007/s11695-019-04022-z.

85. Burgess E, Hassmén P, Pumpa KL. Determinants of adherence to lifestyle intervention in adults with obesity: a systematic review. *Clinical Obesity*. 2017;7(3): 123-35. https://doi.org/10.1111/cob.12183.

86. Somerset S, Graham L, Markwell K. Depression scores predict adherence in a dietary weight loss intervention trial. *Clinical Nutrition*. 2011;30(5): 593-8. https://doi.org/10.1016/j.clnu.2011.04.004.

87. NHS England. Guidance for commissioning obesity surgery 2016 [Available from: https://www.england.nhs.uk/wp-content/uploads/2016/05/appndx-7-obesity-surgery-guid.pdf.

88. Stewart AJ, Sokol M, Healy JM, Chester NL. Longitudinal studies of psychological consequences of life changes in children and adults. *Journal of Personality and Social Psychology*. 1986;50(1): 143. https://doi.org/10.1037/0022-3514.50.1.143.

Service Improvement Project

Evaluation of the delivery of individual therapy in the Oxford Talking Space Plus Improving Access to Psychological Therapies (IAPT) service before and during the Covid-19 pandemic and how best to inform the future service model.

Madeleine Irish (1405428)

Department of Psychology, University of Oxford, Isis Education Centre, Warneford Hospital, Oxford, OX3 7JX

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Internal Supervisor: Dr Alasdair Churchard, Oxford Institute of Clinical Psychology Training and Research, University of Oxford

External Supervisors: Dr Graham Thew & Dr Samantha Sadler, Oxford Health NHS Foundation Trust

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Abstract

The mitigations put in place to reduce the spread of COVID-19 caused widespread disruption to people's lives and their mental health. It also led to the transition from face-to-face to remote working for many psychological therapies. Although evidence has indicated that remote therapy (i.e., videoconferencing) is effective, little is known about the added impact of a pandemic on treatment outcomes, and the effectiveness for different clinical presentations and demographic characteristics. This service improvement project compared therapy outcomes for 1,047 patients who received high intensity psychological input from an Increasing Access to Psychological Therapy (IAPT) service before the Covid-19 pandemic and during the pandemic (when the majority of therapy was delivered remotely). In addition, the experiences of groups that showed poorer outcomes during the Covid-19 period were explored using qualitative interviews. Despite the psychological impact of the pandemic, and its associated restrictions, the Covid-19 period was not associated with poorer clinical outcomes for many clinical presentations and client demographics. However, recovery rates for those receiving therapy for obsessive compulsive disorder were significantly lower during Covid-19 when compared to pre-Covid-19. Possible reasons for this are explored. The findings suggest that, overall, Covid-19 did not have a significant impact on treatment outcomes, and that remote therapy may be an effective option within an IAPT setting, and could be offered on a permanent basis as part of patient choice.

Key words: IAPT, Covid-19, remote therapy, effectiveness, OCD

Key Learning Aims:

- To understand the impact the Covid-19 pandemic had on recovery rates in an IAPT service.
- To understand how this varies across different demographic variables (e.g., gender, age) and clinical presentations.

Introduction

Covid-19 had an unprecedented impact worldwide. It impacted people’s psychological wellbeing (Vindegaard & Benros, 2020), with studies finding a modest increase in the prevalence of anxiety, depression and trauma symptoms during lockdowns compared to previous population estimates (Shevlin et al., 2020). In addition, mental health and wellbeing reportedly worsened for many with pre-existing mental health conditions (Lewis et al., 2022). The longitudinal impact is currently less clear; however, it is possible this could result in a longer-term increase in service need.

It is unclear whether pandemic related factors could impede therapy outcomes for different groups of people. For instance, for individuals with OCD with contamination fears, exposure and response prevention (ERP; the recommended line of treatment; NICE, 2005) could have been impacted due to government guidelines around increased handwashing. Additionally, symptoms of health anxiety were exacerbated (Dennis, Radnitz, & Wheaton, 2021; Heinen, Varghese, Krayem, & Molodynski, 2022) and guidelines around social distancing could have impacted on levels of avoidance, a maintaining factor in the cognitive behavioural formulation (Taylor, 2004). The pandemic also had a greater impact on the mental health of women, younger adults and those from socially disadvantaged backgrounds (O’Connor et al., 2021; Pierce et al., 2020). It is important to consider how such factors may impact treatment outcomes to adapt the delivery of interventions accordingly.

In addition, as a result of UK implemented lockdowns and social distancing in March 2020 (Aspinall, n.d.), many mental healthcare services had to quickly adapt to a new way of remote working. One example of this was Improving Access to

Psychological Therapies (IAPT), which aims to increase access to evidence-based psychological treatments for common mental health problems, using a stepped-care approach (from low-intensity guided self-help to high-intensity interventions such as cognitive behavioural therapy [CBT]; Clark, 2011). High-intensity interventions within IAPT changed from a predominately in-person model to a largely remote one, meaning therapy took place over the telephone or videoconferencing.

The remote delivery of therapy (RT) had been researched prior to the Covid-19 pandemic, with research indicating that mental health assessments and treatment delivered remotely using videoconferencing technology are as effective as in-person delivery (Fernandez et al., 2021; Hubley, Lynch, Schneck, Thomas, & Shore, 2016; Hyler, Gangure, & Batchelder, 2005; Thomas et al., 2021), and generally acceptable with limited impact on therapeutic alliance (Cataldo, Chang, Mendoza, & Buchanan, 2021). Although evidence of large-scale implementation in services like IAPT is limited (Barnett et al., 2021), recent research has shown that outcomes for RT across clinical presentations and demographics did not differ from in-person therapy during Covid-19 in two London IAPT services (Nguyen et al., 2022).

Given the sudden and huge scale of change, and the impact caused by the pandemic, it is important to identify the full impact Covid-19 (and the subsequent transition to RT) had on patient outcomes, for different clinical presentations and demographic characteristics. With regards to demographic factors, it is possible that the pandemic could have impacted on groups of people differently. For instance, caring responsibilities may have been impacted unevenly across gender, different age groups may have found the digital nature of treatment more or less accessible, and an individual’s ability to engage remotely could be impacted by privacy in multigenerational homes. All of this could potentially impact on treatment outcomes.

Such understanding will inform the Oxford Health NHS Foundation Trust (OHFT) IAPT service model, helping to identify those impacted by the pandemic itself (thus, who may need additional support) and what place RT has in the future. It is important to consider patient outcomes alongside patient and therapist acceptability, and cost-effectiveness. By taking this holistic approach, it is hoped that improvements can be made to how the service is delivered.

With this in mind, a service evaluation was conducted to investigate patient recovery rates within an OHFT IAPT service, across different clinical presentations and demographic variables (e.g., age, ethnicity, gender etc.). In addition, it aimed to understand the experience of groups that showed poorer outcomes during the Covid-19 pandemic, in order to recognise whether it was a result of the remote delivery or pandemic-related factors (e.g., increased isolation, financial burden and increased uncertainty).

Methods

Data was provided by an IAPT service within OHFT, England, as part of a service improvement project. Approval was obtained through OHFT Clinical Audit Team.

Participants

A retrospective dataset was formed from 1,047 patients who finished Step 3 treatment between either June 2019 to March 2020 (pre-Covid-19 period) or March 2020 to December 2020 (Covid-19 period). The Covid-19 period included both videoconferencing and telephone treatment sessions. Step 3 care involves high-intensity input, usually on a weekly basis, with a suitably trained therapist (The National Collaborating Centre for Mental Health, 2021). Only Step 3 contacts (i.e., clinical contact between therapist and patient) were included, as these contacts were traditionally carried out in-person. Due to limitations in the dataset, it was not possible to exclude those that were ‘stepped-up’ to Step 3 from lower intensity interventions. Inclusion criteria included: (a) those who received two or more sessions of individual treatment (the minimum requirement for an episode of care; The National Collaborating Centre for Mental Health, 2021); and (b) those with 2 or more outcome measures on the PHQ-9 and a relevant anxiety measure. Participant demographics are shown in Table 1.

Table 1

Characteristics of the sample, according to the time period, for those receiving Step 3 treatment within OHFT IAPT

	Pre-Covid-19 period		Covid-19 period		
	M	*SD*	*M*	*SD*	*p*
Age (*M*)	40.37	16.33	38.81	15.13	.123
Initial symptom severity					
PHQ-9	15	6.1	15.2	6.0	.637
GAD-7	13.4	5.1	14.1	4.8	.025
	n	%	*n*	%	*p*
Gender					.524
Male	116	31.2	188	27.9	
Female	255	68.5	485	71.9	
Missing	1	0.3	2	0.2	
Ethnicity					.534
White	325	87.4	605	89.6	
Other	40	10.8	59	8.7	
Missing, unknown	7	1.9	11	1.6	
Problem Descriptor					.875
Depression	157	42.2	281	41.6	
Social phobias	8	2.2	24	3.6	
Specific phobias	9	2.4	21	3.1	
Panic disorder	12	3.2	21	3.1	
Generalized anxiety disorder	50	13.4	94	13.9	
Obsessive-compulsive disorder	22	5.9	38	5.6	
Post-traumatic stress disorder	63	16.9	113	16.7	
Health Anxiety	7	1.9	18	2.7	
Other	44	11.8	65	9.6	
Long-term health conditions					.015

None	246	66.1	393	58.2	
Respiratory long-term health condition	49	13.2	89	13.2	
Other long-term health condition	70	18.8	161	23.9	
Missing	7	1.9	32	4.7	
Disability					.437
None	295	79.3	549	81.3	
Disability	64	17.2	111	16.4	
Missing	13	3.5	15	2.2	

A total of 372 patients accessed treatment during the pre-Covid-19 period, compared to 675 during the Covid-19 period. Participant characteristics were explored – the only significant differences between groups were seen for long-term conditions (LTCs) and initial severity scores for generalised anxiety. During the pre-Covid-19 period, significantly fewer people reported ‘no LTC’ compared to the Covid-19 period (58.2% vs 66.1%, respectively; *p* = .015) and had lower baseline generalised anxiety, according to the GAD-7 (*M* = 13.4, *SD* = 5.1 vs *M* = 14.1, *SD* = 4.8, respectively; p = .025).

Measures

IAPT services collect routine outcome measures for depression and anxiety at each clinical contact. The Patient Health Questionnaire 9-item (PHQ-9; Kroenke, Spitzer, & Williams, 2001) and The Generalized Anxiety Disorder Scale 7-item version (GAD-7; Spitzer, Kroenke, Williams, & Löwe, 2006) are administered to all patients, regardless of clinical presentation. For patients presenting with an anxiety disorder other than generalised anxiety (e.g., social anxiety, post-traumatic stress disorder), an anxiety disorder specific measure (ADSM) is also administered. All measures used have shown good psychometric properties. Details about the self-report outcome measures and the additional data items included for analyses are summarised in Table 2.

Table 2

Demographic factors and IAPT outcome measures collected.

Demographic information (self-reported at point of referral)	
Clinical presentation	A patient is allocated a ‘provisional diagnosis’ based on The International Classification of Diseases and Related Health Problems (ICD-10)
Age	Age was calculated using date of birth and split into working aged adults (18-64 years) and older adults (65+ years).
Gender	
Ethnicity	Ethnicity was combined into ‘White’ and ‘Other’ due to small sample sizes.
Long-term health condition	Long-term health condition status was combined due to sample sizes. Asthma, Chronic Obstructive Pulmonary Disease and Other Respiratory Disease were combined to make the ‘LTC respiratory’ variable, all other diagnoses made the ‘LTC other’ variable. This was to account for Covid-19 being a respiratory virus.
Disabilities	Due to small sample sizes, all disabilities (e.g., behavioural, hearing, manual dexterity and learning disability) were combined into an ‘other’ variable.
Outcome measures (first and last scores used for analysis)	
Patient Health Questionnaire 9-item (PHQ-9; Kroenke et al., 2001)	This is a 9-item self-report measure assessing symptoms of depression.
The Generalized Anxiety Disorder Scale 7-item version (GAD-7; Spitzer et al., 2006)	This is a 7-item self-report measure assessing symptoms of generalised anxiety.
The Obsessive Compulsive Inventory (OCI; Foa, Kozak, Salkovskis, Coles, & Amir, 1998)	This is an 18-item self-report measure of Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV symptoms of obsessive compulsive disorder.
The PTSD Checklist for DSM-5 (PCL-5;	The IAPT service changed outcome measures

Weathers et al., 2013) OR the Impact Events Scale – Revised (IES-R; Weiss, 2007)	from the IES-R to PCL-5 during the data period. Measures were chosen based on availability of first and last scores.
The Health Anxiety Inventory (HAI; Salkovskis, Rimes, Warwick, & Clark, 2002)	This is a 23-item self-report measure of clinical and non-clinical health anxiety.
The Social Phobia Inventory (SPIN; Connor et al., 2000)	This is a 17-item self-report measure evaluating social fear, avoidance, and physiology discomfort.

Outcomes

Key measures of patient outcomes include recovery rates, reliable improvement, and reliable deterioration. IAPT recovery rates are the proportion of patients who move from caseness at the start of treatment (i.e., above the threshold on the PHQ-9 and/or the anxiety measure [GAD-7 or ADSM]) to non-caseness at the end of treatment (i.e., at or below threshold on both the PHQ-9 and GAD-7/ADSM; The National Collaborating Centre for Mental Health, 2021). A person shows reliable improvement if their scores on the PHQ-9 and/or the relevant anxiety measure have reduced a reliable amount (e.g., by 6 or more points on the PHQ-9 and 4 or more points on the GAD-7) and neither have shown a reliable increase. A person shows reliable deterioration if their scores on the PHQ-9 and/or the relevant anxiety measure have increased a reliable amount and neither have shown a reliable decrease. Recovery rates are most widely used by NHS England, and are what national standards are based on (The National Collaborating Centre for Mental Health, 2021). For this reason, recovery rates will be the primary focus for this paper.

Procedure

Electronic healthcare records from an IAPT service within OHFT were accessed for people who ended therapy between June 2019 to March 2020 (pre-

Covid-19 period) and March 2020 to December 2020 (Covid-19 period). Time periods were matched on length and included both summer and winter to account for seasonal variation (Lyall et al., 2018). All data was anonymised and analysed using IBM SPSS software.

People with demographic characteristics and/or clinical presentations that showed poorer outcomes during the Covid-19 period compared to the pre-Covid-19 period were invited, via email, to take part in semi-structured interviews. A total of two email invitations per person were sent. The topic guide focused on their experience of treatment and aimed to explore whether therapy was impacted because of pandemic-related factors or the remote delivery. Topic guides received feedback from a number of clinicians within the service. Interviews were conducted over Microsoft Teams and the duration ranged from 20 – 22 minutes (M = 21.0, SD = 0.8).

Analysis

Data checks were conducted to ensure accurate recording of descriptive data (e.g., contact type etc.), and to check statistical assumptions. Due to small sample sizes within demographic subgroups the following demographic variables were combined: (a) ethnicity, (b) long-term health condition (LTC) and, (c) disability status (details outlined in Table 2). Age was also categorised into working aged adults (18-64 years) and older adults (65 years and older). The first and last scores on the PHQ-9 and relevant anxiety disorder measures were used for analysis. If either the first or last ADSM scores were missing, the GAD-7 scores were used. Recovery rates, reliable improvement and reliable deterioration were compared for Step 3 treatment prior to the pandemic (pre-Covid-19 period) and during the pandemic

(Covid-19 period). T-tests were used to explore any differences between the pre-Covid and Covid group. Comparisons were made using a chi-square goodness of fit test, for each clinical presentation and demographic characteristic. Cases that had missing demographics were defined as unknown and used at analysis.

Qualitative interviews were transcribed verbatim. A thematic analysis (Braun & Clarke, 2006; Clarke & Braun, 2014) was conducted from an inductive stance to ascertain a wide range of themes relating to service users' experience of treatment during Covid-19. Interviews were coded by the lead researcher (MI), using a 6-step thematic analysis approach. Transcripts were read numerous times to aid familiarisation. Key words and phrases were highlighted and then organised into potential themes. Potential themes were reviewed and reorganised where necessary.

Results

Access to the service

During the Covid-19 period, 61.2% of people had the majority of sessions using the telephone whilst the service accessed appropriate technology to undertake RT via videoconferencing, and 38.8% had the majority of sessions using videoconferencing.

Sessions cancelled and not attended were significantly greater during the Covid-19 period, with the rate of individuals cancelling one or more sessions over the course of their treatment increasing from 54% during the pre-Covid-19 period to 71% during the Covid-19 period ($X^2(1, N = 1{,}047) = 27.98$, $p < .001$, $V = 0.143$) and the rate of individuals not attending (without forewarning) one or more sessions increasing from 32% during the pre-Covid-19 period to 46.8% during the Covid-19 period (X^2(1, *N* = 1,047) = 21.89, *p* < .001, *V* = 0.163). The mean number of sessions cancelled per person during the pre-Covid-19 period was 1.1 (*SD* = 1.4) compared to 1.1 (*SD* = 1.8) for the Covid-19 period. The mean number of sessions not attended during the pre-Covid-19 period was 0.7 (*SD* = 1.4) compared to 0.9 (*SD* = 1.5) for the Covid-19 period.

The number of total contacts was greater during the Covid-19 period, with people receiving a mean of 5.5 sessions (*SD* = 4.9) in the pre-Covid-19 period compared to 11.6 sessions (*SD* = 7.7) in the Covid-19 period (*t*(1,046) = -13.93, *p* <.001).

Treatment outcomes

Table 3 summarises the therapy outcomes at Step 3 within the service for both the pre-Covid-19 and Covid-19 period, according to IAPT recovery criteria. IAPT recovery rates were significantly greater for those during the Covid-19 period, with 28.2% (*n* = 105) meeting recovery criteria during the pre-Covid-19 period compared to 35.2% (*n* = 237) during the Covid-19 period (X^2(1, *N* = 1,047) = 5.24, *p* = .022). The odds of meeting IAPT recovery criteria were 1.38 times higher during the Covid-19 period compared to the pre-Covid-19 period. Due to the exclusion of Step 2 interventions, recovery rates were lower than the national average (NHS Digital, 2021).

When looking at symptoms of depression and generalised anxiety, significantly more people moved from ‘caseness’ to ‘non-caseness’ during the Covid-19 period compared to the pre-Covid-19 period, when looking at both the PHQ-9 (37%, *n* = 250 vs 27.2%, *n* = 101, respectively; X^2(1, *N* = 1,047) = 10.52, *p* = .001, *OR* = 1.58) and the GAD-7 (38.5%, *n* = 260 vs 26.3%, *n* = 98, respectively; X^2(1, *N* = 1,047) = 15.80, *p* < .001, *OR* = 1.75).

Demographics

Details about outcomes according to demographics can be found in Table 3.

With regard to gender, recovery rates were significantly greater for females during the Covid-19 period, with 26.7% (*n* = 68) meeting recovery criteria during the pre-Covid-19 period compared to 34% (*n* = 165) during the Covid-19 period (X^2(3, *N* = 1,047) = 4.19, *p* = .041; *V* = 0.075). No significant difference was found for males, with 31.9% (*n* = 37) meeting recovery criteria during the pre-Covid-19 period compared to 38.5% (*n* = 72) during the Covid-19 period (X^2(3, *N* = 1,047) = 1.36, *p* = .244).

Recovery rates were significantly greater during the Covid-19 period for working aged adults, with 26.3% (*n* = 87) meeting recovery criteria during the pre-Covid-19 period compared to 34.4% (*n* = 213) during the Covid-19 period, however, association was weak (X^2(3, *N* = 1,047) = 6.59, *p* = .01, *V* = 0.083). No significant difference was found for older adults, with 43.9% (*n* = 18) meeting recovery criteria during the pre-Covid-19 period compared to 43.6% (*n* = 24) during the Covid-19 period (X^2(3, *N* = 1,047) = 0.001, *p* = .979; *V* = 0.003).

There were no significant differences in recovery rates across ethnicity, or disability and LTC status.

Clinical Presentations

Although most clinical presentations examined, apart from health anxiety, showed a trend towards greater recovery rates during the Covid-19 period compared to the pre-Covid-19 period, the only significant differences in recovery rates were for depression and OCD (Table 3).

For people receiving therapy for depression, outcomes were significantly greater during the Covid-19 period, with the odds of meeting IAPT recovery criteria being 1.79 times higher compared to the pre-Covid-19 period (21.7%, *n* = 34 for pre-Covid-19 period compared to 33.5%, *n* = 94 for Covid-19 period; X^2(1, *n* = 438) = 6.77, *p* = .009). There were no significant differences between the starting scores in the pre-Covid-19 and Covid-19 period for the PHQ-9 (*M* = 17.2, *SD* = 5.2, vs *M* = 17.4, *SD* = 5.0, respectively; *t*(436) = -0.44, p = .664).

For people receiving therapy for OCD, recovery rates were significantly poorer during the Covid-19 period, with 54.5% (*n* = 12) meeting recovery criteria during the pre-Covid-19 period compared to 23.7% (*n* = 9) during the Covid-19 period (X^2(1, *n* = 60) = 5.83, *p* = .016; *OR* = 0.26). However, when looking at reliable improvement between first and last scores, there was no significant difference between pre- and Covid-19 periods, with 54.5% (*n* = 12) showing reliable improvement during the pre-Covid-19 period compared to 47.4% (*n* = 18) during the Covid-19 period (X^2(1, *n* = 60) = 0.29, *p* = .592; *OR* = 0.75). In addition, there was no significant difference in the rate of reliable deterioration (4.5%, *n* = 1 for pre-Covid-19 vs 2.6%, *n* = 1 for Covid-19; X^2(1, *n* = 60) = 0.16, *p* = .691). There was also no significant difference between the starting scores in the pre-Covid-19 and Covid-19 periods for the OCI (*M* = 70.2, *SD* = 29.0 vs *M* = 70.6, *SD* = 32.4, respectively; *t*(55) = -0.05, *p* = .957).

Table 3

IAPT recovery rates for Step 3 treatment, according to time period.

	Pre-Covid-19 period		Covid-19 period		Chi Square			
	n	%	*n*	%	X^2	*p*	*V*	*OR*
Whole data set	105	28.2	237	35.2	5.242	.022*	-	1.38
By Clinical Presentation								
Depression	34	21.7	94	33.5	6.776	.009*	-	1.79
Social phobias	1	12.5	6	25				
Specific phobias	1	11.1	5	23.8				
Panic disorder	5	41.7	10	47.6				
Generalized anxiety disorder	18	36	47	50.5	2.772	.096	-	1.82
Obsessive-compulsive disorder	12	54.5	9	23.7	5.833	.016*	-	0.26
Post-traumatic stress disorder	18	28.6	48	42.5	3.338	.068	-	1.85
Health Anxiety	3	42.9	3	16.7				
Other	13	12.4	15	6.3				
By Demographic								
Gender								
Male	37	31.9	72	38.5	1.356	.244	0.067	
Female	68	26.7	165	34	4.19	.041*	0.075	
Age								
Working age adults	87	26.3	213	34.4	6.592	.010*	0.083	
Older adults	18	43.9	24	43.6	0.001	.979	0.003	
Ethnicity								
White	96	29.5	214	35.4	3.299	.069	0.06	
Other	6	15	19	32.2	3.738	.053	0.194	
Missing	3	42.9	4	36.4				
Long-term Health Conditions								
None	71	28.9	141	35.9	3.359	.067	0.073	
Respiratory long-term health	14	28.6	35	39.8	1.719	.190	0.112	

condition							
Other long-term health condition	20	28.6	48	29.8	0.036	.849	0.013
Missing	0	0	13	40.6			
Disability							
No Disability	90	30.5	196	35.7	2.31	.129	0.052
Disability	13	20.3	36	32.7	3.082	.079	0.133
Missing	2	15.4	5	33.3			

Note. Where Chi-Square statistics are missing, sample size is too small to compute. OR = odds ratio

Qualitative responses

Based on the quantitative results, 23 people with OCD and 12 people with health anxiety were invited to participate in the interviews. Three people agreed to participate (8.6% response rate), all of whom were female, working aged adults, and had received remote treatment for OCD. Overall themes are presented below and summarised in Appendix B1.

Exposure and response prevention (ERP)

One participant found engaging in ERP remotely extremely challenging due to having to do everything between sessions, as opposed to the possibility of doing it together if in person.

> *“In my mind, if you’re telling someone who is afraid of spiders, for example, that in this next week…I want you to go and look at spiders or whatever it may be, that person is probably not going to do it…maybe you do things together [in reference to in-person therapy], rather than just being left to your own devices” (Participant 1)*

For two participants, RT was seen as beneficial because, due to the nature of their difficulties, coming to appointments was an exposure in itself. This meant that, if in-person, they would be starting sessions in a heightened state of anxiety, making it difficult to fully engage in the session.

