

Lifetime prevalence of eating disorders is associated with increased intrasexual competitiveness and jealousy in women but not in men

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Master's Thesis in Psychology

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Åbo Akademi University, 2021

**ÅBO AKADEMI UNIVERSITY – FACULTY OF ARTS, PSYCHOLOGY AND
THEOLOGY**

Subject: Psychology	
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Title: Lifetime prevalence of eating disorders is associated with increased intrasexual competitiveness and jealousy in women but not in men	
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Abstract: <p>Anorexia nervosa (AN) and bulimia nervosa (BN) are serious psychiatric illnesses characterized by disturbances of amount, variety, and frequency of food ingested, either by restriction or excessive overeating. The literature on eating disorders has described the intrasexual competition hypothesis as an explanatory model for eating disorders in women, and earlier research has found some support for the hypothesis. Previous studies have also shown an association between intrasexual competition and jealousy. The present study aimed to investigate the relationship between eating disorders, intrasexual competition, and jealousy in a sample of both women and men. The sample consisted of 5 329 women and 2 641 men who answered an online survey. Anorexia nervosa and bulimia nervosa prevalence rates, level of intrasexual competition, and jealousy were the main outcome measures. A Generalized Estimating Equation (GEE) regression model was fitted to the data to investigate the relationship between eating disorders, intrasexual competition, and jealousy. The results for women in the study were in line with previous research: women with lifetime prevalence of AN or BN reported more intrasexual competition and more jealousy than women who did not report lifetime prevalence, however, the effect sizes were small. Men who reported lifetime prevalence of AN or BN did not report more intrasexual competitiveness or jealousy than men without lifetime prevalence. The results of the present study should not be interpreted as supporting the hypothesis of intrasexual competition as an explanatory model for eating disorders, and alternative theories should not be excluded. Suggestions for future research are to conduct studies in larger samples with better measures of eating disorders to investigate the role of the intrasexual competition and jealousy in eating disorders in women and men.</p>	
Keywords: Eating disorders, anorexia nervosa, bulimia nervosa, intrasexual competition, jealousy.	
Date: 1.11.2021	Page count: 32
Level: Master's Thesis	

**ÅBO AKADEMI – FAKULTETEN FÖR HUMANIORA, PSYKOLOGI OCH
TEOLOGI**

Ämne: Psykologi	
Författare: Ellen Wilenius	
Avhandlingens titel: Ätstörningar, intrasexuell tävlan och svartsjuka	
Handledare: Patrik Jern	
Abstrakt: <p>Anorexia nervosa (AN) och bulimia nervosa (BN) är allvarliga psykiska sjukdomar som innebär att den drabbade har ihållande störningar kopplade till matintag. Tidigare studier har påvisat ett samband mellan ätstörningar och intrasexuell tävlan hos kvinnor. Litteratur även beskrivit intrasexuell tävlan som en möjlig förklaringsmodell för ätstörningar hos män. Tidigare studier har även påvisat ett samband mellan intrasexuell tävlan och svartsjuka. Syftet med denna studie var att undersöka sambandet mellan ätstörningar, intrasexuell tävlan och svartsjuka i ett sampel bestående av både kvinnor och män. Samplet bestod av 5329 kvinnor och 2641 män som besvarade en nätenkät. I studien användes mått för att mäta livstidsprevalens av anorexia nervosa, bulimia nervosa, grad av intrasexuell tävlan och svartsjuka. I studien genomfördes en "Generalized Estimating equation"-regressionsmodell (GEE) för att undersöka samband mellan ätstörningar, intrasexuell tävlan och svartsjuka. Resultaten för kvinnor i studien var i linje med tidigare forskning; kvinnor med livstidsprevalens av antingen AN eller BN uppvisade mer intrasexuell tävlan och mer svartsjuka än kvinnor som inte rapporterade livstidsprevalens. Män som rapporterade livstidsprevalens av ätstörningar uppvisade inte mer intrasexuell tävlan eller svartsjuka än män utan livstidsprevalens. Förslag till framtida forskning är att genomföra studier i större sampel med bättre mått på ätstörningar för att undersöka vilken roll intrasexuell tävlan har för ätstörningar hos kvinnor och män.</p>	
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Datum: 1.11.2021	Sidantal: 32

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Introduction

Eating disorders are serious psychiatric illnesses characterized by disturbances of amount, variety, and frequency of food ingested, either by restriction or excessive overeating. These disturbances significantly impair the individual's psychosocial functioning and physical health (American Psychiatric Association, 2013). Two of the most commonly described eating disorders in research are anorexia nervosa (AN) and bulimia nervosa (BN). AN is a severe eating disorder that primarily affects adolescent girls and young women. Individuals with AN have a distorted body image and a fear of becoming overweight. They restrict their calorie intake, which results in excessive weight loss. Bulimia Nervosa (BN) is an eating disorder characterized by oscillating episodes of over-eating and compensatory behavior (e.g., self-induced vomiting or excessive use of laxatives).

AN, and BN are clinically different illnesses, however, both disorders are characterized by a fear of gaining weight and pursuit to remain thin. Both diseases primarily affect young, fertile women and appear to be more prevalent in Western societies (Zipfel et al., 2015). Those suffering from eating disorders have significantly raised mortality rates, and individuals who have received inpatient treatment for AN have more than five times increased mortality risk. Eating disorders negatively impact the affected individual's overall well-being, quality of life, education and work, and social and family life (van Hoeken & Hoek, 2020).

Findings from a large nationwide longitudinal twin study showed that the lifetime prevalence estimate is 6.2 % for AN and 2.4 % for BN among Finnish women. The lifetime prevalence estimate among men is 0.3 % for AN, and 0.16 for BN among Finnish men (Silén et al., 2020).

