



The role of disgust in anorexia nervosa: testing a theoretical model including disgust propensity, self-disgust, and disgust sensitivity.

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“A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned.”

Abstract

Anorexia nervosa (AN) is characterized by restrictive food intake, an intense fear of gaining weight, and a disturbance in the experience of one's body weight or shape (American Psychiatric Association, 2013). Several previous studies have shown that disgust is related to eating disorder symptoms. There are several types of disgust that might be related to eating disorder symptoms, however it is not yet clear how these types of disgust could contribute to eating disorder symptoms. This study aimed to test a theoretical model which includes disgust propensity, self-disgust, disgust sensitivity, and symptoms of eating disorders. The hypotheses were (1) that disgust propensity would be positively related to symptoms of eating disorders and that self-disgust would mediate this relationship, and (2) that higher levels of disgust sensitivity would be related to a stronger relationship between self-disgust and symptoms of eating disorders. To test these hypotheses, several questionnaires measuring the variables in the theoretical model were administered to female adolescents with anorexia nervosa ($N = 58$) and to healthy adolescents who were matched to the patient group based on sex, age, and educational level ($N = 42$). A simple mediation analysis was performed to test the first hypothesis. Disgust propensity was indeed related to eating disorder symptoms and self-disgust mediated this relationship. A moderated mediation analysis was performed to test the second hypothesis. In contrast to the hypothesis, disgust sensitivity did not moderate the relationship between self-disgust and symptoms of eating disorders. These findings are in line with the idea that disgust propensity leads to self-disgust, which in turn leads to symptoms of eating disorders. As a next step, longitudinal research is necessary to further determine the direction of the relationships in the theoretical model.

Keywords: Anorexia nervosa, eating disorder, disgust, disgust propensity, disgust sensitivity, self-disgust.

The Role of Disgust in Anorexia Nervosa

Anorexia nervosa (AN) is characterized by restrictive food intake, an intense fear of gaining weight, and a disturbance in the experience of one's body weight or shape (American Psychiatric Association, 2013). This disorder can be potentially life-threatening, due to the patients being severely underweight (Nagl et al., 2016). Currently, the recommended evidence-based treatment for adolescents with AN is family therapy. However, current recovery rates from family therapy range from 40% to 50% (Lock, 2019). Therefore, it is important to improve our understanding of the onset and maintenance of this disorder to be able to provide better treatment in the future. One factor that might play a key role in the onset and maintenance of AN is disgust (Davey & Chapman, 2009; Glashouwer & de Jong, 2021; Troop & Baker, 2009; Von Spreckelsen et al., 2018). Disgust is a universal emotion and it is defined as a feeling of repulsion towards a stimulus (Rozin et al., 1987). Previous research has shown that disgust is related to eating disorders (Davey & Chapman, 2009; Glashouwer & de Jong, 2021; Troop & Baker, 2009; Von Spreckelsen et al., 2018). In this research, a theoretical model which includes different types of disgust in relation to eating disorders will be tested, to gain more insight about how several aspects of disgust could be related to AN.

Disgust is one of the basic emotions recognized by Darwin. It is usually defined as a feeling of repulsion towards a food-related stimulus (Rozin et al., 1987). It is accompanied with a characteristic facial expression, nausea, and distancing of the disgust-evoking object. Rozin et al. (1987) argue that disgust is a form of food rejection. Furthermore, contemporary theories of disgust propose that disgust serves as a disease-avoidance mechanism (Oaten et al., 2009). This theory stems from the theory of evolution: the feeling of disgust protects humans from eating pathogenic food. Therefore, it can be said that disgust is an extremely powerful emotion, which can overrule the biological urge to eat and drink (Glashouwer & de Jong, 2021). Several researchers have found that disgust is related to eating disorders (Davey

& Chapman, 2009; Glashouwer & de Jong, 2021; Troop & Baker, 2009; Von Spreckelsen et al., 2018). Because of this, it has been theorized that the feeling of disgust is so strong in people with eating disorders, that it can cause food restriction, since disgust can overrule the biological urge to eat regularly (Glashouwer & de Jong, 2021).