> *“*Part of like going to the sessions in person was an exposure experience in a way for me anyway, so I thought, well, will I feel too comfortable being at home? But it wasn't that way at all. I felt like I was still challenged in the same ways” *(Participant 2)*

It was also believed that the remote nature of ERP required more creativity.

> *“I felt like I was still challenged in the same ways. It's just you had to get a bit more creative, I suppose.” (Participant 2)*

Practical considerations

Overall, RT was seen as advantageous due to the fact that it saved people a lot of time in their days. This made it a lot more accessible and meant people could easily fit treatment around everyday demands (e.g., childcare and work).

> *"It's just very, very convenient. You know, when you have a life and things going on, an hour of getting in the car and driving to meet the person, having a session and driving back. But when you're at home, you can take an hour off whatever you're doing to have the call" (Participant 1)*

However, there were also practicality barriers with regard to access to laptops, with one participant reporting that the family had to manage work, home schooling and treatment with one laptop for a while.

> *"When my child was home schooled, because obviously we only had my husband's work laptop for most of the stuff we did…we were using it for home schooling and my meetings" (Participant 3)*

Impact on the therapeutic relationship

Although two out of three participants mentioned that there was no known impact on the therapeutic relationship, one participant spoke about the remote nature of treatment diluting the relationship. Suggestions to mitigate against this were around emphasising body language to make them more personable.

> *"With anything done remotely, you dilute and you lose some of that emotional kind of understanding. You know, you want someone's full behaviour and body language. What could be a small little kind of look may be missed [remotely] whereas, you know, in person you can pick it up." (Participant 1)*

In addition, they found virtual backgrounds of fake rooms to be off-putting and *"corporate",* which contributed to feeling *"unconnected".*

On the other hand, one participant mentioned that engaging remotely made the relationship *"more honest",* and that they felt more able to share when they did not feel comfortable doing something.

The home environment

Although one participant found that engaging in treatment from their own home added a sense of safety, another found it difficult due to the lack of privacy and anonymity from others in the household.

> *"It just felt like a safe space at home" (Participant 2)*
>
> *"…I just knew that there were other people around me. It wasn't quite such a safe space, I guess" (Participant 3)*

Future preferences

All participants said they would be happy to receive remote treatment in the future, if they were to access further support from IAPT services. Despite some drawbacks identified, overall, it was a positive experience which made access easier. One participant expressed a potential preference for a hybrid approach, where in-person sessions could take place to support ERP.

> *"I would definitely vote for remote for my regular meetings. If it got to the point where you were doing exposure therapy together, I think it would still be nice to meet a therapist".* (*Participant 2)*

Discussion

The aim of this study was to investigate the impact of the Covid-19 pandemic on patient outcomes within OHFT IAPT, for different clinical presentations and demographic groups. Additionally, we wanted to understand the experience of groups of people who had poorer outcomes during Covid-19 period compared to pre-Covid-19.

Overall, the service improvement project found that more people received Step 3 treatment during the pandemic period compared to the period before. This is unsurprising given the pandemic's impact on psychological wellbeing, and the associated increase in common mental health disorders (Saunders, Buckman, Leibowitz, Cape, & Pilling, 2021; Vindegaard & Benros, 2020). Stressors such as financial strain, grief, and loneliness were all contributors to this increase in incidence (Chandola, Kumari, Booker, & Benzeval, 2020).

The Covid-19 period was not associated with poorer clinical outcomes for most clinical presentations and demographic variables (apart from those receiving treatment for OCD), despite baseline generalised anxiety symptoms being higher during the Covid-19 period. It is important to note that recovery rates are poorer than the IAPT national averages due to the exclusion of Step 2 interventions. Despite the overall positive findings supporting the delivery of high-intensity intervention during the pandemic, people receiving treatment in the Covid-19 period received significantly more sessions than in the pre-Covid-19 period. This may have impacted patient outcomes (Gyani, Shafran, Layard, & Clark, 2011), potentially obscuring any worsening of outcomes due to Covid-19. This may also have impacted cost-effectiveness and it could be beneficial to review the number of overall contacts now people have adapted and familiarised themselves with this format of delivery. In addition, there were more cancellations and non-attendances during the Covid-19 period when compared to the pre-Covid-19 period, which would be expected given the increased flexibility RT offers, and that they received more sessions overall. The mean number of cancellations/non-attendance during the Covid-19 period was still relatively low and in line with previous research (Chan & Adams, 2014).

There was some evidence to suggest that clients presenting with OCD benefitted less during the Covid-19 period than the pre-Covid-19 period whilst those with depression benefitted more. That is, those receiving treatment for OCD showed significantly poorer recovery rates during the Covid-19 period. If considering it to be a result of the remote delivery of therapy, the findings are inconsistent with previous research. A meta-analysis reported that RT can be beneficial amongst this subgroup

(Fernandez et al., 2021) and that people can show improvements with remote ERP (Vogel et al., 2014). In addition, from the interviews conducted, it appeared that RT was predominately a positive experience overall. This suggests that the worsening of outcomes during the Covid-19 period could be due to pandemic-related factors, as opposed to the remote delivery of therapy itself. For instance, due to the pandemic, there was more emphasis on cleanliness (e.g., hand washing, wiping surfaces down, etc.), which could have contributed to contamination related fears. This may have impacted on individuals moving towards recovery and should be taken into account during the treatment (e.g., the potential to increase risk and Covid-19 vulnerability status; Jassi et al., 2020). However, Chakraborty and Karmakar (2020) found that recommendations around handwashing did not increase the compulsive nature of the handwashing for most. In addition, those receiving treatment for health anxiety also showed a trend towards poorer outcomes during the Covid-19 period; however, the sample size was small and thus, these were only indications. These findings could have also been directly related to the pandemic as the unknown health threat of Covid-19 may have impacted health related anxieties (Dennis et al., 2021).

Moreover, those receiving treatment for depression showed significantly greater recovery rates during RT. Although this is in line with the established evidence base (Thomas et al., 2021), it could be a result of the increased number of sessions delivered within the Covid-19 period. However, it has been suggested that symptomatology for depression (e.g., anhedonia, having little energy) may make travelling to treatment difficult, thus making RT more manageable (Bouchard et al., 2004).

These findings suggest that the pandemic did not result in poorer treatment outcomes within OHFT IAPT. A proportion of people, however, would have experienced the transition from in-person to remote therapy due to the time periods of the group. Due to this, it is not possible to conclude that the findings were a result of RT itself, but findings do indicate that RT could continue for Step 3 IAPT intervention beyond the pandemic. Given that patient outcomes did not worsen for the majority of groups, continuing this way of working would increase patient choice and reduce service resources (e.g., office space, etc.). With this in mind, it is important to implement a service model that allows for genuine choice for patients, such as the assurance that waitlists for different preferences of treatment delivery are equitable.

Additionally, as the service adapts, these results suggest that it may be beneficial to prioritise in-person therapy for those receiving treatment for OCD, particularly if the threat of Covid-19 is still present. It may also be important to consider whether this subgroup need extra support within the context of the pandemic. However, further exploration into the impact of RT on OCD would be beneficial to help disentangle the impact of pandemic-related threats and the remote delivery. Findings of this service improvement project will be communicated to staff and senior management teams within OHFT IAPT and NHS England to help shape the service model and service provision. These findings will be taken into account alongside therapist views.

Limitations

Although the sample size was reasonably large, the size of certain demographic groups and clinical presentations were small and, therefore, only showed trends. This also meant that different groups were collapsed (e.g., ethnicity) to allow for analyses, which meant it was not possible to explore the impact in as much detail as was hoped. With more data now available from the remote delivery of therapy, it would be beneficial to revisit the impact on patient outcomes for certain groups (e.g., health anxiety and social anxiety). Although service improvement projects benefit from qualitative evidence (Tsianakas et al., 2012), the qualitative sample was also small, and data saturation was not achieved due to difficulties recruiting. Due to this, our understanding of whether poorer outcomes were due to RT or the pandemic was limited.

Moreover, within the data, it was not possible to distinguish between those that received fully remote therapy and those that may have experienced a transition period from in-person to remote. Data was also observational and took an exploratory approach. For this reason, the interpretation of the results is difficult and must be done with caution. For example, improvements could have been as a result of pandemic related factors (e.g., the reduction in usual day-to-day activities resulting in people having more time for therapy related tasks) or a direct result of RT. Therefore, it is not possible to conclude that the impact seen on patient outcomes will continue beyond the pandemic.

The sample was drawn from one IAPT service within OHFT and therefore the generalisability of findings is limited. There may have also been a sampling bias for the Covid-19 group due to pandemic-related changes in referrals. People familiar with using technology may have been more likely to self-refer, whereas those less familiar, and who traditionally would have been referred via their GP (e.g., older adults) may not have had this opportunity. With this in mind, it is important to consider digital exclusion when offering people remote treatment.

Conclusion

The findings suggest that, overall, within an OHFT IAPT service, the pandemic and sudden transition to RT was not detrimental to patient recovery rates. This has implications for service planning and delivery, beyond the Covid-19 pandemic. Due to the nature of the project, however, these results need to be interpreted with caution. To summarise, key implications for future practice within OHFT IAPT include:

- The high-intensity treatment offered within IAPT is effective within the context of a pandemic.
- RT could form a substantial part of the IAPT step 3 service model going forwards. This should consider patient preference and digital exclusion.
- Those receiving therapy for OCD may benefit more from receiving therapy in-person and therefore, consideration should be given to prioritising this group of patients (e.g., with limited room availability, etc.). Within the context of the pandemic, people with OCD may also benefit from addition support where possible. However, more research is needed.
- Future research should consider further investigating the impact of RT for those with health anxiety and OCD. It may help to focus on whether the post-Covid-19 outcomes become more comparable to pre-Covid-19 as we move beyond the increased health and contamination threats caused by the pandemic.

Further reading:

Jassi, A., Shahriyarmolki, K., Taylor, T., Peile, L., Challacombe, F., Clark, B., & Veale, D. (2020). OCD and COVID-19: a new frontier. *The Cognitive Behaviour Therapist, 13*. https://doi.org/10.1017/S1754470X20000318

Thomas, N., McDonald, C., de Boer, K., Brand, R. M., Nedeljkovic, M., & Seabrook, L. (2021). Review of the current empirical literature on using videoconferencing to deliver individual psychotherapies to adults with mental health problems. *Psychology and Psychotherapy, 94*(3), 854-883. https://doi.org/10.1111/papt.12332

References

Aspinall, E. (n.d.). COVID-19 Timeline. https://bfpg.co.uk/2020/04/covid-19-timeline/

Barnett, P., Goulding, L., Casetta, C., Jordan, H., Sheridan-Rains, L., Steare, T., . . . Johnson, S. (2021). Implementation of telemental health services before COVID-19: rapid umbrella review of systematic reviews. *Journal of Medical Internet Research, 23*(7), e26492. doi:10.2196/26492

Bouchard, S., Paquin, B., Payeur, R., Allard, M., Rivard, V., Fournier, T., . . . Lapierre, J. (2004). Delivering cognitive-behavior therapy for panic disorder with agoraphobia in videoconference. *Telemedicine Journal and E-health, 10*(1), 13-25. https://doi.org/10.1089/153056204773644535

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi: 10.1191/1478088706qp063oa

Cataldo, F., Chang, S., Mendoza, A., & Buchanan, G. (2021). A perspective on client-psychologist relationships in videoconferencing psychotherapy: literature Review. *JMIR Mental Health, 8*(2), e19004. doi: 10.2196/19004

Chakraborty, A., & Karmakar, S. (2020). Impact of COVID-19 on obsessive compulsive disorder (OCD). *Iranian Journal of Psychiatry, 15*(3), 256. doi: 10.18502/ijps.v15i3.3820

Chan, S. W., & Adams, M. (2014). Service use, drop-out rate and clinical outcomes: a comparison between high and low intensity treatments in an IAPT service. *Behavioural and Cognitive Psychotherapy, 42*(6), 747-759. doi: 10.1017/S1352465813000544

Chandola, T., Kumari, M., Booker, C. L., & Benzeval, M. (2020). The mental health impact of COVID-19 and lockdown-related stressors among adults in the UK. *Psychological Medicine*, 1-10. https://doi.org/10.1017/S0033291720005048

Clark, D. M. (2011). Implementing NICE guidelines for the psychological treatment of depression and anxiety disorders: the IAPT experience. *International Review of Psychiatry, 23*(4), 318-327. https://doi.org/10.3109/09540261.2011.606803

Clarke, V., & Braun, V. (2014). Thematic analysis. In T. Teo (Ed.), *Encyclopedia of Critical Psychology* (pp. 1947-1952): Springer.

Connor, K. M., Davidson, J. R., Churchill, L. E., Sherwood, A., Weisler, R. H., & Foa, E. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry, 176*(4), 379-386. https://doi.org/10.1192/bjp.176.4.379

Dennis, D., Radnitz, C., & Wheaton, M. G. (2021). A perfect storm? Health anxiety, contamination fears, and COVID-19: lessons learned from past pandemics and current challenges. *International Journal of Cognitive Therapy, 14*(3), 497-513. https://doi.org/10.1007/s41811-021-00109-7

Fernandez, E., Woldgabreal, Y., Day, A., Pham, T., Gleich, B., & Aboujaoude, E. (2021). Live psychotherapy by video versus in-person: A meta-analysis of efficacy and its relationship to types and targets of treatment. *Clinical Psychology & Psychotherapy*. https://doi.org/10.1002/cpp.2594

Foa, E. B., Kozak, M. J., Salkovskis, P. M., Coles, M. E., & Amir, N. (1998). The validation of a new obsessive–compulsive disorder scale: The Obsessive–Compulsive Inventory. *Psychological Assessment, 10*(3), 206. https://doi.org/10.1037/1040-3590.10.3.206

Gyani, A., Shafran, R., Layard, R., & Clark, D. (2011). Enhancing recovery rates in IAPT services: lessons from analysis of the year one data. www.iapt.nhs.uk

Heinen, A., Varghese, S., Krayem, A., & Molodynski, A. (2022). Understanding health anxiety in the COVID-19 pandemic. *International Journal of Social Psychiatry, 68*(8), 1756-1763. https://doi.org/10.1177/0020764021105779

Hubley, S., Lynch, S. B., Schneck, C., Thomas, M., & Shore, J. (2016). Review of key telepsychiatry outcomes. *World Journal of Psychiatry, 6*(2), 269. doi: 10.5498/wjp.v6.i2.269

Hyler, S. E., Gangure, D. P., & Batchelder, S. T. (2005). Can telepsychiatry replace in-person psychiatric assessments? A review and meta-analysis of comparison studies. *CNS Spectrums, 10*(5), 403-415. https://doi.org/10.1017/S109285290002277X

Jassi, A., Shahriyarmolki, K., Taylor, T., Peile, L., Challacombe, F., Clark, B., & Veale, D. (2020). OCD and COVID-19: a new frontier. *The Cognitive Behaviour Therapist, 13*. https://doi.org/10.1017/S1754470X20000318

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *Journal of General Internal Medicine, 16*(9), 606-613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Lewis, K. J., Lewis, C., Roberts, A., Richards, N. A., Evison, C., Pearce, H. A., . . . Robinson, C. A. (2022). The effect of the COVID-19 pandemic on mental health in individuals with pre-existing mental illness. *BJPsych Open, 8*(2). https://doi.org/10.1192/bjo.2022.25

Lyall, L. M., Wyse, C. A., Celis-Morales, C. A., Lyall, D. M., Cullen, B., Mackay, D., . . . Gill, J. M. (2018). Seasonality of depressive symptoms in women but not in men: A cross-sectional study in the UK Biobank cohort. *Journal of Affective Disorders, 229*, 296-305. https://doi.org/10.1016/j.jad.2017.12.106

Nguyen, J., McNulty, N., Grant, N., Martland, N., Dowling, D., King, S., . . . Dom, G. (2022). The effectiveness of remote therapy in two London IAPT services. *The Cognitive Behaviour Therapist, 15*, e23. https://doi.org/10.1017/S1754470X22000198

NHS Digital. (2021). Psychological Therapies: reports on the use of IAPT services, England September 2020 Final including report on the EA in IAPT pilot. https://digital.nhs.uk/data-and-information/publications/statistical/psychological-therapies-report-on-the-use-of-iapt-services/september-2020-final-including-a-report-on-the-iapt-employment-advisors-pilot/outcomes

NICE. (2005). Obsessive-compulsive disorder and body dysmorphic disorder: treatment. https://www.nice.org.uk/guidance/CG31/chapter/1-Guidance#steps-3-to-5-treatment-options-for-people-with-ocd-or-bdd

O'Connor, R., Wetherall, K., Cleare, S., McClelland, H., Melson, A., Niedzwiedz, C., . . . Robb, K. (2021). Mental health and well-being during the COVID-19 pandemic: longitudinal analyses of adults in the UK COVID-19 Mental Health & Wellbeing study. *The British Journal of Psychiatry 218*(6), 326-333. 10.1192/bjp.2020.212

Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., . . . McManus, S. (2020). Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet Psychiatry, 7*(10), 883-892. https://doi.org/10.1016/S2215-0366(20)30308-4

Salkovskis, P. M., Rimes, K. A., Warwick, H., & Clark, D. (2002). The Health Anxiety Inventory: development and validation of scales for the measurement of health anxiety and hypochondriasis. *Psychological Medicine, 32*(5), 843-853. https://doi.org/10.1017/S0033291702005822

Saunders, R., Buckman, J. E., Leibowitz, J., Cape, J., & Pilling, S. (2021). Trends in depression & anxiety symptom severity among mental health service attendees during the COVID-19 pandemic. *Journal of Affective Disorders, 289*, 105-109. https://doi.org/10.1016/j.jad.2021.04.020

Shevlin, M., McBride, O., Murphy, J., Miller, J. G., Hartman, T. K., Levita, L., . . . Stocks, T. V. (2020). Anxiety, depression, traumatic stress and COVID-19-related anxiety in the UK general population during the COVID-19 pandemic. *BJPsych Open, 6*(6), e125. https://doi.org/10.1192/bjo.2020.109

Spitzer, R. L., Kroenke, K., Williams, J. B., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *Archives of Internal Medicine, 166*(10), 1092-1097. 10.1001/archinte.166.10.1092

Taylor, S. (2004). Understanding and treating health anxiety: A cognitive-behavioral approach. *Cognitive and Behavioral Practice, 11*(1), 112-123. https://doi.org/10.1016/S1077-7229(04)80015-4

The National Collaborating Centre for Mental Health. (2021). The Improving Access to Psychological Therapies Manual. https://www.england.nhs.uk/wp-content/uploads/2018/06/the-iapt-manual-v5.pdf

Thomas, N., McDonald, C., de Boer, K., Brand, R. M., Nedeljkovic, M., & Seabrook, L. (2021). Review of the current empirical literature on using videoconferencing to deliver individual psychotherapies to adults with mental health problems. *Psychology and Psychotherapy, 94*(3), 854-883. https://doi.org/10.1111/papt.12332

Tsianakas, V., Maben, J., Wiseman, T., Robert, G., Richardson, A., Madden, P., . . . Davies, E. A. (2012). Using patients' experiences to identify priorities for quality improvement in breast cancer care: patient narratives, surveys or both? *BMC Health Services Research, 12*(1), 1-11. doi.org/10.1186/1472-6963-12-271

Vindegaard, N., & Benros, M. E. (2020). COVID-19 pandemic and mental health consequences: Systematic review of the current evidence. *Brain, Behavior, and Immunity, 89*, 531-542. https://doi.org/10.1016/j.bbi.2020.05.048

Vogel, P. A., Solem, S., Hagen, K., Moen, E. M., Launes, G., Håland, Å. T., . . . Himle, J. A. (2014). A pilot randomized controlled trial of videoconference-assisted treatment for obsessive-compulsive disorder. *Behaviour Research and Therapy, 63*, 162-168. doi.org/10.1016/j.brat.2014.10.007

Weathers, F., Litz, B., Keane, T., Palmieri, P., Marx, B., & Schnurr, P. (2013). The PTSD Checklist for DSM-5 (PCL-5). www.ptsd.va.gov

Weiss, D. S. (2007). The impact of event scale: revised. In J. Wilson & C. So-kum Tang (Eds.), *Cross-cultural assessment of psychological trauma and PTSD* (pp. 219-238). New York: Springer.

Theory Driven Research Project

Investigating self-blame and trauma symptoms in parents of young people with Anorexia Nervosa - "Traumatised by the past, desperately trying to keep them well in the present, and worried about the future".

Madeleine Irish (1405428)

Department of Psychology, University of Oxford, Isis Education Centre, Warneford Hospital, Oxford, OX3 7JX

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Internal Supervisor: Dr Myra Cooper, Oxford Institute of Clinical Psychology Training and Research, University of Oxford

External Supervisor: Dr Joanna Adam, Oxford Health NHS Foundation Trust

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Abstract

Caring for a young person with anorexia nervosa (AN) has been associated with psychological distress and found to be a traumatic experience. This can have an impact on patient and family outcomes. **Objective:** This study aimed to investigate whether self-blame cognitions contribute to post-traumatic stress disorder (PTSD) symptoms in parents of young people with AN, and what the experiences were of those showing high self-blame and PTSD symptoms. **Methods:** A mixed-methods, cross-sectional design was used. One hundred and twenty-three parents of children with AN completed a range of questionnaires, and an additional 56 with high self-blame and PTSD symptoms provided qualitative feedback. **Results:** Overall, levels of self-blame cognitions were significantly higher in those experiencing higher levels of PTSD symptoms compared to low levels. Additionally, levels of self-blame cognitions significantly predicted PTSD symptoms over and above demographic factors and illness severity, accounting for 22% of unique variance in PTSD symptoms. **Conclusions:** The findings suggest that negative appraisals regarding self-blame for their child's eating disorder (ED) contributed to the potential development and/or maintenance of PTSD symptoms. Parents presenting with thoughts of self-blame would benefit from further support to reduce these feelings and, subsequently, reduce carer distress.

Keywords: Anorexia nervosa, carer, self-blame, trauma

Introduction

Eating disorders (ED) are disabling illnesses associated with high levels of mortality and disability, physical and psychological morbidity, and impaired quality of life (Treasure et al., 2020; Zipfel et al., 2015). Anorexia nervosa (AN), in particular, is characterised by disturbances in eating behaviours and attitudes towards weight, body image, and food, and is associated with the restriction of energy intake that results in significantly low body weight (American Psychiatric Association, 2013). Onset for AN typically emerges during childhood (Nagl et al., 2016) and adolescence (Javaras et al., 2015), and treatment often requires family involvement (NICE, 2020).

Carer burden is well documented in the adult and child ED literature, with research finding that amongst those caring for a loved one with AN, over 50% present with clinically significant anxiety and 13% with depression (Kyriacou et al., 2008; Raenker et al., 2013). Additionally, Timko et al. (2023) found that post-traumatic stress symptoms (PTSS) were common in parents of children hospitalised for AN. Of the total sample, 50% of mothers showed symptoms elevated enough to meet criteria for acute stress disorder (symptoms similar to post-traumatic stress disorder [PTSD], but lasting less than a month; American Psychiatric Association, 2013). When considering PTSD, it has been reported that almost 20% of mothers with a child with AN meet partial criteria (Hazell et al., 2014). Qualitative interviews exploring mothers' experience of family-based treatment (FBT) for AN (a recommended line of treatment; NICE, 2020) have found that all mothers reported a 'breaking point' due to the impact of caring for their child (Bezance & Holliday, 2014). This led to feelings of extreme helplessness and being overwhelmed, fitting with the model of vicarious trauma/compassion fatigue (Figley, 1995), where symptoms can be identical to those experienced in PTSD (Figley, 2002). Negative appraisals (e.g., self-blame, guilt and misperceptions about the child’s role in causing the illness) have also been reported by parents during and after AN treatment, and are associated with higher levels of carer burden (Coomber & King, 2012; Whitney et al., 2005; Wufong et al., 2019). These strong emotional responses were often associated with the confrontation of the life-threatening nature of the ED and the sense of responsibility for their child’s illness.

Trauma symptoms are prevalent in parents of children suffering from life threatening physical illnesses (Carmassi et al., 2019; Yagiela et al., 2019), even years after successful treatment (Norberg et al., 2012). Caring for a child with AN comes with similar stressors, such as the threat of death, the physically and psychologically demanding nature of the illness and the demand treatment places on parents. Given this, it is likely that parents of children with AN may present with trauma symptoms. It is important to consider such an impact due to the possible implications it may have on patient and family outcomes (Timko et al., 2023).