Etiology of Eating Disorders

The etiology of eating disorders is a topic of lively scientific debate, with many competing theories stemming from various scientific disciplines. Earlier perspectives on the etiology of eating disorders have focused on the role of the psychosomatic family (Minuchin et al., 1978), the Western culture and media (Rodgers et al., 2019), the influence of peers (Marcos et al., 2013), disordered cognition and biases (Williamson et al., 1999) emotion regulation (Haedt-Matt & Keel, 2011), disturbances in serotonin and dopamine function (Grzelak et al., 2016) trauma and abuse (Brewerton, 2007), objectification (Fredrickson & Roberts, 1997) to mention a few. Despite the proposed explanations and the amount of data gathered about eating disorders, eating disorders remain poorly understood, highly disabling, costly to society, and lethal. More research is urgently needed to understand the mechanism behind eating disorders and develop more effective treatments (Treasure et al., 2020).

In an attempt to understand the etiology of eating disorders at ultimate (rather than proximate) levels of explanation, several researchers have proposed evolutionary hypotheses for restrictive eating and the desire for thinness. Evolutionary theory offers explanations for behavior on both proximate and ultimate levels: the proximate mechanism of behavior explains how behavior works, while the ultimate mechanism of behavior explains why a behavior exists (Scott-Phillips et al., 2011). The following evolutionary theories have been suggested for the causation of eating disorders: the thrifty genotype hypothesis (Wells, 2006), the reproductive suppression hypothesis (Wasser & Barash, 1983), the parental manipulation hypothesis (Volland & Volland, 1989), the reproductive suppression by dominant females hypothesis (Mealey, 2000) the adapted to flee famine hypothesis (Guisinger, 2003), the social threat hypothesis (Gatward, 2006), the sexual competition hypothesis for eating disorders (Abed, 1998), and the mismatch hypothesis of eating disorders (Rantala et al., 2019), an extension of the sexual competition hypothesis. The present study will focus on testing some

implications of the sexual competition hypothesis for eating disorders, which has received support in the scientific literature and, according to Abed (1998), could explain eating disorders at the ultimate level of explanation.

The Sexual Competition Hypothesis of Eating Disorders

According to Abed's (1998) sexual competition hypothesis (SCH), eating disorders and the drive towards thinness may develop from intense intrasexual competition among women for mates. The hypothesis is based on Darwin's theory of sexual selection: sexual selection focuses on adaptations that have arisen due to successful mating (Buss, 2019, p. 31). Darwin (1859/2009) described two mechanisms of sexual selection: intersexual selection, which occurs when members of one sex have preferences for specific characteristics when selecting mates of the opposite sex, and intrasexual selection, which refers to the competition between members of the same sex over mating access to members of the opposite sex. Women and men adopt divergent strategies for mate attraction and mate retention: The dominant strategy of men in intrasexual competition tends to be a display of status, resources, and dominance, whereas women tend to use self-promotion (including displays of physical attractiveness) and derogation of their competitors (Buss, 1988). The SCH proposes that the female body shape indicates reproductive history and fertility. Due to women's limited reproductive window, men have developed a preference for visual cues of youth and fertility. These visual cues are, for example, a low waist-to-hip ratio and relative thinness. Consequently, women compete to seem youthfully slim to attract the attention of men. Supposedly, this causes runaway female intrasexual competition, which leads to eating disorders at its extreme.

According to Abed (1998), several factors have emerged in westernized societies that have fundamentally intensified female intrasexual competitiveness and increased the prevalence of eating disorders. According to his hypothesis, a decline in birth rates in Western

countries has led to an increase of older women who have preserved the nubile shape. Urban living is considered to be another factor that has increased intrasexual competition, as living in cities with large numbers of women nearby increases social comparison. Another factor is the media providing images of attractive, nubile women, which are misconstrued as competitors. Women in Western societies also have high levels of autonomy (i.e., women can regulate their reproductive behavior without interference from kin). These phenomena explain possible pathways to how intrasexual competition could cause eating disorders to become more prevalent in developed countries.

Several studies have been conducted to directly investigate the relationship between eating disorders and female intrasexual competition. Faer et al. (2005) examined the relationship between intrasexual competition and eating disorders in a sample of 202 undergraduate women. The findings from the study showed that intrasexual competition predicted competition for status, general competitiveness, perfectionism, body dissatisfaction, drive for thinness, and eating attitudes related to bulimia and anorexia. In a replication of the study mentioned above, Abed et al. (2012) re-examined the association between disordered eating behavior and intrasexual competition in a sample of 206 female undergraduates. The results showed that intrasexual competitiveness was correlated with disordered eating. A study by Nettersheim et al. (2018) examined the SCH and predictions from Life History Theory in a clinical sample consisting of 20 women with AN and 20 women with BN, and a control group (19 women). The authors predicted that patients with AN and BN would score higher on a measure of intrasexual competitiveness. The results were consistent in part with the findings in the previously mentioned studies with non-clinical samples, in that individuals with BN experienced more intrasexual competitiveness than a control group of healthy women. In sum, these studies suggest that psychological and behavioral aspects of AN and

BN may be rooted in evolutionary phenomena such as intrasexual competition, although further research is necessary.

Eating disorders in men

The previously mentioned studies have focused on eating disorders among women and girls. The literature on eating disorders in women preceded the literature on eating disorders in men by almost a century (Gorrell & Murray, 2019). Eating disorders in men is a neglected research area, which has remained misunderstood and understudied, both in treatment and diagnosis (Strother et al., 2012). There is likely an underestimation of prevalence among men. Epidemiological studies show that eating disorders among men are on the rise, possibly even more quickly than among women (Gorrell & Murray, 2019).

