

# Eating Disorders in Males: A Case Series Study to Evaluate Putative Risk Factors

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## Abstract

This case series aimed to describe the clinical features and symptomatic onset of eating disorders (EDs), to characterize male puberty development and to identify potential risk factors (RFs) for EDs and specific life events preceding ED symptoms. Ten males with current ED diagnoses participated in this study. All participants were interviewed with the Eating Disorders Examination, the Oxford Risk Factor Interview, and a semi-structured clinical interview for the evaluation of males' puberty development. Almost all participants began their EDs with dieting. Half of the participants mentioned the development of muscle mass and experiences of embarrassment related to undressing in front of their peers. A history of peer aggression and/or teasing was the only RF experienced by all the participants.

## Keywords

eating disorders, clinical features, eating disorder onset, puberty development, putative risk factors

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Although eating disorders (EDs) in males are systematically underrepresented in the literature (Murray, Griffiths & Nagata, 2018), it is worth noting that EDs have been reported in male patients for as long as they have been reported in female patients (Gull, 1874; Lasègue, 1873; Morton, 1694, as cited in Murray et al., 2017). However, according to Støving et al. (2011), EDs in males may be underdiagnosed because of a lack of physician awareness and because males may be less likely to seek medical advice for a condition that is considered more common in females. Moreover, the current nosological framework for EDs has been informed almost entirely by research conducted with female samples (Mitchison & Mond, 2015). As some authors underline (e.g., Mitchison & Mond, 2015; Reas & Stedal, 2015), the current diagnostic criteria for different EDs are more or less “female-centric,” and there are no gender-specific guidelines available for the clinical management of male ED cases (Coelho et al., 2015).

In their critical review of male EDs, Murray et al. (2017) systematized the most important gender-specific outcomes from research. Muscularity-oriented eating is claimed to be the clinical feature more distinct from female presentations of EDs (e.g., Lavender et al., 2017; Murray et al., 2018). However, compared with females, males with EDs are more likely to report a greater array of psychiatric comorbidities (e.g., Carlat et al., 1997; MacNeil et al., 2018; Reas & Stedal, 2015; Vo et al., 2016), a later age of onset (e.g., Carlat et al., 1997; Gueguen et al., 2012; Mitchison & Mond, 2015), a history of previous obesity or overweight (e.g., Gueguen et al., 2012; Reas & Stedal, 2015; Vo et al., 2016), and experiences of being teased about their weight and shape (Murray et al., 2017).

With respect to etiology, to date, there are no studies that have specifically assessed potential risk factors (RFs) for the development of EDs in males while considering the onset of EDs and controlling for the development of initial symptoms or preceding RFs. Prospective longitudinal and retrospective studies conducted with female samples with case-control designs have identified the following RFs: negative self-evaluation (Fairburn et al., 1999), eating concerns and negative body evaluation (Gustafsson et al., 2009), dietary restraints, negative affect, substance use (Stice et al., 2010), family discord and higher parental expectations or demands (Gonçalves et al., 2016; Pike et al., 2008), parental problems (e.g., alcoholism and obesity; Fairburn et al., 1997), and higher levels of perfectionism (Holland et al., 2013; Machado et al., 2014; Pike et al., 2008). However, we should consider the results obtained from female samples with caution. In a recent longitudinal study conducted with a nationally representative sample of adolescents/young adults, Nagata et al. (2018) found that factors based on the family, on the school, and on the community were associated with unhealthy weight control behaviors only in underweight or normal weight females. The authors did not find a consistent association between these same factors and unhealthy weight control behaviors among males.