The Cognitive Model of PTSD:

PTSD is an illness characterised by a number of symptoms (e.g., flashbacks, hyperarousal, and avoidance) experienced following exposure to one or more traumatic events that involved actual or threatened death or serious injury to an individual or others, including the witnessing of medical complications in one’s child (American Psychiatric Association, 2013).

The cognitive model of PTSD (Ehlers & Clark, 2000) has been well supported and utilised in the formulation and treatment of PTSD amongst many adult populations (e.g., assault victims, traumatic childbirths; Beierl et al., 2020; Dunmore et al., 2001; King et al., 2017). The model outlines a number of variables that contribute to a sense of current threat, which is maintained by negative appraisals during and after the traumatic event (e.g., a threat to one's view of self; "I am a bad mother", "this is my fault") and poor integration and encoding of the trauma memory. Symptoms are further maintained by maladaptive behavioural and cognitive strategies, such as thought suppression, avoidance, and safety behaviours. One common appraisal in the model is self-blame, with research indicating that reductions in self-blame cognitions (during trauma-focused treatments) preceded reductions in PTSD symptoms across different samples (Kline et al., 2021; Schumm et al., 2015).

Moreover, self-blame cognitions have been reported in parents of children with both mental and physical health problems, with 60% of parents blaming themselves in some way for their child's mental health difficulties (Moses, 2010). In psychosis in particular, self-blame has been correlated with increased carer distress and higher PTSD symptoms (in relation to trauma experienced as a direct result of the caring role; Fortune et al., 2005; Kingston et al., 2016; Vasconcelos e Sa et al., 2017).

Self-blame in carers for children with AN

Carers of children with EDs have shown moderate levels of self-blame (Stillar et al., 2016). Themes around the self-blame include attributions around the causes of the illness (e.g. due to their upbringing; Perkins et al., 2004; Whitney et al., 2005). Although self-blame has been documented amongst this population, the psychological impact of this, and whether it is associated with trauma symptoms (as suggested by the cognitive model of PTSD) is currently unclear.

Thus, the present study aimed to explore whether, in parents of children with AN, there were: (a) differences in levels of self-blame cognitions between those who report higher levels of PTSD symptoms compared to those who do not; and (b) whether self-blame cognitions predict additional variance in PTSD symptoms when controlling for subjective and objective illness severity. It was predicted that parents who report higher levels of PTSD symptoms will have significantly higher self-blame cognitions than those who report lower PTSD symptoms, and that self-blame will predict additional variance in PTSD symptoms after controlling for objective and subjective ED severity, as suggested by the cognitive model of PTSD. In addition, we aimed to find out about the experiences of those with high levels of self-blame cognitions and PTSD symptoms to better understand how parents could be supported in the future.

Methods

Design

A mixed-methods, cross-sectional design was used. A between groups design was used to investigate whether levels of self-blame cognitions around their child's illness differ between those that show higher levels of PTSD symptoms compared to those that do not. Qualitative responses were then collected to explore the experiences of parents who showed high levels of self-blame and PTSD symptoms.

Ethical approval was gained from the Central University of Oxford Research Ethics Committee (R80532/RE001).

Participants

One hundred and twenty-three participants were recruited through adverts posted on social media (e.g., Twitter; online posts from ED campaigners), ED charities websites and newsletters (e.g., Beat and FEAST), school newsletters and community noticeboards between August 2022 and March 2023. No financial incentives were offered. Inclusion criteria included parents of young people (YP), aged 12-17 years, with a current (minimum time from diagnosis of one month) or previous (weight restored for maximum 18 months) diagnosis of AN. Parents had to hold substantial caring responsibilities which included, but were not limited to, living with them for approximately 50% of the time across a month, providing meal support and general support with the illness. Participants had to speak fluent English, be from the UK, USA, New Zealand or Australia, and have the ability to provide informed consent.

Exclusion criteria included having experienced a traumatic event unrelated to the child's illness in the past month.

Procedure

Recruitment materials directed potential participants to a URL link where they were able to access the information sheet, check their eligibility and provide informed consent. Participants were then given access to the quantitative questionnaire. Those that reported high levels of self-blame (categorised as scoring 12 and above) and PTSD symptoms (categorised as a severity score of 31 and above, indicating probable PTSD; Bovin et al., 2016) were given access to the additional qualitative questions. A debrief sheet was accessible throughout completion of the questionnaire.

Measures

Demographics

Individual demographics including age, sex, ethnicity, education level, relationship status (demographical factors that have been identified as risk factors for PTSD; Bonanno et al., 2007; Brewin et al., 2000) were collected. Additional clinical variables collected included parental ED and psychiatric history and other child diagnoses (both physical and psychiatric).

Trauma related measures

The PTSD Checklist for DSM-5 (PCL-5) was used to measure PTSD symptoms. This 20-item self-report measure has been shown to be reliable and valid in community settings. A cut-off score between 31 and 33 is indicative of probable PTSD (Blevins et al., 2015).

The Trauma History screen (THS; Carlson et al., 2011) was used to assess the occurrence of previous high-stress-related events. Participants were categorised as having experienced a trauma they reported experiencing an event that (a) involved actual or threatened death or injury, (b) caused feelings of helplessness, horror or fear and (c) caused them significant emotional distress for a month or more (Carlson et al., 2011). This measure that has been shown to have high reliability and validity.

Depression and anxiety

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) was used to measure symptoms of depression and anxiety. This 14-item self-report measure has been shown to be reliable and valid in community settings (Snaith, 2003).

Self-blame

The Parents' Self-Stigma Scale (PSSS; Eaton et al., 2018) self-blame sub-scale was used to measure self-blame cognitions (Appendix C1).This includes 6 questions specifically related to parental self-blame. Questions ask participants about the frequency of certain thoughts, such as "The way I have raised my child has contributed to his/her problem". This subscale has been shown to have good reliability in parents with children with a mental health diagnosis.

In consultation with carers of YP with AN, two additional questions were added to the subscale to make it more ED-specific. This included (1) I feel guilty I didn't monitor my child's social media feed more and (2) I feel guilty I didn't see the signs of their illness earlier. With the addition of these two items, the scale showed good internal consistency ($\alpha = .834$).

Illness severity

Both objective and subjective illness severity was measured as a proxy for threat of death. The objective measure asked whether the child had been hospitalized because of their ED and what the child’s lowest ever weight-for-height was. Hospitalisation was categorised into ‘no’, ‘yes, once’ and ‘yes, more than once’. A subjective measure asked parents to rate how much they believed that their child’s ED was a threat to their life on a 6-point Likert scale (from zero to five).

Qualitative questions

Based on the literature, eight open ended questions were devised to explore the reasons behind self-blame, and the impact of caring for a child with an ED (e.g., the traumatic aspects and the subsequent impact on behaviours and view of self). The questions can be found in Appendix C2.

Statistical analysis

Statistical analyses were conducted using the SPSS 27.0 statistical package. A priori power analysis based on the primary research question conducted using G*Power 3.1 software (Faul et al., 2009) was used to calculate a sample size of 102 parents. Statistical power was set at 0.80 and p<.05. Given the lack to previous research, a medium effect size of 0.5 was used.

Data checks were conducted to ensure accurate recording and to check statistical assumptions. All assumptions were met and details can be found in Appendix C3. Due to small sample sizes within demographic subgroups the following demographic variables were combined: (a) age, (b) ethnicity and (c) education. Data were split into two groups based on PCL-5 scores, using a median split. To account for overlap between the two groups, the standard error of the median was excluded from both groups. Demographic and clinical characteristics were compared between the two groups using a chi-square goodness of fit test and t-tests.

To investigate whether there were differences in levels of self-blame cognitions between those who report higher levels of PTSD symptoms compared to those who do not, an independent t-test was carried out. Due to differences between groups, an ANCOVA was carried out as a secondary analysis, controlling for illness severity and trauma history.

To investigate whether self-blame cognitions predict additional variance in PTSD symptoms in parents when controlling for illness severity, a hierarchical multiple linear regression analysis was performed with PTSD symptoms as the dependent variable. Demographic variables associated with PTSD were entered into the first step as covariates (model 1), followed by hospitalisation and threat of death (model 2) and self-blame (model 3, stepwise method).

Qualitative analysis: Qualitative responses were analysed using thematic analysis (Braun & Clarke, 2006; Clarke & Braun, 2014) from an inductive stance to ascertain a wide range of themes relating to parents' experiences of self-blame and PTSD symptoms. Responses were read numerous times to aid familiarisation. Initial codes were written, and patterns within these codes were explored and grouped into themes. The aim of the themes were to interpret, rather than describe, the data. This was an iterative process and potential themes were reviewed and reorganised where necessary. For purposes of reflexivity, the draft themes/sub-themes alongside all the associated participant quotes were independently reviewed by two additional researchers, one of which came from a more clinical perspective, and the other from a more research perspective. The process helped highlight any potential biases or alternative interpretations of the data.

Results

One-hundred and twenty-three parents met criteria for inclusion. Descriptive statistics for clinical and demographic variables can be found in Table 1. Of the total sample, 94.3% (*n* = 116) were female, 93.5% (*n* = 115) were white, 77.2% (*n* = 95) were aged between 45 and 54 years old, and 80.5% (*n* = 99) were from the UK. 56.9% (*n* = 70) scored 33 or higher on PCL-5, indicating probable PTSD. Based on PCL-5 scores, data were split into low versus high levels of PTSD symptoms, excluding the standard error of the median (*median* = 37, *SE = 1.65)*. This resulted in a total of 111 participants (high PTSD: *n* = 52; low PTSD: *n* = 59). Overall, those with high levels of PTSD symptoms were significantly more likely to have a history of trauma, higher levels of depression, anxiety, and self-blame, have a child who had been hospitalized for their ED, and report a higher level of subjective illness severity.

An independent-samples t-test was run to determine if there were differences in self-blame between those experiencing high and low levels of PTSD symptoms. Levels of self-blame cognitions were higher in those experiencing higher levels of PTSD symptoms (*M* = 23.63, *SD* = 5.39, *n* = 52) compared to low levels of PTSD symptoms (*M* = 16.15, *SD* = 5.69, *n* = 59), a statistically significant difference (*t* = -7.087, *p* = <.001) with a large effect size (*d* = 1.348; Table 2).

Due to the significant differences in subjective threat of death, hospitalisation, and parental trauma history, an ANCOVA was run to determine the effect of self-blame cognitions on PTSD symptoms after controlling for these variables as covariates. Eight participants were excluded due to incomplete datasets on the covariates, resulting in 103 participants (descriptive statistics can be found in Appendix C4). Due to this, the analysis was slightly underpowered, calculated post-hoc (f = 0.25, α = 0.05, power = 71%). After adjustment for covariates, there was a statistically significant difference in levels of self-blame between high and low levels of PTSD symptoms (Table 2).

***Table 1*.**

Demographic and clinical characteristics in low and high PTSD symptom groups.

	Total (*N* = 123)		Low PCL-5 symptoms group (*n* = 59)		High PCL-5 symptoms group (*n* = 52)		Chi-square	
Variable	*N*	%	*n*	%	*n*	%	X^2	*p*
Age							0.05	.973
Under 44 years	15	12.2	7	11.9	6	11.5		
45 – 54 years	95	77.2	46	78.0	40	76.9		
55 – 64 years	13	10.6	6	10.2	6	11.5		
Sex								0.212†
Female	116	94.3	54	91.5	51	98.1		
Male	7	5.7	5	8.5	1	1.9		
Country							1.091	.296
UK	99	80.5	49	83.1	39	75.0		
USA/Australia/New Zealand	24	19.5	10	16.9	13	25.0		
Ethnicity								1.000†
White	115	93.5	55	93.2	48	92.3		
Other	8	6.5	4	6.8	4	7.7		
Education completed							.78	.678
Secondary or A-Levels	17	13.8	9	15.3	7	13.5		
University degree	62	50.4	28	47.5	29	55.8		
Post-graduate degree	44	35.8	22	37.3	16	30.8		
Civic Status								
Married	99	80.5	49	83.1	40	76.9		
Living as couple	13	10.6	3	5.1	8	15.4		
Divorced/separated	7	5.7	4	6.8	3	5.8		
Single	2	1.6	1	1.7	1	1.9		
Widowed	2	1.6	2	3.4	0	0		
Parental history of trauma present	15	12.2	3	5.1	9	17.3	4.28	.039*
Parental eating disorder diagnosis	6	4.9	2	3.4	4	7.7		.416†
Parent receiving mental health support	70	56.6	30	50.8	3	63.5	1.79	.181
Child additional mental health diagnosis - yes	63	51.2	31	52.2	25	48.1	.22	.639
Child physical health diagnosis - yes	21	17.1	8	13.6	10	19.2	.65	.419
Child Hospitalisation							9.49	.009*
No	54	43.9	34	57.6	15	28.8		
Yes, once	41	33.3	15	25.4	20	38.5		
Yes, more than once	28	22.8	10	16.9	17	32.7		
	M	*SD*	*M*	*SD*	*M*	*SD*	t	p
Subjective level of threat	4.1	1.2	3.7	1.4	4.4	0.9	-2.81	.006*
HADS total scores	23.3	6.8	18.5	5.2	28.4	4.7	-10.51	<.001*
HADS-A scores	12.9	3.5	10.6	2.9	15.1	2.6	-8.86	<.001*

HADS-D scores	10.4	3.9	7.8	3.1	13.3	2.9	-9.65	<.001*
PCL-5 scores	36.6	1.3	23.6	6.6	51.2	7.2	-21.05	<.001*

HADS = The Hospital Anxiety and Depression Scale; HADS-A = Anxiety sub-scale; HADS-D = Depression sub-scale; PCL-5 = The PTSD Checklist for DSM-5.
Note. Where Chi-Square statistics are missing, sample size is too small to compute.
* Significance level *p<.05*
† Fisher's Exact Test was used due to Chi Square assumptions being violated.

Table *2*.

T-Test and ANCOVA results for self-blame cognitions by PTSD symptom group (low versus high).

Test	Low PTSD symptoms (*n* = 59)		High PTSD symptoms (*n* = 52)		*t*(112)	*p*	Mean difference	95% CI	*d*
	M	*SD*	*M*	*SD*					
T-Test	16.15	5.69	23.63	5.39	-7.087	<.001	-7.48	-9.57, -5.39	1.348
	Low PTSD symptoms (*n* = 58)		High PTSD symptoms (*n* = 45)		*F*(1, 106)	*p*	Mean difference	95% CI	η^2
	M	*SD*	*M*	*SD*					
ANCOVA	16.31	0.74	23.46	0.79	40.469	<.001	-7.15	-9.38, -4.92	.276

A hierarchical linear regression was run to understand whether self-blame cognitions predict additional variance in PTSD symptoms in parents when controlling for demographic variables associated with PTSD (civic status, ethnicity, age, gender, education, and parental trauma history) and illness severity (subjective threat of death and hospitalisation). Levels of self-blame cognitions significantly predicted PTSD symptoms over and above demographic variables and illness severity, F(9, 103) = 7.884, p < .001, accounting for 40.8% of total variance in PTSD symptoms, with an adjusted R^2 =35.6%. The addition of self-blame to the prediction of PTSD symptoms led to a significant increase in R^2 of 22.1%, *F*(1, 1.3) = 38.358, *p* <.001 (Table 3).

Table 3.

Hierarchical multiple regression predicting PTSD symptoms from demographic factors, trauma history, illness severity and self-blame.

Variable	B	95% CI for B		β	R^2	ΔR^2
		LL	UL			
Step 1					.063	.063
Constant	26.16	-2.94	55.21			
Ethnicity	-2.35	-14.76	10.07	-.04		
Education	-.49	-4.72	3.74	-.02		
Age	-1.06	-6.85	4.73	-.04		
Gender	8.10	-3.40	19.59	-.13		
Civic status	-1.134	-4.69	2.42	-.06		
Trauma history	7.60	-.57	15.76	.18		
Step 2					.187	.125**
Constant	-2.15	-33.39	29.08			
Ethnicity	4.88	-7.33	17.09	.08		
Education	-2.23	-6.38	1.93	-.10		
Age	.03	-5.50	5.56	.00		
Gender	11.23	.311	22.15	.19*		
Civic status	-.29	-3.67	3.09	-.02		
Trauma history	7.62	-.08	15.33	.18		
Hospitalisation	4.07	.53	7.61	.22*		
Subjective threat of death	3.02	.63	5.42	.25*		
Step 3					.408	.221**
Constant	-22.08	-49.62	5.47			
Ethnicity	4.81	-5.66	15.29	.07		
Education	-1.05	-4.63	2.54	-.05		
Age	.23	-4.51	4.98	.01		
Gender	9.79	.41	19.17	.16*		
Civic status	-.07	-2.97	2.83	-.00		
Trauma history	3.90	-2.82	10.62	.09		
Hospitalisation	2.08	-1.02	5.18	.11		
Subjective threat of death	3.38	1.33	5.44	.28**		
Self-blame	1.06	.72	1.40	.49**		

Note. CI = confidence interval; LL = lower limit; UL = upper limit; R^2 = variance in PTSD symptoms explained by independent variables; ΔR^2 = the change in R^2 between models; ΔF = the change in F between models; β = standardised beta.

* $p < .05$

** $p <.001$

What are the experiences of those with high levels of self-blame cognitions and PTSD symptoms?

Fifty-six participants provided qualitative feedback. An overview of the themes identified are presented below with example quotes. Further details and quotes are summarised in Appendix C5.

“I am at fault”.

Within this theme, it was found that parents blamed themselves for (a) *the significance of bad genetics and poor parental mental health,* (b) *not acting quickly enough in getting support,* (c) *their potentially negative home environment and parenting,* and (d) *unhelpful parental approaches to health and food.*

> *“Oh, and the issue of this being a genetic disease: husband blames my DNA, and my family… It's not parents' fault they tell us in FBT (family-based therapy). But yet?” (Participant 13)*

> *“I feel I have been a poor model. My child has seen me do extreme training for ultra marathons and lose lots of weight, he has also seen me put lots of weight on and feel shame around that.” (Participant 51)*

“It’s like wading through hell” - The emotional challenges of caring for their child.

Parents spoke of the huge emotional toll of caring for their child due to (a) *dealing with the threat of death* specific to the ED, but also due to self-harm and suicidal ideation in their child and (b) *dealing with the aggression and violence.* This resulted in feeling “helpless” and “powerless” which contributed to the trauma experienced. The caring role also had a significant *impact on* (c) *parental health*, both mentally and physically – with increased depression, anxiety and hypervigilance.

> *"I think it is traumatic. My daughter rejects me and insults me on a regular basis. She is sometimes violent towards me." (Participant 36)*

> *"You are traumatised by the past, desperately trying to keep them well in the present, and you are very worried about the future. It is truly exhausting. It is a full-time job with no pay, no benefits and no time off." (Participant 53)*

"I no longer know who I am"

Within this theme, parents spoke about their (a) *loss of identity* and (b) *perceived failure and lack of confidence in parenting.* The ED had taken over their lives resulting in a losing a sense of who they were – a "shadow of their former self". In addition, parents equated being a good parent with having a well child, and therefore questioned their decision making and parenting skills – both historically and currently.

> *"I feel like I've gone from having a great family, nice friends and a good career, to everything being about a mum. (All the staff at the hospital call me mum). I feel I've lost my identity." (Participant 32)*

> *"You are failing in your most fundamental role - to nourish your child." (Participant 7)*

The impact on the wider family

Within this theme, parents spoke of an increased sense of (a) *protection and guilt for other children* and (b) *conflict and shift in their romantic relationships.* Parents worried about their other children developing an ED but also not being able to give them enough attention due to caring demands, leading to feelings of guilt. The caring role also put a lot of strain on romantic relationships and resulted in a relational shift towards 'carers' as opposed to partners.

> *"I have a younger son and this has also impacted him hugely. I feel he has been ignored while we deal with this crisis." (Participant 51)*

> *"My husband and I now co-exist as carers, we don't have any sort of proper relationship. It has changed everything." (Participant 53)*

Reconfiguring/shrinking lives around the illness – the economic and social burden.

Parents spoke about (a) *the career implications*, and how the ED was *"a professional sentence",* due to caring being a "full time job" and too stressful. This resulted in parents having to give up their careers or turn down opportunities for progression. In addition, people experienced (b) *social isolation* and (c) an *inability to plan ahead* in life resulting in their lives feeling smaller and a sense of uncertainty for the future. Social lives shrunk considerably, and many were unable to cope with being around groups due to feeling like they are a "bore", or showing avoidance of social situations due to the secrecy of the illness.

> *"I find large groups very hard to manage I can only cope with 2 or 3 people at a time. I feel I'm a bore as I only have my daughter's illness to talk about." (Participant 47)*

> *"I am underperforming at work - I have always had the 'outstanding' box marked - now I am getting 'meeting expectations' and have made rookie errors that have had a negative impact on the reputation of my division." (Participant 32)*

Post-traumatic growth

In contrast, some parents spoke about experiencing certain 'secondary' positives as a result of the illness. These were mostly in related to relationship building with their child, and personal growth, such as increased compassion, empathy and patience.

> *"It's made me more compassionate to mental health and more validating of what people are experiencing." (Participant 48)*

Discussion

This study aimed to establish the role and impact of self-blame cognitions on PTSD symptoms in parents of YP with AN, and whether they predict additional variance in PTSD symptoms, over and above illness severity.

In line with our first hypothesis, self-blame cognitions were more prevalent in parents experiencing more PTSD symptoms. This relationship remained after controlling for subjective threat of death and parental history of trauma, indicating the significant, independent role of self-blame in the development/maintenance on PTSD symptoms. In addition, our second hypothesis was supported, with self-blame predicting 22% of PTSD symptoms, over and above demographic factors associated with PTSD, parental trauma history, and objective and subjective illness severity.

The high levels of PTSD symptoms amongst the sample adds to the literature around high levels of carer distress within EDs (Hazell et al., 2014; Kyriacou et al., 2008; Zabala et al., 2009). The percentage presenting with probable PTSD was higher than reported in other studies of parents of a child with AN (Hazell et al., 2014) and life threatening physical illnesses (Cabizuca et al., 2009; Stuber & Shemesh, 2006), however, this is likely a result of measurement differences (e.g., the measures used). It is also important to note that for many parents in the study, the trauma could be ongoing (i.e., their child could have still been acutely ill), thus exacerbating symptoms. There may, therefore, be an actual current threat as opposed to a ‘sense’ of current threat, as suggested by the cognitive model of PTSD (Ehlers & Clark, 2000; Yim et al., 2023), making it unable to assess provisional diagnosis of PTSD due to the diagnostic assumption of the trauma being in the past. In contrast, some studies assessed PTSD years after the end of medical treatment (Cabizuca et al., 2009). Given this, further research may usefully explore the longitudinal impact on caring for a child with AN, and whether PTSD persists in the longer term and once their child is in recovery. Considering the stage of illness would enable researchers to better understand the prevalence of PTSD, according to the DSM-5 diagnostic criteria.

In line with previous ED literature, self-blame cognitions were very high amongst the sample (Stillar et al., 2016; Whitney et al., 2005). Self-blame has been associated with PTSD symptom severity in other adult populations (Kline et al., 2021), and has been found to negatively predict self-efficacy and positively predict accommodation (Stillar et al., 2016). However, in a large meta-analysis, Gómez de La Cuesta et al. (2019) concluded that self-blame appraisals only have a small effect on PTSD compared to other negative appraisals. For this reason, exploration of other negative appraisals (e.g., about the world) could be beneficial in future. It may also be useful to understand more about the protective factors and the experiences of those that showed lower levels of self-blame so these factors could be utilised during family-based therapy.

With regard to the qualitative findings, reasons behind self-blame were similar to previous research in AN (Whitney et al., 2005) and other mental health diagnoses (e.g., bad parenting; Moses, 2010). This indicates the reasons behind the self-blame may not be specific to AN populations, despite the additional threat of death. However, the emotional weight and sense of extreme self-criticism felt more pronounced in the current study. The themes around feeling like a bad parent and identity change/loss also felt relevant to the Cognitive Model of PTSD – highlighting an internal threat to one’s view of self as a possible relevant appraisal amongst this population, supporting the potential explanatory usefulness of the model and its clinical application.

In addition, the qualitative findings highlighted the extreme emotional burden that accompanies the caring role. Many parents linked this back to the threat of death and violence, indicating the traumatic nature was a contributor to their own mental health struggles. Although it was not possible to assess the emotional impact longitudinally, qualitative research has suggested that the burden continues even into the recovery stage (Fletcher et al., 2021). This highlights the importance of carer assessments and interventions within ED services to ensure parents are resourced and supported enough to engage fully in the treatment process (Treasure & Nazar, 2016).

