Eating Disorder and Depressive Symptoms in the General Public

The Mediating Influence of Weight and Shape Concerns

Master Thesis Clinical Psychology

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Abstract

Of the roughly 14 million people worldwide with an eating disorder, up to 51% are estimated to have comorbid major depressive disorder, but only about a third are detected by healthcare services. Comorbidity has serious negative consequences, such as mental and physiological problems, high economic burden and diminished quality of life. Obtaining information from community-based samples plays a significant role in the improvement of diagnosis and treatment of ED with comorbid MDD. Currently, several theories exist on the high comorbidity between ED and MDD, such as the escape model of binge eating, but not much research has been performed on the role of shape and weight concerns. This study investigates the relationship between eating disorder symptoms and depressive symptoms in the general public, and examines if this relationship is mediated by shape concerns and weight concerns. A total of 465 participants filled in the ED-15, PHQ-9 and EDE-Q subscales shape concerns and weight concerns. A regression analysis revealed a large positive relationship between ED and MDD, emphasizing the need for early detection to improve treatment outcomes. Shape concerns and weight concerns were both found to significantly partially mediate this relationship, with medium-sized indirect effects. This highlights the need to refine existing theoretical models and expand treatment protocols to improve treatment efficacy. Future studies are needed to replicate these results and confirm and advance knowledge on the relationship between ED, MDD, shape concerns and weight concerns, so that the detection and treatment of ED with comorbid MDD can be improved.

Keywords: eating disorder, major depressive disorder, shape and weight concerns, mediation, general public

Introduction

Approximately 14 million people worldwide live with an eating disorder (WHO, 2022). Eating disorders (ED) are defined as exhibiting abnormal eating behaviour with either insufficient or excessive food intake, often accompanied by feelings of distress or concern about weight or body shape and sometimes in combination with compensatory behaviour, which can be detrimental to physical health (Winkler et al., 2014). Winkler and colleagues (2014) found that those with ED have a significantly lower health-related quality of life than the general population, with no difference between the types of eating disorders. Currently, only a third of those with ED are detected by healthcare (Keel & Brown, 2010). Of those entering treatment, almost a fifth do not achieve remission after roughly ten years, with up to 18% for anorexia nervosa, 14% for bulimia nervosa and 9% for binge eating disorder (Keel & Brown, 2010). Because many of those with ED either do not enter treatment, and those who do enter treatment often do not achieve remission, more research into ED symptoms in the general public is needed to enhance the knowledge of eating disorders and help improve diagnostics and treatment outcomes.

On top of this, many of those with an ED have comorbid major depressive disorder (MDD), which is estimated to be 31-50% of those with ED (Hudson et al., 2007). MDD is a mental disorder characterised by feelings of sadness, loneliness and a lack of interest in daily activities, generally with both physical, cognitive and emotional symptoms (Otte et al., 2016). This makes MDD the most common comorbid disorder in people with an eating disorder (Mischoulon et al., 2011). Consequences of having comorbid ED and MDD are serious and include somatic problems (e.g. sleeping problems, disturbed appetite, loss of energy), self-harm, suicide attempts and death (Chakraborty et al., 2010, Keski-Rahkonen & Mustelin, 2016; Ribeiro et al., 2018). In addition, both disorders cause serious economic burden (Ágh et al., 2016; Greenberg et al., 2021) and diminished quality of life (Winkler et al., 2014; Mrazek

et al., 2014). Having an ED with comorbid MDD also has an adverse effect on treatment outcomes, with some studies reporting lower rates of remission (Hughes et al., 2013). A possible explanation for this is that comorbidity has a negative impact on recovery. Another explanation could be that comorbidity represents a greater severity of illness in general, which independently predicts poorer treatment outcomes (Hughes et al., 2013).

To advance the detection and treatment outcomes of eating disorders with comorbid depressive symptoms, a better understanding is needed of the high occurrence of comorbidity Obtaining information from community-based samples plays a significant role in the improvement of knowledge around ED with comorbid MDD. Community-based samples are especially important because only a minority of individuals suffering from ED are detected by healthcare and enter treatment, while many more suffer the consequences of ED (Keski-Rahkonen & Mustelin, 2016). Therefore, this study aims to investigate the relationship between ED symptoms and depressive symptoms in the general public.