Consequently, research is needed to elucidate the relevant etiopathological factors for the development of EDs in males. To the best of our knowledge, this is the first study assessing RFs for EDs with a clinical male sample using an interview to establish the diagnosis of EDs and preceding RFs evaluated in a wide array of potential

RFs—the Oxford Risk Factor Interview (RFI; Fairburn et al., 1999). We also assessed puberty development to evaluate the main developmental markers for puberty in males with a clinical interview designed for this purpose. This case series study aimed to (a) describe the clinical features and symptomatology onset of EDs, (b) characterize male puberty development, (c) identify potential RFs for EDs in males in a wide array of recognized RFs commonly assessed in women, and (d) identify specific life events in the 12 months immediately preceding ED symptoms. With this case series, we intend to contribute to the field with results that can lead to deeper knowledge about the development of EDs in males, aiming to contribute to the understanding of the factors that may predispose males for developing EDs. According to Murray et al. (2018), extrapolating findings or drawing conclusions related to male EDs from female samples has been the most commonly used strategy. We intend to contribute to the field by considering a clinical sample of males and assessing for potential gender-specific risk and puberty factors for EDs.

## Method

### Participants

Ten male ED patients between 18 and 36 years old ( $M = 22.50$  years,  $SD = 5.40$  years) participated in this study. Five of the participants were students, four were unemployed, and one worked as a merchant. All the participants were single. Two participants were of low to middle socioeconomic status, four were of middle socioeconomic status, and four were of middle to high socioeconomic status.

Six participants were diagnosed with current restrictive anorexia nervosa (AN-R), two with bulimia nervosa (BN), and two with anorexia nervosa (AN) in partial remission according to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association, 2013). Six of the participants used medication prescribed by their psychiatrist. The duration of the ED varied from 2 to 132 months. All participants were recruited in a specialized ED treatment setting (Table 1).

### Measures

*Eating Disorders Examination* (EDE; Cooper & Fairburn, 1993). The EDE is a semi-structured interview that assesses the core attitudinal and behavioral features of EDs. The validity and reliability of the EDE have been well documented (Berg et al., 2011; Cooper & Fairburn, 1993). In the current study, the diagnostic items of the EDE were used to assess the diagnosis and psychopathology of ED.

*Semi-structured Clinical Interview for the Evaluation of Puberty Development* (SCIEPD; Machado & Gonçalves, 2017). For the purpose of this study, a semi-structured clinical interview was developed to evaluate male puberty development and its impact. The questions were related to growth, muscle mass development, shoulder development, body hair growth, and voice changes, as they relate to the recognized developmental

**Table 1.** Sociodemographic and Clinical Characteristics.

Case	Current age (years)	Education	Socioeconomic status	Current BMI (kg/m <sup>2</sup> )	Lowest BMI (kg/m <sup>2</sup> )	Highest BMI (kg/m <sup>2</sup> )	Current ED diagnosis	History of inpatient or residential treatment for ED	Current medication	History of previous ED diagnoses	Current comorbidities	First significant eating disordered behavior	Index age (years)	ED onset (years)
1	18	Ninth grade	Low–middle	14.21	12.40	15.94	AN-R	Residential treatment	√ (antidepressants)	x	√ (anxiety disorder)	Weight and shape concerns	13	14
2	19	12th grade	Middle	27.67	16	28.75	AN in partial remission	—	X	√ (AN-R)	x	Diet	16	18
3	27	12th grade	Middle–high	20.42	17.32	33.44	BN	Residential treatment	√ (antidepressants; benzodiazepines)	√ (AN-BE/P)	√ (avoidant personality disorder)	Diet and weight and shape concerns	16	17
4	20	12th grade	Low–middle	23.84	19.59	35.92	BN	—	√ (antidepressants)	x	x	Diet and weight and shape concerns	18	19
5	22	College	Middle	15.53	15.39	30.78	AN-R	x	√ (antidepressants)	x	x	Diet	20	22
6	19	12th grade	Middle	17.65	16.61	24.22	AN-R	x	X	x	x	Diet, weight, and shape concerns and driven exercising	15	16
7	36	College	Middle–high	18.21	14.81	18.21	AN-R	—	x	x	x	Diet and weight and shape concerns	15	15
8	21	12th grade	Middle	16.21	16.04	32.41	AN-R	x	x	X	x	Weight and shape concerns	17	21
9	20	College	Middle–high	13.15	12.46	16.26	AN-R	Inpatient treatment	√ (antidepressants)	x	x	Diet and weight and shape concerns	13	16
10	23	12th grade	Middle–high	22.31	17.09	30.83	AN in partial remission	x	√ (antidepressants)	√ (AN-R)	√ (alcohol abuse)	Diet and driven exercising	21	22

