ORIGINAL RESEARCH PAPER

Eating disorders in men: Current features and childhood factors

B. Mangweth-Matzek, C.I. Rupp, A. Hausmann, S. Gusmerotti, G. Kemmler, and W. Biebl

Innsbruck Medical University, Department of Psychiatry, Innsbruck, Austria

ABSTRACT. BACKGROUND: *Disturbed interactions with one's body and with other persons are two major features in eating disorders. This study was designed to assess current and childhood characteristics of eating-disordered men.* **METHODS:** *The authors interviewed 32 men with eating disorders (anorexia nervosa: N=9, bulimia nervosa: N=15, eating disorders not otherwise specified: N=8) and 43 control participants with no such history similar in age and educational status. The Structured Clinical Interview for DSM-IV was used to assess Axis I disorders and a self-designed interview to assess actual social and sexual characteristics and childhood body-focused and social behaviors including sexual and physical abuse.* **RESULTS:** *The two groups differed significantly with regard to clinical, sexual and social features, with a three times higher rate of psychiatric disorders, fewer sexual and social relationships in the index group than in the controls. Eating-disordered men differed significantly from controls on most measures of body-focused and social behaviors, displaying higher rates of thumb sucking, nail biting, auto-aggressive behavior, and nudity as a familial taboo during childhood, as well as less parental bodily caressing than did controls. The index group reported significantly poorer relationships to their parents, fewer friends and persons of trust, and more often had adjustment problems at school than did their counterparts.* **CONCLUSIONS:** *Our data show that disturbed interactions with one's body and with other persons in eating-disordered men are associated with a body-denying and distant family climate and an auto-aggressive, anxious and inhibited social behavior during childhood.*

(Eating Weight Disord. 15: e15-e22, 2010).

INTRODUCTION

Since eating disorders have been characterized as typical female psychiatric disorders, the few men suffering from anorexia nervosa (AN), bulimia nervosa (BN) or binge eating disorder (BED) continue to create constant scientific interest. Meanwhile, there are a number of studies on men with eating disorders (1-14), but due to the small prevalence they are mostly based on case reports, small samples, or medical records. Despite the fact that data are limited, there is a consistency about the rarity of anorexia and bulimia nervosa in men (female:male ratio=11:1 (15); 4:1 (16)), the lifetime prevalence (AN: 0.3%, BN: 0.5%, BED: 2.0%) (15), and the similarity between the genders regarding symptomatology and high comorbidity with other psychiatric disorders (3, 10, 13). Significant differences between the genders are found in body image and premorbid weight. Unlike women with eating disorders, eating-disordered men are characterized not only by a drive for thinness, but also by a drive for weight and muscle gain (13). Therefore, premorbid overweight (5, 17, 18) and sports involvement represent risk factors for men to develop an eating disorder. The question regarding homo- or bisexual orientation as a potential risk factor for eating disorders in men has produced controversial findings for years (5, 9, 10, 19-23), albeit with a clear trend towards an association between homosexuality and eating disorders based on recent studies (21, 23).

It is remarkable that the literature contains almost no data on childhood risk factors in men with eating disorders (9, 10, 11): Robinson and Holden (11) presented nine cases of bulimic men including enuresis nocturnal, thumb sucking, nail biting, dependency on the mother, and loneliness during childhood in three cases. Two other studies showed a higher prevalence of physical violence during childhood, less tenderness from the mother and a poorer relationship to the father (9,10), and childhood sexual abuse (9) in comparison to non-eating-disordered controls. In a recent study, the authors

Key words:
Eating disorders, men, psychopathology, childhood factors.