Some research suggests that depression is predictive of ED. For instance, Heatherton and Baumeister (1991) propose an escape model of binge eating, claiming individuals who binge eat do so to reduce depression as either a distraction or comfort mechanism. This model has since been frequently referenced and proposes a step-by-step model that starts with individuals experiencing high perfectionistic standards about their shape and weight. (Burton & Abbott, 2017) They wish to be perceived favourably by others, are self-conscious and assume others are judging them (Burton & Abbott, 2017). Consequently, they develop aversive self-awareness, as they feel that they are not meeting their own perfectionist standards (Blackburn et al., 2006). Then, if they attribute these discrepancies to internal aspects of the self, they are likely to experience negative effect (aversive state, the experience of negative emotions) (Blackburn et al., 2006). Individuals are motivated to escape this aversive state by cognitive narrowing, meaning they are driven to reduce self-awareness so

that discrepancies between the self and their perfectionist standards are no longer salient. Cognitive narrowing is the focussing of attention on concrete aspects of the immediate environment. However, cognitive narrowing may bring on self-destructive behaviours, such as binge eating. It is argued that cognitive narrowing both erodes the usual inhibitions around food and facilitates further escape of negative effect through narrowing attention to the actions and sensations involved with eating (Blackburn et al., 2006). Binge eating thus results in a reduction of aversive self-awareness and negative affect. Recently, research by Wonderlich and colleagues (2022) supported the link between negative affect and several eating disorders (binge eating in bulimia nervosa, binge eating disorder and anorexia nervosa). Research by Holmes and colleagues (2015) supports the model when tested individually. Compared with other theoretical models of binge eating, it has the unique significant contribution of negative affect, but might not be the best model to explain binge eating as a whole. Recently, Burton and Abbott (2019) proposed a new model for binge eating which also includes negative affect, among other factors as poor emotion regulation and eating beliefs, but this model has not yet been sufficiently tested. To conclude, the escape model explains how depressive symptoms can allude to eating disorder symptoms through cognitive narrowing, but recent discoveries allude that more factors may be at play in explaining the connection between these symptoms.

Some of the factors that might play a role in the relationship between eating disorder symptoms and depressive symptoms are weight and shape concerns. A recent study by Kenny and colleagues (2021) performed a network analysis between depressive symptoms and eating disorder symptoms in early adolescence and found that ‘shape and weight dissatisfaction and preoccupation’ were important symptoms in the shared network. Shape concerns are defined as dissatisfaction, preoccupation, discomfort and over-evaluation of one’s body shape. Weight concerns are defined as the dissatisfaction, preoccupation,

discomfort and over-evaluation of one's weight. (Hrabosky et al., 2006). To understand this relationship, a study by Sienko and colleagues (2016) found that individuals with elevated depressive symptoms are more likely to internalise weight bias, which can lead to maladaptive approaches to eating and weight control. Similarly, research by Haedt-Matt and colleagues (2012) found that negative mood causes an increase in body dissatisfaction; and theorised this happens because of the idea proposed by Keel and colleagues (2001) that depression may cause body dissatisfaction because general negative feelings are funnelled into negative feelings about body shape and weight in cultures that idealise thinness. Body dissatisfaction is a well-established risk factor for ED (Johnson & Wardle, 2005). Body dissatisfaction is defined as the subjective negative evaluation of one's body (Stice & Shaw, 2002). Concern with weight and shape and body dissatisfaction are both components of body image, a multifaceted construct that refers to the internalised representation of one's weight, shape and appearance (Grogan, 2021). Therefore, while these concepts might be similar, it is important to note that they may not be the same. For this reason, it is relevant to investigate whether shape and weight concerns follow the same mediating pathway as body dissatisfaction.

To summarise, many of those living with ED have comorbid MDD. Much research is done on the relationship between ED and MDD, with some stating ED predicting MDD, MDD predicting ED or the disorders predicting each other, which suggests there is a factor that plays a role in the development of both disorders. This leads to the first hypothesis, namely that there is a positive linear relationship between ED symptoms and depressive symptoms. This relationship is potentially mediated by weight and shape concerns. Therefore, the second hypothesis (see Figure 1a) is that shape concerns mediate the relationship between eating disorder symptoms and depressive symptoms. The third

hypothesis (see Figure 1b) is that weight concerns mediate the relationship between eating disorder symptoms and depressive symptoms.