Note. BMI = body mass index; ED = eating disorder; AN-R = restrictive anorexia nervosa; AN = anorexia nervosa; BN = bulimia nervosa; AN-BE/P = binge/purging anorexia nervosa; √ = characteristic present; x = characteristic absent; — = no information.

markers for puberty in males (e.g., Carr, 2006; Ricciardelli & McCabe, 2015). The participants were evaluated on whether each marker occurred earlier than, at the same time as, or later than it occurred in their peers. We simultaneously assessed the presence of embarrassment and/or teasing by peers. The interview also evaluated the existence of embarrassment and/or teasing in relation to undressing in front of peers during puberty.

*Oxford RFI for EDs (Fairburn et al., 1997).* The current study used the RFI to assess the exposure to putative RFs for EDs. The interviews focused on the period before the onset of the ED, with age of onset being defined as the age at which the first significant and persistent eating pathology behaviors began (Fairburn et al., 1997). For RFs believed to have a hereditary component (e.g., parental psychopathology), the interviews focused on both the pre- and postdisorder onset period. The RFI was investigator based and used behavioral definitions of key concepts to minimize problems related to retrospective data. A large number of putative RFs were assessed (Table 2). The RFs were categorized into seven domains: the participant's mental health, eating or weight- and shape-related problems, family weight and eating concerns, family environment, family psychopathology, disruptive events, and antecedent life events.

*Sociodemographic questionnaire (Graffar, 1956).* An adaptation of the Graffar schedule was used in which scores range from 5 to 25, with higher scores indicating lower socioeconomic level. This schedule takes into account the years of formal education and profession of the parents, sources of income, and type of housing and neighborhood to assign the family to one of the five socioeconomic status categories (Middle-High, I or II; Middle, III; Low-Middle, IV or V).

## Procedure

We evaluated 10 male participants who had undergone treatment in a specialized ED treatment setting in the North of Portugal. The interviews were conducted by clinical psychologists/researchers trained in the use of standardized interview procedures. Participants were informed about the research aims, and data confidentiality was assured. All participants provided written informed consent. This study was reviewed and approved by the institutional review board of the Research Center of Psychology (University of Minho) and the Ethics Committee of the Oporto Center Hospital.

## Results

### *Clinical Characterization*

Regarding their first significant ED behavior, eight participants' EDs started with dieting (six of them simultaneously with shape and weight concerns and/or excessive exercising) and two participants' EDs started with shape and weight concerns. All except one participant mentioned a history of excessive exercising in the period before

Table 2. Puberty, Risk Factors, and Antecedent Life Events.

Case	1	2	3	4	5	6	7	8	9	10
Puberty (SCIEPD; Machado & Gonçalves, 2017)										
Growth with related suffering	✓	x	x	x	✓	x	x	x	x	x
Growth with related teasing	✓	x	x	x	✓	x	x	x	✓	x
Muscle mass with related suffering	✓	x	x	x	x	x	✓	x	x	✓
Muscle mass with related teasing	✓	x	x	✓	x	x	✓	x	✓	x
Body hair with related suffering	✓	x	x	x	x	x	x	x	x	x
Body hair with related teasing	✓	x	x	✓	x	x	✓	x	✓	x
Voice change with related suffering	x	x	x	x	x	x	x	x	x	x
Voice change with related teasing	x	x	x	✓	x	x	✓	x	✓	x
Embarrassment related to undressing in front of peers	✓	x	x	✓	x	x	✓	x	✓	✓
Teasing related to the embarrassment of undressing in front of peers	✓	x	x	x	x	x	✓	x	✓	x
Risk domain (RFI; Fairburn et al., 1997)										
General personal and environmental vulnerability										
Conduct problems	x	x	x	x	x	x	x	✓	x	x
Negative self-evaluation	✓	✓	✓	✓	x	x	x	x	x	x
Shyness and/or absence of friends	✓	✓	✓	✓	✓	x	✓	x	x	x
Perfectionism	x	x	x	x	x	✓	✓	x	x	x
School anxiety	✓	✓	x	x	x	x	x	x	x	x
Depressed mood	x	✓	x	✓	x	x	x	x	x	✓
Suicidal ideation and/or suicide attempts	✓	x	✓	x	x	x	x	x	x	✓
Lifetime alcohol and/or drug use	x	x	✓	✓	✓	x	x	✓	x	✓
Peer aggression and/or teasing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other mental problems	✓	x	✓ (mania)	x	x	x	x	x	x	✓ (after index age)