Correspondence to:
Barbara Mangweth-Matzek, PhD, Innsbruck Medical University, Department of Psychiatry, Anichstr. 35, A-6020 Innsbruck, Austria.
E-mail: barbara.mangweth@i-med.ac.at

Received: *March 19, 2009*
Accepted: *October 20, 2009*

examined body-focused behaviors (e.g. nail biting, thumb sucking, auto-aggressive behavior, bodily caressing) and social behaviors (e.g. quality of relationship to parents, number of friends, adjustment at school) during childhood in female patients with eating disorders and in a psychiatric and a non-psychiatric control group based on the fact that interactions with one's body and with other persons are major features in the development of anorexia and bulimia nervosa (24). Many body-focused measures such as feeding problems, auto-aggressive behavior, lack of maternal caresses and family taboos regarding sexuality during childhood characterized eating-disordered patients as opposed to both comparison groups, as did several social behaviors such as adjustment problems at school and lack of close friends during childhood. However, the prevalence of other childhood factors such as nail biting, sexual and physical abuse were found to be equally elevated in both psychiatric groups (24).

The latter as well as the proposed study are based on theories of developmental psychology and child psychoanalysis stating that the way a human being experiences the world is based on relations to early attachment figures. "… feelings of love and gratitude arise directly …. in the baby's response to the love and care of his mother" (25). Furthermore, exponents of the "object relations theory" state that life history is the "conscious and unconscious history of interactions, starting from early infancy between the baby and its caring persons up till the age of a grown up. Personality as a structure of experiences and behaviors derives from these experienced relationships" (26).

The aim of this study was to investigate current characteristics and childhood (risk) factors focusing on social and body-concerned behaviors in men with eating disorders as compared to non-eating-disordered men.

It was hypothesized that eating-disordered men as compared to non-eating-disordered controls would display 1) higher prevalences of lifetime psychiatric disorders, 2) fewer current social and sexual relationships including a higher rate of homo- or bisexual orientation, and 3) more negative body-focused behaviors and experiences including sexual abuse and fewer social relationships and less bonding during childhood.

MATERIALS AND METHODS

Participants

Men (N=75) were recruited from the community (university, libraries, gyms, sport clubs) and the eating disorder unit of the University Medical Hospital in Innsbruck, via advertisement requesting 18- to 40-year-old men with normal weight (Body Mass Index, BMI=20-24.9) and body satisfaction and men with eating problems (including underweight, binges and/or purges). Due to the general small number of men suffering from eating disorders, we included all men who met diagnostic criteria for an eating disorder (inpatients, outpatients, untreated and formerly treated men).

All participants were first screened by telephone to ensure that they displayed either current anorexia nervosa, bulimia nervosa or an eating disorder not otherwise specified including binge eating disorder for the index group or no history of an eating disorder for the comparison group (all according to the criteria of DSM-IV). Men with normal weight and body satisfaction were not informed that they were comparison participants until all screening questions were answered and an interview appointment was arranged, so as to ensure that they would not self-select themselves in some way. We enrolled 32 men with eating disorders with the following diagnoses: nine (28%) individuals with anorexia nervosa (5 restrictive, 4 bulimic type), 15 (47%) with bulimia nervosa (14 purging, 1 non-purging type), and 8 (25%) with an eating disorder not otherwise specified, also defined by DSM-IV (2 participants with anorexic symptoms with BMI>19; 2 individuals meeting anorexic criteria except the weight phobia criterion; 1 individual with anorexic symptoms without distorted body image; 1 individual with bulimic symptoms once per week; 1 individual who was chewing and spitting out food; and 1 man with a binge-eating disorder (BED)). The majority, namely 23 (72%), of the index group were clinical subjects and in current inpatient (N=18) or outpatient (N=5) treatment, while the remaining 9 (28%) men were from the community and reported being untreated (N=6) or having formerly been in treatment (N=3).

The control group consisted of 43 men without a history of an eating disorder or disordered eating after excluding three men who reported current or past overweight (BMI≥25).

After giving the participants a complete description of the study which was approved by the Institutional Review Board of the Innsbruck Medical University, written informed consent was obtained. The subjects did not get a financial reward for participation.