Men's eating disorders have been problematic for evolutionary formulations, especially those based on female competition and reproductive suppression. However, according to Abed (1998), the SCH could account for eating disorders in some men. Two studies have been performed that test the SCH of eating disorders in men. In a study conducted by Li et al. (2010), 458 heterosexual and homosexual individuals were exposed to pictures of high status vs. low status same-sex individuals. The study found that cues of intrasexual competition led to reports of more disordered eating attitudes and worse body image among heterosexual women and homosexual men, but not in heterosexual men and homosexual women. Antfolk et al. (2017) tested the SCH for eating disorders in a sample of 8 007 participants, but their results were not in line with Li's et al. (2010). Antfolk's et al. (2017) study showed that androphilic women and men did not experience the same amount of body dissatisfaction and disordered eating, and gynephilic women reported more disordered eating than did androphilic women and men. To date, the SCH of eating disorders in men lacks empirical research, and the studies that have been conducted show inconsistent results.

Jealousy

One aspect of intrasexual competition is jealousy. People who are more intrasexually competitive may also experience higher degrees of jealousy. According to Maner and Shackelford (2008), jealousy is defined as a system of cognitive, affective, physiological, and behavioral responses to a perceived threat to one's relationship, directed towards guarding one's mate against intrasexual competitors. By decreasing the likelihood of infidelity or mate abandonment, mate-guarding behaviors are thought to enhance reproductive success (Buss & Shackelford, 1997). To the extent that the impact of a specific rival characteristic reflects intrasexual competition – such as physical dominance among males and physical attractiveness among females – mate guarding and jealousy should be more prevalent among those with high intrasexual competitiveness. Indeed, studies show that men are more distressed by rivals with a better job, who are physically stronger, and with higher status, while women are more distressed by rivals who are more attractive, bodily and facially (Buss, 2013)

A study by Maner, Miller, Rouby, and Gailliot (2009) showed that individuals displaying a high degree of jealousy tend to worry about infidelity and are especially intrasexually competitive towards relationship threats. The 2009 study was a replication of a study by Maner, Gailliot, Rouby, and Miller (2007), in which individuals were primed to a state of jealousy. The jealousy prime caused increased attention to same-sex intrasexual rivals among the participants that already tended to worry about potential threats to their relationship but not among those less concerned about threats to the relationship.

In another study conducted by Buunk et al., (2010), sex differences in rival characteristics that elicit jealousy at the workplace were examined in a sample of 188 individuals. In the study, the rival's characteristics that elicited the most jealousy among men were social dominance and social-communal attributes, followed by physical dominance.

Among the women in the study, the rival's social-communal attributes elicited the most jealousy, followed by social dominance and physical attractiveness. The study also showed that when under a same-sex supervisor, women high in intrasexual competitiveness tended to be more jealous of the rival's physical attractiveness and men high in intrasexual competitiveness were more jealous of the rival's physical dominance.

Few studies have examined the role of jealousy among individuals with eating disorders, however, studies have shown that individuals with AN tend to experience more jealousy compared to an unaffected sibling (Dimitropoulos et al., 2013; Karwautz et al., 2001)

The Current Study

The current study aimed to examine differences in intrasexual competitiveness and jealousy between individuals who reported lifetime prevalence of either AN, BN, or both and individuals without lifetime prevalence of either AN, BN, or both. Despite the large body of research focusing on eating disorders, eating disorders remain highly disabling and poorly understood, and little progress has been made in the past few decades in understanding the "why" of eating disorders. Evolutionary formulations of eating disorders claim to provide a cogent theoretical framework of the ultimate causation of eating disorders, particularly the SCH for eating disorders. The SCH states that eating disorders stem from intrasexual competition, and a few studies following the hypothesis have found some support for it. Based on this earlier research, investigating the association between eating disorders and intrasexual competitiveness in a larger sample is necessary. Because studies indicate that jealousy is closely linked with intrasexual competition (an aspect of intrasexual competition), and a few studies showing that jealousy appears to be more prevalent in individuals with eating disorders, I decided to include jealousy as a predictor variable in the present thesis. The

present study is the first, to my knowledge, to investigate the relationship between AN, BN, intrasexual competitiveness, and jealousy in a large, population-based sample.

In order to test the explanatory power of the SCH for disordered eating and further study the relationship between eating disorders and jealousy in women, I formulated the following hypotheses:

1. Women who report lifetime prevalence of eating disorders (either AN, BN, or both) report higher scores on a measure of intrasexual competitiveness than women who report no history of eating disorders.
2. Women who report lifetime prevalence of eating disorders (either AN, BN, or both) report higher scores on a measure of jealousy than women who report no history of eating disorders.

The present study also sought to extend the literature on eating disorders in men, a research area where data are scarce. According to Abed (1998), SCH could account for eating disorders in some men. To date, only two studies have tested the SCH for disordered eating in men. The state of the SCH in literature is that it could account for disordered eating in men, however, it has not been empirically tested among men who report eating disorders. Therefore, it is necessary to start including men in the research of eating disorders. I decided to, in an explanatory way, investigate the association between eating disorders, intrasexual competitiveness and jealousy in men but decided not to formulate a directed hypothesis as the available evidence on the topic was scarce and results were inconsistent in previously published studies.