Figure 1a.

Mediation Model of Eating Disorder Symptoms, Depressive Symptoms and Shape Concerns.

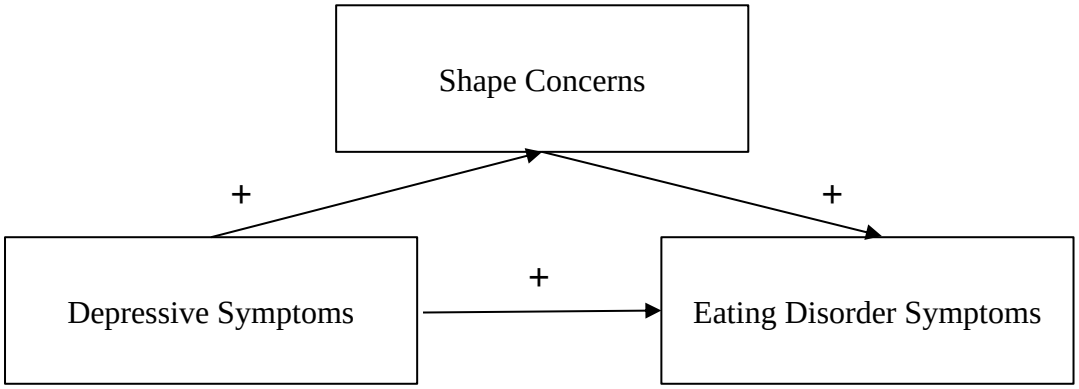
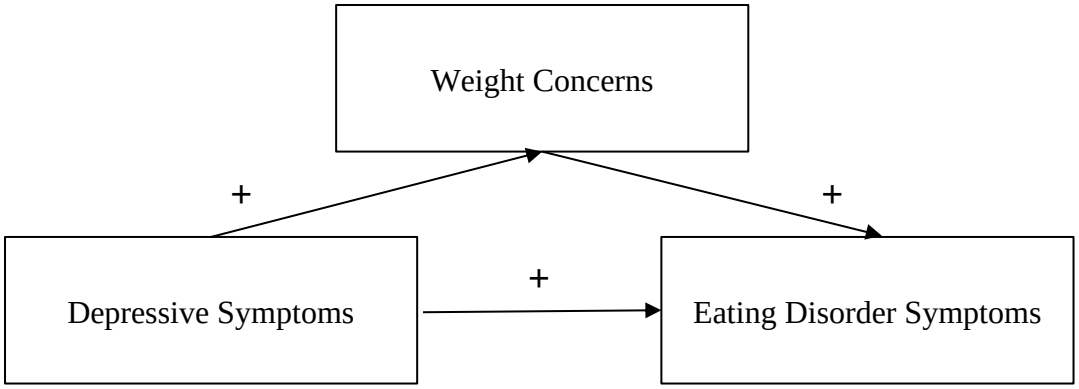


Figure 1b.

Mediation Model of Eating Disorder Symptoms, Depressive Symptoms and Weight Concerns.



Method

Design

The current study is part of a larger study that is currently being conducted at Altrecht Eating Disorders Rintveld in the Netherlands. Their study is about the psychometric qualities of the Dutch translation (Tuijtel et al., 2020) of the Eating Disorder-15 (ED-15) (Tatham et al., 2015). The ED-15 was designed to be a brief questionnaire of attitudinal and behavioural measures of eating disorders. From their research project, the current study uses data that was collected in the general population. The current study uses a cross-sectional, observational study design. This study is approved by the Faculty Ethical Research Board (FERB) of the Faculty of Social Sciences, Utrecht University (reference number: FERB23-2086).

Participants

Participants were recruited in the general community by means of convenience sampling and were required to be 18 years or older and speak Dutch. The total response rate was 518. Of these, 53 did not fill out all questionnaires (partly or completely no response), making the total participant number 465. There were 353 females, 108 males, and 5 other/prefer not to tell. The average age was 28, with a standard deviation of 12.6 years. Of the participants, 5 were (currently or in the past) diagnosed with an eating disorder, and 38 had suspicions of having (had) an eating disorder.