Procedure and instruments

Participants meeting the inclusion criteria as described above were invited to the Psychosomatic Unit of Innsbruck Medical University for

an interview that consisted of two parts: 1) the Structured Clinical Interview for DSM-IV (SCID), Axis I (27) to assess lifetime psychopathology including eating disorders (EDNOS except BED were defined by DSM-IV criteria), and 2) a semi-structured interview of our own design since there are no standardized questionnaires covering current social and sexual characteristics as well as body-focused and social behaviors during childhood. The latter instrument was used in a previous study of females with eating disorders and was described in detail (24). Briefly, this semi-structured interview included questions on demographics including high-risk occupations (e.g. modeling, acting, dancing and sports with desired low weight), current characteristics and body-focused and social behaviors during childhood. Current characteristics included actual clinical, sexual and social features, namely weight history (assessed by self-reported current, highest, and lowest adult weight), sexual orientation, sexual activity and number of friends.

Body-focused behaviors during childhood were defined as: use of a pacifier, thumb sucking, feeding problems (= digestive problems, picky eating, recurrent vomiting), nail biting, bed-wetting, auto-aggressive behavior (defined as two or more of the following: self-mutilation, hair pulling, self-biting or -scratching) and disturbed sexual identity assessed by means of the question: "Did you ever want to be a girl?"

The questions also included body-focused behaviors from the environment such as being breast-fed as a baby, experience of bodily caressing by father and mother, nudity as a familial taboo, sexuality as a topic that was talked about in the family, parental caresses, childhood sexual abuse and physical abuse. Childhood sexual abuse was defined as a) the victim was under the age of 18 at onset of abuse, b) sexual contact of a physical nature occurred or was attempted, and c) the abuser was five or more years older than the victim, or the abuse was unwanted (28, 29). Childhood physical abuse was defined by physical injury inflicted upon the child with cruel and/or malicious intent resulting from recurrent severe punching, beating, kicking with or without an object by an adult prior to age 18.

Social behaviors were assessed by means of questions covering social interactions with family and friends, such as: "Did you experience your mother (and father) as caring?", "... as encouraging?", "… as reliable?", "How did you experience your relationship to your parents?"; "Did you start crying when your parent left the room?" (termed insecure parental bonding); "Did you experience separation anxiety when you entered school?" (termed adjustment problems at school); "How many close friends did you have as a child?"; "Who was your person of trust?"

Familial environment regarding social behaviors was assessed by asking about parental divorce, authoritarian upbringing, and rigid eating rules, such as "Did you have to finish all the food on your plate?"

Statistical analysis

All statistical analyses were performed with SPSS, version 15 (30). As the diagnostic subgroups, namely participants with anorexia nervosa, bulimia nervosa and eating disorder not otherwise specified, did not differ on most measures, they were combined for statistical comparisons with the control group.

The Chi-squared test and Fisher's exact test were used to compare the two groups with respect to categorical and binary variables, respectively. To quantify group differences regarding these variables, odds ratios were calculated. For group comparisons with regard to ordinal or continuous variables, the Mann-Whitney U Test was employed, as most of the dependent variables were not normally distributed. A two-tailed significance level of 0.05 was used throughout.

RESULTS

Demographic characteristics

Table 1 displays demographic characteristics of eating-disordered and non-eating-disor-

TABLE 1
Demographic characteristics.

	Subject groups		p-values[a]
	ED (N=32)	CO (N=43)	ED vs CO
Age in yr, mean (SD)	26.5 (6.4)	24.7 (4.1)	NS
Marital status, N (%)			0.009
Married/with partner	13 (40)	31 (72)	
Single without partner	19 (60)	12 (28)	
Having children, N (%)	4 (13)	4 (9)	NS
Educational level, N (%)			NS
Postgraduate	3 (9)	6 (14)	
College	17 (53)	28 (65)	
High school	8 (25)	8 (19)	
Below high school	4 (13)	1 (2)	
High-risk occupation, N (%)	2 (6)	0	NS

[a]Mann-Whitney U test for continuous or ordinal variables; Chi-squared test for categorical variables; Fisher's exact test for binary variables. CO: controls; ED: eating-disordered men; NS: not significant (p>0.10); SD: standard deviation.