This study has important clinical implications. With the knowledge that the negative appraisals of self-blame are associated with increased PTSD symptoms, it is possible to identify these early within a treatment setting. In doing so, those at increased risk of PTSD symptoms can be given further support to reduce feelings of self-blame (e.g., information about the development of EDs or cognitive restructuring). This has previously been done using emotion-focused family therapy, which found that reductions in self-blame improved parental self-efficacy (Strahan et al., 2017).

This study benefitted from a large sample which increases the generalisability; however, there were limitations. Firstly, although primary analyses were powered, the secondary analysis was slightly underpowered (ANCOVA; 72%). Although the significant findings were consistent with the hypotheses, they should be treated with caution and replicated in future research.

With regard to the sample, it was made up of predominantly white British females, from four different countries. Despite the recommended treatment models being similar in the included countries, there are substantial differences in their healthcare systems that could exacerbate carer burden and risk (e.g., cost of treatment; Bonanno et al., 2007). Thus, it is difficult to fully generalise the findings to a UK health system and to a wider population in general. In addition, due to the majority of participants being recruited via social media (with the support of ED campaigners), it is possible that the sample was not representative of the general ED carer population (e.g., potentially missing out on older carers). It would also be helpful to understand more about the experience of fathers, and whether the self-blame thoughts are as prevalent.

Unfortunately, we were unable to obtain reliable data on lowest ever wight-for-height due to inconsistencies in reporting. Due to this, hospitalization was used as a proxy for illness severity. Although this was seen as good indicator of severity (Royal College of Psychiatrists, 2023), it is possible, albeit rare, that YP are admitted to hospital due to chronicity of illness (i.e., community input has been unsuccessful for a substantial period of time) rather than increased severity/threat of death. A diagnosis of AN was also reported by the parent, thus, it is possible that some people may not have met diagnostic criteria.

A final limitation was categorising the PTSD groups using a median split design. Although the standard error of the median was excluded to account for limitations, discrimination between and within the groups is difficult (e.g., the difference between the higher end of the low PTSD group and the lower end of the high PTSD group was small).

Conclusion

The study found that parents of YP with AN showed high prevalence of self-blame cognitions that contributed to PTSD symptoms, over and above demographic risk factors and illness severity. The extreme nature and emotional burden of these cognitions was highlighted through qualitative feedback. This provides support for the Cognitive model of PTSD and indicates that this population may benefit from cognitive strategies to reduce self-blame thoughts.

Highlights:

- Self-blame cognitions and PTSD symptoms were prevalent in parents of children with Anorexia Nervosa.
- Self-blame cognitions were more prevalent in parents experiencing high PTSD symptoms compared to those experiencing who not. This relationship remained after controlling for subjective threat of death and parental history of trauma, indicating the significant, independent role of self-blame in the development/maintenance on PTSD symptoms.
- Self-blame predicted 22% of PTSD symptoms, over and above demographic factors associated with PTSD, parental trauma history, and objective and subjective illness severity.

Author contributions:

MI, JA and MC conceived and designed the study, completed the statistical analysis and were responsible for the interpretation of the data. MI drafted the manuscript and JA and MC were involved in revisions.

References

American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders (5th ed.)*. American Psychiatric Publishing

Beierl, E. T., Böllinghaus, I., Clark, D. M., Glucksman, E., & Ehlers, A. (2020). Cognitive paths from trauma to posttraumatic stress disorder: A prospective study of Ehlers and Clark's model in survivors of assaults or road traffic collisions. *Psychological Medicine*, *50*(13), 2172-2181. https://doi.org/https://doi.org/10.1017/S0033291719002253

Bezance, J., & Holliday, J. (2014). Mothers' experiences of home treatment for adolescents with anorexia nervosa: An interpretative phenomenological analysis. *Eating Disorders*, *22*(5), 386-404. https://doi.org/https://doi.org/10.1080/10640266.2014.925760

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489-498. https://doi.org/https://doi.org/10.1002/jts.22059

Bonanno, G. A., Galea, S., Bucciarelli, A., & Vlahov, D. (2007). What predicts psychological resilience after disaster? The role of demographics, resources, and life stress. *Journal of Consulting and Clinical Psychology*, *75*(5), 671. https://doi.org/https://doi.org/10.1037/0022-006X.75.5.671

Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD checklist for diagnostic and statistical manual of mental disorders–fifth edition (PCL-5) in veterans. *Psychological Assessment*, *28*(11), 1379. https://doi.org/https://doi.org/10.1037/pas0000254

Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, *68*(5), 748. https://doi.org/https://doi.org/10.1037/0022-006X.68.5.748

Cabizuca, M., Marques-Portella, C., Mendlowicz, M. V., Coutinho, E. S., & Figueira, I. (2009). Posttraumatic stress disorder in parents of children with chronic illnesses: a meta-analysis. *Health Psychology*, *28*(3), 379. https://doi.org/https://doi.org/10.1037/a0014512

Carlson, E. B., Smith, S. R., Palmieri, P. A., Dalenberg, C., Ruzek, J. I., Kimerling, R., Burling, T. A., & Spain, D. A. (2011). Development and validation of a brief self-report measure of trauma exposure: the Trauma History Screen. *Psychological Assessment*, *23*(2), 463. https://doi.org/https://doi.org/10.1037/a0022294

Carmassi, C., Corsi, M., Bertelloni, C., Pedrinelli, V., Massimetti, G., Peroni, D., Bonuccelli, A., Orsini, A., & Dell'Osso, L. (2019). Post-traumatic stress and major depressive disorders in parent caregivers of children with a chronic disorder. *Psychiatry Research*, *279*, 195-200. https://doi.org/https://doi.org/10.1016/j.psychres.2019.02.062

Coomber, K., & King, R. M. (2012). Coping strategies and social support as predictors and mediators of eating disorder carer burden and psychological distress. *Social Psychiatry and Psychiatric Epidemiology*, *47*(5), 789-796. https://doi.org/https://doi.org/10.1007/s00127-011-0384-6

Dunmore, E., Clark, D. M., & Ehlers, A. (2001). A prospective investigation of the role of cognitive factors in persistent posttraumatic stress disorder (PTSD) after physical or sexual assault. *Behaviour Research and Therapy*, *39*(9), 1063-1084. https://doi.org/https://doi.org/10.1016/S0005-7967(00)00088-7

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, *38*(4), 319-345. https://doi.org/https://doi.org/10.1016/S0005-7967(99)00123-0

Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. *Behavior Research Methods*, *41*(4), 1149-1160. https://doi.org/https://doi.org/10.3758/BRM.41.4.1149

Figley, C. R. (1995). Compassion fatigue: Toward a new understanding of the costs of caring. In H. B. Stamm (Ed.), *Secondary Traumatic Stress: Self-Care Issues for Clinicians, Researchers, and Educators*. Brunner/Mazel.

Figley, C. R. (2002). *Treating compassion fatigue*. Routledge.

Fletcher, L., Trip, H., Lawson, R., Wilson, N., & Jordan, J. (2021). Life is different now–impacts of eating disorders on Carers in New Zealand: a qualitative study. *Journal of Eating Disorders*, *9*(91), 1-12. https://doi.org/https://doi.org/10.1186/s40337-021-00447-z

Fortune, D. G., Smith, J. V., & Garvey, K. (2005). Perceptions of psychosis, coping, appraisals, and psychological distress in the relatives of patients with schizophrenia: An exploration using self-regulation theory. *British Journal of*

Clinical Psychology, *44*(3), 319-331. https://doi.org/https://doi.org/10.1348/014466505X29198

Gómez de La Cuesta, G., Schweizer, S., Diehle, J., Young, J., & Meiser-Stedman, R. (2019). The relationship between maladaptive appraisals and posttraumatic stress disorder: A meta-analysis. *European Journal of Psychotraumatology*, *10*(1). https://doi.org/https://doi.org/10.1080/20008198.2019.1620084

Hazell, P., Woolrich, R., & Horsch, A. (2014). Posttraumatic stress disorder in mothers of individuals with anorexia nervosa: a pilot study. *Advances in Eating Disorders: Theory, Research and Practice*, *2*(1), 31-41. https://doi.org/https://doi.org/10.1080/21662630.2013.794526

Javaras, K. N., Runfola, C. D., Thornton, L. M., Agerbo, E., Birgegård, A., Norring, C., Yao, S., Råstam, M., Larsson, H., & Lichtenstein, P. (2015). Sex-and age-specific incidence of healthcare-register-recorded eating disorders in the complete Swedish 1979–2001 birth cohort. *International Journal of Eating Disorders*, *48*(8), 1070-1081. https://doi.org/https://doi.org/10.1002/eat.22467

King, L., McKenzie-McHarg, K., & Horsch, A. (2017). Testing a cognitive model to predict posttraumatic stress disorder following childbirth. *BMC Pregnancy and Childbirth*, *17*(1), 1-12. https://doi.org/https://doi.org/10.1186/s12884-016-1194-3

Kingston, C., Onwumere, J., Keen, N., Ruffell, T., & Kuipers, E. (2016). Posttraumatic stress symptoms (PTSS) in caregivers of people with psychosis and associations with caregiving experiences. *Journal of Trauma & Dissociation*, *17*(3), 307-321. https://doi.org/https://doi.org/10.1080/15299732.2015.1089969

Kline, N. K., Berke, D. S., Rhodes, C. A., Steenkamp, M. M., & Litz, B. T. (2021). Self-blame and PTSD following sexual assault: A longitudinal analysis. *Journal of Interpersonal Violence*, *36*(5-6), NP3153-NP3168. https://doi.org/https://doi.org/10.1177/0886260518770652

Kyriacou, O., Treasure, J., & Schmidt, U. (2008). Understanding how parents cope with living with someone with anorexia nervosa: Modelling the factors that are associated with carer distress. *International Journal of Eating Disorders*, *41*(3), 233-242. https://doi.org/https://doi.org/10.1002/eat.20488

Moses, T. (2010). Exploring parents' self-blame in relation to adolescents' mental disorders. *Family Relations*, *59*(2), 103-120. https://doi.org/https://doi.org/10.1111/j.1741-3729.2010.00589.x

Nagl, M., Jacobi, C., Paul, M., Beesdo-Baum, K., Höfler, M., Lieb, R., & Wittchen, H.-U. (2016). Prevalence, incidence, and natural course of anorexia and bulimia nervosa among adolescents and young adults. *European Child Adolescent Psychiatry*, *25*(8), 903-918. https://doi.org/https://doi.org/10.1007/s00787-015-0808-z

NICE. (2020). *Eating disorders: recognition and treatment*. Retrieved February 2023 from https://www.nice.org.uk/guidance/ng69

Norberg, A. L., Pöder, U., Ljungman, G., & von Essen, L. (2012). Objective and subjective factors as predictors of post-traumatic stress symptoms in parents of children with cancer–A longitudinal study. *PLOS One*, *7*(5). https://doi.org/10.1371/journal.pone.0036218

Perkins, S., Winn, S., Murray, J., Murphy, R., & Schmidt, U. (2004). A qualitative study of the experience of caring for a person with bulimia nervosa. Part 1:

The emotional impact of caring. *International Journal of Eating Disorders*, *36*(3), 256-268. https://doi.org/https://doi.org/10.1002/eat.20067

Raenker, S., Hibbs, R., Goddard, E., Naumann, U., Arcelus, J., Ayton, A., Bamford, B., Boughton, N., Connan, F., & Goss, K. (2013). Caregiving and coping in carers of people with anorexia nervosa admitted for intensive hospital care. *International Journal of Eating Disorders*, *46*(4), 346-354. https://doi.org/https://doi.org/10.1002/eat.22068

Royal College of Psychiatrists. (2023). *Medical Emergencies in Eating Disorders: Guidance on Recognition and Management*. https://www.rcpsych.ac.uk/docs/default-source/improving-care/better-mh-policy/college-reports/college-report-cr233-medical-emergencies-in-eating-disorders-(meed)-guidance.pdf?sfvrsn=2d327483_55

Schumm, J. A., Dickstein, B. D., Walter, K. H., Owens, G. P., & Chard, K. M. (2015). Changes in posttraumatic cognitions predict changes in posttraumatic stress disorder symptoms during cognitive processing therapy. *Journal of Consulting and Clinical Psychology*, *83*(6), 1161. https://doi.org/https://doi.org/10.1037/ccp0000040

Snaith, R. P. (2003). The hospital anxiety and depression scale. *Health and Quality of Life Outcomes*, *1*(1), 1-4. https://doi.org/https://doi.org/10.1186/1477-7525-1-29

Stillar, A., Strahan, E., Nash, P., Files, N., Scarborough, J., Mayman, S., Henderson, K., Gusella, J., Connors, L., & Orr, E. S. (2016). The influence of carer fear and self-blame when supporting a loved one with an eating disorder. *Eating Disorders*, *24*(2), 173-185. https://doi.org/https://doi.org/10.1080/10640266.2015.1133210

Strahan, E. J., Stillar, A., Files, N., Nash, P., Scarborough, J., Connors, L., Gusella, J., Henderson, K., Mayman, S., & Marchand, P. (2017). Increasing parental self-efficacy with emotion-focused family therapy for eating disorders: A process model. *Person-Centered & Experiential Psychotherapies*, *16*(3), 256-269. https://doi.org/https://doi.org/10.1080/14779757.2017.1330703

Stuber, M. L., & Shemesh, E. (2006). Post-traumatic stress response to life-threatening illnesses in children and their parents. *Child and Adolescent Psychiatric Clinics*, *15*(3), 597-609. https://doi.org/https://doi.org/10.1016/j.chc.2006.02.006

Timko, C. A., Dennis, N. J., Mears, C., Rodriguez, D., Fitzpatrick, K. K., & Peebles, R. (2023). Post-traumatic stress symptoms in parents of adolescents hospitalized with Anorexia nervosa. *Eating Disorders*, *31*(3), 1-13. https://doi.org/https://doi.org/10.1080/10640266.2022.2099604

Treasure, J., Antunes Duarte, T., & Schmidt, U. (2020). Eating Disorders. *Lancet*, *395*(10227), 899-911. https://doi.org/10.1016/S0140-6736(20)30059-3

Treasure, J., & Nazar, B. P. (2016). Interventions for the carers of patients with eating disorders. *Current Psychiatry Reports*, *18*, 1-7. https://doi.org/https://doi.org/10.1007/s11920-015-0652-3

Vasconcelos e Sa, D., Barrowclough, C., Hartley, S., & Wearden, A. (2017). Self-blame attributions in relatives of people with recent-onset psychosis: Associations with relatives' distress and behavioural control. *British Journal of Clinical Psychology*, *56*(2), 172-188. https://doi.org/https://doi.org/10.1111/bjc.12132

Whitney, J., Murray, J., Gavan, K., Todd, G., Whitaker, W., & Treasure, J. (2005). Experience of caring for someone with anorexia nervosa: Qualitative study.

The British Journal of Psychiatry, *187*(5), 444-449. https://doi.org/https://doi.org/10.1192/bjp.187.5.444

Wufong, E., Rhodes, P., & Conti, J. (2019). “We don’t really know what else we can do”: Parent experiences when adolescent distress persists after the Maudsley and family-based therapies for anorexia nervosa. *Journal of Eating Disorders*, *7*(1), 1-18. https://doi.org/https://doi.org/10.1186/s40337-019-0235-5

Yagiela, L. M., Carlton, E. F., Meert, K. L., Odetola, F. O., & Cousino, M. K. (2019). Parent medical traumatic stress and associated family outcomes after pediatric critical illness: A systematic review. *Pediatric Critical Care Medicine*, *20*(8), 759-768. https://doi.org/10.1097/PCC.0000000000001985

Yim, S. H., Lorenz, H., & Salkovskis, P. (2023). The Effectiveness and Feasibility of Psychological Interventions for Populations Under Ongoing Threat: A Systematic Review. *Trauma, Violence, & Abuse*, 15248380231156198. https://doi.org/https://doi.org/10.1177/152483802311561

Zabala, M. J., Macdonald, P., & Treasure, J. (2009). Appraisal of caregiving burden, expressed emotion and psychological distress in families of people with eating disorders: a systematic review. *European Eating Disorders Review: The Professional Journal of the Eating Disorders Association*, *17*(5), 338-349. https://doi.org/https://doi.org/10.1002/erv.925

Zigmond, A. S., & Snaith, R. P. (1983). The hospital anxiety and depression scale. *Acta Psychiatrica Scandinavica*, *67*(6), 361-370. https://doi.org/https://doi.org/10.1111/j.1600-0447.1983.tb09716.x

Zipfel, S., Giel, K., Bulik, C., Hay, P., & Schmidt, U. (2015). Anorexia nervosa: aetiology, assessment, and treatment. *Lancet Psychiatry*, *2*, 1099–1111. https://doi.org/https://doi.org/10.1016/S2215-0366(15)00356-9

Executive Summary

Investigating self-blame and trauma symptoms in parents of young people with Anorexia Nervosa - "Traumatised by the past, desperately trying to keep them well in the present, and worried about the future".

Background

Anorexia nervosa (AN) is characterised by disturbances in eating behaviours and attitudes towards weight, body image, and food, and is associated with the restriction of energy intake resulting in significantly low body weight. Caring for a child with AN has been associated with psychological distress, with research finding that amongst those caring for a loved one with AN, many present with clinically significant anxiety and depression. Moreover, caring for a child with AN has been described as being a traumatic experience and many parents talk about feelings of self-blame and guilt.

Post-traumatic stress disorder (PTSD) can develop following exposure to a traumatic event that involved actual or threatened death, such as witnessing medical complications in one's child. PTSD symptoms have been shown to be more common in parents of children suffering from life threatening physical illnesses, even years after successful treatment. In addition, self-blame has been implicated in the maintenance of PTSD, however, it is currently unclear whether self-blame contributes to PTSD symptoms in parents of children with AN.

Thus, the present study aimed to explore the following in parents of children with AN:

(a) whether there are differences in levels of self-blame thoughts between those who report higher levels of PTSD symptoms compared to those who do not.

(b) whether self-blame cognitions predict PTSD symptoms, over and above subjective and objective illness severity.

(c) what the experiences are of those with high levels of self-blame thoughts and PTSD symptoms.

Methods

A mixed-methods study was conducted with two parts. Part 1 consisted of a quantitative questionnaire, exploring self-blame and PTSD symptoms. Parents were split into groups based on their PTSD scores (high- versus low-level symptoms) and compared on levels of self-blame. In addition, it explored whether self-blame predicted PTSD over and above demographic factors and their child's illness severity. Part 2 consisted of qualitative responses to explore the experiences of parents who experienced high levels of self-blame and PTSD symptoms.

A large online sample of parents with a child with a current or previous diagnosis of AN (weight restored for maximum 18 months) were recruited to complete the questionnaires. Those that scored highly on the measure of PTSD and self-blame were automatically given access to the open-ended questions.

Main findings

A total of 123 participants completed the study. Overall, participants with high levels of PTSD symptoms showed significantly higher self-blame thoughts compared to those experiencing low levels of PTSD symptoms. Additionally, levels of self-blame thoughts significantly predicted PTSD symptoms over and above demographic factors and illness severity.

Qualitative responses from 56 participants were analysed. Parents felt they were at fault due to the perceived significance of their genetics, the home environment and parenting skills, parental approached to food and health, and not identifying the illness/acting quick enough. Parents also highlighted the extreme emotional burden that accompanies the caring role, with many parents linking it back to the threat of death and violence. This impacted the whole family (e.g., romantic relationships were affected, and siblings were given less attention) and reconfigured people's lives (e.g., career implications due to the caring role and social isolation).

Conclusions

The findings suggest that negative appraisals regarding self-blame for their child's AN contributed to the potential development and/or maintenance of PTSD symptoms. This was over and above demographic factors associated with PTSD and the child's illness severity. With this knowledge, it is possible to identify self-blame thoughts in parents early within a treatment process. In doing so, those at increased risk of PTSD symptoms can be given further support to reduce feelings of self-blame (e.g., information about the development of EDs or cognitive restructuring).

Connecting Narrative

When starting the doctorate, I had a strong interest in the field of eating disorders, but I was torn between pursuing this interest or using training as an opportunity to explore other areas within research. The former felt more comfortable, however, I was keen to keep an open mind that my interests may change with differing experiences. I settled on a mix, and also tried to explore slightly different areas within the field of eating. Based on my previous experience, I also decided to focus all three projects on adult mental health.

I had a background in research which made me feel more confident conducting research. I soon learnt that I underestimated the difficulties in coming up with research ideas from scratch and designing feasible studies within the time limitations of the course. Previously, I had worked on large trials where there was a separate statistician which left me with limited opportunity to develop my statistical skills. Due to this, I was excited to get stuck into some statistics as this was something I had thoroughly enjoyed in the past.

Systematic review of the literature

Conducting the systematic review was a big challenge for me. Although I was familiar with the process, I had never completed one myself. I was surprised with how difficult and time-consuming it was to come up with an idea due to the vast amounts of reviews already in existence. I settled on reviewing personality predictors in bariatric surgery. Although not directly related, there is a strong overlap with eating disorders within the literature. An additional challenge with this topic was that the personality measures used, and the strong biological basis within the literature, were outside of my area of familiarity. This required a lot of additional reading to get my head around different theories and models, but it was an interesting exploration of the area. This project helped with develop my critical appraisal skills which were incredibly useful across my other projects – highlighting what information is key to include in write-ups to reduce bias.

One frustration I was aware of through this process was the high propensity for pejorative language towards people with obesity within the older literature. This sat uncomfortably with me, but it was reassuring to see a shift in the language used in the more recent literature.

Service improvement project

This project deviated away from weight and eating and focused on general mental health, albeit still in an adult population. I was drawn to this project due to my pre-doctorate research experience in online interventions, and this led me to think about how the sudden transition to remote delivery within an IAPT service impacted on outcomes, and the added implications of the pandemic. Being part of the IAPT service during my first year was hugely helpful in conducting this project, as it allowed me to more familiar with the processes within the service and the big data set. I was keen to hear service user experiences as I believed this to be important to differentiate between the impact of remote therapy and pandemic-related factors. Unfortunately, recruitment for interviews was surprisingly difficult.

I found that the research base moved so quickly when it came to Covid-19 related evidence, and this meant it was hard to keep up with the evidence relevant to this research project. A lot of research was published post-submission and I found myself having to rewrite aspects to incorporate this.

Overall, I enjoyed completing this project due to the fact that the outcomes were relevant to a service, and I hope to continue service improvement work after I qualify.

Theory Driven Research Project

This was the project I was most looking forward to completing and although it focused on my interests of eating disorders, it also explored newer areas for me (trauma and carers). This idea came from discussions from supervisors about their experience of working with carers within a CAMHS eating disorder service. They had experienced many carers presenting with hypervigilance and symptoms similar to PTSD, but research into this area was limited. There was, however, some overlap in other populations such as psychosis and physical illnesses. During the development stage, there were multiple iterations to the research proposal, and this added an additional layer of stress because of delays in getting started. Due to the delays, I decided to recruit online avoiding the time-consuming process of NHS ethics. Although this allowed me to start recruitment earlier, I felt recruitment was somewhat slower without NHS input. However, once we started to get participants, the data was extremely rich and interesting. The qualitative aspect, in particular, was incredibly raw and emotional. It took its toll analysing the huge amount of emotional data and made me fully realise the importance of research into carers. I was taken aback by the amount of detail people wrote and I felt this was a reflection of the isolation and loneliness in carers for with children with anorexia, as people may have had no other opportunities to share these difficult thoughts and feelings.

General reflections

The process of completing this thesis was a turbulent one, with lots of ups and downs. At times, I felt I lost some of my passion for conducting research, however, on reflection it was overall an enjoyable and invaluable experience which I hope I can continue as a qualified Clinical Psychologist.

Acknowledgements

I would firstly like to extend a huge thank you to everyone who contributed to the development of the projects and participated. Without the time and effort they dedicated, none of this would have been possible. I hope that the results can contribute to the development and improvements in support going forward. To all the charities, campaigners and schools who helped promote my research, thank you.

I am also incredibly grateful for the support provided from all my supervisors throughout the process – Dr Myra Cooper, Dr Joanna Adams, Dr Graham Thew, Dr Alasdair Churchard and Dr Sam Sadler. Their research and clinical expertise have been hugely appreciated. An added thank you to Myra Cooper for her additional support as my course tutor.

A big thank you to the 2020 cohort for the emotional and practical support throughout these three years. Thank you for answering my many research questions and offering support during the research lows, and specifically to Hibah who provided support for the CRL.

I would also like to thank my family who have supported me throughout my many years of education. Finally, this would not have been possible without the emotional support of my partner, Tom. His ongoing encouragement and patience throughout these last three years has been invaluable. Thank you for being my rock throughout, and consistently believing in my abilities, even at times when I did not.