Method

Procedure and Participants

The sample in the present study consisted of responses from adult twins and siblings of twins who had participated in Genetics of Sex and Aggression study, a

Finnish-population-based study. Twins and siblings of twins in Finland were sent an invitation letter to participate in the study if they were over 18 years old, their mother tongue was Finnish, and they resided in Finland at the time of gathering contact information. 33,211 eligible addresses were acquired through the Central Population Registry and sent an invitation letter. The number of recipients who responded was 9 564, resulting in a total response rate of 29%. Out of the recipients, 97 % agreed that their data would be used for scientific purposes. In compliance with the Helsinki Declaration, the ethics review board of Åbo Akademi University reviewed and approved the data-collection plan. Before the data collection, a written informed consent form was obtained from each participant, informing them that their participation was voluntary and anonymous. For more detailed information about the data collection, see Tybur et al. (2020).

For the present study, participants who had reported that they disagreed with their gender in the Finnish Population Registry were excluded (2 participants). Of the 6 025 women who responded to the survey, 696 were excluded for not responding to questions regarding lifetime prevalence of AN, BN, intrasexual competition, and jealousy. Out of the 3 123 men who responded to the survey, 482 were excluded for not answering questions regarding lifetime prevalence of AN, BN, intrasexual competitiveness, and jealousy. The final sample of the current study consisted of 7 970 participants: 5 329 women and 2 641 men. The age for the women ranged from 18 to 61 ($M = 30.04$, $SD = 8.16$). The age for the men ranged from 18 to 60 ($M = 30.2$, $SD = 8.22$)

Measures

Eating disorder

Participants responded to two questions inquiring about lifetime prevalence of eating disorders: "Have you ever suffered from anorexia nervosa?" and "Have you ever suffered from bulimia nervosa?" The response options were "yes" and

"no."

Jealousy

The jealousy measure was created for the survey: the participants were presented with hypothetical scenarios of their partner engaging in different behaviors with another person and then asked to report their level of discomfort on a 7-point Likert scale. The scale consisted of 11 items and ranged from 1 ("Extremely comfortable") to 7 ("Extremely uncomfortable"). Examples of the behaviors the participants were asked to imagine are: "touching while talking," "kissing on the lips," "having sex," and "flirting in conversation." Higher scores indicate higher levels of jealousy. The measure had excellent reliability (Cronbach's $\alpha = 0.92$).

Intrasexual competition

The Intrasexual Competition Scale (ICS) was used to measure to which degree an individual is motivated to compete with members of the same sex. Earlier studies have found the ICS to be a valid and reliable tool for measuring intrasexual competition (Buunk & Fisher, 2009). The scale consisted of 12 items rated on a 7-point Likert-type scale ranging from 1 ("Not at all applicable") to 7 = ("Completely applicable"). Example items include: "I would not hire a competent man/woman as a colleague," "I cannot stand it when I meet another woman who is more attractive than I am," "When I am at a party, I enjoy it when men/women pay more attention to me than other men/women," "I would not hire a very ambitious man/woman as a colleague" and "I always want to beat other men/women." Higher scores indicate higher levels of intrasexual competition. The measure had good reliability (Cronbach's $\alpha = 0.88$).

Data Analysis

The statistical analyses and the descriptive statistics were computed using IBM SPSS 26.0 Statistics software package. A generalized estimating equation (GEE) regression model examined associations between eating disorders, intrasexual competitiveness, and jealousy.

For the analysis, composite variables for eating disorders (both AN and BN into a singular factor), intrasexual competition, and jealousy were created by summing all items associated with the same factor. Since this study aimed to examine eating disorders, intrasexual competition, and jealousy among men and women, two separate GEE analyses were conducted. The GEE regression models were selected because the procedure allows for controlling for between-subject dependence, which was necessary since the data was composed of genetically related individuals. I excluded all individuals who had not responded to questions regarding lifetime prevalence of AN/BN, intrasexual competitiveness and jealousy. The exclusion was done by filtering out all individuals who had missing values on the previously mentioned variables.

Results

Descriptive statistics for the groups can be found in Table 1.

Table 1*Descriptive Statistics for AN/BN, Intrasexual Competition and Jealousy*

	<i>M</i>	<i>SE</i>	95 % Wald Confidence Interval		Range
			Lower	Upper	
<i>Women participants (n = 5 329)</i>					
AN/BNn <i>n</i> = 606					
ICS	2.42	.042	2.34	2.51	1-7
Jealousy	3.24	.068	3.11	3.38	1-7
Unaffected <i>n</i> = 4 723					
ICS	2.20	.014	2.17	2.23	1-7
Jealousy	3.06	.024	3.01	3.11	1-7
<i>Men Participants (n = 2 641)</i>					
AN/BN <i>n</i> = 29					
ICS	2.33	.148	2.04	2.62	1-7
Jealousy	3.38	.319	2.75	4.00	1-7
Unaffected <i>n</i> = 2 612					
ICS	2.45	.016	2.42	2.48	1-7
Jealousy	2.99	.030	2.93	3.05	1-7

Note. AN/BN = Lifetime prevalence of anorexia nervosa or bulimia nervosa, Unaffected = No Lifetime Prevalence of anorexia nervosa or bulimia nervosa, ICS = The Intrasexual Competition Scale (higher scores indicate more competitiveness), Jealousy = Jealousy measure (higher scores indicate more jealousy). *M* = Mean, *SE* = Standard Error

As illustrated in Table 2, women who reported lifetime prevalence of either AN, BN or both, scored significantly higher on the intrasexual competition measure and on the jealousy measure than women who reported no history of lifetime prevalence of either AN, BN or both, supporting hypotheses 1 and 2. In men, no significant group difference on scores on the intrasexual competition measure or in the jealousy measure were detected between

men who reported lifetime prevalence of either AN, BN or both and men who reported no history of AN, BN or both.

The GEE procedure does not provide effect size estimates. However, the significant results (intrasexual competitiveness and jealousy in women who reported lifetime prevalence of eating disorders) had χ^2 values of -.223 and -.183, respectively, suggesting that the effect sizes were very small.