TABLE 2
Clinical, sexual and social features.

	Subject groups				
	ED (N=32)	CO (N=43)	p-values[a] ED vs CO	Odds ratio	95% Confidence Interval
Psychiatric disorders, N (%)					
Major depression	20 (63)	3 (7)	<0.001	22.2	5.62-87.8
Dysthymia	1 (3)	1 (2)	NS		
Alcohol abuse/dependence	9 (28)	7 (16)	NS		
Substance abuse/dependence	6 (19)	3 (7)	NS		
Panic disorder	8 (25)	1 (2)	0.004	14.0	1.65-118.0
Agoraphobia	4 (13)	2 (5)	NS		
Social phobia	11 (34)	2 (5)	0.001	10.7	2.18-53.0
Simple phobia	2 (6)	0	NS		
OCD	9 (28)	0	<0.001	NA	
Body dysmorphic disorder	4 (13)	0	0.030	NA	
At least one disorder	25 (78)	12 (28)	<0.001	9.23	3.16-26.9
Weight history, BMI[b], mean (SD)					
Current BMI	20.2 (3.4)	22.8 (1.8)	<0.001[c]	NA	
Highest BMI ever	27.4 (7.5)	23.8 (2.2)	0.033[d]	NA	
Lowest BMI since adulthood	17.6 (3.4)	21.5 (1.5)	<0.001[c]	NA	
Difference between highest and lowest BMI	9.7 (6.9)	2.4 (1.6)	<0.001	NA	
Weight categories, N (%)			0.007		
Underweight [BMI <19.99]	10 (31)	2 (5)	0.003	9.32	1.87-46.3
Normalweight [BMI: 20-24.99]	20 (63)	36 (84)	NS		
Overweight [BMI: 25-30]	2 (6)	5 (12)	NS		
Obesity [BMI >30]	0	0			
Homo- or bisexual orientation, N (%)	6 (19)	2 (5)	0.062	4.92	0.92-26.3
Currently sexually active, N (%)	15 (48)	32 (74)	0.029	0.30	0.11-0.81
No sexual intercourse experienced to date, N (%)	6 (19)	1 (2)	0.038	10.1	1.14-88.6
Number of friends, N (%)			<0.001	22.0	2.65-182.0
Many/some	21 (66)	42 (98)			
One/zero	11 (34)	1 (2)			

[a]Mann-Whitney U Test for continuous or ordinal variables; Fisher's exact test for binary variables. [b]BMI defined by kg/m^2. [c]Mann-Whitney U Test, Z>4.0. [d]Mann-Whitney U test, Z=2.13. BMI: body mass index; CO: controls; ED: eating-disordered men; NA: not applicable because of undefined value; NS: not significant (p>0.10); OCD: obsessive-compulsive disorder; SD: standard deviation.

dered control men. The two groups were similar in mean age and educational status but differed significantly in marital status showing significantly more eating-disordered men to be without a partner as compared to male controls. High-risk occupation did not distinguish the two groups.

Clinical, sexual and social features

Table 2 presents clinical, sexual and social features of the eating-disordered men as compared to non-eating-disordered controls. About a third of the eating-disordered participants (36%) reported a history of anorexia nervosa followed by bulimia nervosa or vice versa.

Regarding SCID diagnoses, the two groups differed significantly: eating-disordered men reported almost a three times higher rate of psychiatric disorders than did their counterparts, and most often displayed major depressive episodes, social phobia, alcohol abuse or dependence, and obsessive compulsive disorder. Of the 25 eating-disordered men who reported a psychiatric comorbidity, the majority (76%) reported having the psychiatric disorder *before* the onset of the eating disorder. Weight history indicates striking weight fluctuations during lifetime in the index group (lowest vs highest BMI (mean): 18-27) as compared to the controls (lowest vs highest BMI: 22-24). Eating-disordered men reported significantly less often current sexual activity and having

ever experienced sexual intercourse, and, at a trend level ($p<0.1$), also showed a higher rate of homo- or bisexual orientation than did the controls.