Appendices

Appendix A – Critical review of the literature

A1: Search strategy

bariatric OR “gastric band*” OR “gastric bypass” OR “obesity surgery” OR “obesity operation” OR “biliopancreatic diversion” OR “sleeve gastrectomy” OR “intra-gastric balloon” OR “intra gastric balloon” OR “weight reduction surgery” OR “weight loss surgery” OR “weight reduction operation” OR “weight loss operation” OR “laparoscopic band”

AND

personalit* OR “Temperament” OR “Personality Traits” OR trait OR extraver* or neurotic* or emotional stab* or openness or agreeable* or conscientious* OR Disposition OR Character* OR Introversion OR “Five Factor Model” OR “Temperament and Character Inventory” OR “Minnesota Multiphasic Personality Inventory” OR “Adult Temperament Questionnaire” OR NEO OR “Big Five Inventory”

AND

Predict* OR “pre operative” OR pre-operative

A2: Author guidelines for the International Journal of Obesity

Article Type Specifications

Article: An Article is a substantial, in-depth, novel research study of interest to the readership of the journal. The structure an Article should follow is detailed below. Specifications: Structured abstract max. 300 words; Main body of text (excluding abstract, tables/figures, and references) not to exceed 4,000 words; Max 6 tables or figures (Note: composite figures containing more than three individual figures will count as two figures); Max 60 references

Review Article:
A Review Article is an authoritative, balanced survey of recent developments in a research field. Review Articles should incorporate a) a review of previously published literature from the past 5-10 years, describing the pros and cons of these studies, b) the authors opinion on how to approach the issue/situation being discussed, c) the authors thoughts on what is necessary to move the field forward in the future.
PLEASE NOTE: All reviews should include search criteria and selection criteria in a Methods Section, along with the total number of articles identified and the total number selected for inclusion in the review.
Specifications: Unstructured abstract max. 300 words; Main body of text (excluding abstract, tables/figures, and references) not to exceed 6,000 words; Max 8 tables or figures (Note: composite figures containing more than three individual figures will count as two figures); Max 120 references

Technical Report: Technical Reports are articles that address areas of more methodological interest. The contents of these Reports must have the same level of scientific rigour expected of an Article.
Specifications: Structured abstract max. 300 words; Main body of text (excluding abstract, tables/figures, and references) not to exceed 2,500 words; Max 4 tables or figures (Note: composite figures containing more than three individual figures will count as two figures); Max 25 references

Correspondence: Correspondence provides readers with a forum for comment on papers published in a previous issue of the journal or to address new issues relevant to the research community. Correspondences must reference the original source but can use an arbitrary title.
Specifications: No abstract required; Main body of text (excluding tables/figures, and references) not to exceed 500 words; Max 2 tables or figures (Note: composite

figures containing more than three individual figures will count as two figures); Max 10 references

Brief Communication: These are studies that fall short of the criteria for full Articles (e.g. preliminary experiments limited by sample size or duration, or novel hypotheses). Apart from including an abstract, there is no obligation to divide the text into sections
Specifications: Unstructured abstract max. 200 words; Main body of text (excluding tables/figures, and references) not to exceed 1,500 words; Max 2 tables or figures (Note: composite figures containing more than three individual figures will count as two figures); Max 20 references

Perspective: A Perspective is intended to provide a forum for authors to discuss models and ideas from a personal viewpoint. They are more forward looking and/or speculative than Review Articles and may take a broader field of view. These are mainly opinions, but should be grounded in science and available data. These can be new interpretations or thoughtful synthesis and presentations of available information and concepts. An essential feature of a Perspective would be to present a novel/fresh/creative way of interpreting or explaining various aspects of obesity. It is intended that these brief writings will initiate discourse and will contribute to conceptually advancing the field of obesity.
Perspectives are regularly commissioned, however pre-submission enquiries are also welcome. Please contact the editorial office (ijo@nature.com) to propose an idea.
Specifications: No abstract required; Main body of text (excluding tables/figures, and references) not to exceed 1,000 words; Max 2 tables or figures; Max 10 references

Editorial (by Editor invitation only): If you wish to offer an unsolicited contribution, we ask you to first contact the editorial office with your request.
Specifications: No abstract required; Main body of text (excluding tables/figures, and references) not to exceed 1,000 words; Max 2 tables or figures (Note: composite figures containing more than three individual figures will count as two figures); Max 10 references

Comment (by Editor invitation only): Comments discuss issues of particular significance to the field, or highlight significant papers, in IJO or elsewhere. Comments are usually solicited by the editors. If you wish to offer an unsolicited contribution, we ask you to first contact the editorial office with your request, including a short description of the content and implications of your comment
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Due to the high volume of submissions that the Journal receives, the following manuscripts will be deemed low priority:

Simple prevalence studies involving a single country at a single time-point.

Studies that merely confirm established facts from previous publications and that contain little new information. For example, it is hard to justify publication space for studies that report obesity is associated with known health risks. Therefore, studies that replicate the findings of previously published papers will tend to have a lower priority. If similar data are already published, it will be critical for authors to explain the novelty of their manuscript in the covering letter to the editor

Those that involve co-morbidities of obesity (e.g. diabetes, cardiovascular disease), without having obesity-specific components to them. Recent examples include manuscripts that look at associations between inflammatory markers and diabetes or cardiovascular disease. This information is clearly of medical relevance, but is not necessarily a high priority for a journal devoted to obesity research.

Those that report the absence of links between obesity and a specific genotype or polymorphism; it is possible that such a work could be considered in the form of a Short Communication, but a full manuscript is not justified.

Those that describe anthropometric indices of obesity that might correlate with plasma markers of co-morbidities, but do not include any data relating to outcome of the co-morbidities.

Retrospective studies, secondary analyses of data that arise from studies that were not primary concerned with obesity or body weight, or clinical “audits” (for example of surgical interventions) that were not designed as appropriately controlled clinical research interventions, unless there is particularly novel information presented that is of importance to the medical literature.

Those that claim to be pediatric articles but which do not deal specifically with children and adolescents up to the age of 18 years.

Case reports that do not describe a critical finding or major addition to the literature.

Clinical trials less than one year in duration – see further details below.

If authors wish to submit articles to the International Journal of Obesity in the above areas, they would need to state clearly in the covering letter and introduction to the manuscript what is novel and informative about the study and why it is a valuable addition to the scientific literature.

Clinical Trials

The International Journal of Obesity is interested in attracting the submission of manuscripts describing new therapeutic approaches to obesity treatment. These human intervention trials of new therapies can be pharmacological, surgical, dietary, physical activity, nutraceutical (including herbal preparations), behavioural or some other relevant intervention, but must be novel, include an appropriate control group and be of a sufficiently long duration to generate results of clinical relevance. Trials which also consider maintenance of weight loss would be of particular interest. With regard to the duration of such trials, the following will apply:

Diet / lifestyle /nutraceutical interventions. The total duration (weight loss plus weight maintenance) must be at least 1 year. Anything less than this is of little practical value and is highly unlikely to reveal any novel mechanistic findings. The only exception would be if a shorter period of intervention was accompanied by a truly novel mechanistic approach. Even then the study should be at least 3 months in duration and such papers normally would be submitted as Short Communications.

Surgery Short term, post-surgery studies are of minimal value as many are likely to be in the rapid phase of weight loss and unlikely to achieve a state of weight maintenance. Thus, surgical studies should be 1 year or more in duration and linked with novel mechanistic/physiological measurements. The only exceptions would be if a shorter period of intervention were accompanied by a truly novel mechanistic approach and such papers normally would be submitted as Short Communications.

Drug studies 1 year or longer studies with truly novel agents are unrealistic. However, a 3 month study with a truly novel agent would not normally deserve to be published as a full paper and should be submitted as a Short Communication if it is of less than 1 year duration. Any established drug being applied to obesity (e.g. the recent application of anti-depressants to an obesity target) or any obesity drug which has already produced publications demonstrating efficacy in humans MUST be studied for at least 1 year.

In addition to these trials of new therapeutic approaches, the International Journal of Obesity is also interested in publishing systematic reviews of weight loss and weight maintenance interventions in human subjects. However, these reviews and any associated meta-analyses should only be concerned with studies that are of a duration of at least 1 year. See our Editorial Policy section for further information.

Preparation of Articles

House Style: Authors should adhere to the following formatting guidelines

Text should be double spaced with a wide margin.

All pages and lines are to be numbered.

Do not make rules thinner than 1pt (0.36mm).

Use a coarse hatching pattern rather than shading for tints in graphs.

Colour should be distinct when being used as an identifying tool.

Spaces, not commas should be used to separate thousands.

At first mention of a manufacturer, the town (and state if USA) and country should be provided.

Statistical methods: For normally distributed data, mean (SD) is the preferred summary statistic. Relative risks should be expressed as odds ratios with 95% confidence interval. To compare two methods for measuring a variable the method of Bland & Altman (1986, Lancet 1, 307–310) should be used; for this, calculation of P only is not appropriate.

Units: Use metric units (SI units) as fully as possible. Preferably give measurements of energy in kiloJoules or MegaJoules with kilocalories in parentheses (1 kcal = 4.186kJ). Use % throughout.

Abbreviations: On first using an abbreviation place it in parentheses after the full item. Very common abbreviations such as FFA, RNA, need not be defined. Note these abbreviations: gram g; litre l; milligram mg; kilogram kg; kilojoule kJ; megajoule MJ; weight wt; seconds s; minutes min; hours h. Do not add ‘s’ for plural units. Terms used less than four times should not be abbreviated.

People friendly language: The International Journal of Obesity would like to encourage its authors to use people friendly language in the articles published in the journal. Thus, we encourage authors to use terms such as 'people with overweight or obesity' in manuscripts submitted to the journal.

Sex vs. Gender: There is a need to clarify the use of “gender” vs “sex” in manuscripts. “Gender” is a self-identified term whereas “sex” is determined at birth by the presence or absence of a Y chromosome. For biological studies, “sex” is the term that should be used in the International Journal of Obesity. "Gender" may be used in manuscripts in which the participants have been asked to state their self-ascribed gender. We would expect all pediatric studies to use the term sex, because the questionnaires which are typically used for children use the word "sex" and list only M/F. In addition, BMI charts are based on biological sex. For adult studies, in which the participants have greater agency in self-ascribing gender, which term is used depends on how sex or gender was determined in the study. For example, if a survey is given to research participants asking how they categorize their own gender, then it should be stated throughout that the variable was "self-reported gender". By contrast if they were simply asked whether they were Male or Female then it should be reported as sex.

Cover Letter: Authors should provide a cover letter that includes the affiliation and contact information for the corresponding author. Authors should briefly discuss the importance of the work and explain why it is considered appropriate for the diverse readership of the journal. The cover letter should confirm the material is original research, has not been previously published and has not been submitted for publication elsewhere while under consideration. If the manuscript has been previously considered for publication in another journal, please include the previous reviewer comments, to help expedite the decision by the Editorial team.

Title Page: The title page should contain:

Title of the paper - brief, informative, of 150 characters or less and should not make a statement or conclusion. Should have no mention of tradenames/products.

Full names of all the authors and their affiliations, together with the name, full postal address, telephone number and e-mail address of the corresponding author. If authors regard it as essential to indicate that two or more co-authors are equal in status, they may be identified by an asterisk symbol with the caption ‘These authors contributed equally to this work’ immediately under the address list.

Competing Interests statement (see Editorial Policies section). Authors should disclose the sources of any support for the work received in the form of grants and/or equipment and drugs.

Large Language Models (LLMs), such as ChatGPT, do not currently satisfy our authorship criteria. Notably an attribution of authorship carries with it accountability for the work, which cannot be effectively applied to LLMs. Use of an LLM should be properly documented in the Methods section (and if a Methods section is not available, in a suitable alternative part) of the manuscript.

Abstract: Articles must be prepared with a structured abstract designed to summarise the essential features of the paper in a logical and concise sequence under the following headings:

Background/Objectives: What was the main question or hypothesis tested?

Subjects/Methods: How many subjects were recruited, how many dropped out? Was the study randomised, case-controlled etc?

Interventions/methods used and duration of administration.

Results: Indicate 95% confidence intervals and exact P value for effects.

Conclusions: Answer (significant or not) to main question.

Graphical Abstracts (optional): A graphical abstract, which summarizes the manuscript in a visual way, is designed to attract the attention of readers in the table of contents of the journal. Files should be uploaded as a ‘Figure’ and be labelled ‘Graphical abstract’. A standard file format (.tiff, .eps, .jpg, .bmp, .doc, or .pdf.) should be used, and the graphic should be 9 cm wide x 5 cm high when printed at full scale and a minimum of 300 dpi. All graphical abstracts should be submitted with a white background and imagery should fill the available width, whenever possible. Colour graphical abstracts are encouraged and will be published at no additional charge. Textual statements should be kept to a minimum.

Introduction: The Introduction should assume that the reader is knowledgeable in the field and should therefore be as brief as possible but can include a short historical review where desirable.

Materials/Subjects and Methods: This section should contain sufficient detail, so that all experimental procedures can be reproduced, and include references. Methods, however, that have been published in detail elsewhere should not be described in detail. Authors should provide the name of the manufacturer and their location for any specifically named medical equipment and instruments, and all drugs should be identified by their pharmaceutical names, and by their trade name if relevant.

Results: The Results section should briefly present the experimental data in text, tables or figures. Tables and figures should not be described extensively in the text.

Discussion: The Discussion should focus on the interpretation and the significance of the findings with concise objective comments that describe their relation to other work in the area. It should not repeat information in the results. The final paragraph should highlight the main conclusion(s), and provide some indication of the direction future research should take.

Acknowledgements: These should be brief, and should include sources of support including sponsorship (e.g. university, charity, commercial organisation) and sources of material (e.g. novel drugs) not available commercially.

Author Contributions: Authors must include a statement about the contribution of each author to the manuscript (see Editorial Policies page for details regarding authorship). The statement can be up to several sentences long, describing the tasks of individual authors referred to by their initials.
See example below:
MAJ was responsible for designing the review protocol, writing the protocol and report, conducting the search, screening potentially eligible studies, extracting and analysing data, interpreting results, updating reference lists and creating ’Summary of findings’ tables. SBM was responsible for designing the review protocol and screening potentially eligible studies. She contributed to writing the report, extracting and analysing data, interpreting results and creating ’Summary of findings’ tables. DIH conducted the meta-regression analyses and contributed to the design of the review protocol, writing the report, arbitrating potentially eligible studies, extracting and analysing data and interpreting results. NAL contributed to data extraction and provided feedback on the report. FRT and RAL provided feedback on the report.

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References: Only papers directly related to the article should be cited. Exhaustive lists should be avoided. References should follow the Vancouver format. In the text they should appear as numbers starting at one and at the end of the paper they should be listed (double-spaced) in numerical order corresponding to the order of citation in the text. Where a reference is to appear next to a number in the text, for example following an equation, chemical formula or biological acronym, citations should be written as (ref. X). Example “detectable levels of endogenous Bcl-2 (ref. 3), as confirmed by western blot”.
All authors should be listed for papers with up to six authors; for papers with more than six authors, the first six only should be listed, followed by et al. Abbreviations for

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Journal article by DOI: Kurotani K, Shinsugi C, Takimoto H. Diet quality and household income level among students: 2014 National Health and Nutrition Survey Japan. Eur J Clin Nutr. 2020; https://doi.org/10.1038/s41430-020-00794-1.
Journal article, in press: Gallardo RL, Juneja HS, Gardner FH. Normal human marrow stromal cells induce clonal growth of human malignant T-lymphoblasts. Int. J Cell Cloning (in press).
Complete book: Atkinson K, Champlin R, Ritz J, Fibbe W, Ljungman P, Brenner MK (eds). Clinical Bone Marrow and Blood Stem Cell Transplantation. 3rd ed. Cambridge University Press, Cambridge, 2004.
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Abstract: Abstracts from the 2020 Annual Scientific Meeting of the British and Irish Hypertension Society (BIHS). J Hum Hypertens 34; 2020; 1–20
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Online Document: Doe J. Title of subordinate document. In: The dictionary of substances and their effects. Royal Society of Chemistry. 1999. http://www.rsc.org/dose/title of subordinate document. Accessed 15 Jan 1999.

Tables: Tables should only be used to present essential data; they should not duplicate what is written in the text. All tables must be editable, ideally presented in Excel. Each must be uploaded as a separate workbook with a title or caption and be clearly labelled, sequentially. Please make sure each table is cited within the text and in the correct order, e.g. (Table 3). Please save the files with extensions .xls / .xlsx / .ods / or .doc or .docx. Please ensure that you provide a 'flat' file, with single values in each cell with no macros or links to other workbooks or worksheets and no calculations or functions.

Figure Legends: These should be brief, specific and appear on a separate manuscript page after the References section.

Figures: Figures and images should be labelled sequentially and cited in the text. Figures should not be embedded within the text but rather uploaded as separate files. The use of three-dimensional histograms is strongly discouraged unless the addition of the third dimension is important for conveying the results. Composite figures containing more than three individual figures will count as two figures. All parts of a figure should be grouped together. Where possible large figures and tables should be included as supplementary material.

Detailed guidelines for submitting artwork can be found by downloading our Artwork Guidelines. Using the guidelines, please submit production quality artwork with your initial online submission. If you have followed the guidelines, we will not require the artwork to be resubmitted following the peer-review process, if your paper is accepted for publication.

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Graphs, Histograms and Statistics

Plotting individual data points is preferred to just showing means, especially where N<10

If error bars are shown, they must be described in the figure legend

Axes on graphs should extend to zero, except for log axes

Statistical analyses (including error bars and p values) should only be shown for independently repeated experiments, and must not be shown for replicates of a single experiment

The number of times an experiment was repeated (N) must be stated in the legend

Supplementary Information: Supplementary information is material directly relevant to the conclusion of an article that cannot be included in the printed version owing to space or format constraints. The article must be complete and self-explanatory without the Supplementary Information, which is posted on the journal's website and linked to the article. Supplementary Information may consist of data files, graphics, movies or extensive tables.

Please submit supplementary figures, small tables and text as a single combined PDF document. Tables longer than one page should be provided as an Excel or similar file type. Please refer to the journal’s Data Policies, outlined in the Editorial

Policies section of these guidelines for additional options for such files, and which provides guidance on alternatives to supplementary files for data deposition, linking, preservation, and storage.

For optimal quality video files, please use H.264 encoding, the standard aspect ratio of 16:9 (4:3 is second best) and do not compress the video. Important: Supplementary information is not copyedited, so please ensure that it is clearly and succinctly presented, that the style and terminology conform to the rest of the manuscript, and that any tracked-changes or review mark-ups are removed.

Authors should submit supplementary information files in the FINAL format as they are not edited, typeset or changed, and will appear online exactly as submitted. When submitting Supplementary Information, authors are required to:

Include a text summary (no more than 50 words) to describe the contents of each file.

Identify the types of files (file formats) submitted.

Please note: We do not allow the resupplying of Supplementary Information files for style reasons after a paper has been exported in production, unless there is a serious error that affects the science and, if by not replacing, it would lead to a formal correction once the paper has been published. In these cases we would make an exception and replace the file; however there are very few instances where a Supplementary Information file would be corrected post publication.

Video summaries: Authors are welcome to include a video summary of their submission in order to support and enhance their scientific research. Files should be uploaded as a ‘video’ and be labelled ‘Video abstract’.
Please take note of the technical requirements listed below.
Technical requirements:
The maximum file size of a video should not exceed 25 GB. An audio track is required, and video and audio streams must be in the correct order (video before audio). To ensure streamed video playout in HD in an acceptable quality, the following minimum requirements are recommended:
Resolution - At least 480p. If no HD is available: 1024 x 576 (PAL 16:9) respectively 768 x 576 (PAL 4:3)
Aspect ratio - Standard 16:9 or acceptable 4:3
Video bitrate - 5.000 to 10.000 Kbit/s
Audio bitrate - 320 Kbit/s, stereo, 44,1 KHz
Sound - AAC

Tips for presentation:
1. The video should introduce the topic of the article, highlight the main results and conclusions, discuss the current status and potential future developments in the field
2. Write your script and practise first – explain any obscure terminology
3. Film in a quiet room against a plain (white if possible) background and ensure there is nothing confidential in view
4. Avoid using background music
5. Include figures, slides, video clips of the experiment, etc. to help explain your

methods and results. Please try to include a mixture of you talking to the camera and slides – it is nice for viewers to see your face at times

6. Keep figures simple; don't show raw data and ensure any text is legible. Do not include lots of small text or data that won't be legible in a small video player that's the size of a smartphone screen.

7. Please do not use images, music, or insignia in your video for which you do not own the copyright or have documented permission from the copyright holder.

Files will be viewed by the editorial office for quality; however the onus for creating, uploading and editing the video falls on the author.

Subject Ontology

Upon submission authors will be asked to select a series of subject terms relevant to the topic of their manuscript from our subject ontology. Providing these terms will ensure your article is more discoverable and will appear on appropriate subject specific pages on nature.com, in addition to the journal's own pages. Your article should be indexed with at least one, and up to four unique subject terms that describe the key subjects and concepts in your manuscript. Click here for help with this.

Appendix B – Service improvement project

B1: Summary of quotes, according to themes.

Theme	Quote
Exposure and response prevention (ERP)	“I found the digital delivery of things much more helpful when it came to working through like…exposures” *(Participant 2)*
	“Part of like going to the sessions in person was an exposure experience in a way for me anyway, so I thought, well, will I feel too comfortable being at home? But it wasn't that way at all. I felt like I was still challenged in the same ways” (*Participant 2)*
	“I found going to the appointments are real exposure because of the building that they were held in, I didn't like it and I actually felt it set me back up because I was having to do this exposure every time was going and then I was like upset when I was there and then I was having to come home and after just having talked about what we should do and what I should be working on felt like I couldn't do any of those things because I was so stressed out by where I've just been asked to go. So, I felt like the whole thing with counterintuitive.” (*Participant 2)*
	“In my mind, if you’re telling someone who is afraid of spiders, for example, that in this next week, I want you to go and look at spiders or whatever it may be, that person is probably not going to do it…maybe you do things together [in reference to in-person therapy], rather than just being left to your own devices” *(Participant 1)*
	“I mean for me, my anxiety is based around illness and hand washing and things like that anyway. So, for me I was quite pleased.” *(Participant 3)*
	“So, I think it's extremely hard to be able to implement CBT effectively in a remote situation, be that over Teams or phone, because a lot of my therapy was about exposure response.” *(Participant 1)*
Practical considerations	“It’s just very, very convenient. You know, when you have a life and things going on, an hour of getting in the car and driving to meet the person, having a session and driving back. But when you’re at home, you can take an hour off whatever you’re doing to have the call” *(Participant 1)*
	“When my child was home schooled, because obviously we only had my husband’s work laptop for most of the stuff we did…we were using it for home schooling and my meetings” *(Participant 3)*
	“So I guess in a way it did make it a bit more accessible for me given the current situation. Because, obviously, normally my son would have been it at school or preschool or whatever, and he wasn't.” *(Participant 3)*
Impact on the therapeutic	“It's not like I missed out on anything from the building or that we would have done anything differently. You would have just sat opposite each

relationship	other anyway, so to me it made no difference." (*Participant 2)*
	"I don't think it would have been any different for me if it had just been a voice call*." (Participant 2)*
	"With anything done remotely, you dilute and you lose some of that emotional kind of understanding. You know, you want someone's full behaviour and body language. What could be a small little kind of look may be missed [remotely] whereas, you know, in person you can pick it up." *(Participant 1)*
	"I felt like there was a bit less pressure on me. I felt like sometimes in person I would agree to do exposures I wasn't comfortable with yet, whereas with remote, I felt more like I could be honest and say that's too much for me can we try something else" (*Participant 2)*
	"I just think some sometimes you're more comfortable not in person" (*Participant 2)*
	"I didn't think it made any difference really. I think that my therapist was really good, and it was good whether it was on teams or in person, so I don't think it made any difference." *(Participant 3)*
	"I get it, but she always had one of those virtual backgrounds on Teams, which I totally get, like of course you don't want your patients to be seeing your home…your home environment, but when it was, like, very obviously a fake room background it felt a bit off. Do you know what I mean? It felt a bit…going into it initially feeling a bit, like, not connected. Very corporate, I suppose that is the word." *(Participant 1)*
	"It dilutes that kind of relationship making with the therapist and the patient in the initial steps because it can be a little bit awkward, you know, frigid when you're trying to kind of make a connection over Teams." *(Participant 1)*
The home environment	"….I just knew that there were other people around me. It wasn't quite such a safe space, I guess" *(Participant 3)*
	"It just felt like a safe space at home" *(Participant 2)*
	"You didn't have that anonymity saying whatever you needed to say at the time." *(Participant 3)*
Future preferences	"I think that would be nice to have that option [in reference to a hybrid approach], but if it was one or the other, I'd definitely say remote." (*Participant 2)*
	"I would definitely vote for remote for my regular meetings. If it got to the point where you were doing exposure therapy together, I think it would still be nice to meet a therapist". (*Participant 2)*
	"I think I would probably opt for online just because my circumstances have changed slightly now. So, my son is back at school, but I've gone back to work. So, for me now, it will just fit into my life a little easier." *(Participant 3)*
	"And you know, if someone said to me, you know, once we are back to normal whenever that may be, you have the option of doing it in person or over Teams. Again, I may actually still opt for teams." *(Participant 1)*

B2: Author guidelines for the Cognitive Behaviour Therapist

Aims and Scope

The Cognitive Behaviour Therapist is published for the British Association for Behavioural and Cognitive Psychotherapies and is the sister Journal to *Behavioural and Cognitive Psychotherapy*

The Cognitive Behaviour Therapist is an interdisciplinary peer reviewed journal aimed at CBT practitioners. Published online, the journal will publish a range of types of papers (see below for a full description of each) that support CBT therapists in improving their delivery of CBT, supervision and training and/or develop our knowledge and understanding of CBT across all areas.