Table 2

Associations between Eating disorders, Intrasexual Competition and Jealousy

Predictor variable	<i>Intrasexual competition</i>			
	Wald χ^2	<i>p</i>	<i>B</i>	<i>SE</i>
AN/BN Women	25.3	<.001	-.223	.044
AN/BN Men	.695	.404	.125	.149
Predictor variable	<i>Jealousy</i>			
	Wald χ^2	<i>p</i>	<i>B</i>	<i>SE</i>
AN/BN Women	6.53	.011	-.183	.071
AN/BN Men	1.46	.227	-.387	.320

Note. AN/BN = Lifetime prevalence of anorexia nervosa or bulimia nervosa, Wald χ^2 = Wald chi squared, *B* = unstandardized regression coefficient, *SE* = standard error of the *B*. All chi square have one degree of freedom.

Discussion

The present study aimed to investigate how eating disorders are associated with intrasexual competitiveness and jealousy among women and men, using a large, population-based sample consisting of 5 329 Finnish women and 2 641 Finnish men. Based on Abed's (1998) Sexual Competition Hypothesis of eating disorders and subsequent studies that have

provided some support to his theory, I expected that women who reported lifetime prevalence of eating disorders would report more intrasexual competitiveness than women who reported no lifetime prevalence of eating disorders. Based on earlier research, I also expected that women who reported lifetime prevalence would report more jealousy than individuals who reported no lifetime prevalence of eating disorders. In the present study, women who reported lifetime prevalence of eating disorders reported more intrasexual competitiveness and jealousy than women without lifetime prevalence of an eating disorder, thus supporting hypotheses 1 and 2. The results from the present study are consistent with earlier findings on eating disorders and intrasexual competitiveness in women, however, the effect sizes suggest that group differences caused by intrasexual competitiveness, although significant, were very small. Given the importance of understanding relevant questions regarding etiology linked to eating disorders, the results suggest that other factors besides intrasexual competition should also be considered to understand the ultimate cause of eating disorders.

In the present study, I investigated the association between eating disorders, intrasexual competitiveness, and jealousy in men. Men with lifetime prevalence of eating disorders did not report more intrasexual competitiveness or jealousy than men who did not report lifetime prevalence of eating disorders. As a result of the small sample size, the present study was best used for an exploratory analysis of the relation between eating disorders, intrasexual competitiveness, and jealousy in men.

Main Findings and Interpretations

The results in this study showed that women who reported lifetime prevalence of AN, BN, or both, reported more intrasexual competitiveness and jealousy than women who without lifetime prevalence of AN, BN, or both, supporting hypotheses 1 and 2. Although group differences were significant, the results suggested that the effect sizes were extremely small, limiting their relevance. The results for the association between intrasexual

competition and eating disorders were in line with previous studies (Abed et al., 2012; Faer et al., 2005; Nettersheim et al., 2018); however, with the suggested small effect size, other factors could better account for the group differences, and the results from the present study should not be interpreted as an indication of intrasexual competitiveness as the ultimate cause of eating disorders. The results from the present study suggest that intrasexual competition is associated with eating disorders in women, and that other factors which were not included in this study should be studied to understand the ultimate cause of eating disorders in women. I was able to confirm my hypotheses, which claimed that women with lifetime prevalence of eating disorders would score higher on a measure of intrasexual competitiveness, however, the results imply that eating disorders in women might have a different ultimate cause than the one formulated in Abed's (1998) theory.

The previously mentioned studies that have supported the hypothesis have limitations: they have been conducted in smaller samples (ranging from 40 to 202 participants). Both Faer et al. (2005) and Abed et al. (2012) conducted their studies in samples ranging from 202 to 206, with primarily white undergraduate students. In these studies, AN, and BN could also not be adequately distinguished from each other. In Faer's et al. (2005) study, intrasexual competition did not predict actual occurrences of eating disorders, but instead answers in an unvalidated survey for eating disorders. Nettersheim et al. (2018) measured intrasexual competition in a clinical sample with only 40 participants. All studies were based on self-report, making them susceptible to response bias. The present study is the first study to test the SCH for eating disorders in a large population sample.

In the present study, I did not distinguish between AN and or BN. The SCH for eating disorders lacks an explanation as to why some women succumb to one of the illnesses rather than the other. Since the illnesses are quite different from one another, it is plausible that they have different adaptive purposes and separate etiologies. To further understand the

differences between AN, and BN, and approach the differences through an evolutionary perspective, researchers have suggested that life history factors may offer a valuable avenue of investigation (Rantala, et al., 2019). However, other perspectives of causes for AN and BN should not be excluded.

Women who reported lifetime prevalence of AN, BN, or both, also reported significantly more jealousy. However, the result suggested that the effect size was minimal. More research is warranted to investigate the relationship between eating disorders and jealousy, for example research in large samples, and with validated measures of jealousy.

In the present study, men with lifetime prevalence of AN, BN, or both did not report more intrasexual competitiveness or jealousy than men without lifetime prevalence of eating AN, BN, or both. This was not surprising given the minor effects detected in women, and that the men reporting lifetime prevalence in the sample were so few. Only two earlier studies have accounted for the role of intrasexual competitiveness in disordered eating in men, with inconsistent results (Antfolk et al., 2017; Li et al., 2010) and to date, no study has investigated the role of intrasexual competitiveness in men with lifetime prevalence of eating disorders. Hence, I found it essential to empirically investigate the role of intrasexual competitiveness in a sample of men with lifetime prevalence, even if few men reported AN or BN in the sample. No significant group difference was found, but more research in larger sample is warranted to investigate the association between eating disorders, intrasexual competition and jealousy in men. In previous studies that included men, sexual orientation was also considered. This study, however, did not do so due to the low number of men in the sample. The interaction between intrasexual competition and sexual orientation that has been investigated in earlier research (Antfolk et al., 2017; Li et al., 2010) is beyond the scope of this study, however, to date, there is no empirical support for intrasexual competitiveness as the ultimate cause for eating disorders in homosexual men. Since most of

the competitors for mating opportunities with men are women, one can question whether the efforts of homosexual men to attract mates are of intrasexually competitive nature rather than intersexual, and considering the inconsistent results to date (Antfolk et al., 2017; Li et al., 2010), other theories on the possible cause of eating disorders should be further investigated .