Body-focused behaviors during childhood

Eating disordered men differed significantly from their counterparts in most body-focused behaviors during childhood (Table 3): they reported significantly more often thumb sucking, feeding problems, auto-aggressive behavior, the wish to be a girl, nudity as a familial taboo and significantly lower rates of bodily caresses received from both mother and father, caressing between parents, and sexuality as a topic in the family. At a trend level, eating-disordered participants less often reported having been breast-fed as a baby; moreover, they reported significantly more violence between their parents than did control participants. Three of the eating-disordered men (9%) vs none of the controls reported childhood sexual abuse, giving rise to trend level significance ($p=0.073$). There was one additional subject that declined to answer this question. If we were to assume that this man was sexually abused, the rate would be significantly greater than in the comparison group ($p=0.030$, Fisher's exact test). About a quarter of each group reported physical abuse during childhood, indicating no group-difference.

Social behaviors during childhood

As shown in Table 4, eating-disordered participants differed significantly in childhood social behaviors and experiences as compared to the control participants, expressed by lower rates of experienced parental care, encouragement, reliability and a more negative relationship to both parents. Furthermore, the index group reported a significantly different pattern of social interactions as compared to controls and showed strikingly higher rates of "nobody" as a person of trust, only "one or none" friend during childhood, insecure parental bonding, envy of siblings, adjustment problems at school, and significantly less often shared

TABLE 3
Body-focused behaviors during childhood.

	Subject groups				
N (%)	ED (N=32)	CO (N=43)	p-values[a] ED vs CO	Odds ratio	95% Confidence Interval
Use of pacifier	26 (81)	29 (74)	NS		
Thumb sucking	9 (28)	2 (5)	0.018	7.83	1.55-39.4
Feeding problems	10 (31)	5 (12)	0.045	3.36	1.02-11.1
Nail biting	18 (56)	13 (33)	0.057	1.73	0.99-3.02
Bed wetting	5 (16)	5 (12)	NS		
Auto-aggressive behavior	5 (16)	0	0.014	NA	
"Wanted to be a girl"	5 (16)	0	0.012	NA	
Breast-fed	18 (58)	33 (81)	0.065	0.34	0.11-1.02
Received bodily caresses					
from mother	18 (56)	39 (91)	0.001	0.13	0.04-0.46
from father	10 (32)	24 (59)	0.034	0.34	0.13-0.90
Caressing between parents	14 (47)	27 (79)	0.009	0.23	0.08-0.68
Violence between parents	8 (25)	3 (7)	0.048	4.44	1.05-18.4
Nudity as a familial taboo	16 (50)	9 (21)	0.013	3.78	1.38-10.4
Sexuality as a family topic	4 (13)	17 (40)	0.018	0.23	0.07-0.76
Childhood sexual abuse			0.073	NA	
Yes	3 (9)	0			
No	29 (91)	43 (100)			
Childhood physical abuse			NS		
Yes	8 (25)	9 (21)			
No	24 (75)	34 (79)			

[a]Fisher's exact test for binary variables. CO: controls; ED: eating-disordered men; NA: not applicable because of undefined value; NS: not significant ($p>0.10$).

TABLE 4
Social behaviors during childhood.