(continued)

**Table 2. (continued)**

Case	1	2	3	4	5	6	7	8	9	10
Eating or weight- and shape-related problems										
Eating problems until age 12	✓	✓	✓	x	x	x	x	x	x	✓
Overweight during childhood	✓	✓	x	✓	✓	x	x	x	x	✓
Underweight during childhood	x	x	x	✓	✓	x	✓	✓	✓	x
Self-consciousness about appearance	x	✓	✓	✓	x	x	✓	✓	x	x
Significant exercise	x	x	x	x	x	x	✓	✓	✓	x
Family psychopathology										
Parent with major depression	✓	x	✓ (after index age)	x	x	✓	✓ (after index age)	x	x	✓ (before index age)
Parent with other mental disorders	✓	x	✓ (after index age)	x	x	x	x	x	✓ (after index age)	✓ (before index age)
Other family members with mental disorders	x	✓	x	✓	x	x	✓ (after index age)	x	✓	✓ (before index age)
Disruptive events										
Sexual/physical abuse	x	x	x	x	x	x	x	x	x	✓ (physical)
Death of a loved one	x	x	✓	✓	✓	✓	x	x	✓	✓
Antecedent life events	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
One event	✓	✓	✓	✓	✓	✓	✓	x	x	✓
Two or more events										

Note. SCIEPD = Semi-structured Clinical Interview for the Evaluation of Puberty Development; RFI = Risk Factor Interview; ✓ = characteristic present; x = characteristic absent.

ED diagnosis, two participants also revealed a history of overeating and vomiting (the participants with current bulimia diagnoses), and no participants indicated a history of laxative misuse. The age of onset of symptoms related to EDs (index age) was between 13 and 21 years ( $M = 16.40$  years,  $SD = 2.68$  years), and the age of ED onset was between 14 and 22 years ( $M = 18$  years,  $SD = 2.91$  years). The lowest weight at the present height of each participant resulted in body mass index (BMIs) between 12.40 and 19.59 ( $M = 15.77$ ,  $SD = 2.18$ ); the highest BMI was between 15.94 and 35.92 ( $M = 26.68$ ,  $SD = 7.48$ ). Seven participants were in outpatient treatment, two were in residential treatment, and one was in inpatient treatment. One of the participants with current BN had previous AN diagnosis. Accordingly with the EDE, all but four participants presented extreme dietary restriction in the past 3 months ( $<1,200$  kcals); all but one participant demonstrated giving importance to weight in their self-evaluation scheme in the past 3 months (four revealed that nothing was more important); all but one participant demonstrated giving importance to shape in their self-evaluation scheme (four revealed that nothing was more important in the last 3 months and two participants during Month 3); six participants showed fear of weight gain during the previous month, eight during the 2 months before and seven during Month 3; four participants demonstrated feeling fat during the previous month, five during the 2 months before and six during Month 3. Other than the current ED diagnosis and symptoms, all but three participants had not exercised in the last 3 months. One participant presented with a comorbid anxiety disorder, one with avoidant personality disorder, and one with alcohol abuse.

### *Puberty and Exposure to Putative RFs*

*Puberty.* Every puberty indicator assessed was experienced by at least one participant in association with experiencing embarrassment and/or teasing—growth, muscle mass development, body hair development, and voice changes. Half of the participants mentioned the development of muscle mass and the experience of embarrassment related to undressing in front of their peers, and both indicators were associated with suffering and/or teasing (cf. Table 2).

*Exposure to putative RFs.* Only RFs that were reported by at least five participants were considered (cf. Table 2).