Instruments

ED-15

To measure eating disorder symptoms, the Dutch translation (Tuijtel et al., 2020) of the Eating Disorder-15 (ED-15) was used (Tatham et al., 2015). The ED-15 is a 15-item self-report questionnaire, developed to briefly measure symptoms of ED in a session-by-session

manner. It was designed to measure the core behavioural and cognitive symptoms of an eating disorder, to see changes between sessions and to have a reliable screener for the gravity of the eating disorder. It can be divided into two subscales, labelled 'Weight & Shape Concerns' and 'Eating Concerns'. The first ten items measure eating attitudes during the last week and are scored on a 7-point Likert scale, ranging from 'not at all' to 'all the time'. An example item is 'Over the past week, how often have I worried about losing control over my eating'. The last five items measure eating behaviour during the past week and are answered by providing the number of times or number of days. An example item is 'How many days in the past week have you used laxatives to control your weight or shape'. The English version of the ED-15 was found to have good validity and reliability, with satisfactory split-half reliability, test-retest reliability, concurrent validity and convergent validity (Tatham et al., 2015). For the subscales, strong internal consistencies were found with Cronbach's alpha values of .94 (Weight & Shape Concerns) and .80 (Eating Concerns). The Dutch version of the ED-15 currently has no published studies on its psychometric qualities. In the current study, a high internal consistency was found for the total scale, with a Cronbach's Alpha of .91

PHQ-9

To measure depressive symptoms, the Dutch translation (Spitzer et al, n.d.) of the Patient Health Questionnaire-9 (PHQ-9) was used (Kroenke & Spitzer, 2002). This is a nine-item self-report questionnaire. It was originally designed to be used repeatedly with the same patient to screen and monitor severity of mood state. Patients need to report how often in the past two weeks they suffered from one or more depressive symptoms on a 4-point scale, ranging from no suffering to almost every day. An example item is: 'Having little interest or pleasure in doing things'. For the PHQ-9, a total score can be calculated by adding the score

for each of the nine items. A total score of 0-4 means no depressive complaints; 5-9 means depressive complaints; 10-11 means indication for moderate MDD; 12-14 means possible severe MDD; and 15-27 means probable severe MDD. A meta-analysis of the PHQ-9 as a screening tool for depression among adults shows good psychometric properties, with sensitivity scores ranging from 28-95% and specificity scores ranging from 61-98% (El-Den et al., 2018). They also found good internal consistency, with Cronbach's alpha values ranging from .56 to .94. In the current study, a high internal consistency was found with a Cronbach's Alpha of .87.

EDE-Q v6.0

To measure shape concerns and weight concerns, the shape concerns and weight concerns subscales of the Dutch version of the Eating Disorder Questionnaire version 6.0 (EDE-Q) were used (Fairburn & Beglin, 2008). The EDE-Q is a 28-item self-report questionnaire and concerns specific symptoms of an eating disorder, and can be divided into four subscales and a global score. The weight concerns subscale assesses attitudes towards one weight, including dissatisfaction, preoccupation, discomfort and overvaluation. The shape concerns subscale measures the same attitudes but in relation to the body shape (Hrabosky et al., 2006). Participants need to score how often in the past 28 days they 1) displayed a certain behaviour on a 7-point Likert scale ranging from 'no days' to 'every day', or 2) how much influence eating attitudes had over them on a 7-point Likert scale ranging from 'not at all' to 'markedly'. For shape concerns, a behaviour example item is 'On how many of the past 28 days have you had a definite desire to have a totally flat stomach'. This subscale has a total of 8 items. For weight concerns, an attitude example item is 'In the past 28 days, how dissatisfied have you been with your weight'. This subscale has a total of 5 items. The Dutch version of the EDE-Q has good internal consistencies with Cronbach's alpha's of .91 (shape

concerns) and .83 (weight concerns) (Aardoom et al., 2012). A systematic review of the complete EDE-Q also shows good psychometric values, with good test-retest reliability, temporal stability and validity (Berg et al., 2012). In the current study, high internal consistencies were found with a Cronbach's Alpha of .90 (shape concerns) and .82 (weight concerns).