A particular feature of the journal is that its electronic nature is designed to ensure timeliness of publication and professional debate whilst also ensuring rigorous standards in the dissemination of high-quality materials with relevance to the practice of the cognitive and behaviour therapies.

Editorial Governance

The Cognitive Behaviour Therapist encompasses most areas of human behaviour and experience, and represents many different research methods, from quantitative to qualitative research, how to flexibly implement specific clinical interventions right through to detailed case studies. Under the guidance of its editorial board *the Cognitive Behaviour Therapist* aims to reflect and influence the continuing changes in the concepts, methodology, and techniques within the cognitive and behaviour therapies.

Editorial Statement – scope of journal content

The Editors welcome authoritative contributions from people involved, in the practice, research, education, training and supervision in the cognitive and behaviour therapies. Articles must be original and focused upon cognitive and/or behaviour therapy. There is no formal word limit but concision is recommended.

In terms of subject areas, our scope includes

- the delivery of CBT
- supervision of CBT
- training in CBT
- service model and forms of delivery of CBT.

Papers on these subject areas may fit within any of the types of papers detailed below.

Papers should be submitted online at https://mc.manuscriptcentral.com/cbt

Manuscripts should be submitted with any identifiers removed for blind review. If authors fail to omit identifiers, anonymised review cannot be guaranteed.

The Editor-in-Chief and Editorial Team will make an initial decision on of whether submitted papers fall within the remit of the journal and/or are of sufficient interest and importance to warrant full review.

Types of Paper

Original Research*

Research evidence is at the heart of the practice of cognitive and behavioural psychotherapists. Original research will be published that directly relevant to the practice of CBT, such as the therapeutic relationship, therapeutic process and the evaluation of therapeutic strategies and techniques. It is expected that such reports meet both the necessary standards of scientific rigour and the journal's requirement of clear implications for the practice of CBT. Consequently, the description of the research and the presentation of results should be sufficiently brief to enable sufficient discussion of the practice implications. Consideration will be given to quantitative, qualitative and mixed approaches given appropriate fit between the question, methodology and research methods chosen.

For examples see:

Hutton, J., Ellett, L., & Berry, K. (2017). Adult attachment and paranoia: An experimental investigation. *The Cognitive Behaviour Therapist, 10*, E4. doi:10.1017/S1754470X17000058
Kobori, O., Salkovskis, P., Pagdin, R., Read, J., & Halldorsson, B. (2017). Carer's perception of and reaction to reassurance seeking in obsessive compulsive disorder. *The Cognitive Behaviour Therapist, 10*, E7. doi:10.1017/S1754470X17000095
McManus, F., Leung, C., Muse, K., & Williams, J. (2014). Understanding 'cyberchondria': An interpretive phenomenological analysis of the purpose, methods and impact of seeking health information online for those with health anxiety. *The Cognitive Behaviour Therapist, 7*, E21. doi:10.1017/S1754470X14000270

This category of paper type could also include single-case experimental design research or a case series.

For example see:

Thomson, C., Wilson, R., Collerton, D., Freeston, M., & Dudley, R. (2017). Cognitive behavioural therapy for visual hallucinations: An investigation using a single-case experimental design. *The Cognitive Behaviour Therapist, 10*, E10. doi:10.1017/S1754470X17000174

Empirically Grounded Clinical Guidance Papers*

Some of the most widely-read and discussed papers in tCBT have been those that are the synthesis of clinical experience, using informed reasoning to link limited direct evidence in the field with evidence from wider fields.

tCBT is very keen to consider submission of such papers in relevant fields that are of interest to CBT therapists, supervisors and trainers. These tend to be written by experts in the field and are designed to solve specific practical problems or clarify gaps in our knowledge. Ideally they lead to practical implications and recommendations whilst generating hypotheses for future research.

For examples see:

Barton, S., Armstrong, P., Wicks, L., Freeman, E., & Meyer, T. (2017). Treating complex depression with cognitive behavioural therapy. *the Cognitive Behaviour Therapist, 10*, E17.

Duffy, M., & Wild, J. (2017). A cognitive approach to persistent complex bereavement disorder (PCBD). *the Cognitive Behaviour Therapist, 10*, E16.

Freeston, M., Tiplady, A., Mawn, L., Bottesi, G., & Thwaites, S. (2020). Towards a model of uncertainty distress in the context of Coronavirus (COVID-19). *The Cognitive Behaviour Therapist, 13*, E31. doi:10.1017/S1754470X2000029X

Freeston, M., Thwaites, R., & Bennett-Levy, J. (2019). ‘Courses for Horses’: Designing, adapting and implementing self-practice/self-reflection programmes. *The Cognitive Behaviour Therapist, 12*, E28.

Menzies, R., & Menzies, R. (2020). Death anxiety in the time of COVID-19: Theoretical explanations and clinical implications. *The Cognitive Behaviour Therapist, 13*, E19. doi:10.1017/S1754470X20000215

Murray, H., Merritt, C., & Grey, N. (2015). Returning to the scene of the trauma in PTSD treatment - why, how and when? *the Cognitive Behaviour Therapist, 8*, 1–12.

Murray, H., Pethania, Y., & Medin, E. (2021). Survivor guilt: A cognitive approach. *The Cognitive Behaviour Therapist, 14*, E28. doi:10.1017/S1754470X21000246

Warnock-Parkes, E., Wild, J., Thew, G., Kerr, A., Grey, N., Stott, R., . . . Clark, D. (2020). Treating social anxiety disorder remotely with cognitive therapy. *The Cognitive Behaviour Therapist, 13*, E30. doi:10.1017/S1754470X2000032X

Young, K., Chessell, Z., Chisholm, A., Brady, F., Akbar, S., Vann, M., . . . Dixon, L. (2021). A cognitive behavioural therapy (CBT) approach for working with strong feelings of guilt after traumatic events. *The Cognitive Behaviour Therapist, 14*, E26. doi:10.1017/S1754470X21000192

Case Studies*

Dissemination of effective practice will be promoted through the publication of case studies that involve CBT with individuals, couples, groups and families. A suggested template is provided which is designed to ensure sufficient information is provided to allow other therapists to replicate successful therapy. All articles must include 3-5 learning objectives that will be achieved through reading the article. At the end of each paper a summary of the main practice points should be included with suggestions for follow-up reading. This stipulation is in keeping with the practitioner and professional development aims of the journal.

The case study should contribute to the development of theory or clinical practice, and feed into CBT practice as a whole rather than just relating to the specific case. Case studies should generally follow this structure:

- Abstract
- Key Learning Points
- Introduction: including an outline of theoretical research and clinical literature relevant to the case
- Presenting problem: including information on the presenting problem and associated goals of treatment, diagnosis, relevant history and development of problems, scores on standard and idiographic measures, relevant history
- Formulation: including a relevant theory-based CBT model used as a framework.
- Course of therapy: including methods used linked to theory and assessment of progress; difficulties encountered and any innovations in therapy
- Outcome: including clinical change, progress towards goals, change to measures, plans for follow-up
- Discussion: including relating to theory and evidence-base as well as reflections on own practice; implications for therapy and recommendations for other clinicians
- Key Practice Points
- Further Reading

For examples see:

Bernstein, R., Angell, K., & Dehle, C. (2013). A brief course of cognitive behavioural therapy for the treatment of misophonia: A case example. *The Cognitive Behaviour Therapist, 6*, E10. doi:10.1017/S1754470X13000172
Jenkins, P. (2017). Can temporary cessation of CBT really be therapeutic? A case study. *The Cognitive Behaviour Therapist, 10*, E8. doi:10.1017/S1754470X17000101

In addition to clinical case studies, there may be case studies related to training or supervision which would require a slightly amended structure to the one outline above.

Invited Papers*

At times tCBT will invite papers on specific issues where there is a gap in the clinical literature. This may involve commissioning papers directly from experts in a particular area or this may be a call to the wider CBT community.

Reviews*

Reviews of historical, contemporary, or innovative approaches to practice are also sought providing that they demonstrate relevance to the practice of the current cognitive and behavioural psychotherapies. Prospective authors for review papers should initially discuss their proposals with the Editor-in-Chief.

Reviews of Assessment Tools and Methods*

Reviews of clinical scales and other assessment methods will also be considered.

These reviews should provide the practitioner with a review of a scale's or other tool's purpose and properties, sufficient information to know how and when to use it, and how to interpret the results and make use of them. All articles must include a set of 3-5 learning objectives that will be achieved through reading the paper. At the end of each paper a summary of the main points from the paper must be included with suggestions for follow-up reading. This stipulation is in keeping with the practitioner and professional development aims of the journal.

For examples see:

Hyland, P., Shevlin, M., Adamson, G., & Boduszek, D. (2013). The factor structure and composite reliability of the Profile of Emotional Distress. *The Cognitive Behaviour Therapist, 6*, E15. doi:10.1017/S1754470X13000214

Reiser, R., Cliffe, T., & Milne, D. (2018). An improved competence rating scale for CBT Supervision: Short-SAGE. *The Cognitive Behaviour Therapist, 11*, E7. doi:10.1017/S1754470X18000065

Service Models, Forms of Delivery and Cultural Adaptations of CBT*

The service model is the clinical and operational framework that exists to support the therapist with the delivery of cognitive behavioural therapies. Description and evaluation of innovative clinical service models (both in the UK and internationally) and delivery formats that can be generalised to other services will be considered for publication. Audits will only be considered if they are of wider interest and value in informing the work of other services.

tCBT is keen to publish research that either expands the evidence base for previously under-represented groups or work that describes and evaluates cultural adaptations that are required for different populations.

For examples see:

Jankowska, M. (2019). Cultural modifications of cognitive behavioural treatment of social anxiety among culturally diverse clients: A systematic literature review. The Cognitive Behaviour Therapist, 12, E7. doi:10.1017/S1754470X18000211

King, D., & Said, G. (2019). Working with unaccompanied asylum-seeking young people: Cultural considerations and acceptability of a cognitive behavioural group approach. The Cognitive Behaviour Therapist, 12, E11. doi:10.1017/S1754470X18000260

Thew, G. (2020). IAPT and the internet: The current and future role of therapist-guided internet interventions within routine care settings. The Cognitive Behaviour Therapist, 13, E4. doi:10.1017/S1754470X20000033

Thew, G., MacCallam, J., Salkovskis, P., & Suntharalingam, J. (2017). Developing and evaluating psychological provision in the acute hospital setting for patients with chronic respiratory disease. The Cognitive Behaviour Therapist, 10, E5. doi:10.1017/S1754470X17000071

* These article types may be eligible for APC waivers or discounts under one of the agreements Cambridge University Press has made to support open access.

Preparing your materials

Style Guide

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This should uploaded as a separate file the main text to ensure blind review.

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The following statements should be included on the title page:

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Authors should include a Conflicts of Interest declaration in their title page. This statement will be published in the final article. Conflicts of Interest are situations that could be perceived to exert an undue influence on an author’s presentation of their work. They may include, but are not limited to, financial, professional, contractual or personal relationships or situations. Conflicts of Interest do not necessarily mean that an author’s work has been compromised. Authors should declare any real or perceived Conflicts of Interest in order to be transparent about the context of their work. If the manuscript has multiple authors, the author submitting the title page must include Conflicts of Interest declarations relevant to all contributing authors. For further information about Conflicts of Interest please see: https://www.icmje.org/recommendations/browse/roles-and-responsibilities/author-responsibilities--conflicts-of-interest.html.

Example wording for your Conflicts of Interest declaration is as follows: “Conflicts of Interest: Author A is employed at company B. Author C owns shares in company D, is on the Board of company E and is a member of organisation F. Author G has received grants from company H.” If no Conflicts of Interest exist, your declaration should state “Conflicts of Interest: None”.

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- What the relationship is between the authors and the company. If authors had access to all study data and if they have entered into any agreement with the company that may limit their independence in analysis and interpretation of the data, preparation of the manuscript and choosing where to publish it.
- What the role of the sponsoring company has been in the following areas: design of the study; data collection, analysis and interpretation; writing the manuscript; approving the manuscript for publication and deciding where to publish.
- Authors should also state that they have not been encouraged or asked to repress, withhold, or modify any data, results, or conclusions by the sponsoring company.
- What influence the connection with the company could be perceived to have and how the authors have mitigated this.
- A statement may also be added by the Editorial Office to clarify what steps the Editors have taken to rule out any bias that may arise from any potential Conflict of Interest.
- Please note internal ethical approval by a commercial company would not be acceptable, it would need to be from an independent institution.
- Any authors with questions regarding this policy are welcome to contact the Editorial Office prior to submission to discuss further.

Data Availability Statement

This is a brief statement about whether the authors of an article have made the evidence supporting their findings available, and if so, where readers may access it. More information on Data Availability Statements and example statements can be found here. Please note that if you are not making your data publicly available, we ask you to state the reason why in your cover letter to the Editor. Also see information on Data Availability below in these instructions.

Financial support

Please provide details of the sources of financial support for all authors, Including grant numbers. For example, "This work was supported by the Medical research Council (grant number XXXXXXX)". Multiple grant numbers should be separated by a comma and space, and where research was funded by more than one agency the different agencies should be separated by a semi-colon, with "and" before the final funder. Grants held by different authors should be identified as belonging to individual authors by the authors' initials. For example, "This work was supported by the Wellcome Trust (A.B., grant numbers XXXX, YYYY), (C.D., grant number ZZZZ); the Natural Environment Research Council (E.F., grant number FFFF); and the National Institutes of Health (A.B., grant number GGGG), (E.F., grant number HHHH)". Where no specific funding has been provided for research, please provide the following statement: "This research received no specific grant from any funding agency, commercial or not-for-profit sectors."

Main Text (anonymised with no author information)

This should be uploaded as a .doc file with the following running order (unless a Case study). The following format is based on APA style, which should be followed throughout: http://www.apastyle.org/

Abstract

This should summarize the article in no more than 250 words, references should not be included in the abstract.

Keywords

Please include up to six key words that could be used to effectively search for the article.

Key Learning Aims

Body of paper

This should begin with an introduction, succinctly introducing the point of the paper to those interested in the general area of the journal. Attention should be paid to the Editorial Statement. The appropriate positions of tables and figures should be indicated in the text. Footnotes should be avoided where possible.

Ethical Statements

All papers should include a statement indicating that authors have abided by the Ethical Principles of Psychologists and Code of Conduct as set out by the BABCP and BPS. If preferred, authors based outside of the UK may state research has conformed to the Declaration of Helsinki. Authors should also confirm if ethical approval was needed, by which organisation, and provide the relevant reference number. If no ethical approval was obtained, the authors should state what governance arrangements were in place (e.g. audit committee approval). We also expect authors to respect human participants' right to privacy, and to gain any necessary informed consent to publish before submitting to us and include a statement in their manuscript that consent has been obtained. Where case reports are detailed in a submission, the author must state that the person described has seen the submission in full and agreed to it going forward for publication.

Key Practice Points

Further Reading

References

Please use APA style for the in-text citations and references. In the reference list there is an additional requirement that author names be listed in **bold** face. For example:

Grady, J. S., Her, M., Moreno, G., Perez, C., & Yelinek, J. (2019). Emotions in storybooks: A comparison of storybooks that represent ethnic and racial groups in the United States. *Psychology of Popular Media Culture, 8*(3), 207–217. https://doi.org/10.1037/ppm000...

Authors are encouraged to make use of referencing software packages (e.g. Endnote, Mendeley, Reference Manager etc.) to assist with formatting - extensions for APA formatting are easily accessible. Authors are also reminded to use bold face for author names in the reference list.

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Use text anchors to show their intended position within the manuscript.

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Use APA style. Tables should be provided in editable Word format. They should be numbered and given explanatory titles.

Name your uploaded file to correspond with the caption in the manuscript.

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The minimum resolution for submission of electronic artwork is:

Halftone Images (Black and White Photographs only): 300 dpi (dots per inch).

LineTone (Black and White Photographs plus Line Drawings in the same figure): 600 dpi (dots per inch).

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Supplementary Files

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Reporting Standards

The Cognitive Behaviour Therapist supports standardised reporting practices, consult the following table to ensure your submission meets the reporting standards for your manuscript type. Please include the relevant supporting information (such as diagrams and checklists) with your submission files. See http://www.equator-network.org/reporting-guidelines/ for more information on manuscript types not described below.

The journal also encourages clarity in describing interventions sufficient to allow their replication through the use of the Template for Intervention Description and Replication Checklist (TIDieR).

Randomised Controlled Trial	CONSORT	http://www.consort-statement.org/
Systematic reviews and Meta-Analysis	PRISMA	http://www.prisma-statement.org/
Study Protocols	SPIRIT	http://www.spirit-statement.org/

Use of Inclusive Language

tCBT reminds authors to use inclusive language (see these C4DISC guideines for further information) which are in line with the BABCP values of opposing discrimination of any kind and continually working to improve our recognition of, and take an active stance against discrimination and inequality.

Authorship and contributorship

All authors listed on any papers submitted to this journal must be in agreement that the authors listed would all be considered authors according to disciplinary norms, and that no authors who would reasonably be considered an author have been excluded. For further details on this journal’s authorship policy, please see this journal's publishing ethics policies.

Author affiliations

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All authors must include a competing interest declaration in their title page. This declaration will be subject to editorial review and may be published in the article.

Competing interests are situations that could be perceived to exert an undue influence on the content or publication of an author's work. They may include, but are not limited to, financial, professional, contractual or personal relationships or situations.

If the manuscript has multiple authors, the author submitting must include competing interest declarations relevant to all contributing authors.

Example wording for a declaration is as follows: "Competing interests: Author 1 is employed at organisation A, Author 2 is on the Board of company B and is a member of organisation C. Author 3 has received grants from company D." If no competing interests exist, the declaration should state "Competing interests: The author(s) declare none".

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Appendix C – Theory driven research project

C1: Self-blame measure

Parent Self-Stigma Scale – self-blame subscale (Eaton, Ohan, Stritzke, & Corrigan, 2019)

Right now, how often do you have these thought in parenting your child?						
		Never	Rarely	Sometimes	Often	Almost all the time
1	I am not a good enough parent					
2	The way I have raised my child has contributed to his/her problem					
3	I feel guilty that my child has his/her problem					
4	My child has his/her problem because of me					
5	It is not my fault that my child has his/her problem					
6	I deserve to be blamed for my child's					

	problem					

Items added based on consultation with carers:

		Never	Rarely	Sometimes	Often	Almost all the time
7	I feel guilty I didn't monitor my child's social media use more					
8	I feel guilty I didn't see the signs of their illness earlier					

C2: Qualitative questions

1. In the previous questions, you indicated that you may blame yourself slightly for your child’s eating disorder. Are there any particular aspects of your child’s illness that you blame yourself for? If so, please explain what aspects and why?
2. What impact have these thoughts of self-blame had on you (e.g. wellbeing, aspects of your mental health, relationships with others, work etc.)? Please explain in as much detail as possible.
3. Would you consider your experience of caring for your child with an eating disorder as traumatic? If so, please explain why in as much detail as possible.
4. Was there any particular aspect from the experience of caring for your child with an eating disorder that was traumatic?
5. Has your experience of caring for your child with an eating disorder changed how you feel about yourself? If so, please explain how.

6. Do you think your behaviour changed after your experience of caring for your child with an eating disorder? If yes, please explain how and why?
7. Has your experience of caring for your child with an eating disorder affected the way you live your life? (e.g. socialising, employment, future plans)?
8. Are there any other ways the experience of caring for your child with an eating disorder has impacted on you? Please explain in as much detail as possible.

C3: Details about checks for statistical assumptions

T-Test: There were no outliers in the data, as assessed by inspection of a boxplot and post traumatic symptom disorder (PTSD) symptoms scores were normally distributed for both low and high groups, as assessed by Shapiro-Wilk's test ($p > .05$), and there was homogeneity of variances, as assessed by Levene's test for equality of variances ($p = .584$).

ANCOVA: There was homogeneity of regression slopes as the interaction terms were not statistically significant – hospitalisation: $F(1, 102) = 0.037$, $p = .848$; subjective threat of death: $F(1, 102) = 0.557$, $p = .896$; parental trauma history: $F(1, 102) = 0.125$, $p = .725$. Standardized residuals for the interventions and for the overall model were normally distributed, as assessed by Shapiro-Wilk's test ($p > .05$). There was homoscedasticity and homogeneity of variances, as assessed by visual inspection of a scatterplot and Levene's test of homogeneity of variance ($p = .369$), respectively. There were no outliers in the data, as assessed by no cases with standardized residuals greater than ±3 standard deviations.

Hierarchical linear regression: To assess linearity, a scatterplot of self-blame cognitions against PTSD symptoms with superimposed regression line was plotted. There was independence of residuals, as assessed by a Durbin-Watson statistic of 1.910. Visual inspection of these two plots indicated a linear relationship between the variables. Although no issues were raised regarding independence of data, due to anonymity, there was no way of knowing whether any couples completed the study which would have introduced limitations. There was homoscedasticity and normality of the residuals, and no outliers were identified.

C4: Demographic and clinical characteristics of the total, complete dataset, and according to low and high PTSD symptoms.

	Total dataset (*N* = 113)		Low PCL-5 scores (*n* = 58)		High PCL-5 scores (*n* = 45)		Chi-square	
Variable	*N*	%	*N*	%	*N*	%	X^2	*p*
Age							.060	.971†
Under 44 years	15	13.3	7	12.1	6	13.3		
45 – 54 years	86	76.1	45	77.6	34	77.1		
55 – 64 years	12	10.6	6	10.3	5	11.1		
Sex								.228‡
Female	106	93.8	53	91.4	44	97.8		
Male	7	6.2	5	8.6	1	2.2		
Country							.420	.517
UK	90	79.6	47	82.5	34	77.3		
USA/Australia/New Zealand	21	18.6	10	17.5	10	22.7		
Ethnicity								.694‡
White	107	94.7	54	93.1	43	95.6		
Other	6	5.3	4	6.9	2	4.4		
Education completed							.602	.740
Secondary or A-Levels	15	13.3	8	13.8	6	13.3		
University degree	56	49.6	28	48.3	25	55.6		
Post-graduate degree	42	37.2	22	37.9	14	31.1		
Civic Status								
Married	93	82.3	49	84.5	36	80.0		
Living as couple	11	9.7	2	3.4	7	15.6		
Divorced/separated	5	4.4	4	6.9	1	2.2		
Single	2	1.8	1	1.7	1	2.2		

Widowed	2	1.8	2	3.4	0	0		
Parental history of trauma present	15	13.3	3	5.2	9	20.0	5.412	.020*
Parental eating disorder diagnosis	5	4.4	2	3.4	3	6.7		.651[‡]
Parent receiving mental health support - yes	65	57.5	29	50.0	30	66.7	2.877	.090
Child additional mental health diagnosis - yes	58	51.3	30	51.7	22	48.9	.081	.775
Child physical health Diagnosis - yes	20	17.7	50	86.2	36	80.0	.708	.400
Child Hospitalisation							8.032	.018*
No	52	46.0	34	58.6	14	31.1		
Yes, once	37	32.7	15	25.9	17	37.8		
Yes, more than once	24	21.2	9	15.5	14	31.1		
	M	*SD*	*M*	*SD*	*M*	*SD*	t	p
Subjective level of threat	4.0	1.2	3.7	1.4	4.3	0.9	-2.53	.013*
HADS total scores	23.0	6.7	18.4	5.2	28.4	4.5	-10.16	<.001*
HADS-A scores	12.8	3.5	10.6	2.9	15.1	2.8	-8.25	<.001*
HADS-D scores	10.2	3.9	7.8	3.1	13.2	2.8	-9.35	<.001*
PCL-5 scores	35.7	14.7	23.4	6.5	51.1	7.1	-20.62	<.001*
Self-blame scores	18.9	6.8	16.0	5.7	23.8	5.4	-7.07	<.001*

HADS = The Hospital Anxiety and Depression Scale; HADS-A = Anxiety sub-scale; HADS-D = Depression sub-scale; PCL-5 = The PTSD Checklist for DSM-5.