According to Abed (1998), his hypothesis offers a convincing explanation for the ultimate causation of eating disorders. However, it is worth noting that to date, the hypothesis does not have much empirical support. For evolutionary theories to avoid the risk of becoming “just-so” theories, it is necessary to test them empirically. More large-scale clinical studies are required for an evolutionary theory on the cause of eating disorders to bear practical relevance in psychiatric and medical praxis.

Strengths and Limitations of the Study

An apparent strength is that the present study is the first to test the SCH of eating disorders in a large population sample. The Intrasexual Competition Scale measure had previously been validated (Buunk & Fisher, 2009) and showed high reliability in the present study. The study is also the first of its kind to investigate intrasexual competitiveness and jealousy in both women and men who report lifetime prevalence of eating disorders. The study also contributes to research on eating disorders in men, which has been a neglected area. The study is also essential since it shines a light on a hypothesis that only has support to date, while the supposed support has several limitations.

The present study also had several limitations. Given that the men in the sample were so few, sexual orientation was not included in the study, as it has been in earlier research (Antfolk et al., 2017; Li et al., 2010), and further research on eating disorders and intrasexual competitiveness should take sexual orientation into account. The use of lifetime prevalence meant that it was impossible to know whether the participants were in an active phase or not. The use of self-estimates can also mean greater measurement errors due to, for example, bias

arising from answers affected by social desirability. The response rate in the survey was also only 29%, which increases the likelihood of selection bias. The present study was conducted in a large population sample, and 11.4 % of the women and 1.1 % of men reported lifetime prevalence of AN or BN. Compared to findings from Silén's et al. (2020) study, the participants in the present study reported more lifetime prevalence of eating disorders. The sample in Silén's et al. (2020) study was similar to the present study, however, they found that the lifetime prevalence of eating disorders in Finnish twins was 6.2 % for AN and 2.4 % for BN among Finnish women, and 0.3 %, for AN and 0.16 for BN among men. The reported prevalence in the present study might be due to over-reporting. The jealousy measure had not been validated, however, the measure may have been a more accurate measure of jealousy than other commonly used measures since it contains more than two questions (Kupfer et al., 2021).

Conclusions

In conclusion, the present study contributes to the literature on eating disorders, intrasexual competitiveness, and jealousy. The present study is the only study to test the SCH of eating disorders in a large population sample. It is also the first to investigate the association between eating disorders, intrasexual competition, and jealousy.

Earlier studies on the role of intrasexual competitiveness in eating disorders in women have found support for the hypothesis. However, the earlier studies have several limitations, for example, small samples. The present study is the first to test the SCH for eating disorders in women in a large sample (~5000 women). The hypotheses were that women who report lifetime prevalence of eating disorders would score higher on a measure of intrasexual competitiveness and score higher on a measure of jealousy. The results from the study supported the hypotheses. Although the results were in line with earlier research, the effect sizes were suggested to be very small. These small effect sizes limit the relevance of the

results since I was testing a theory that aims to explain the ultimate cause of eating disorders. The SCH does not fit within the current evidence base to support the claim that it provides a coherent explanation for the etiology of eating disorders in women.

Earlier research has formulated that intrasexual competition may have a role in eating disorders in men, however, the present study was the first to examine that relationship among men who reported lifetime prevalence of eating disorders. It is also the first to examine the relationship between eating disorders, intrasexual competitiveness, and jealousy in men. In this study, men with lifetime prevalence of AN or BN did not report more intrasexual competitiveness or jealousy than men without lifetime prevalence of AN or BN. The results may be because the men with eating disorders were so few. To date, men have been neglected from the eating disorder research, and more research is necessary to understand the association between eating disorders, intrasexual competition and jealousy in men.

Suggestions for further research should aim to test the explanatory value of the hypothesis in large, clinical samples and not rule out other possible explanations of etiology in eating disorders.

Swedish Summary

Svensk sammanfattning

Livstidsprevalensen av ätstörningar är associerad med ökad intrasexuell tävlan och svartsjuka hos kvinnor men inte hos män

Inledning

Ätstörningar är allvarliga psykiska sjukdomar som innebär att den drabbade har ihållande störningar kopplade till matintag. Ätstörningar kan ta sig olika uttryck, till exempel genom överdriven begränsning av matintag, eller hetsätning. Ätstörningar har mycket negativa effekter på individens fysiska hälsa och psykosociala funktion (American Psychiatric Association, 2013). Anorexia nervosa (AN) är en allvarlig ätstörning som främst drabbar unga kvinnor. Individer med AN har en förvrängd kroppsbild och oroar sig för att gå upp i vikt. Bulimia nervosa (BN) är en ätstörning som karakteriseras av hetsätning, och kompensationsbeteenden individen tar till för att undvika att gå upp i vikt (till exempel genom användning av laxeringsmedel).