*Participants' mental health prior to their ED.* All the participants reported exposure to peer aggression and/or teasing. Shyness and/or absence of friends was the second most experienced RF ( $n = 6$ ), followed by alcohol and/or drug abuse ( $n = 5$ ).

*Eating or weight- and shape-related problems.* Half of the participants indicated being underweight or overweight during childhood and being self-conscious about appearance.

*Family weight and eating concerns.* With the exception of one participant, all participants experienced comments about their weight, shape, and eating habits from their



families. A family focus on appearance and/or keeping fit and overweight parents were also very common ( $n = 7$  and  $6$ , respectively). Half of the participants mentioned the presence of underweight family members and the experience of dieting with or being pressured to diet by family members.

*Family environment and psychopathology.* Most of the participants were exposed to parental arguments, favoritism, comparison, and/or competition between siblings and parental physical health problems ( $n = 6$  for all). Half of the participants mentioned the presence of parental under/overinvolvement and a history of major depression in their parents and mental disorders in other family members.

*Disruptive events.* Most of the participants experienced the loss of a significant person such as a close relative or a friend ( $n = 6$ ).

*Antecedent life events in the year preceding the development of eating problems.* All the participants were exposed to a major life event in the year preceding the beginning of the eating problems, and the vast majority ( $n = 8$ ) mentioned two or more major life events occurring before the beginning of their eating problems.

## Discussion

This study aimed to provide a better understanding of EDs in males. We assessed the clinical features, current symptomatology, onset of ED symptoms, experiences related to specific pubertal markers, and exposure to putative RFs in a sample of male ED patients.

Almost all participants' EDs started with dieting, and with the exception of one participant, all presented with a history of excessive exercising in the period before the ED diagnosis. These results may be related to the greater picture of muscularity-oriented dieting leading to the development of an ED in male patients, as supported by many studies (e.g., Coelho et al., 2015; Darcy & Lin, 2012) and theorized by many authors (e.g., Lavender et al., 2017). In addition, a desire to exercise was a current symptom in most participants. However, our results may not reflect the scope of the muscularity-oriented dieting once the EDE may not capture some of the particularities associated to muscularity-oriented behaviors. As Murray et al. (2019) point, males' body dissatisfaction may be more oriented toward muscularity in contrast with thinness, and the existing measures to assess ED psychopathology may lack sensitivity in capturing disordered eating that is muscularity focused. We also found that the onset and diagnosis of ED in men occurred at an older age compared with that of women, as supported by other studies (e.g., Carlat et al., 1997).

In respect to the assessment of restraint over eating, weight concern, and shape concern, our results may be in accordance with previous results that also assessed EDs' core symptoms based on the EDE and showed that males, like females, presented significant eating symptomatology such as restraint, fear of gaining weight, and extreme importance of weight and shape in their self-evaluation. However, in a study conducted with adolescent males with AN, Darcy et al. (2012) concluded that

males scored significantly lower than matched females on shape concern, weight concern, and global score. More recently, Smith et al. (2017) presented the results obtained during the validation of the questionnaire version of the EDE (EDE-Q) with a representative clinical sample of males and females. The authors also concluded that females were generally more severe in terms of overall ED psychopathology, with males evidencing lower EDE-Q scores compared with females. Smith et al. (2017) discussed that females who seek treatment may display more severe ED psychopathology, mainly in domains related to weight and shape concerns, when compared with males. As we already reflected, further research is needed, mainly to understand EDs' core symptoms when developed by males in which eating, weight, and shape concerns must be assessed in combination with the focus on muscularity achievement effort.

BMI history values above 25 were also common despite the majority of the participants having current AN-R diagnoses and all but one having a history of past AN. This result may be remarkably gender specific; in females, it is not so common to find AN patients who reach such high BMI values when they are recovering from their thinness. It is possible that the course of ED in males may be characterized by higher weight fluctuations.

Similar to previous RF studies conducted with representative female samples, we found an etiology that is multifactorial in nature that probably also involves a complex interaction between genes and the environment (cf. Collier & Treasure, 2004; Treasure et al., 2010).