Procedure

Participants were recruited by means of convenience sampling of both bachelor and master students Clinical Psychology at Utrecht University. Sampling practices are shortly described in Appendix B. Participants were invited by means of either a short text explaining the purpose of the study or with a flyer, both with a link to the survey. Data was collected through the online survey platform Qualtrics. Participants were first presented with an information letter explaining the purpose of the study and describing the protocol concerning use of their data. It was required to provide informed consent to store and use their (anonymized) data for the research and they had to provide contact information for follow-up questioning. After this, they were asked to fill out several questionnaires, all in Dutch. For ED symptoms, they filled out the EDE-Q v6.0 (Fairburn & Beglin, 2008) and the ED-15 (Tatham et al., 2015). For depression, they filled out the PHQ-9 (Kroenke & Spitzer, 2002). Participants also had to fill the GAD-7 for anxiety (Spitzer et al., 2006) and provide information about their age, gender, weight, length and possible previous (diagnosed or suspected) eating disorder. The GAD-7, weight and length are not used in the current study. While the study was promoted to exclude those with a previous eating disorder diagnosis, this distinction was not used in the current study. Filling in all questionnaires takes about twenty minutes. Students of Utrecht University received a small amount of course credit for their participation. Other participants did not get any incentive for participation.

Processing and analysing the data

This study uses IBM® for SPSS 29.0 (IBM Corp, 2023). To check the reliability of all questionnaires (ED-15, PHQ-9, EDE-Q-Shape and EDE-Q-Weight subscales), Cronbach's alpha was calculated. For the first hypothesis (positive correlation between depressive symptoms and eating disorder symptoms), a simple linear regression analysis was performed, with PHQ-9 score as the independent variable and ED-15 score as the dependent variable. Assumptions of level of measurement, linearity, normality, homoscedasticity, no autocorrelation, independence of residuals and outliers were checked and were met.

To test if shape concerns mediate the relationship between depressive symptoms and eating disorder symptoms, a mediation analysis was performed. Assumptions of level of measurement, no autocorrelation, linearity, no outliers, independence of the residuals, normality of the residuals, homoscedasticity and no multicollinearity were checked and were met. Then, the mediation analysis was performed using model 4 of the Hayes' Process Macro v3.5 (Hayes, 2022) for SPSS with ED-15 as the dependent variable, PHQ-9 as the independent variable and EDE-Q-Shape as the mediator. To test if weight concerns mediate the relationship between depressive symptoms and eating disorder symptoms, a mediation analysis was performed. Assumptions of level of measurement, no autocorrelation, linearity, no outliers, independence of the residuals, normality of the residuals, homoscedasticity and no multicollinearity were checked and were met. Then, the mediation analysis was performed using model 4 of the Hayes' Process Macro v3.5 (Hayes, 2022) for SPSS with ED-15 as the dependent variable, PHQ-9 as the independent variable and EDE-Q-Weight as the mediator. For all analyses, a significance level of $p < .05$ was upheld.

Results

The first hypothesis predicted a positive linear relationship between eating disorder symptoms and depressive symptoms. The regression analysis revealed a significant positive association, with β=.50, b=.11, SE=.01, $t(464)$=12.41, and p<.001. The model accounted for a substantial proportion of the variance in depressive symptoms, as evidenced by an R^2=.25. The model was statistically significant, $F(1, 463)$=154.07, p<.001. These results showed that more eating disorder symptoms were related to more depressive symptoms, which is in line with the hypothesis.