Trots att det gjorts mycket forskning om ätstörningar, är etiologin fortfarande okänd. För att förstå ätstörningar ur ett evolutionspsykologiskt perspektiv har Abed (1998) framfört en hypotes. Hypotesen om det intrasexuella tävlandets inverkan på ätstörningar, anger att ätstörningar uppstår på grund av tävling mellan kvinnor för en partner. Kvinnor tävlar sinsemellan om tillgång till åtråvärda män, bland annat genom smalhet som signalerar fertilitet. Enligt Abed (1998) har tävlingen om partners ökat bland kvinnor på grund av moderna fenomen som stora städer, mer bilder på attraktiva kvinnor i media och en nedgående nativitet som leder till en ökning av kvinnor som bevarar sin smalhet. Tidigare studier har påvisat ett samband mellan ätstörningar och intrasexuell tävlan (Abed m.fl., 2012; Faer m.fl., 2005; Li m.fl., 2010; Nettersheim m.fl., 2018).

De ovannämnda studierna har fokuserat på kvinnor, eftersom ätstörningar är mindre prevalenta hos pojkar och män. Ätstörningar hos män är ett försummat forskningsområde, särskilt när det gäller forskning kring diagnostiken och behandlingsformer (Strother m.fl., 2012). Hittills har endast två studier gjorts som testat den intrasexuella hypotesen för ätstörningar hos män. I en studie av Li m.fl. (2010) blev heterosexuella och homosexuella individer exponerade för bilder av individer av samma kön med antingen hög status eller låg status. Studien fann att tecken på intrasexuell tävlan ledde till ökad rapportering av ätstört beteende hos homosexuella män och heterosexuella kvinnor, men inte hos heterosexuella män och homosexuella kvinnor. Även Antfolk m.fl. (2017) testade den intrasexuella hypotesen bland män, men deras resultat var inte i linje med Lis (2010) med flera, utan i deras studie var homosexuella män och heterosexuella kvinnor inte lika påverkade av tecken på intrasexuell tävlan.

En annan aspekt av intrasexuell tävlan är svartsjuka. Benägenhet till intrasexuell tävlan kan leda till ökad svartsjuka. Svartsjuka är ett system av kognitiva, affektiva, fysiologiska och beteendemässiga svar på ett upplevt hot från konkurrenter av det egna könet (Maner & Schackelford, 2008). Konkurrenter med drag som upplevs som åtråvärda av det andra könet uppfattas som ett större hot. Kvinnor upplever i högre grad fysisk attraktivitet som ett hot medan män istället upplever social status som ett hot (Buss, 2013). Tidigare studier har visat ett samband mellan intrasexuell tävlan och svartsjuka (Buunk m.fl., 2010)

Hypoteser

Syftet med den föreliggande studien var att undersöka skillnader i intrasexuell tävlan och svartsjuka mellan individer som rapporterade livstidsprevalens av antingen AN, BN eller båda, och individer utan livstidsprevalens av AN, BN eller båda. Baserat på tidigare studier som hittat stöd för intrasexuell tävlan som förklaringsmodell för ätstörningar, och den

påvisade associationen mellan svartsjuka och intrasexuell tävlan, formulerades följande hypoteser:

1. Kvinnor som rapporterar livstidsprevalens av ätstörningar (antingen AN, BN eller båda) rapporterar högre poäng på ett mått på intrasexuell tävlan än kvinnor som inte rapporterar någon historia av ätstörningar.
2. Kvinnor som rapporterar livstidsprevalens av ätstörningar (antingen AN, BN eller båda) rapporterar högre poäng på svartsjuka än kvinnor som inte rapporterar någon historia av ätstörningar.

Intrasexuell tävlan som etiologi för ätstörningar hos män har inte stöd i litteraturen, men omnämns som en möjlig förklaringsmodell. I ett explorativt syfte inkluderas männen för att undersöka sambandet mellan AN, BN, intrasexuell tävlan och svartsjuka, utan någon riktad hypotes.

Metod

Samplet i föreliggande studie bestod av 7970 deltagare. 5329 var kvinnor och 2641 var män. Deltagarna besvarade frågor om sexualitet, mental hälsa och relationer. I den här studiens sampel inkluderades alla som besvarat frågorna om både livstidsprevalens av ätstörningar, intrasexuell tävlan och svartsjuka. För att mäta intrasexuell tävlan bland deltagarna användes frågeformuläret "Intrasexual Competition Scale" (ISC) (Buunk & Fisher, 2009) Formuläret består av tolv frågor som avser mäta skillnader i intrasexuell tävlan. Frågorna i formuläret utgår från situationer eller kontexter där man möter rivaler inom samma kön som en själv.

Svartsjuka mättes genom att presentera hypotetiska scenarier för deltagarna, där de föreställde sig att deras partners deltog i 11 olika beteenden med en annan person. Deltagarna ombads rapportera deras obehag inför de olika scenarier på en sjugradig skala, där

1 innebar "Extremt bekväm" och 7 innebar "Extremt obekvämt". Exempel på scenarier som presenterades för deltagarna var att partnern under ett samtal vidrörde en annan person av samma kön som deltagaren, eller att partnern hade sex med en annan person av samma kön som deltagaren. Deltagarna svarade på två frågor om livstidsprevalens av ätstörningar: "Har du någonsin lidit av anorexia nervosa?" och "Har du någonsin lidit av bulimia nervosa?" Svarsalternativen var "ja" eller "nej".

De statistiska analyserna och den deskriptiva statistiken beräknades med hjälp av mjukvarupaketet IBM SPSS 26.0 Statistics. En "Generalized Estimating equation"-regressionsmodell (GEE) genomfördes för att undersöka samband mellan ätstörningar, intrasexuell tävlan och svartsjuka. För analysen skapades kompositvariabler för ätstörning (AN och BN slogs ihop till en faktor), intrasexuell tävlan och svartsjuka genom att slå ihop alla delfrågor som mätte samma faktor. Eftersom syftet med denna studie var att undersöka ätstörning, intrasexuell tävlan och svartsjuka bland både män och kvinnor, genomfördes två separata GEE-analyser.