The theoretical model that will be tested in the current study attempts to include several aspects of disgust which could lead to symptoms of eating disorders. One of these aspects is disgust propensity, which is defined as the tendency to experience the feeling of disgust quickly (van Overveld et al., 2006). Since people with eating disorders display higher levels of disgust, it seems logical that people with AN would also display higher levels of disgust propensity. This is supported by a study from Davey and Chapman (2009), who administrated several questionnaires, including one measuring disgust propensity to healthy female participants. They found that disgust propensity was related to body shape concerns and beliefs related to a drive for thinness and bulimia. However, it is still unclear how disgust propensity could contribute to eating disorder symptoms.

Despite the previously mentioned definition of disgust, which proposed that it is usually food-related (Rozin et al., 1987), disgust can also be directed towards oneself. Self-disgust can be directed towards several aspects of the self, including physical traits and characterological or behavioural traits (Powell et al., 2018). The current study focuses on self-disgust directed towards the body, in other words, finding one's own body revolting (Powell et al., 2015). In a study from Bell et al. (2017), in which questionnaires were filled out by women with self-reported AN, self-reported bulimia or no eating disorder, it was found that the level of self-reported self-disgust was significantly higher in the groups with women with self-reported AN and bulimia, compared to the group of women with no eating disorder. Self-disgust could be the link between disgust propensity and symptoms of eating disorders. Experiencing the feeling of disgust quicker could lead to experiencing more self-disgust,

which in turn could lead to symptoms of eating disorders, to reduce this feeling of self-disgust.

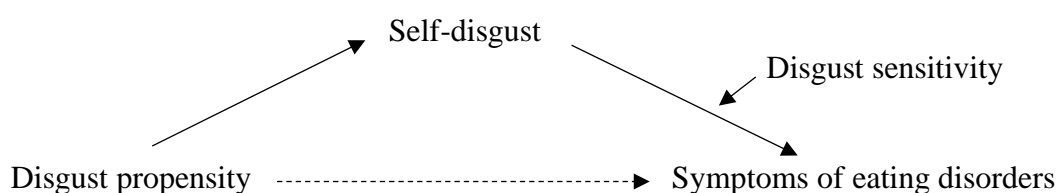
A third aspect which is included in our theoretical model is disgust sensitivity, which is defined as the tendency to find the emotion of disgust unpleasant (van Overveld et al., 2006). Not all studies make the distinction between these two types, however it is important to do so, as shown in multiple studies which found that disgust propensity and disgust sensitivity are two different factors of disgust (Olatunji et al., 2007; van Overveld et al., 2006). These two types could therefore contribute in different ways to eating disorder symptoms. The study from Davey and Chapman (2009), in which several questionnaires were administered to healthy female students, showed that disgust sensitivity was positively related to eating disorder symptoms. Espeset et al. (2012) found by interviewing 14 women with AN that they avoided the feeling of disgust through avoidance of food, body awareness, and social situations. This is in line with the idea that disgust sensitivity is related to eating disorder symptoms. However, when the patients with AN interviewed by Espeset et al. (2012) were describing this feeling of disgust, it was often mentioned that this was related to having a negative body image. Furthermore, in the study from Bell et al. (2017), in which questionnaires were filled out by women with self-reported AN, self-reported bulimia or no eating disorder, it was found that disgust sensitivity was related to self-disgust in the group of people with self-reported AN. Since studies have shown that self-disgust could lead to eating disorder symptoms, and disgust sensitivity is related to self-disgust and eating disorder symptoms, it is possible that disgust sensitivity influences the relationship between self-disgust and symptoms of eating disorders. When levels of disgust sensitivity are higher, the relationship between self-disgust and eating disorder symptoms could become stronger, because the urge to reduce the feeling of disgust would be stronger. Therefore, disgust sensitivity is also included in the theoretical model of this research.

In the current study, a theoretical model will be tested regarding disgust propensity, self-disgust, disgust sensitivity, and symptoms of eating disorders (Figure 1). This model proposes that with higher levels of disgust propensity, the feeling of self-disgust will also be experienced quicker. A higher level of self-disgust in turn could be related to symptoms of eating disorders, therefore self-disgust might mediate the relationship between disgust propensity and symptoms of eating disorders. Furthermore, this model proposes that a higher level of disgust sensitivity will strengthen the relationship between self-disgust and symptoms of eating disorders, since self-disgust will be experienced as more negative when there are higher levels of disgust sensitivity, which will lead to a stronger relationship with symptoms of eating disorders.