With respect to puberty development, half of the participants mentioned the development of muscle mass and the experience of embarrassment related to undressing in front of their peers, which were associated with being teased by their peers and with the experience of subjective suffering. This result is in line with previous studies. In a recent meta-analysis, Lie et al. (2019) confirmed that individuals with EDs were two- to threefold significantly more likely to have been teased about their appearance and bullied before ED onset. Further research is needed on the role of peers during this developmental period, along with the history of peer aggression and/or teasing, which emerged as the only RF experienced by all the participants. Moreover, future studies should target males during adolescence especially in the presence of other RFs found during childhood and adolescence, including shyness, an absence of friends, and alcohol and drug abuse.

In the scope of the putative RFs evaluated, we also found that being underweight or overweight during childhood was common. We can then hypothesize that an excessive emphasis on the importance of weight and shape is a relevant issue from an early stage of males' development. Experiences of self-consciousness about appearance may be useful in explaining body focus along with the following RFs associated with family weight and eating concerns: comments from family, a family focus on appearance and fitness, and simultaneously overweight or underweight parents and parental involvement in dieting with or being pressured to diet with family members. Finally, the following significant factors also emerged from the family environment and psychopathology: parental arguments, under/overinvolvement,

favoritism or comparison and/or competition between siblings, parents with physical health problems and major depression, and the presence of mental disorders in other family members. Our results also support the role of RFs based on the family context and mental health of males (e.g., Carlat et al., 1997), as other studies found when examining RFs in female samples (e.g., Fairburn et al., 1997; Gonçalves et al., 2016; Pike et al., 2008). Along the same lines, bereavement was the most frequent disruptive event, along with the experience of being exposed to one or more major life events in the year immediately preceding the beginning of the diagnosed eating problem.

It is important to note that this study includes some limitations. First is the absence of a representative sample of male ED patients. The small sample size of the study did not allow for statistical comparisons. The absence of a control group, healthy controls, and a group of controls with other psychiatric disorders is also a limitation when evaluating whether these factors are specific to ED in males or precede the development of psychiatric disorders in general. Second, and as reflected earlier, the EDE may not assess the muscularity-oriented characteristics of the disordered eating in males. Third, potential biases are associated with recall. Fourth, we did not involve other informants, such as relatives or significant others, and the methodology concerning family issues was based on family history reported by the participants themselves. Finally, this study was conducted in a clinical psychiatric setting where we found more severe EDs than those found at private or community clinics. However, the major advantage of this study was the method adopted for data collection based on structured interviews for clinical diagnoses and for the assessment of puberty markers, subjective experience, and a large number of putative RFs.

The results found may be useful in informing future study designs with representative male samples pursuing the etiology of EDs based on the putative RFs found. We believe that our study responds to the call from Lavender and colleagues (2017) to show some of the potential RFs associated with the development of EDs in males.