Resultat

Resultaten visade att kvinnor med livstidsprevalens av ätstörning hade högre poäng på måttet för intrasexuell tävlan och måttet för svartsjuka, än kvinnor som inte rapporterade någon livstidsprevalens av ätstörning, vilket ger stöd för hypotes 1 och 2. Trots signifikanta resultat tyder resultaten på väldigt små effektstorlekar. Hos män fanns ingen signifikant gruppskillnad i poäng på det intrasexuella tävlingsmättet eller måttet för avundsjuka mellan män som rapporterade livstidsprevalens av ätstörning och män som inte rapporterade livstidsprevalens av ätstörning.

Diskussion

Syftet med den föreliggande studien var att undersöka hur ätstörningar är associerade med intrasexuell tävlan och svartsjuka hos kvinnor och män i ett stort sampel. Baserat på

tidigare studier var min hypotes att kvinnor som rapporterade livstidsprevalens av ätstörningar även skulle rapportera mer intrasexuell tävlan och svartsjuka än kvinnor som inte lider av ätstörningar. Som förväntat och i linje med tidigare forskning, rapporterade kvinnor med livstidsprevalens av AN eller BN mer intrasexuell tävlan och mer svartsjuka. Värt att notera är att trots ett signifikant resultat, tyder resultaten på väldigt små effektstorlekar. Resultaten tyder på att andra faktorer än intrasexuell tävlan bör undersökas för att förstå etiologin bakom ätstörningar.

Hittills finns det inte stöd i forskningen för det intrasexuella tävlandets inverkan på ätstörningar hos män. Enligt Abed (1998) kan dock intrasexuell tävlan förklara ätstörningar hos män, och baserat på det inkluderade jag männen i föreliggande studien för att undersöka sambandet mellan AN, BN, intrasexuell tävlan och svartsjuka. Männen med livstidsprevalens av AN eller BN rapporterade inte mera intrasexuell tävlan eller svartsjuka än männen utan livstidsprevalens.

Styrkor som kan lyftas fram i denna studie är ett stort sampel, samt att måttet som mätte intrasexuell tävlan var tidigare validerat och uppvisade hög reliabilitet. Studien är även den första i sitt slag som undersöker intrasexuell tävlan och svartsjuka hos både kvinnor och män som rapporterar livstidsprevalens av ätstörningar. Studien bidrar även till forskningen om ätstörningar hos män, som hittills varit ett negligerat område.

I denna studie fanns det även flera begränsningar. Användningen av måttet livstidsprevalens innebar att det är omöjligt att veta om deltagarna var i aktiv fas eller inte. Användning av självskattat i denna studie kan även leda till mätfel. Svartfrekvensen i undersökningen var även endast 29 %, vilket ökar sannolikheten för selektionsbias.

Resultaten för kvinnor i denna studie var signifikanta, och i linje med tidigare studier (Abed m.fl., 2012; Faer m.fl., 2005; Li m.fl., 2010; Nettersheim m.fl., 2018). Effektstorlekarna var dock minimala, och den föreliggande studien bör därmed inte tolkas

som stöd för Abeds (1998) hypotes om intrasexuell tävlan som ultimata förklaring för ätstörningar.

Förslag till framtida forskning är att genomföra studier i större sampel med bättre mått på ätstörningar för att undersöka vilken roll intrasexuella tävlan och svartsjuka har för ätstörningar hos kvinnor och män. Sammanfattningsvis bidrar studien till litteraturen om ätstörningar, intrasexuell tävlan och svartsjuka både hos män och kvinnor.

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PRESSMEDDELANDE

Ätstörningar, intrasexuell tävlan och svartsjuka

Pro gradu-avhandling i psykologi

Fakulteten för humaniora, psykologi och teologi, Åbo Akademi

Syftet med den föreliggande studien var att undersöka hur ätstörningar är associerade med intrasexuell tävlan och svartsjuka hos kvinnor och män i ett stort sampel.

Resultaten visade att kvinnor med livstidsprevalens av en ätstörning hade högre poäng måttet för intrasexuell tävlan och måttet för svartsjuka, än kvinnor som inte rapporterade någon livstidsprevalens av ätstörning. Hos män fanns ingen signifikant gruppskillnad i poäng på det intrasexuella tävlingsmåttet eller måttet för avundsjuka mellan män som rapporterade livstidsprevalens av ätstörning och män som inte rapporterade livstidsprevalens av ätstörning. Trots ett signifikant resultat, tyder resultaten på väldigt små effektstorlekar. Samplet i föreliggande studie bestod av 7964 deltagare. 5323 var kvinnor och 2641 var män. Deltagarna besvarade frågor rörande sexualitet, mental hälsa och relationer. I den här studiens sampel inkluderades alla som besvarat frågorna om både livstidsprevalens av ätstörningar, intrasexuell tävlan och svartsjuka. Det är viktigt att notera att inget orsakssamband har undersökts i studien, vilket innebär att man inte kan dra slutsatser orsakssamband mellan intrasexuell tävlan och ätstörningar.

Förslag till framtida forskning är att genomföra studier i stora sampel med bättre mått på ätstörningar för att undersöka den intrasexuella tävlans roll i ätstörningar hos kvinnor och män. Sammanfattningsvis bidrar studien till litteraturen om ätstörningar, intrasexuell tävlan och svartsjuka både hos män och kvinnor.

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