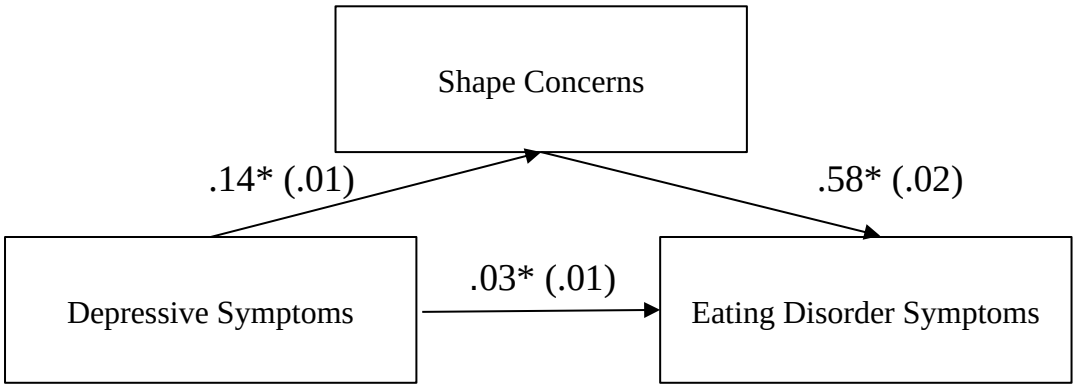
The second hypothesis posited that shape concerns will mediate the relationship between depressive symptoms and eating disorder symptoms. The direct effect, representing the relationship between depressive symptoms and eating disorder symptoms after accounting for shape concerns, remained statistically significant, with a coefficient of β=.13, b=.03, SE=.01, and p<.00. Furthermore, shape concerns were found to mediate the relationship, as evidenced by a significant indirect effect of β=.37, b=.08, SE=.01, and a 95% CI [0.06, 0.10]. This showed that the relationship of depressive symptoms and eating disorder symptoms is partially mediated by shape concerns. For all pathway results, see Figure 2a and Appendix A, Table 1a.

The third hypothesis posited that weight concerns will mediate the relationship between depressive symptoms and eating disorder symptoms. The direct effect, representing the relationship between depressive symptoms and eating disorder symptoms after accounting for weight concerns, remained statistically significant, with a coefficient of β =.19, b=.04, SE=.01, and p<.001. Furthermore, weight concerns were found to mediate the relationship, as evidenced by a significant indirect effect of β =.31, b=.07, SE=.01, and a 95% CI [0.05, 0.09]. This showed that the relationship of depressive symptoms and eating disorder symptoms is

partially mediated by weight concerns. For all pathway results, see Figure 2b and Appendix A, Table 1b.

Figure 2a.

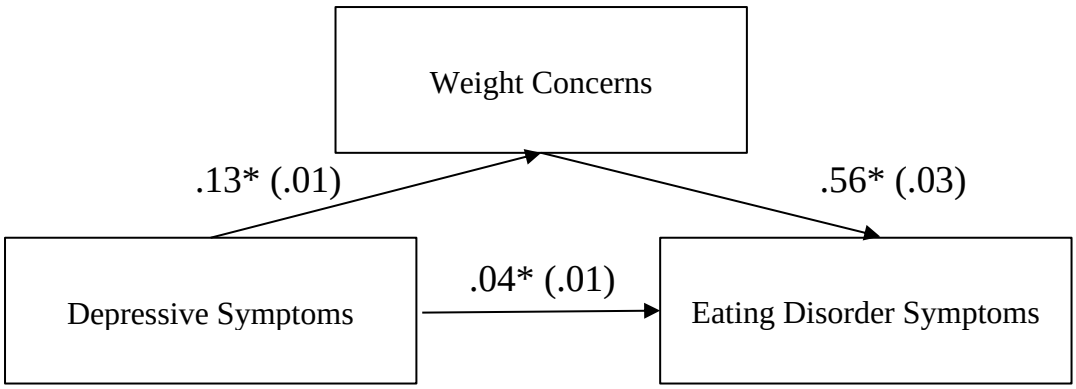
Mediation Model with Shape Concerns as the Mediator



Note. Unstandardized beta coefficients (*b*) with associated standard error (*SE*). *p<.001

Figure 2b.

Mediation Model with Weight Concerns as the Mediator



Note. Unstandardized beta coefficients (*b*) with associated standard error (*SE*). *p<.001

Discussion

The purpose of this study was to gain more insight in the relationship between eating disorder symptoms with comorbid depressive symptoms by investigating this relationship in the general public. The first aim of the study was to check if the usually high comorbidity between ED and MDD symptoms was also found in the general public. Results indeed supported a large significant positive linear relationship between eating disorder symptoms and depressive symptoms. The second aim of the study was to investigate whether shape concerns mediated the relationship between ED and MDD symptoms. Results are in line with the hypothesis and support a small but significant direct effect and a medium sized significant indirect effect, suggesting partial mediation of shape concerns. The third aim of the study was to examine whether weight concerns mediate the relationship between ED and MDD symptoms. As was hypothesized, results supported a small but significant direct effect and a medium sized significant indirect effect, which indicates partial mediation of weight concerns.