Note. Where Chi-Square statistics are missing, sample size is too small to compute.

* Significance level *p<.05*

[a] Two or less cells had expected count less than five.

[†] Fisher's Exact Test was used due to Chi Square assumptions being violated.

[‡] Two or less cells had expected count less than five.

C5: Summary of quotes, according to themes and subthemes

"I am at fault" –

The significance of genetics and parental mental health. Parents felt their history of mental health had contributed to the development of their child's ED which contributed to feelings of self-blame. This was through the contribution of genetics and perceived perinatal stress of mental health difficulties.

Did I act quick enough in getting them support? A large proportion of self-blame came from parents' ability to spot early warning signs and act on them in order to get early treatment. Although parents did not believe that this was the cause of the ED, many felt that it contributed to the progression of the illness.

Home environment and parenting. An additional source of self-blame originated from the parents perceived impact of the home environment and their parenting skills. This included the amount of attention they were able to give to their child because of jobs or other siblings, and the way families approached things (e.g., being a "competitive family" or "shouting too much").

The significance of parental approaches to health and food. Parents felt that their own approach to eating and exercise may have contributed to the development of the ED. This included dieting, negative views around shape and weight, and promotion of ‘healthy foods’ and exercise. In addition, some parents felt that them being “very overweight may have contributed” to the ED as it was thought that the child did not “want to be like” their parent.

“It’s like wading through hell” - The emotional challenges of caring for their child

Dealing with the threat of death. The threat of death parents spoke about related specifically to the ED, but also the associated distress which resulted in self-harm and suicidal ideation. In terms of the physical health risk, parents described feeling “helpless” and “powerless” which contributed to the trauma experienced. This sense of helplessness was described as feeling similar to “watching a loved one fighting cancer”.

In addition, some parents of children who had self-harmed or were suicidal described feeling traumatised by the experience of being exposed to this and trying to prevent it. It was described as something that “no parent should ever go through”.

> *“Highly traumatic. I have witnessed my child in such a state of distress that no parent should ever see - self harming, ripping out her own hair, scratching at her skin until it bled… We had to remove doors and all locks and window handles. We have had to lock away all sharps, meds, cords etc for the past 22 months….We are constantly on high alert, waiting for the next incident to happen.”*

"Bullied by the ED" - dealing with aggression and violence. Many parents spoke about how their child became violent and aggressive due to the ED, and how this was incredibly traumatic to deal with. Many were able to externalise this behaviour and wrote how it was "anorexia that made her lash out".

The impact on parental health. Parents shared a huge amount about the significant impact the ED had on their own mental health. Many parents spoke about the increased anxiety and panic, and described symptoms of depression such as struggling to "get out of bed", feelings of being "emotionally stunted", experiencing a "lack of enjoyment" and symptoms of hypervigilance, such as being on "high alert" for ED behaviours. In addition, parents described how they felt "helpless", "terrified" and experienced "disturbed dreams".

> *"I sought help from my GP and I am currently taking anti-depressants. Prior to this I could barely function. Home life was draining, my husband felt the same and I struggled with doing anything that I previously enjoyed."*

In addition, caring for a child with an ED took its toll on many parents' physical health due to the stress. Parents stopped exercising and diets changed in an attempt to support their child, which further contributed to the detrimental impact on their health.

> *"My physical health has been poor (an unprovoked DVT, a significant gynaecological problem) which I think may be linked to prolonged anxiety."*

Table of example quotes, according to themes and subthemes.

"I am at fault"	The significance of genetics and parental mental health	I have a strong streak of depression in my family *(Participant 32)*
		I believe there is a genetic element and he gets half his genes from me. *(Participant 41)*
		I had a phase of disordered eating as a child and feel I may have somehow passed it on. I feel so guilty (and have been made to feel like I failed to get her better by CAMHS team) if I had gotten her better sooner. *(Participant 44)*
		Having relatives with addiction problems and wondering if my genes are responsible. *(Participant 8)*
		History of eating disorder myself. *(Participant 9)*
		Oh, and the issue of this being a genetic disease: husband blames my DNA, and my family. So, I have some weird shame and sense of being damaged goods. And a lot of shame about this. It's not parents' fault they tell us in FBT. But yet? *(Participant 13)*
		I stopped taking medication for depression during my pregnancy and had severe depression during my third trimester. I worry that this increase the stress in my unborn child. *(Participant 32)*
		Perhaps my depression. *(Participant 11)*
		Previous history of self-harm & then anorexia, what on Earth did I get so wrong that she has felt so bad about life? *(Participant 56)*
	Did I act quick enough in getting them support? The significance of early intervention	I blame myself for not realising for many months that my child was so unwell *(Participant 54)*
		Not spotting the signs sooner pre diagnosis Not shutting down ED loopholes sooner whilst in treatment - I.e - compulsive walking at night, water loading, not eating at school. *(Participant 55)*
		I didn't spot the signs early enough. I should have known something was wrong. *(Participant 53)*
		We did not get help for her soon enough. *(Participant 33)*
		Maybe for not recognising it sooner. Then insisting on help soon rather than be left. *(Participant 39)*
		That I didn't pick up her level of distress early enough *(Participant 43)*
		I don't feel I caused her AN, but I feel with different understanding and interventions, I possibly could have prevented illness or achieved recovery earlier. I wish I'd been more vigilant and had noticed initial weight loss brought on by intensive sports training. I wish I would have known to increase food intake when she started playing two sports. I wish I would have listened to that niggle in my head when she seemed unhappy when she would go running to help her get 'better' at sports. I wish I would have fought harder against the CAMHS team who said she was ready for Phase II based on WFT when she still seemed underweight…. I blame myself for not knowing more and knowing it sooner. *(Participant 1)*

		Not realising that by starting a healthy eating phase/diet this could lead to anorexia *(Participant 2)*
		I'm not aware enough I'm blind to triggers and behaviors. I am not involved enough. I did not monitor enough. *(Participant 10)*
		And, in terms of my not seeing the illness, I feel extreme guilt. I thought I was a feminist who knew about eating disorders, but I was so ignorant. I did not see the signs of starvation. *(Participant 13)*
		I feel I should have noticed his eating disorder quicker and been more forceful. It took a hospital admission for the medical professionals to take our concerns seriously. *(Participant 51)*
		I blame myself for not realising for many months that my child was so unwell *(Participant 54)*
	Home environment and parenting	We were very busy with our very enjoyable and well-paid jobs and did not pay enough attention to our daughter's emerging eating disorder *(Participant 33)*
		I feel a lot of regret about the things I said and did when my children where younger. I feel really guilty and sad about it. I am much more aware of my words and behavior around my children now. *(Participant 36)*
		I hate cooking so he may have got indicators of how to react to food from me. *(Participant 41)*
		I feel judged that it's my fault that she is where she is because maybe I shouted too much to get things done, we have always supported her in her acting that she loved to do but maybe she never felt love from us in a way she understood. When her younger sister (8 years between them) came along maybe she felt pushed out more as my husband works away a lot so I'm on my own. *(Participant 47)*
		I don't blame myself that my daughter developed an eating disorder - I don't think that was my fault. I do wonder sometimes if I could have been different- more confident and authoritative (in a good way) and whether that would have been better for her. *(Participant 52)*
		Also worked in a demanding job throughout pandemic (NHS), so outside home much of lockdown during the day when kids at home with dad, who was WFH (so largely unavailable too) which is when her thoughts first started. *(Participant 50)*
		We are a very competitive family, I feel that may have contributed as she wants to be the best *(Participant 3)*
		And then people also believe it is a controlling mother problem (my mother-in-law, for example, believes this). So, it's hard to not question yourself. *(Participant 13)*
		I worry that my marriage trouble affected her *(Participant 7)*
	The significance of parental	I have on and off dieted (not drastically - only SW clubs) and talked negatively about my body. *(Participant 32)*
		Finally choose to put effort to my own physical health and increased exercise and tidied up eating (diet

	approaches to health and food	and exercise combo). Encouraged teenager to join me too. *(Participant 38)*
		I am overweight and think that she doesn't want to end up like me. *(Participant 3)*
		We were too into healthy eating as a family. We never body shamed or talked about our child's weight, but emphasized eating less sugar and "healthy foods". Our child says the disease/restricting started in an effort to eat more healthfully. Also, husband emphasized exercise, and child was into cross country running, which became compulsive. *(Participant 13)*
		Perhaps she sees me as overweight and does not want to be like me. I had an app on my phone which scanned food bar codes, it would tell you how much sugar, salt and calories were in the product. I believed it was harmless enough, but my Daughter who was then a 12 years old was taking it very seriously. It may have played a part in onset of the ED. *(Participant 11)*
		I blame myself for my attitude towards eating healthy and my own efforts to lose weight when my daughter was young. I found out that my mother and sister have anorexia, which probably contributed to my behavior. *(Participant 36)*
		How can I expect her to gain weight past her view of correct size when I tried so hard to shrink myself and want to continue to loose weight to further reduce my size. I am larger than I feel I should be... I am not comfortable in my size but what message does that send? *(Participant 38)*
		I am negative about my appearance and weight, which I did voice I front of him, though I was careful in front of my daughter*. (Participant 41)*
		Family talks about healthy eating, importance of exercise. My own difficulties around weight monitoring that I tried to hide from my child. *(Participant 46)*
		Being very overweight may have contributed. *(Participant 49)*
		I suspect I have at least disordered eating myself but had never really considered myself to have an ED. Always had difficulty controlling weight and tried a variety of diets, although at time of daughter's diagnosis was actually at a really good place diet and fitness wise with good balance in life, nothing extreme. *(Participant 5)*
		I feel I have been a poor model. My child has seen me do extreme training for ultra marathons and lose lots of weight, he has also seen me put lots of weight on and feel shame around that*. (Participant 51)*
		I didn't set a good example around food and exercise. *(Participant 53)*
“It’s like wading through hell” - The emotional challenges of caring for	Dealing with the threat of death	When acutely unwell, my daughter behaved in ways that were very risky, as well as not eating. It is very difficult not to remember the times when she ran away, jumped out of moving cars, threatened to jump from windows all to escape food. *(Participant 54)*

their child.	Highly traumatic. I have witnessed my child in such a state of distress that no parent should ever see - self harming, ripping out her own hair, scratching at her skin until it bled. Food thrown everywhere. Climbing out of second storey windows. Threatening me with a knife. Cutting herself. Screaming at us. Crying and shaking and running around the house. We had to remove doors and all locks and window handles. We have had to lock away all sharps, meds, cords etc for the past 22 months. How is this normal for my 12-year-old daughter?? We are constantly on high alert, waiting for the next incident to happen. Last time it was an overdose, before that it was self-harm. She has around 20 scars on her thigh, all neatly arranged in parallel lines. *(Participant 53)*
	I think it is probably one of the most traumatic things a parent can ever go through. To watch your child hit herself, throw food, scream, run away, scratch herself, feel guilty about eating a pancake 3 years ago, to be held down to be given nutrition, to see the pain and anguish of what they are going through, for the illness to try to split the parents, to withdraw from friends, family, schooling, scratch herself so deep with her own nails she needs bandages, to headbanging so hard there is deep cuts on their head. It is horrific. For them to reject any kind of comfort or love you try to give. To not want to talk about anything, if you try they go and self-harm. *(Participant 47)*
	Headbanging till she bled, realising she was self-harming with blades and broken glass, realisation she'd started purging. Her begging you for blades and to kill her, saying no point in anything as she'll be dead. The horror of a meltdown rolling on the floor, howling like something never heard before from her, pulling her hair out, having to call police in the night. *(Participant 50)*
	She has threatened suicide...got out of moving cars, run away for hours. Self-harmed. *(Participant 48)*
	I pulled her down from a noose. I’ve pulled her out of traffic in multiple occasions when she’s been throwing herself in front of cars. I’ve cleaned wounds where she’s carved ‘die’ and ‘fat’ into her whole body, including her face. I’ve taken her to hospital on so many occasions for drinking bleach, drinking chemicals, and I have no idea how many overdoses. I’ve watched the police handcuff and arrest her. I’ve restrained her on many occasions. 7 times she leapt up from the table and smashed her head through windows. I am very definitely traumatised. *(Participant 12)*
	I worry about my daughter having a heart attack or struggling with this all her life. I have often felt terror and powerlessness. Sometimes I shake from head to toe, often in the middle of the night. I can’t bear to remember it all. I often feel on the other side of a screen. I often feel that no one can help and I don’t know what to do. *(Participant 52)*
	After an emergency hospital admission we were told our son might not survive the next 48 hours. We were terrified. He was tube fed and so poorly. I felt hopeless and I worry about it constantly. Although

	he is in recovery I feel I am waiting for it to go wrong again. He had 3 hospital admissions, the longest being for 14 weeks *(Participant 51)*
	When she was admitted to hospital her heart rate was so low that all the alarms were going off at 2 am, and I was worried she would die. I worry that her future will be wrecked, that she will cause herself permanent damage, that her organs may fail. *(Participant 32)*
	Yes. Seeing your child fade away while just some food can help is very traumatic, dealing with meal plans at home with other children, self-harm was traumatic to see cut wrists, deodorant burns. *(Participant 39)*
	Yes, seeing your child fighting so hard, while hurting so much, is extremely painful. It's a very helpless feeling. Just as much as watching a loved one fighting cancer. *(Participant 40)*
	Most traumatic period of my life without a doubt. Thinking she may die or at best, live with the disease forever and that we will have to remain on guard for life, for both her and her sister, life now changed forever …… CAMHS being completely ineffectual, saying really harmful stuff, not escalating because 'your weight's not too low' and daughter taking this as a 'hold my beer' challenge - why are there no experts, feeling we are being left to work out what to do and not having a clue - but 'we're not stupid people, why can't we fix this?' Extreme exercise at 10pm - hearing your child weep with the effort but she would become violent if we intervened. *(Participant 50)*
	Facing the real threat of morbidity and mortality is harrowing. *(Participant 1)*
	Watching your child slowly kill themselves, want to die as life is not worth living. Getting admitted to hospital when her pulse was so weak and low is could barely be measured. She needed warming up before they could even do the observation on her. Watching her so ill that she couldn't walk upstairs without having to stop. Knowing that there was nothing I could do. *(Participant 3)*
	Afraid when the phone rings, afraid she will die. *(Participant 10)*
	Knowing any weigh in could cause another hospitalization. *(Participant 11)*
	But they would take her off the mental health act and send her home because she was difficult. She would break out and go running. Pop locks and try and throw herself in front of cars. She was discharged from hospital for refusing to eat. They wouldn’t tube her because she would just pull the tubes out. *(Participant 12)*
	My daughter in the thick of the illness was physically and mentally abusive----which is understandable. But it was very hard to run our home like a treatment centre, 24-7 watching, doors off of bedroom to present compulsive exercise, hitting, biting, screaming obscenities, running away, threatening to seek emancipation, suicidal ideation*. (Participant 13)*

	“Bullied by the ED” - dealing with aggression and violence	Highly traumatic. I have witnessed my child in such a state of distress that no parent should ever see… Threatening me with a knife. *(Participant 53)*
		My daughter would often throw food, plates, objects at me. She would punch me, break things, scream and yell all day. *(Participant 12)*
		My lovely, sweet daughter possessed, swearing at me constantly (she didn't swear at home before), how much she hated me, tried to push me into moving traffic, punching me. Throwing food/plates, extreme hiding attempts. *(Participant 50)*
		Being discharged from hospital and then kicking and biting me so much I couldn't go out and we needed to ensure two adults were always in the house. *(Participant 3)*
		Remembering arguments and emotional abuse, physical abuse. Physically and mentally draining mealtimes. *(Participant 9)*
		I am ashamed to say this and to hold onto this, but in the height of the relapse, my daughter said terrible things about how ugly I am, about how my husband is not attracted to me....very cutting insults, very perceptive insults to my insecurities. I know it was the disease. And at the same time, my husband is so body conscious. *(Participant 13)*
		Yes traumatic. She’s aggressive, violent. Before she went to the ED clinic, we were calling the police almost every weekend because she was so violent when asked to eat. *(Participant 35)*
		Yes, I think it is traumatic. My daughter rejects me and insults me on a regular basis. She is sometimes violent towards me. This is worsened a lot since we started family-based therapy 3 months ago, but it is worth it. *(Participant 36)*
		Yes. I have had to restrain her physically at home and in hospital. She has been aggressive and still is at times, physically and verbally. I have had to witness her being restrained by hospital staff in full view of other children and their parents. I have had to listen to her telling how hospital staff have been unkind and unhelpful to her on many occasions. *(Participant 46)*
		Yes, very traumatic. Anorexia can make my daughter lash out at whoever is guiding her with food that’s normally me. *(Participant 48)*
		And now I still feel bullied by the ED. *(Participant 8)*
		My daughter in the thick of the illness was physically and mentally abusive---which is understandable. *(Participant 13)*
	The impact on parental	I have high anxiety, and although I have always been self-critical, this has been so much worse. I feel as though I need help but don’t know how to find it. I struggle with loud noises and more easily feel

	health	overwhelmed. *(Participant 54)*
		I live in fear of it returning, of missing the signs. I am on edge much of the time. *(Participant 7)*
		Even now, we're in a much better place, it's still an eggshell existence where we never really relax and never know if can trust the disease to not take over again. *(Participant 50)*
		You are traumatised by the past, desperately trying to keep them well in the present, and you are very worried about the future. It is truly exhausting. It is a full-time job with no pay, no benefits and no time off. *(Participant 53)*
		In addition, I developed cancer one year to the day my daughter was diagnosed and I am convinced it was brought on by the stress of the eating disorder. *(Participant 53)*
		I cry at absolutely anything & anywhere. I have had experiences of drinking too much (& my daughter HATES people drinking alcohol). *(Participant 56)*
		Living with ED has brought constant state of dread, fear, sadness. Lack of joy in all aspects of life. *(Participant 1)*
		On anti-depressants On HRT patches 2 years of CBT therapy *(Participant 35)*
		Personally, I am just about permanently terrified, terrified of saying the wrong thing & then there is a disaster. *(Participant 56)*
		I was/am permanently on red alert, worrying what I say might trigger a negative reaction, or wondering what the consequences will be of them not finishing the most recent meal. *(Participant 41)*
		And parents are then on high alert because the words 'I'm not hungry' or 'I'm full' for any normal parent are fine, but for ED parents they bring back all sorts of emotions and panic because no one ever wants to return to those early days of hell. *(Participant 53)*
		I'm stressed and on high alert quite a bit… *(Participant 48)*
		It's left my guilt ridden, anxious, untrustworthy of people, even family, being able to look after my child. I would sit with no TV at night when my child was in a unit because she didn't have a TV. *(Participant 39)*
		I struggle frequently to even get out of bed. *(Participant 41)*
		Yes. I have been put on antidepressants as has my husband due to the stress of last 3 years. A lot of stress was initially caused by CAMHS. *(Participant 44)*
		I feel totally helpless to support her with this illness despite attending a lot of seminars. Sometimes I no longer see any point in being alive as I despair that she will ever recover. This is not a life I want to live when I see no hope or future for my child*. (Participant 46)*

	I feel angry and bitter about the trudgery and hopelessness of being a carer of someone with ED. *(Participant 1)*
	I sought help from my GP and am currently taking anti-depressants. Prior to this I could barely function. Home life was draining, my husband felt the same and I struggled with doing anything that I previously enjoyed. *(Participant 2)*
	Feel depressed and hopeless about the future for my daughter. I feel empty and that life is passing me by…. Emotionally stunted and unenthusiastic about life generally. Flat…..I've learned to hide my feelings (my daughter hates to see me cry) and I've had to be so strong. *(Participant 4)*
	This affected my sleep; my mind would go over and over things. I developed panic attacks and had to start on medication to cope….You're like in constant state of anxiety…I am less social and definitely more anxious. I worry about the future. *(Participant 7)*
	Disturbed dreams. Crying at the supermarket. *(Participant 8)*
	Tiredness, guilt and anger toward myself. *(Participant 9)*
	I experience depression and anxiety. Guilt shame and regret…No desire to do anything but be home. Sad and reserved. *(Participant 10)*
	I have panic attacks and cry often. I don't go out often... It's always on my mind no matter where I am or what I'm doing *(Participant 11)*
	I have generalized anxiety disorder, and the AN episodes have made it extreme. I have panic attacks. I wake up from sleep with panic attacks. I am also so exhausted. *(Participant 13)*
	I am a professor. I lectured, and then as a student started to share her work, I had a full-blown panic attack. In fact, remembering this, I can feel my chest tightening up, my neck hurting, the feeling like a heart attack is coming on. The inability to breath. And I just had to sit and pretend----thank god I knew what a panic attack was. They are unbidden and terrifying, and out of control. *(Participant 13)*
	I believe the stress of the first 12 months was a significant factor in my developing cancer a year later. I have now finished treatment and am trying to keep recovering, but I wasn't able to rest nearly as much as I should have last year because my daughter took an overdose 4 weeks after my radiotherapy finished. As a result, I worry my cancer will return because I feel constantly stressed about my daughter *(Participant 53)*
	My physical health has been poor (an unprovoked DVT, a significant gynaecological problem) which I think may be linked to prolonged anxiety. *(Participant 54)*
	My own physical health has deteriorated due to the stress. I have a connective tissue autoimmune

		condition which appears to be in a constant flare up. *(Participant 44)*
		I have put on a lot of weight due to refeeding alongside/antidepressants, and halting all exercise myself, hate myself for caring about this but I do and hate that it might be virtually irreversible due to menopause arrival. This has contributed to not wanting to go out, no longer re-join social fitness clubs I was a member of and brought so much happiness into life *(Participant 50)*
"I no longer know who I am"	Loss of identity	Yes, I used to view myself as successful. I had a great job, a lovely house, two beautiful, happy, healthy daughters, many friends and lovely family. Now I haven't worked for almost 2 years, my house feels more like a prison from the months spent sitting in the living room forcing her to eat, I no longer see my friends and my family don't properly understand. So, I feel very isolated, very alone. I no longer want to see people as I feel I have nothing to say to them and I feel resentful of their normal lives, without an eating disorder. I want to spend more time alone. I keep reflecting on what has happened and how life has changed. I am just not the person I was anymore. *(Participant 53)*
		I feel like I've gone from having a great family, nice friends and a good career, to everything being about a mum. (All the staff at the hospital call me mum). I feel I've lost my identity. I feel I'm failing at being a mum. *(Participant 32)*
		I have lost my spark and joy of life. I feel trapped in a grinding existence that is not what I expected to be living in at 60. *(Participant 33)*
		It takes away your soul. *(Participant 34)*
		You can become robotic. *(Participant 40)*
		I currently feel like a shell and that I'm likely to have some major breakdown if we get out of this, too much living on adrenaline for too long. *(Participant 50)*
		I have stopped thinking about myself, I have much less of an identity…I have forgotten who I am *(Participant 3)*
		I feel empty and that life is passing me by…I feel like a shadow of my former self. Like I'm dead inside. *(Participant 4)*
		Yes, I feel shaky, isolate, off balance. I used to be confident, excited about work and life, adventuresome. I also feel unhealthy, old, worn out. I feel like the past 6-7 years are a blur, and I will have to rebuild my life, but that I missed the "best years", when you enjoy being a mother and reach some career success. I feel like I will go into retirement limping there over the next 8 years, and my life is a shell until then and after empty. Boy, this is bleak. *(Participant 13)*
		I feel clumsy and self-conscious. I used to be vivacious, curious, creative, hard-hitting, fun, and the person with ideas and gumption. Now I feel unsteady and disoriented. I have no sense of the future, at

		all. I also feel a distance to my child, a wariness. I am demonstrably loving, and I am very present. I try to present a very solid stance. But inside, I feel very lonely and uncertain. *(Participant 13)*
		I have lost my positive sense of self. I feel I have little to offer at the moment….. I am no longer the person, the parent, the worker I want to be/ I enjoyed being. I feel bad because I always feel bad. I worry all the time. I feel easily overwhelmed. *(Participant 52)*
		I know I am nowhere near as confident or outgoing as I was. Things that previously I would have 'brushed off' or laughed at, now 'matter' & I dwell on stuff too much. *(Participant 56)*
	Perceived failure and lack of self-confidence in parenting	It is so traumatic to live with a child like this, to feel you have failed her as her mother, because surely if you were a good mother she would be well? *(Participant 53)*
		I constantly question my parenting now. I used to think I was a good mum, now I think I must be pretty shit as my daughter is really quite unwell. And her younger sister also has huge anger issues. So I am clearly doing things wrong. *(Participant 53)*
		Undermined my confidence in myself and ability to understand the world and parent children. *(Participant 29)*
		I think I am a poor mother and am ashamed and guilty. *(Participant 30)*
		I have become less confident about my decision-making when it comes to parenting. I feel quite tired and dispirited as it feels like I thought I was doing the best I could, and it turned out that it wasn't the case. *(Participant 31)*
		Feelings of inadequacy as a parent. (How did I let this happen / what did I do so wrong?) Type of questions... and will younger siblings repeat? Turning that inwards to question how I parent. How much did I listen? Was I not available enough to help guide away from this? *(Participant 38)*
		I am struggling to know what the point of me is if I can't even care for my own child. *(Participant 41)*
		I sometimes feel like a failure as a mother. *(Participant 43)*
		Yes, I feel guilty that I wasn't a good mother to her. *(Participant 47)*
		Very little self-confidence left (how did I mess up parenting so catastrophically). *(Participant 50)*
		Just feel I am bad parent. *(Participant 5)*
		You are failing in your most fundamental role - to nourish your child. *(Participant 7)*
		No longer knowing how to raise a non-ED child - fear that he'll also get an ED like his sister. No confidence in knowing how to parent my children.