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## References

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). American Psychiatric Publishing.
- Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2011). Psychometric evaluation of the eating disorder examination and eating disorder examination-questionnaire: A systematic review of the literature. *International Journal of Eating Disorders, 45*(3), 428–438. <https://doi.org/10.1002/eat.20931>
- Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997). Eating disorders in males: A report on 135 patients. *American Journal of Psychiatry, 154*(8), 1127–1132. <https://doi.org/10.1176/ajp.154.8.1127>
- Carr, A. (2006). *The handbook of child and adolescent clinical psychology: A contextual approach*. Routledge.
- Coelho, J. S., Kumar, A., Kilvert, M., Kunkel, L., & Lam, P. (2015). Male youth with eating disorders: Clinical and medical characteristics of a sample of inpatients. *The Journal of Treatment & Prevention, 23*(5), 455–461. <https://doi.org/10.1080/10640266.2015.1027119>
- Collier, D. A., & Treasure, J. L. (2004). The aetiology of eating disorders. *The British Journal of Psychiatry, 185*(5), 363–365. <https://doi.org/10.1192/bjp.185.5.363>
- Cooper, P. J., & Fairburn, C. G. (1993). Confusion over the core psychopathology of bulimia nervosa. *International Journal of Eating Disorders, 13*(4), 385–389. [https://doi.org/10.1002/1098-108X\(199305\)13:4<385::AID-EAT2260130406>3.0.CO;2-W](https://doi.org/10.1002/1098-108X(199305)13:4<385::AID-EAT2260130406>3.0.CO;2-W)
- Darcy, A. M., Doyle, A. C., Lock, J., Peebles, R., Doyle, P., & Le Grange, D. (2012). The eating disorders examination in adolescent males with anorexia nervosa: How does it compare to adolescent females? *International Journal of Eating Disorders, 45*(1), 110–114.
- Darcy, A. M., & Lin, I. H. J. (2012). Are we asking the right questions? A review of assessment of males with eating disorders. *The Journal of Treatment & Prevention, 20*(5), 416–426. <https://doi.org/10.1080/10640266.2012.715521>
- Fairburn, C. G., Cooper, Z., Doll, H. A., & Welch, S. L. (1999). Risk factors for anorexia nervosa: Three integrated case-control comparisons. *Archives of General Psychiatry, 56*(5), 458–476. <https://doi.org/10.1001/archpsyc.56.5.468>
- Fairburn, C. G., Welch, S. L., Doll, H. A., Davies, B. A., & O'Connor, M. E. (1997). Risk factors for bulimia nervosa: A community-based case-control study. *Archives of General Psychiatry, 54*(6), 509–517. <https://doi.org/10.1001/archpsyc.1997.01830180015003>
- Gonçalves, S. F., Machado, B. C., Martins, C., Hoek, H. W., & Machado, P. P. (2016). Retrospective correlates for bulimia nervosa: A matched case-control study. *European Eating Disorders Review, 24*(3), 197–205. <https://doi.org/10.1002/erv.2434>
- Graffar, M. (1956). Une méthode de classification sociale d'échantillons de population / A method of social classification of population samples. *Courrier, 6*, 445–459.
- Gueguen, J., Godart, N., Chambry, J., Brun-Eberentz, A., Foulon, C., Divac, S. M., . . . Huas, C. (2012). Severe anorexia nervosa in men: Comparison with severe AN in women and analysis of mortality. *International Journal of Eating Disorders, 45*(4), 537–545. <https://doi.org/10.1002/eat.20987>
- Gustafsson, S. A., Edlund, B., Kjellin, L., & Norring, C. (2009). Risk and protective factors for disturbed eating in adolescent girls—Aspects of perfectionism and attitudes to eating and weight. *European Eating Disorders Review, 17*(5), 380–389. <https://doi.org/10.1002/erv.930>
- Holland, L. A., Bodell, L. P., & Keel, P. K. (2013). Psychological factors predict eating disorder onset and maintenance at 10-year follow-up. *European Eating Disorders Review, 21*(5), 405–410. <https://doi.org/10.1002/erv.2241>