This theoretical model has been tested previously by Von Spreckelsen et al. (2018), however this study was focused on negative body image instead of eating disorders symptoms in general. They conducted two studies to test this model. In the first study, three questionnaires were administrated to a sample of female students, measuring disgust propensity and sensitivity, self-disgust, and a negative body image. It was found that self-disgust indeed mediated the relationship between disgust propensity and a negative body image. However, disgust sensitivity did not moderate the relationship between self-disgust and a negative body image. In the second study, a different measure was used for self-disgust and a new sample was recruited. The results from the second study supported the finding from

Figure 1

Theoretical model of how disgust propensity, self-disgust, and disgust sensitivity may contribute to symptoms of eating disorders



the first study. These findings partially support our theoretical model. Disgust sensitivity was not a significant moderator in either study, however, these studies were conducted in a sample with participants without an eating disorder. In the current study, the model will be tested in a sample including patients with AN, which might yield different results.

In the current study, the following two hypotheses will be tested: i) disgust propensity is positively correlated with symptoms of eating disorders and self-disgust partly explains the relationship between disgust propensity and symptoms of eating disorders, thus mediating this relationship, and ii) self-disgust is more strongly related to symptoms of eating disorders in people who have higher levels of disgust sensitivity. To answer these questions, several questionnaires measuring disgust propensity, disgust sensitivity, self-disgust, and symptoms of eating disorders will be administered in a group of adolescent female patients with AN and a group of participants without an eating disorder, who were matched on age, sex, and education level to the first group.

Methods

Participants

Two groups of participants were included in this study. The first group was the patient group ($N = 58$), consisting of adolescents between the ages of 14 to 23 ($M = 16.39$; $SD = 1.45$), who fitted the criteria of a DSM-V diagnosis of anorexia nervosa ($N = 44$) or atypical anorexia nervosa ($N = 14$). Participants with atypical anorexia nervosa fitted all the criteria of anorexia nervosa, but were not underweight. This diagnosis was established as part of an intake procedure with the Eating Disorder Examination interview (Bryant-Waugh et al., 1996; Decaluwé & Braet, 1999). The second group included participants without an eating disorder ($N = 42$). The participants in the control group were matched to the participants of the patient group on age ($M = 16.74$, $SD = 1.40$), sex, and education level. The inclusion criteria for the control group were a healthy BMI index for the age group ($M = 20.91$; $SD = 2.48$) and being

able to speak Dutch. The adolescents in the patient group have been approached through Accare, a Dutch organisation that provides specialistic youth care, whereas the adolescents of the control group have been approached through high schools or via the network of the collaborating researchers or research students. They were asked to fill out a short screening to check whether there was a match with a participant from the patient group. 64 participants of both the patient and control group had an education level of lower general secondary education, 17 of intermediate vocational education, 9 of lower general secondary education, and 10 of higher vocational education or university. All the participants were female.

Measures and materials

Disgust Propensity and Sensitivity Scale Revised

To measure the constructs of disgust propensity and disgust sensitivity, the Disgust Propensity and Sensitivity Scale revised (DPSS-R; van Overveld et al., 2006) was used. The DPSS-R consists of 16 items. The respondent is asked to rate how much they agree with each item (e.g. “I avoid disgusting things”) on a Likert scale ranging from 1 (“never”) to 5 (“always”). The DPSS-R has shown good reliability, convergent validity, and discriminant validity (Olatunji et al., 2007). The scale consists of two subscales, labelled disgust propensity and disgust sensitivity. The total score of each of the subscales is the sum of all the items, ranging from 8 to 40. Both subscales have previously shown acceptable internal consistency (Olatunji et al., 2007). In the present study, the internal consistency was very good for disgust propensity ($\alpha = .87$) and good for disgust sensitivity ($\alpha = .75$).

Self-disgust Eating Disorder Scale

To measure the construct of self-disgust, the Self-Disgust Eating Disorder Scale (SDES; Moncrieff-Boyd et al., 2014) was used. This scale consists of 16 items (e.g. “I accept who I am”) which are rated on a 7-point Likert scale ranging from 1 (“strongly agree”) to 7 (“strongly disagree”). There are six filler-items, which are not included in the calculation of

the total score. To calculate the total score, items 1, 3, 6, 9, 11, 13, and 16 have to be reversed before summing the scores of the ten items. The internal consistency of this scale was excellent ($\alpha = .93$) in the present study.