		I don't know how to look after my children. *(Participant 8)*
		I find it harder to trust my judgment. I find it harder to know whether my perception of how things are is right. *(Participant 54)*
		A psychiatrist said to me earlier this year that my daughter would either die quickly from suicide or slowly from anorexia and I should just accept that. I couldn't get that out of my head. Eventually I started to just hope it was a quick death. Because I just couldn't do it anymore. What kind of mother thinks that way about their daughter? I've never told anyone that, I just live with that thought in my head. *(Participant 12)*
		Lack confidence in my parenting skills. *(Participant 42)*
		I have an amazing ability to say the worst thing & that results in a disaster & my daughter refusing to eat/throwing food across the room. *(Participant 56)*
		I don't trust my judgement. I don't trust anyone I question what is true and not true. *(Participant 10)*
The impact on the wider family	Protection and guilt for other children.	I feel angry with my daughter for monopolising me and taking the oxygen away from my three other children. *(Participant 54)*
		I am not providing sufficient attention to my younger child *(Participant 32)*
		I also find I am now more lenient towards my younger daughter and I worry that this will impact on her too. *(Participant 53)*
		We also have a 10-year-old son that we try to shield from the effects of the ED. Very distressing times. *(Participant 34)*
		Impacted the way I parent my other 2 children (I overcompensate and smother them). *(Participant 35)*
		It has caused a great strain on my marriage. It has also adversely affected our other two children. *(Participant 36)*
		The stress it puts in everyone in the home - siblings etc *(Participant 11)*
		I have a younger son and this has also impacted him hugely. I feel he has been ignored while we deal with this crisis. *(Participant 51)*
	Increased conflict and shift in romantic relationships.	Impacting on relationship with my husband - now very factual and all about caring for daughter. *(Participant 55)*
		I feel that my husband doesn't have the capacity to find the endless compassion and energy it takes to care for someone with an eating disorder, so that it rests on my shoulders. *(Participant 54)*
		My family also don't understand. My husband and I now co-exist as carers, we don't have any sort of proper relationship. It has changed everything. *(Participant 53)*

		My husband and are quarrelling, when we have always got on well. *(Participant 32)*
		It has caused a great strain on my marriage. *(Participant 36)*
		My relationship with my husband, hard to explain but it's not the same. We fight more about how it's best to support our daughter and we are not intimate. *(Participant 37)*
		Challenges my marriage. I have a hard time not being angry, resentful and sad about what ED has taken from my daughter and my family! My husband does not feel things as strongly as I do and is not as involved or knowledgeable about the illness and I resent that. *(Participant 10)*
		I've been married for 25 years, but this has really tested my marriage. *(Participant 12)*
		Very hard in my marriage, as husband still restricts his eating and is very body focused. So, I resent him and feel not close to him, and it's a wedge. I find myself both loathing him and self-loathing, but I feel I should not end the marriage----again, stability for [the child]. She loves her dad. He mostly tries to hide his eating shit and compulsive exercise. *(Participant 13)*
Reconfiguring/shrinking lives around the illness – the economic and social burden.	*Career implications - the ED as "a professional sentence".*	I haven't worked since my daughter was diagnosed 22 months ago. *(Participant 53)*
		I have been off work since last June. I work as a deputy head in a large school, and it was simply not possible for me to work and do FBT for our son. *(Participant 51)*
		I am underperforming at work - I have always had 'outstanding' box marks - now I am getting 'meeting expectations' and have made rookie errors that have had a negative impact on the reputation of my division. *(Participant 32)*
		I hate the way my life has turned out after so much hard work re my career and getting through covid. I am worried about my career - work has been very kind and supportive but that can't go on forever. *(Participant 33)*
		Need to care has definitely limited job opportunities over last 4 years for me and my husband. *(Participant 1)*
		Work was difficult as I couldn't focus but luckily have a supportive employer. *(Participant 2)*
		Both my husband and I dropped work to part time as someone always needs to be home. *(Participant 3)*
		Time off work due to stress Not going for promotions Cancelling fully funded MBA course. *(Participant 6)*
		More impatient at work. *(Participant 8)*

		I had to quit my part time job, my schedule is all about her and her needs. I cannot get a new job as I need to monitor lunches. *(Participant 11)*
		My work has suffered. I miss deadlines. And now that she is in recovery, I find that I have become so isolated, both professionally and personally. I have missed the opportunity to go up for advancement (associate to full professor). I think this will simply never happen. I was in a meeting last week where people spoke of the "perpetual associate professors". It's like a professional sentence that cannot be overdone. *(Participant 13)*
		My husband put off plans to change job which has impacted his career. In choosing jobs how much travel as child needs support. *(Participant 28)*
	The social isolation.	All these have led me to be withdrawn at work and with family and friends. *(Participant 9)*
		I feel guilty if I tell anyone because my daughter doesn't like it, but I feel very disconnected in relationships when I can't explain what is going on for me. *(Participant 52)*
		I make excuses at the last minute so as not to go out. *(Participant 56)*
		It is lonely caring for a child with anorexia and my husband and I feel on constant alert. *(Participant 51)*
		Yes, I never get out or make plans as have to make sure they eat. Don't trust anyone else. They always let me down, look to ugly to go out, tired. *(Participant 39)*
		I only see friends while our daughter is either asleep (early morning) or at school. *(Participant 56)*
		Zero interest in going to 'social' events unless small and with people I know. Can't do small talk. Just want to retire and become a hermit in some remote place and walk up hills. *(Participant 50)*
		Socialising is less often and I feel a little less connected or understood then I did before. *(Participant 48)*
		I find large groups very hard to manage I can only cope with 2 or 3 people at a time. I feel I'm a bore as I only have my daughter's illness to talk about. *(Participant 47)*
		I avoid socialising. I find that, as the months go by, my friends are losing interest as I am always feeling low. *(Participant 46)*
		We always used to host big Christmas party for all our friends - can't do that. Can't take part in large family parties over Christmas. *(Participant 32)*
		I have to make excuses as to why my daughter isn't attending events (friends don't know as she is desperate for them not to know). *(Participant 28)*
		No one understands so I withdrew. I worried I was boring because her illness was all I could think or talk about. *(Participant 7)*

		I wish I had more support or options to get advice other than from the medical professionals we have. I'd love to talk to other parents- but it's a quiet disease no one wants to talk about. *(Participant 11)*
		It has also been hard because the disease has stigma, so we are private about it. So, the isolation is associated with shame. *(Participant 13)*
	The inability to plan ahead.	It is difficult to make future plans while things are so difficult and uncertain. I do still have a lot of hope that my daughter will get better and find life easier - and I also hope that I can live my life again and feel happy again in the future too. I hope we will look back on this and be in a very different place. *(Participant 52)*
		We can't plan anything as our daughter still cannot eat or drink. *(Participant 47)*
		I cannot make future plans because her situation is always fluctuating. Future plans reigned in to 1 year ahead for now... *(Participant 40)*
		Yes, I don't make any plans because we don't know what mood or what her behaviour will be. *(Participant 37)*
		I have cancelled the majority of social plans and holidays and I cannot make plans for the foreseeable future. *(Participant 25)*
		I am less confident about planning for the future as I still do not know how my child's ED will affect it. *(Participant 24)*
		Future plans are no longer...we don't know what stage we will be at tomorrow, let alone a week, month or year! *(Participant 16)*
Post-traumatic growth.		From a positive perspective, I have developed a lot more compassion. I have taken training courses on how to parent a child with an ED, and this has taught me a lot. So, I have had to learn to be more patient and more compassionate. I still don't always get it right of course, but I try. At the same time, I have less patience for the smaller things in life because there are too many big things to deal with. *(Participant 53)*
		Yes, I have become calmer and less likely to get angry about small stuff that in the global scheme of things does not matter. Like the car alarm going off right now outside my window..... *(Participant 33)*
		In some ways, my child and I are closer. However, I am left with wondering if I ever know the truth. Would I know if he was struggling again, before the illness gripped him? *(Participant 41)*
		Yes. I have learned so much about eating disorders and mental health over the last few years. I have learned to navigate conversations and avoid fighting as at the start there was a lot of fighting *(Participant 44)*
		It has changed the way I think and feel about a lot of things. I am more understanding of people and

	patience. I have learnt a whole new language in how to try to understand that stereotypical responses demonstrate lack of understanding. People need to feel valued and that you can see their anguish. *(Participant 45)*
	But on the other side I feel I care more, I'm more positive, I take time to look at sunsets or enjoy the crocus in the garden that I never saw before. I try to show her life is good. (Participant 47)
	It’s made me more compassionate to mental health and more validating of what people are experiencing. *(Participant 48)*
	If anything, it’s made me revaluate and appreciate what I have. I make a real effort to socialise now that I can and have actually received a promotion. Something I had never applied for before but took the step realising that I am stronger than I think. Almost a case of ‘well if I can get through such a difficult time, then a bit more stress at work is easy to handle!’ I appreciate how strong the experience has made me. *(Participant 2)*
	I do feel more resilient but have been emotionally drained. *(Participant 9)*
	I feel I have done the hardest thing in my life so far, so I believe I better tools for tacking any other issues in life. *(Participant 9)*
	In a positive sense, I feel like my communication with my daughter and our trust is very high. She knows I am reliable and loving, and that I will always be here for her. She also knows that I want her to have a big and free life. This is the silver lining. Though I have always been caring, I also have greater empathy, even for my own students. I have very mixed impacts related to my own body----on the one hand, I am rejecting diet culture. I am embracing food as fuel. I am deconstructing and seeing so many of the messages I internalized that would be disordered eating (even from my own family). *(Participant 13)*
	I have decided to reduce my days at work and do a post grad in counselling. That's one positive. It has made me reflect on what I want from life and value the time I have. *(Participant 51)*

C6: Ethical approval confirmation letter

MEDICAL SCIENCES INTERDIVISIONAL RESEARCH ETHICS COMMITTEE
Research Services, Boundary Brook House, Churchill Drive, Headington, Oxford, OX3 7GB
Tel: +44(0)1865 616575
ethics@medsci.ox.ac.uk

CONFIDENTIAL

Dr Joanna Adams & Madeleine Irish
Oxford Institute for Clinical Psychology Training (OxICPT)
Isis Education Centre
Warneford Hospital
Oxford

26 May 2022

Dear Dr Adams and Madeleine,

Research Ethics Approval - CUREC 1

Ethics Approval Reference: R80532/RE001

Study title: Investigating self-blame and trauma symptomology in caregivers of young people with Anorexia Nervosa

Short title: The impact of self-blame on carers of young people with Anorexia Nervosa

The above application has been considered on behalf of the Medical Sciences Interdivisional Research Ethics Committee (MS IDREC) in accordance with the University's procedures for ethical approval of all research involving human participants.

I am pleased to inform you that, on the basis of the information provided to the IDREC, the proposed research has been judged as meeting appropriate ethical standards, and approval has been granted for a period of **18 months**, commencing on **26th May 2022.**

Amendments

Should there be any subsequent changes to the study, you should submit details to the MS IDREC for consideration and approval. Details of changes must be listed on an amendment form.

Yours Sincerely

DocuSigned by:
Leah Butts
9F14889D2BC549A...

Mrs Leah Butts
Research Ethics Administrator

for
Dr Helen Barnby-Porritt
Research Ethics Manager

C7: Author guidelines for European Eating Disorders Review

European Eating Disorders Review Author Guidelines

1. SUBMISSION

New submissions should be made via the Research Exchange submission portal **https://wiley.atyponrex.com/journal/ERV**. Should your manuscript proceed to the revision stage, you will be directed to make your revisions via the same submission portal. You may check the status of your submission at anytime by logging on to submission.wiley.com and clicking the “My Submissions” button. For technical help with the submission system, please review our **FAQs** or contact **submissionhelp@wiley.com**.

Data Protection

By submitting a manuscript to or reviewing for this publication, your name, email address, and affiliation, and other contact details the publication might require, will be used for the regular operations of the publication, including, when necessary, sharing with the publisher (Wiley) and partners for production and publication. The publication and the publisher recognize the importance of protecting the personal information collected from users in the operation of these services, and have practices in place to ensure that steps are taken to maintain the security, integrity, and privacy of the personal data collected and processed. You can learn more **here ...**

Preprint Policy

European Eating Disorders Review will consider for review articles previously available as preprints. Authors may also post the **submitted version** of a manuscript to a preprint server at any time. Authors are requested to update any pre-publication versions with a link to the final published article.

2. AIMS AND SCOPE

European Eating Disorders Review provides an international forum for disseminating cutting-edge theoretical and empirical research that significantly advances understanding of the relationship between Eating Disorders and Abnormal

Eating/Weight conditions and well-being in humans.

European Eating Disorders Review publishes authoritative and accessible articles, from all over the world, which review or report original research that has implications for the treatment and care of people with eating disorders and obesity, and articles which report innovations and experience in the clinical management of eating disorders. The journal focuses on implications for best practice in diagnosis and treatment. The journal also provides a forum for discussion of the causes and prevention of eating disorders, and related health policy.

Authors may submit original theoretical systematic reviews, methodological, or empirical research articles (5000 words or less) brief reports (2,500 words or less) and commentaries (2,000 words or less). The journal also publishes invited conceptual reviews from leading worldwide researchers in the field of Eating Disorders and/or Obesity. The aims of the journal are to offer a channel of communication between researchers, practitioners, administrators and policymakers who need to report and understand developments in the field of eating disorders.

The journal

- Reports on useful research and experience related to the treatment and prevention of eating disorders in primary care and hospital settings, with special attention to therapy oriented translational research, high quality reviews, clinical trials and pilot innovative therapy approaches.
- Provides information about 'good practice' and systematic reviews.
- Offers a forum for new thinking about the nature, incidence, diagnosis and clinical management of eating disorders (namely anorexia nervosa, bulimia nervosa, binge eating disorders, OSFED and other abnormal eating or feeding behaviors associated with childhood and obesity.

3. MANUSCRIPT CATEGORIES AND REQUIREMENTS

Research articles reporting new research of relevance as set out in the aims and scope should not normally exceed 5000 words (excluding abstract, references, tables or figures), with no more than five tables or illustrations. They should conform to the conventional layout: title page, Abstract, Introduction and Aims, Method, Results, Discussion, Acknowledgements and References. Each of these elements should start on a new page.
Word Limit: 5,000 (excluding abstract, references, tables or figures).
Abstract: 200 words, structured
References: up to 60.

Review articles: Systematic and meta-analytic review papers are welcomed if they critically review the available literature in a topic than will enhance clinical practice. Articles should have clear focus and enough number of studies should be available for a substantive review paper. Studies that only describe or list previous studies without a critical overview of the literature will not be considered.
Word Limit: 5,000 (excluding abstract, references, tables or figures).
Abstract: 200 words.

References: up to 100.
Figures/Tables: 5 maximum, but should be appropriate to the material covered. Additional tables might be included as supplementary information, if needed. Review articles must follow the **PRISMA** Guidelines. Authors may want to have a look at the review check lists that reviewers when assessing review articles.

Brief reports should concisely present the essential findings of the author's work and be compromised of the following sections: Abstract, Introduction and Aims, Method, Results, Discussion, and References. Tables and/or figures should be kept to a minimum, in number and size, and only deal with key findings. In some cases authors may be asked to prepare a version of the manuscript with extra material to be included in the online version of the review (as supplementary files). Submissions in this category should not normally exceed 2500 words in length.

Brief reports bring with them a whole host of benefits including: quick and easy submission, administration centralised and reduced and significant decrease in peer review times, first publication priority (this type of manuscript will be published in the next available issue of the journal).

Commentary articles are short, evidence-based opinion articles from one or more people (who may agree or disagree) on a published work, current understanding/status of an area, or how practice should be undertaken. Commentaries are invited by the Editors or open submission. They should not normally exceed 2,000 words (excluding abstract and references), with no tables or illustrations.
Word Limit: 2,000 (excluding abstract, references).
Abstract: 200 words, unstructured
References: up to 5
Figures/Tables: none

Case Reports The journal does not accept case reports for publication. Authors of case reports are encouraged to submit to the Wiley Open Access journals listed below:

- ***Clinical Case Reports*** which aims to directly improve health outcomes by identifying and disseminating examples of best clinical practice
- ***Mental Health Science*** which brings various fields together to address the common, pressing, and growing crisis of mental health

4. FREE FORMAT SUBMISSION

European Eating Disorders Review now offers Free Format submission for a simplified and streamlined submission process.

Before you submit, you will need:

- Your manuscript: this should be an editable file including text, figures, and tables, or separate files – whichever you prefer. All required sections should be contained in your manuscript, including abstract, introduction, methods, results, conclusions and highlights. Figures and tables should have legends.

Figures should be uploaded in the highest resolution possible. References may be submitted in any style or format, as long as it is consistent throughout the manuscript. Supporting information should be submitted in separate files. If the manuscript, figures or tables are difficult for you to read, they will also be difficult for the editors and reviewers, and the editorial office will send it back to you for revision. Your manuscript may also be sent back to you for revision if the quality of English language is poor.

- An ORCID ID, freely available at https://orcid.org. (Why is this important? Your article, if accepted and published, will be attached to your ORCID profile. Institutions and funders are increasingly requiring authors to have ORCID IDs.)
- The title page of the manuscript, including:
  - Your co-author details, including affiliation and email address.
  - Statements relating to our ethics and integrity policies, which may include any of the following:
    - data availability statement
    - funding statement
    - conflict of interest disclosure
    - ethics approval statement
    - patient consent statement
    - permission to reproduce material from other sources
    - clinical trial registration

Important: the journal operates a double-anonymous peer review policy. Please anonymise your manuscript and supply a separate title page file.

To submit, login at https://wiley.atyponrex.com/journal/ERV and create a new submission. Follow the submission steps as required and submit the manuscript.

Cover Letters

Cover letters are not mandatory; however, they may be supplied at the author’s discretion.

Abstract

All manuscripts should contain an abstract of up to 200 words. An **abstract** is a concise summary of the whole paper, not just the conclusions, and is understandable without reference to the rest of the paper. It should contain no citation to other published work. It must be structured, under the sub-headings: Objective; Method; Results; Conclusions.

Graphical TOC/Abstract

The journal’s table of contents/abstract will be presented in graphical form with a brief abstract.
The table of contents entry must include the article title, the authors' names (with the corresponding author indicated by an asterisk), no more than 80 words or 3 sentences of text summarizing the key findings presented in the paper and a figure that best represents the scope of the paper.

Table of contents entries should be submitted as ‘Supplementary material for review’ during the initial manuscript submission process.
The image supplied should fit within the dimensions of 50mm x 60mm and be fully legible at this size.

Guidelines for Table of Contents Graphics

- Concepts illustrated in graphical material must clearly fit with the research discussed in the accompanying text.
- Images featuring depictions or representations of people must not contain any form of objectification, sexualization, stereotyping, or discrimination. We also ask authors to consider community diversity in images containing multiple depictions or representations of people.
- Inappropriate use, representation, or depiction of religious figures or imagery, and iconography should be avoided.
- Use of elements of mythology, legends, and folklore might be acceptable and will be decided on a case-by-case basis. However, these images must comply with the guidelines on human participants when they are present.
- Generally, authors should consider any sensitivities when using images of objects that might have cultural significance or may be inappropriate in the context (for example, religious texts, historical events, and depictions of people).
- Legal requirements:
    - All necessary copyright permission for the reproduction of the graphical elements used in visuals must be obtained prior to publication.
    - Clearance must be obtained from identifiable people before using their image on graphics and such clearance must specify that it will be used on the table of contents. Use within text does not require such clearance unless it discloses sensitive personal information such as medical information. In all situations involving disclosure of such personal information, specific permission must be obtained and images of individuals should not be used in a false manner.

Graphics that do not adhere to these guidelines will be recommended for revision or will not be accepted for publication.

Highlights

Highlights are mandatory for European Eating Disorders Review. These should appear as three bullet points that convey the core findings of the article.

Keywords

Include up to five **keywords** that describe your paper for indexing purposes.

Tables

Tables should be self-contained and complement, not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend, and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡, §, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

Figure Legends

Legends should be concise but comprehensive – the figure and its legend must be understandable without reference to the text. Include definitions of any symbols used and define/explain all abbreviations and units of measurement.

Figures

Although authors are encouraged to send the highest-quality figures possible, for peer-review purposes, a wide variety of formats, sizes, and resolutions are accepted. **Click here** for the post-acceptance figure requirements.

Additional Files

Appendices

Appendices will be published after the references. For submission they should be supplied as separate files but referred to in the text.

Supporting Information

Supporting information is information that is not essential to the article, but provides greater depth and background. It is hosted online and appears without editing or typesetting. It may include tables, figures, videos, datasets, etc. **Click here** for Wiley's FAQs on supporting information.

Note: if data, scripts, or other artefacts used to generate the analyses presented in the paper are available via a publicly available data repository, authors should include a reference to the location of the material within their paper.

If a manuscript describes a new approach and/or technological approach, authors are encouraged to include a small demo video – no more than 60 seconds long.

Wiley Author Resources

Manuscript Preparation Tips: Wiley has a range of resources for authors preparing manuscripts for submission available **here**. In particular, authors may benefit from referring to Wiley's best practice tips on **Writing for Search Engine Optimization.**

Article Preparation Supports

Wiley Editing Services offers expert help with English Language Editing, as well as translation, manuscript formatting, figure illustration, figure formatting, and graphical abstract design – so you can submit your manuscript with confidence. Also, check out our resources for **Preparing Your Article** for general guidance about writing and preparing your manuscript.

5. EDITORIAL POLICIES AND ETHICAL CONSIDERATIONS

Editorial Review and Acceptance

The acceptance criteria for all papers are the quality and originality of the research and its significance to journal readership. Manuscripts are double-anonymous peer reviewed. Papers will only be sent to review if the Editor-in-Chief determines that the paper meets the appropriate quality and relevance requirements.

Wiley's policy on the confidentiality of the review process is **available here.**

NISO Working Group on Peer Review Terminology

EEDR is participating in a pilot of the NISO Working Group on Peer Review Terminology. Standardizing the terminology across journals and publishers used to describe peer review practices helps make the peer review process for articles and journals more transparent, and it will enable the community to better assess and compare peer review practices between different journals. More information can be found **here.**

Decision Appeals

Any appeal against a decision on a manuscript should be filed by the corresponding author within 28 days of notification of the decision. The appeal should be in the form of a letter addressed to the Editor-in-Chief and submitted by email to the editorial office (**EEDRedoffice@wiley.com**). The letter should include clear and concise grounds for the appeal, including specific points of disagreement with the decision. The appeal will then be assessed by the editorial team, led by the Editor-in-Chief, and informed by the reviewer assessments and recommendation of the Associate Editors, where appropriate. Authors lodging an appeal will be informed of its outcome within 28 days. The decision will be final.

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Wiley believes that no valuable research should go unshared. This journal participates in Wiley's Refer & Transfer program. If your manuscript is not accepted, you may receive a recommendation to transfer your manuscript to another suitable Wiley journal, either through a referral from the journal's editor or through our Transfer Desk Assistant.

Data Sharing and Data Accessibility

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