These results have several theoretical and practical implications. First, finding a large positive linear relationship between ED and MDD symptoms in the general public aligns with the high estimate of having ED with comorbid MDD (31-50%, as suggested by Hudson et al., 2007) and emphasizes the need for accurate detection. Detection of comorbidity can for instance be improved by implementing policy to scan for MDD when contemplating ED diagnoses. Early detection is linked to better treatment outcomes (Allen et al., 2023) and thus less economic burden (Ágh et al., 2016; Greenberg et al., 2021) and improved quality of life (Winkler et al., 2014; Mrazek et al., 2014). Further, the partial mediation of shape and weight concerns is in line with the network analysis by Kenny and colleagues (2021), which showed that weight and shape dissatisfaction are important factors in the shared network of eating disorder and depressive symptoms. Additionally, the medium-sized partial mediating of

shape and weight concerns on the relationship between ED and MDD symptoms shows that existing theoretical models about comorbidity, such as the escape model of binge eating (Heatherton & Baumeister, 1991) and the extended version including emotion regulation and eating beliefs (Burton & Abbott, 2019) still need to be further refined to include these new insights. Improving the understanding of factors that play a role in the comorbidity can also help tailor interventions for comorbidity to improve treatment outcomes. Currently, having ED with comorbid MDD has an adverse effect on treatment outcomes, with studies reporting lower rates of remission (Hughes et al., 2013). Researching the including of shape and weight concerns in treatment for comorbidity may improve treatment efficacy, leading to better treatment outcomes.

However, it is important to note that the results should be interpreted in light of a few limitations. First, this is a cross-sectional study, meaning no direction of effects can be denounced from this study. Therefore, no definitive answer can be given to whether ED symptoms lead to MDD symptoms, MDD symptoms to ED symptoms, or whether they influence each other. A suggestion for future research would be to do a longitudinal study to look at the relationship of these constructs over time and to determine the direction of the relationship. Secondly, ED symptoms were measured by means of the ED-15 and shape and weight concerns were measured with the corresponding subscales of the EDE-Q. However, the ED-15 and complete EDE-Q measure near-identical constructs (Tatham et al., 2015). This could mean that for the mediation analyses, part of the relationship between shape and weight concerns (EDE-Q subscales) and eating disorder symptoms (ED-15) is due to the EDE-Q measuring part of the same construct as the ED-15 is measuring. This implies that the relationship between the mediator and ED symptoms, and therefore the indirect effect, might be partially explained by the instruments measuring similar constructs. A recommendation would be to use another instrument to measure ED symptoms. For instance, the EDI-3

(Garner, 2004; recently validated by Punzi et al., 2023) includes a subscale for the similar construct body dissatisfaction but not for weight and shape concerns specifically, therefore reducing the chance the effects found are due to methodological similarities.

Furthermore, participants were recruited by means of convenience sampling. This means that there is sampling bias, which limits the generalizability of these findings to the full general population in the Netherlands and is a threat to the external validity. Therefore, future research should try to limit sampling bias by using probability sampling methods. In addition, it is possible that the sample is less representative of the general population because of promoting means. During the promotion of the study, diagnosis with an eating disorder was named as an exclusion criterion. However, during analyses this was not taken into account, and five participants reported having been diagnosed, with many more suspecting having (had) an ED. This means that it is possible that the sample includes less severe ED symptoms than the population, because some of those with an ED might have not filled in the survey because of the promotion. Future research should aim to increase external validity by promoting the study without exclusion of ED diagnoses. Regarding generalizability, there was no incentive for participating, except for some students receiving a small amount of college credit. This limits self-selection bias, in which individuals who are more motivated by the incentive are more likely to participate. Having no incentive creates a more representative target population, promoting external validity. Further, the study uses a relatively large sample of 465 participants, which increases statistical power and improves generalizability, meaning the found effect sizes are more likely to be an accurate representation of the population. Adding to this, a large sample also aids to enhance the reliability of results, which increases chances for successful replication. Taking all this into account, future studies should use a longitudinal study design; use another measure for ED symptoms such as the

EDI-3; use probability sampling methods; and promote the study without exclusion of ED diagnoses.