Eating Disorder Examination Questionnaire

The Eating Disorder Examination Questionnaire (EDE-Q; Fairburn & Beglin, 2008) was used to measure eating disorder symptoms. Furthermore, it was used for descriptive purposes. This scale has two types of data: frequency data about eating disorder behaviours and subscale scores about the severity of the psychopathology of eating disorders. The subscales are labelled Restraint, Eating concern, Shape concern, and Weight concern (Fairburn et al., 2008). A global score was found by summing all the items and dividing that by the number of items (Aardoom et al., 2012). The EDE-Q consisted of 22 items (e.g. “Did you want to have a completely flat stomach”), which are either rated on a Likert scale ranging from 0 (“not at all”) to 6 (“a lot”) or on a Likert scale ranging from 0 (“never”) to 6 (“every day”). In the data used for this study, the score was based on the same scale ranging from 1 to 7, instead of 0 to 6. To make the results more comparable to other studies, the total score was the average score of the items minus 1. The internal consistency of the total score was excellent ($\alpha = .96$) in the present study.

Other materials

The following questionnaires were also administrated to the participants: the Body Image States Scale (BISS; Cash et al., 2002), the Body Checking and Avoidance Questionnaire (BCAQ; Legenbauer et al., 2017), and vignettes about several scenarios regarding emotional reasoning. These questionnaires were not used in the analyses of the current study.

Besides these questionnaires, the participants were also asked to fill out demographic variables like age, gender, education level, weight, and length. An initial BMI score was

calculated by dividing the weight by the length squared. To calculate an adjusted BMI, which is more suited for adolescents, the initial BMI score was divided by percentile 50 of BMI for age and gender, and multiplied by 100 (Cole, Bellizzi, Flegal, & Dietz, 2000). This way the BMI's are comparable over the age range of the group. The 50th percentile for the mean age was found at the site of the Centers for Disease Control and Prevention (CDC).

Procedure

Once a participant wanted to partake in the research, they were first called by one of the researchers. The study was explained to them and consent forms and information letters were sent to the participant through the mail. If the participant was under 16, a signature from the parents or guardians was also required, next to a signature from the participant themselves. The participants were asked to send back the consent forms before the appointment to fill out the questionnaire.

One of the researchers called the participant before sending them the online questionnaire. The link to the questionnaire was sent via a secured e-mail. The participants filled out the questionnaire at home on a computer or laptop. The questionnaire was administrated via Qualtrics. Once the participants was done filling out the questionnaire, they were called again by one of the researchers to check whether everything went well. Then the researcher explained to the participant where they could get help if they kept thinking about the topics from the questionnaire. This included the site www.99gram.nl and the option of going to their general practitioner or in the case of the patient group, their therapist. The general practitioner of the participants of the patient group was informed about their participation via a letter. All participants received a gift card of €8,00 to thank them for their participation. The study has been approved by the Medical-Ethical Committee under the case number NL63447.042.17.

Statistical analysis

Before starting the analysis, 16 cases with incomplete data were deleted, leaving 100 participants. Only one of these cases was a real case of a participant who did not want to partake in the study, the other cases did not have real data. To test the hypothesis that disgust propensity is positively correlated with symptoms of anorexia nervosa and that self-disgust partly explains the relationship between disgust propensity and symptoms of anorexia nervosa (H1), a simple mediation analysis was performed with the variables disgust propensity (independent variable), self-disgust (mediator), and symptoms of eating disorders (dependent variable). Following that, to test the hypothesis that self-disgust is more strongly related to symptoms of eating disorders in people who have higher levels of disgust sensitivity (H2), a moderated mediation analysis was performed by adding disgust sensitivity as a moderator to the relationship between self-disgust (mediator) and symptoms of eating disorders (dependent variable). Both analyses were conducted in PROCESS version 4.0.

Results

Descriptive statistics

Table 1 shows that the means for all the variables on average were higher for the AN group than for the control group. Furthermore, the table shows that all inter-correlations between disgust propensity, self-disgust, disgust sensitivity, and eating disorder symptoms were significant.

Assumptions

The following assumptions for both mediation analyses were checked: normality, linearity, homoscedasticity, and multicollinearity. The P-P plots were normal, therefore the assumption of normality was met for both analyses. The scatterplots of the residuals showed that the assumption of homoscedasticity was also met for both analyses. The assumption of linearity was also met. The inter-correlations displayed in Table 1 show that the assumption of multicollinearity was also met for both analyses.