N (%)	Subject groups ED (N=32)	CO (N=43)	p-values[a] ED vs CO
Experienced mother as			
caring	24 (75)	42 (98)	0.004
encouraging	20 (63)	40 (93)	0.003
reliable	24 (75)	42 (98)	0.004
Experienced father as[b]			
caring	16 (55)	39 (95)	<0.001
encouraging	16 (55)	36 (88)	0.005
reliable	21 (75)	40 (98)	0.006
Relationship to mother			0.007[c]
very good/good	25 (78)	42 (98)	
moderate	5 (16)	1 (2)	
bad/very bad	2 (6)	0	
Relationship to father[b]			<0.001[d]
very good/good	16 (53)	37 (90)	
moderate	6 (20)	4 (10)	
bad/very bad	8 (27)	0	
Person of trust[b]			<0.001[e]
family member	15 (50)	34 (87)	
friends	6 (20)	4 (10)	
nobody	9 (30)	1 (3)	
Number of friends			<0.001
many or some	18 (56)	42 (98)	
one or none	14 (44)	1 (2)	
Insecure parental bonding[b]	17 (59)	8 (19)	0.001
Adjustment problems at school	13 (42)	8 (19)	0.038
Envy of sibling[b]	17 (59)	8 (20)	0.001
Parental divorce	9 (28)	7 (16)	NS
Authoritarian upbringing	18 (64)	28 (67)	NS
Had to finish all the food on the plate	17 (53)	20 (47)	NS
Had meals together with family	28 (88)	43 (100)	0.030

[a]Mann-Whitney U test for continuous or ordinal variables; Chi-squared test for categorical variables; Fisher's exact test for binary variables. [b]Note that in some cases the denominator is less than the total N of each group because of missing data or non-applicable question. [c]Mann-Whitney U test, Z=2.71. [d]Mann-Whitney U test, Z=3.71. [e]Chi-squared test, χ^2=13.5, d.f.=2. CO: controls; ED: eating-disordered men; NS: not significant (p>0.10).

meals with the family. Parental divorce, authoritarian upbringing and rigid eating rules did not distinguish the two groups.

CONCLUSIONS

This study aimed to investigate current characteristics and childhood factors in eating-disordered men as compared to non-eating disordered male controls concerning body-focused and social behaviors using methodology developed in a previous study on females with eating disorders (24, 31). In general, our data suggest that the negative body attitude and the social withdrawal of eating-disordered men are associated with early childhood patterns.

Our sample of eating disordered patients represents clinical characteristics that accord with findings made by other investigators who assessed weight history and psychiatric disorders in eating-disordered men (14, 16, 32, 33). It is notable that major depression was the most frequent comorbidity in eating-disordered men (63%), which supports the aggregation of eating disorders and mood disorders (34) based on the affective spectrum disorder model by Hudson and Pope (35).

Our data on sexual characteristics resemble those of other studies showing high rates of sexual inactivity in eating-disordered men in comparison to non-eating-disordered men (4, 6). Our findings on sexual orientation are somewhat inconclusive as they show only trend level significance and therefore do not unequivocally support the hypothesis of a higher than average rate of homo- or bisexuality in eating-disordered men as proposed by many other investigators (19-21, 23).

Findings regarding childhood factors are of particular interest: childhood factors mirrored a similar pattern of behavior as described in the context of the actual eating disorder: eating-disordered men significantly more often reported a self-destructive behavior (feeding problems, nail biting, auto-aggressive behavior) and a body-denying family environment (fewer bodily caresses from and between their parents, nudity as a familial taboo) as a child. Also, social relationships during childhood differed significantly between the two groups showing poorer relationships to their parents and fewer friends and persons to trust in the eating-disordered group as compared to the controls. These data are in line with theories of child psychoanalysis and the developmental psychology stating that the quality of the mother-(father) relationship significantly determines the emotions to the child's own body and the relation to other people (25, 26).

These data are also in agreement with the findings of Robinson and Holden's (11) series' of case reports and replicate most results from our previous study on body-focused and social behaviors in 50 female patients with eating disorders as compared to 50 non-eating-disordered controls (24). Due to the fact that we also had a psychiatric control group of 50 poly-sub-

stance-dependent patients, several childhood factors were elicited as specifically associated with the eating disorder (e.g. nail biting, auto-aggressive behavior, lack of bodily caressing by parents, nudity and the topic of sexuality as familial taboos, insecure parental bonding, no close friends).

Despite the fact that the level of statistical significance was missed by a narrow margin, the findings regarding childhood sexual abuse are basically in accordance with those of other studies showing an association between eating disorders in men and sexual abuse (1, 3, 14). Nevertheless, sexual abuse appears to reflect a gender-specific phenomenon showing 4-5 times lower rates in our male group than in the female patient group, while rates of childhood physical abuse did not differ between genders (24).