To summarise, many people worldwide live with an eating disorder, but only a third of those with ED are detected by healthcare services (Keel & Brown, 2010). Of those who do enter treatment, almost a fifth do not achieve remission after roughly ten years (Keel & Brown, 2010). On top of this, up to 51% with ED are estimated to have comorbid major depressive disorder (Hudson et al., 2007), causing serious mental and physical problems (Chakraborty et al., 2010, Keski-Rahkonen & Mustelin, 2016; Ribeiro et al., 2018), economic burden (Ágh et al., 2016; Greenberg et al., 2021), diminished quality of life (Winkler et al., 2014; Mrazek et al., 2014) and poorer treatment outcomes (Hughes et al., 2013). The current study seeks to address the necessity for improved knowledge around ED with comorbid MDD to improve detection and treatment. Results show a large positive relationship between eating disorder symptoms and depressive symptoms in the general public that is partially mediated by shape concerns and weight concerns, as shown by medium-sized indirect effects. The high comorbidity found in the general public emphasizes the need for early detection to improve treatment outcomes (Allen et al., 2023). The partial mediation of shape and weight concerns highlight the importance of refining existing theoretical models, such as the escape model of binge eating (Heatherton & Baumeister, 1991). Expanding treatment protocols to include shape and weight concerns may improve treatment efficacy and lead to better treatment outcomes. Future studies should focus on replicating these results to confirm and advance knowledge on the relationship between eating disorder symptoms, depressive symptoms, shape concerns and weight concerns, so that the detection and treatment of eating disorders with comorbid major depressive disorder can be improved.

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Appendix A

Pathway Results of Mediation Analyses

Table 1a.

Statistical Results of Individual Pathways of Mediation Analyses using Shape Concerns

	Shape Concerns					**Eating Disorder Symptoms**				
Statistic	*b*	*SE*	*t(364)*	*p*	*β*	*b*	*SE*	*t(364)*	*p*	*β*
Depressive Symptoms	.14	.01	12.00	<.001	.49	.03	.01	4.45	<.001	.13
Shape Concerns	-	-	-	-	-	.58	.02	24.84	<.001	.75
Explained variance	R^2 =.24					R^2 =.68				
Significance	$F(1,463)=144.00$, $p<.001$					$F(1,463)=488.07$, $p<.001$				

Note. *b* = unstandardized beta coefficient, *β* = standardized beta coefficient, *SE* = standard error. First column shows effect of depressive symptoms on shape concerns. Second column shows effect of depressive symptoms and shape concerns on eating disorder symptoms.

Table 1b.

Statistical Results of Individual Pathways of Mediation Analyses using Weight Concerns

	Weight Concerns					**Eating Disorder Symptoms**				
Statistic	*b*	*SE*	*t(364)*	*p*	*β*	*b*	*SE*	*t(364)*	*p*	*β*
Depressive Symptoms	.13	.01	10.76	<.001	.45	.04	.01	5.40	<.001	.19
Weight Concerns	-	-	-	-	-	.56	.03	22.28	<.001	.70
Explained variance	R^2 =.20					R^2 =.64				
Significance	$F(1,463)=115.67$, $p<.001$					$F(1,463)=407.70$, $p<.001$				

Note. b = unstandardized beta coefficient, *β* = standardized beta coefficient, *SE* = standard error. First column shows effect of depressive symptoms on weight concerns. Second column shows effect of depressive symptoms and weight concerns on eating disorder symptoms.

Appendix B

Data Collection

The data was collected through the online survey platform Qualtrics. For this, I actively distributed the survey through social media (multiple posts on Instagram and LinkedIn), through my own social network (friends, family, coworkers) and my extended social network (e.g. I encouraged friends and family to distribute in their network). I also hung up flyers in an apartment complex.