Table 1

Means and standard deviations of both groups and inter-correlations of all the variables, N = 58 for patient group and N = 42 for control group

	AN			Control			DP	SD	DS
	M	SD	Range	M	SD	Range			
DP (8-40)	28.03	5.05	18-37	20.24	5.42	14-35	-	-	-
SD (10-70)	45.83	10.02	22-61	24.43	10.24	11-49	.692	-	-
DS (8-40)	21.69	4.26	12-31	17.07	5.82	9-35	.676	.502	-
ED symptoms (0-6)	3.84	1.03	1.5-5.6	1.53	1.12	.1-4.8	.736	.814	.545
Adjusted BMI	82.66	10.76	58.7- 106.3	101.07	12.01	77.4- 145.3	-	-	-

Note. DP is disgust propensity, SD is self-disgust, DS is disgust sensitivity, ED is eating disorder, BMI is body mass index. The DPSS-R, SDES, and EDE-Q were used to measure disgust propensity, disgust sensitivity, self-disgust, and eating disorder symptoms.

Testing the hypotheses

The first hypothesis was that disgust propensity is positively correlated with symptoms of eating disorders and that self-disgust partly explains this relationship between disgust propensity and symptoms of eating disorders, thus mediating this relationship. A simple

Figure 2

Simple mediation analysis

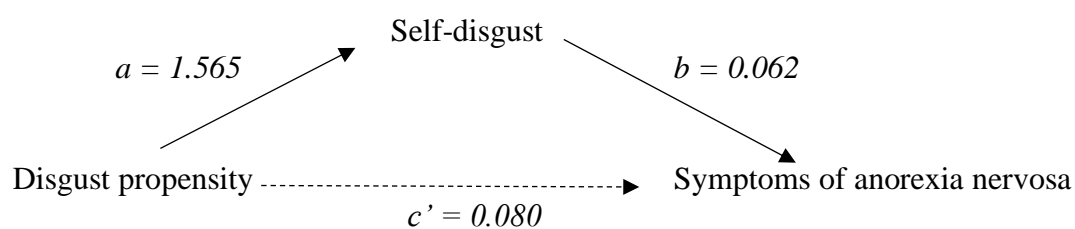


Table 2

Simple mediation analysis with disgust propensity and self-disgust (mediator) on anorexia nervosa

Path/effect	B	SE	t	p	CI
total effect of DP on EDS (path c)	.178	.017	10.759	.000	.145 - .211
effect of DP on SD (path a)	1.565	.165	9.480	.000	1.237 – 1.892
direct effect of DP on EDS (path c')	.080	.018	4.458	.000	.045 - .116
effect of SD on EDS (path b)	.062	.008	7.841	.000	.047 - .078
	Effect	Boot SE			Boot CI
indirect effect of DP on EDS through SD	.0977	.0157			.0665 - .1278

Note. DP is Disgust Propensity, EDS is eating disorder symptoms, SD is Self-disgust.

mediation analysis was performed to test this hypothesis (Figure 2). Disgust propensity had a significant total effect on symptoms of eating disorders (Table 2; path c). This effect remained significant when self-disgust was added to the model (path c'). Disgust propensity significantly predicted self-disgust (path a). Furthermore, self-disgust significantly predicted symptoms of eating disorders, while disgust propensity was controlled for (path b). The indirect effect of disgust propensity on symptoms of eating disorders through self-disgust had a bootstrap confidence interval that did not include zero, which means that self-disgust significantly mediated the relationship between disgust propensity and symptoms of eating disorders. The calculated percent mediation (path ab / c) was 54,51%.

Figure 3

Moderated mediation analysis

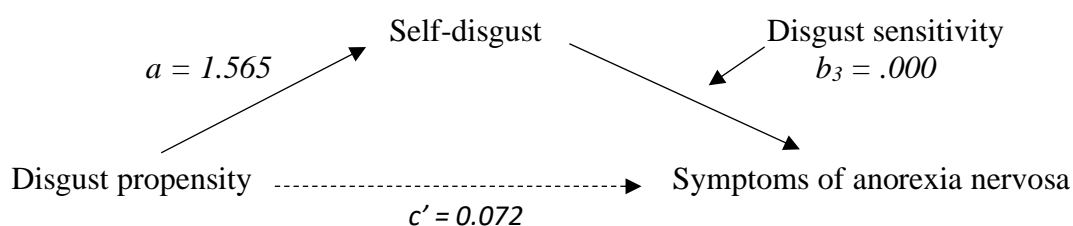


Table 3

Moderated mediation analysis with disgust propensity, self-disgust (mediator), disgust sensitivity (moderator) on anorexia nervosa