Considering these findings, several limitations should be recognized. First, we had to rely on retrospective reports only, due to the fact that there were no other sources of information. Of course memories of eating disordered subjects could be influenced by current psychopathology. Future studies should assess childhood data in a prospective setting.

Second, the sample of eating-disordered men was of modest size due to the relative rarity of men with eating disorders. Third, our control-group of normal weight and body-satisfied men might be a selection for a psychologically healthier group than a random sample of population, but it was chosen in order to get a group that did not have any history of eating disorders including dieting and body dissatisfaction. Future studies should attempt to replicate and extend the findings using comparison groups of unselected individuals from the general population and individuals with other psychiatric disorders (e.g. substance abusers as we did in our female study on childhood factors (24). Fourth, the SCID is limited in assessing EDNOS (except for BED). Fifth, our semi-structured interview on body-focused and social behaviors was not a validated or standardized measure, but most of the items covered and questions used were partly derived from previously established instruments, and it was used in a large recent study (24). Finally, our index group included both treated (72%) and untreated (23%) men with eating disorders indicating a probable difference regarding severity of symptoms and associated pathology. Thus, the differences between our overall sample of eating-disordered men and our comparison group were likely larger than would be the case if the entire sample of eating-disordered men had been recruited from the community without regard to treatment-seeking status.

Despite the small sample size mentioned above, this study is one of the largest controlled studies of men with eating disorders using a personal interview.

In summary, our findings suggest that disturbed interactions with one's body and with other persons in eating-disordered men are associated with a body-denying and distant family climate and an auto-aggressive, anxious and inhibited social behavior during childhood. Prospective data are needed in order to confirm our findings.

REFERENCES

1. Anderson AE. Diagnosis and treatment of males with eating disorders. In: Anderson AE (Ed) Males with Eating Disorders. New York, Brunner/Mazel, 1990, pp 133-62.
2. Anderson AE, Holman JE. Males with eating disorders: Challenge for treatment and research. Psychopharm Bull 1997; 33: 391-7.
3. Rosen DS. Eating disorders in adolescent males. Adolescent Medicine: State of the Art Reviews 2003; 14: 677-89.
4. Carlat DJ, Camargo CA. Review of bulimia nervosa in males. Am J Psychiatry 1991; 154: 831-43.
5. Carlat DJ, Camargo CA, Herzog DB. Eating disorders in males: A report on 135 patients. Am J Psychiatry 1997; 154: 1127-32.
6. Hamlett KW, Curry JF. Anorexia nervosa in adolescent males: A review and a case study. Child Psychiatry Hum Dev 1990; 21: 79-92.
7. Kinzl JF, Mangweth B, Traweger CM, et al. Eating-disordered behavior in males: The impact of adverse childhood experiences. Int J Eat Disord 1997; 22: 131-8.
8. Raevuori A, Hoek HW, Susser E, et al. Epidemiology of anorexia nervosa in men: a nationwide study of Finnish twins. Plos ONE 2009; 4: E4402.
9. Olivardia R, Pope HG Jr, Mangweth B, et al. Eating disorders in college men. Am J Psychiatry 1995; 152: 1279-85.
10. Mangweth B, Pope HG Jr, Hudson JI, et al. Eating disorders in Austrian men: An intracultural and crosscultural comparison study. Psychother Psychosom 1997; 66: 214-21.
11. Robinson PH, Holden NL. Bulimia nervosa in the male: a report of nine cases. Psychol Med 1986; 16: 795-803.
12. Lindblad F, Lindberg L, Hjern A. Anorexia nervosa in young men: A cohort study. Int J Eat Disord 2006; 39: 662-6.
13. Muise AM, Stein DG, Arbess G. Eating disorders in adolescent boys: A review of the adolescent and young adult literature. J Adolesc Health 2003; 33: 427-35.
14. Woodside DB, Garfinkel PE, Lin E, et al. Comparisons of men with full or partial eating disorders, women without eating disorders, and women with eating disorders in the community. Am J Psychiatry 2001; 158: 570-4.
15. Hoek HW, van Hoeken D. Review on the prevalence

and incidence of eating disorders. Int J Eat Disord 2003; 34: 383-96.