- Lavender, J. M., Brown, T. A., & Murray, S. B. (2017). Men, muscles, and eating disorders: An overview of traditional and muscularity-oriented disordered eating. *Current Psychiatry Reports, 19*, Article 32. <https://doi.org/10.1007/s11920-017-0787-5>
- Lie, S. Ø., Rø, Ø., & Bang, L. (2019). Is bullying and teasing associated with eating disorders? A systematic review and meta-analysis. *The International Journal of Eating Disorders, 52*(5), 497–514. <https://doi.org/10.1002/eat.23035>
- Machado, B. C. & Gonçalves, S. F. (2017). Semi-structured clinical interview for the evaluation of puberty development. Unpublished manuscript.
- Machado, B. C., Gonçalves, S. F., Martins, C., Hoek, H. W., & Machado, P. P. (2014). Risk factors and antecedent life events in the development of anorexia nervosa: A Portuguese case-control study. *European Eating Disorders Review, 22*(4), 243–251. <https://doi.org/10.1002/erv.2286>
- MacNeil, B. A., Hudson, C. C., & Leung, P. (2018). It's raining men: Descriptive results for engaging men with eating disorders in a specialized male assessment and treatment track (MATT). *Eating and Weight Disorders—Studies on Anorexia, Bulimia and Obesity, 23*(6), 817–824. <https://doi.org/10.1007/s40519-018-0586-y>
- Mitchison, D., & Mond, J. M. (2015). Epidemiology of eating disorders, eating disordered behaviour, and body image disturbance in males: A narrative review. *Journal of Eating Disorders, 3*(20), 1–9. <https://doi.org/10.1186/s40337-015-0058-y>
- Murray, S. B., Brown, T. A., Blashill, A. J., Compte, E. J., Lavender, J. M., Mitchison, D., . . . Nagata, J. M. (2019). The development and validation of the muscularity-oriented eating test: A novel measure of muscularity-oriented disordered eating. *International Journal of Eating Disorders, 52*(12), 1–10. <https://doi.org/10.1002/eat.23144>
- Murray, S. B., Griffiths, S., & Nagata, J. M. (2018). Community-based eating disorder research in males: A call to action. *Journal of Adolescent Health, 62*(6), 649–650. <https://doi.org/10.1016/j.jadohealth.2018.03.008>
- Murray, S. B., Nagata, J. M., Griffiths, S., Calzo, J. P., Brown, T. A., Mitchison, D., . . . Mond, J. M. (2017). The enigma of male eating disorders: A critical review and synthesis. *Clinical Psychology Review, 57*, 1–11. <https://doi.org/10.1016/j.cpr.2017.08.001>
- Nagata, J. M., Garber, A. K., Tabler, J. L., Murray, S. B., & Bibbins-Domingo, K. (2018). Differential risk factors for unhealthy weight control behaviors by sex and weight status among U.S. Adolescents. *Journal of Adolescent Health, 63*(3), 335–341. <https://doi.org/10.1016/j.jadohealth.2018.03.022>
- Pike, K. M., Hilbert, A., Wilfley, D. E., Fairburn, C. G., Dohm, F. A., Walsh, B. T., & Striegel-Moore, R. (2008). Toward an understanding of risk factors for anorexia nervosa: A case-control study. *Psychological Medicine, 38*(10), 1443–1453. <https://doi.org/10.1017/S0033291707002310>
- Reas, D. L., & Stedal, K. (2015). Eating disorders in men aged midlife and beyond. *Maturitas, 81*(2), 248–255. <https://doi.org/10.1016/j.maturitas.2015.03.004>
- Ricciardelli, L., & McCabe, M. (2015). Eating disorders in boys and men. In L. Smolak & M. P. Levine (Eds.), *The Wiley handbook of eating disorders: Basic concepts and foundational research* (Vol. 1, pp. 492–506). John Wiley.
- Smith, K. E., Mason, T. B., Murray, S. B., Griffiths, S., Leonard, R. C., Wetterneck, C. T., . . . Lavender, J. M. (2017). Male clinical norms and sex differences on the Eating Disorder Inventory (EDI) and Eating Disorder Examination Questionnaire (EDE-Q). *International Journal of Eating Disorders, 50*(7), 769–775. <https://doi.org/10.1002/eat.22716>

- Stice, E., Ng, J., & Shaw, H. (2010). Risk factors and prodromal eating pathology. *The Journal of Child Psychology and Psychiatry*, 51(49), 518–525. <https://doi.org/10.1111/j.1469-7610.2010.02212.x>
- Støving, R. K., Andries, A., Brixen, K., Bilenberg, N., & Hørder, K. (2011). Gender differences in outcome of eating disorders: A retrospective cohort study. *Psychiatry Research*, 186(2–3), 362–366. <https://doi.org/10.1016/j.psychres.2010.08.005>
- Treasure, J. L., Claudino, A. M., & Zucker, N. (2010). Eating disorders. *The Lancet*, 375(9714), 583–593. [https://doi.org/10.1016/S0140-6736\(09\)61748-7](https://doi.org/10.1016/S0140-6736(09)61748-7)
- Vo, M., Lau, J., & Rubinstein, M. (2016). Eating disorders in adolescent and young adult males: Presenting characteristics. *Journal of Adolescent Health*, 59(4), 397–400. <https://doi.org/10.1016/j.jadohealth.2016.04.005>

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