Path/effect	B	SE	t	p	CI
direct effect of DP on EDS (path c')	.0723	.0213	3.3889	.0010	.0300 - .1147
effect of SD on EDS (path b)	.0628	.0254	2.4742	.0151	.0124 - .1131
effect of DS on EDS (path b ₂)	.0162	.0483	.3359	.7377	-.0796 - .1121
effect of SD x DS on EDS (path b ₃)	.0000	.0013	-.0289	.9770	-.0025 - .0025
	Effect	Boot SE			Boot CI
index of moderated mediation	-.0001	.0021			-.0044 - .0037

Note. DP is disgust propensity, EDS is eating disorder symptoms, SD is self-disgust, and DS is disgust sensitivity.

The second hypothesis was that self-disgust is more strongly related to symptoms of AN in people who have higher levels of disgust sensitivity. To test this hypothesis, a moderated mediation analysis was performed (Figure 3). As seen in Table 3, the interaction between self-disgust and disgust sensitivity did not significantly predict anorexia nervosa (path b₃), implying that disgust sensitivity does not moderate the relationship between self-disgust and anorexia nervosa. This is further supported by the finding that the bootstrap confidence interval of the moderation included zero, which means that disgust sensitivity is not a significant moderator. Finally, disgust propensity and self-disgust significantly predicted symptoms of eating disorders, while disgust sensitivity was included in the model.

Discussion

General discussion

In this study a theoretical model was tested regarding possible relationships between disgust propensity, self-disgust, disgust sensitivity, and symptoms of eating disorders in

teenage girls. The results showed that disgust propensity was positively correlated with symptoms of eating disorders. Furthermore, self-disgust mediated this relationship. The results also showed that disgust sensitivity did not significantly moderate the relationship between self-disgust and symptoms of eating disorders.

The first hypothesis was that disgust propensity would be positively correlated with symptoms of eating disorders and that self-disgust would partly explain the relationship between disgust propensity and symptoms of eating disorders, thus mediating this relationship. This hypothesis was supported by the results of the current study. The finding that disgust propensity is related to symptoms of eating disorders is in line with the results from van Overveld et al. (2006), who found that disgust propensity was related to body shape concerns and to beliefs related to a drive for thinness and bulimia. Furthermore, the results are also in line with a prior study in which this theoretical model was previously tested (Von Spreckelsen et al., 2018). In line with our findings, they found that disgust propensity was related to a negative body image and that self-disgust mediated this relationship. Our theoretical model proposes that when someone experiences disgust quickly, they would also be prone to experience self-disgust more easily. This could in turn lead to more symptoms of eating disorders, to minimize the feeling of disgust. However, the direction of the relationship cannot be established with the design of the current study, since it was a correlational design.

The second hypothesis was that self-disgust would be more strongly related to symptoms of eating disorders in people who have higher levels of disgust sensitivity. This hypothesis was not supported by our results, since disgust sensitivity did not significantly moderate the relationship between self-disgust and symptoms of eating disorders. In line with the current results, Von Spreckelsen et al. (2018) also found that disgust sensitivity did not moderate the relationship between self-disgust and a negative body image. Based on these findings, experiencing the emotion of disgust as more unpleasant does not lead a stronger

relationship between self-disgust and symptoms of eating disorders. A possible reason for this could be that the feeling of self-disgust is already so unpleasant, that heightened levels of disgust sensitivity does not make the feeling worse, and that therefore disgust sensitivity does not influence the relationship. Furthermore, the results showed that disgust sensitivity did not significantly predict symptoms of eating disorders. This is contradictory to the findings of previous studies which found that disgust sensitivity was related to eating disorder symptoms (Bell et al., 2017; Davey & Chapman, 2009; Von Spreckelsen et al., 2018). The contradictory results could be because of methodological differences. The current study used a different questionnaire to measure eating disorder symptoms than the other studies, which might be the reason for the difference in results. In addition, the current sample also differs from the previous studies, since our sample included adolescents with AN, whereas these previous studies did not. It could be possible that disgust sensitivity only predicts symptoms of eating disorders when those symptoms are very slight, as they would be when measured in a sample with non-pathological participants. However, disgust sensitivity does not predict eating disorder symptoms when these symptoms are measured in a sample of participants with AN.