16. Hudson JI, Hiripi E, Pope HG Jr, et al. The prevalence and correlates of eating disorders in the National Comorbidity Survey Replication. Biol Psychiatry 2007; 61: 348-58.
17. Neumark-Sztainer D, Hannah PJ. Weight-related behaviors among adolescent girls and boys. Arch Pediatr Adolesc Med 2000; 154: 569-77.
18. Field AE, Camargo CA, Taylor CB, et al. Peer, parent and media influence on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. Pediatrics 2001; 107: 54-60.
19. Herzog DB, Norman DK, Gordon C, et al. Sexual conflict and eating disorders in 27 males. Am J Psychiatry 1984; 141: 989-90.
20. Fichter MM, Daser C. Symptomatology, psychosexual development and gender identity in 42 anorexic males. Psychol Med 1987; 17: 409-18.
21. Russell CJ, Keel PK. Homosexuality as a specific risk factor for eating disorders in men. Int J Eat Disord 2002; 31: 300-6.
22. Meyer C, Blissett J, Oldfield C. Sexual orientation and eating pathology: The role of masculinity and feminity. Int J Eat Disord 2001; 29: 314-8.
23. Feldman MB, Meyer IH. Eating disorders in diverse lesbian, gay, and bisexual populations. Int J Eat Disord 2007; 40: 218-26.
24. Mangweth B, Hausmann A, Danzl C, et al. Childhood body focused behaviors and social behaviors as risk factors of eating disorders. Psychother Psychosom 2005; 74: 247-53.
25. Klein M, Riviere J. Love, hate and reparation. New York, WW Norton Company Inc, 1964.
26. Rudolf G. Psychotherapeutische Medizin und Psychosomatik: Konzepte von Persönlichkeit und Krankheit – Psychosomatische Perspektiven. Stuttgart, New York, Georg Thieme Verlag, 2000, pp 1-11.
27. First MB, Spitzer RL, Gibbons M, et al. Structured Clinical Interview for Axis I DSM-IV Disorders - Patient Edition (SCID-I/P, version 2.0). New York, 1994 German version: Wittchen HU, Wunderlich U, Gruschwitz S, et al. SKID-I, Göttingen, Bern, Toronto, Seattle, Hogrefe Verlag für Psychologie, 1997.
28. Russell DEH. The Secret Trauma: Incest in the Lives of Girls and Women. New York, Basic Books, 1986.
29. Finkelhor D, Hotaling G, Lewis IA, et al. Sexual abuse in a national survey of adult men and women: Prevalence, characteristics, and risk factors. Child Abuse Negl 1990; 14: 19-28.
30. SPSS: Statistical Package for Social Sciences 15.0 for Windows.
31. Mangweth-Matzek B, Rupp CI, Hausmann A, et al. Menarche, puberty and first sexual activities in eating disordered patients as compared to a psychiatric and a non-psychiatric control group. Int J Eat Disord 2007; 40: 705-10.
32. Striegel-Moore RH, Garvin V, Dohm FA, et al. Psychiatric comorbidity of eating disorders in men: a national study of hospitalized veterans. Int J Eat Disord 1999; 25: 399-404.
33. Strober M, Freeman R, Lampert C, et al. Are there gender differences in core symptoms, temperament and short term prospective outcome in anorexia nervosa? Int J Eat Disord 2006; 39: 570-5.
34. Mangweth B, Hudson JI, Pope HG Jr, et al. Family study of the aggregation of eating disorders and mood disorders. Psychol Med 2003; 33: 1319-23.
35. Hudson JI, Pope HG Jr. Affective spectrum disorders: does antidepressant response identify a family of disorders with common psychopathology? Am J Psychiatry 1990; 147: 552-64, 1990.