The findings of the current study have implications for clinical treatment for eating disorders, since it was found that disgust propensity is related to symptoms of eating disorders and that self-disgust mediates this relationship. Currently, the most prominent therapy is family therapy (Lock, 2019), however it might be effective to also focus on how patients with AN experience (self-)disgust and how this affects them. If disgust is a factor in the development of AN, which would need to be studied with a causal design, treatment could focus on minimizing the feeling of disgust. High levels of disgust can be reduced by the process of extinction (Rozin et al., 1987). A possible effective treatment would be prolonged exposure, which focuses on the extinction of the feeling of disgust by exposing clients to this feeling (Glashouwer & de Jong, 2021). Clients could be exposed to the feeling of self-disgust

by looking at parts of their body that elicit this feeling. This could help reduce self-disgust in patients with AN.

Strengths and limitations of study

The biggest strength of this study is that it was conducted in a clinical group. A lot of previous studies, such as the study done by Von Spreckelsen et al. (2018), performed their research in samples with nonpathological patients. This still leads to interesting and meaningful results, however, when using a patient group, the results become more generalizable to this specific group. Furthermore, the patient group that was researched is also a strength in another way: girls between the ages of 14 and 20 were included, which is an age group that is at high risk for developing AN (Lock, 2019). The results of this study may have implications for the treatment or prevention of AN, so therefore it is useful that the study included participants in an age group which is most likely to develop or suffer from AN.

However, there are also a few limitations of this study. The first one being that the patient group contained more participants than the control group. This was because the participants of the control group had to be matched to the participants of the patient group on age, sex, and education level. It turned out to be quite difficult to find people who were a match and who were willing to participate. If more participants were included in the control group, the power of the study would have been higher. This would have made the statistical findings more reliable. For future research, it would be beneficial to have a larger control group.

A second limitation of this study is that all the participants of this study were female. Even though AN is less prevalent in men, it is still important to also know how AN develops in all genders. On top of that, Olatunji et al. (2007) mentioned in their study about the DPSS-R that this questionnaire on average yielded higher scores within women, compared to the scores of men. Since this questionnaire was used in the current study to measure disgust

propensity and disgust sensitivity, it is possible that the results would have been different if men were included in the sample. The reason this was not the case, was simply because it was difficult to find male participants with a diagnosis of AN. It would be interesting to see the possible differences in the development of AN between genders in future research.

Future research recommendations

As mentioned before, there are several ideas for future research. First, this study could be replicated with a larger sample (specifically a larger control group), for a higher power of the study. However, to tackle the biggest limitation of this study, the correlational design, longitudinal research to study whether disgust propensity leads to self-disgust, which is then followed by symptoms of eating disorders would be needed to draw any conclusions about the direction of the relationships in the theoretical model which is studied in the current research. A possible design would be to recruit a sample of young girls with high levels of disgust propensity or disgust sensitivity and a sample of young girls without high levels of disgust propensity or disgust sensitivity. The two groups could then be assessed for levels of self-disgust and eating disorder symptoms multiple times throughout their coming of age. This could possibly show a directional relationship between disgust propensity, self-disgust, and symptoms of eating disorders. Furthermore it could show whether disgust sensitivity is a predictor of eating disorders.

Conclusion

In this study, a theoretical model was tested which included disgust propensity, self-disgust, disgust sensitivity, and symptoms of eating disorders. The results showed that disgust propensity was positively correlated with symptoms of eating disorders and that self-disgust mediated this relationship. This means that there is a possibility that a heightened disgust propensity leads to symptoms of eating disorders because of a heightened feeling of self-disgust, however longitudinal research is needed to draw any conclusions about the direction

of the relationships in the theoretical model. If disgust propensity does lead to symptoms of eating disorders because of self-disgust, this would have implications for treatment. These findings could be used for the development of new treatment options. The results also showed that disgust sensitivity did not moderate the relationship between self-disgust and symptoms of eating disorders, as hypothesized in the theoretical model. Future research could try to determine whether disgust sensitivity actually plays a role in the onset or maintenance of AN.

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