

Substance Use Disorders, Anorexia, Bulimia, and Concurrent Disorders

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ABSTRACT

Background: While the co-prevalence of eating disorders (ED) has been documented in individuals with substance use disorders (SUD), little is known about the co-occurrence of other disorders in this population. Examining this issue is critical for public health policy and treatment success.

Objective: To identify and evaluate the co-occurrence of ED and other psychiatric disorders in men and women with SUD.

Methods: The sample consisted of individuals seeking treatment for substance use. Semi-structured interviews and the CAMH Concurrent Disorders Screener were completed to assess DSM-IV psychopathology.

Results: Chi-square analyses suggested that more women scored positive for ED than men, EDs were more prevalent in both genders than in the general population, and the co-occurrence of other disorders was higher for clients with both SUD and ED than with SUD alone.

Discussion: Individuals with both SUD and ED appear to have multiple needs that may not be readily assessed by existing addiction treatment programs. Assessment issues, treatment, potential prevention and health promotion implications are addressed.

MeSH terms: Eating disorders; substance-related disorders; comorbidity

La traduction du résumé se trouve à la fin de l'article.

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Acknowledgements: The authors are grateful to Dr. Juan Negrete, Ms. Jane Collins, Dr. Nigel Turner, and Mr. Wayne Skinner for having facilitated access to the CAMH Concurrent Disorders Screener data, and to Ms. Jacqueline M. Brunshaw for assistance with data analysis and editing.

The presence of concurrent disorders in the substance-dependent population is an issue receiving increasing attention. Since the 1980s, several reports indicate that individuals with eating disorders (ED) admit to frequently abusing chemicals.¹ Unless concurrent disorders are addressed together in treatment, any intervention may have a reduced effect.

The main features of anorexia nervosa (AN) are an intense fear of gaining weight or becoming fat although the individual may be underweight, refusal to maintain a healthy body weight, distortion in experience and significance of body weight and shape, and amenorrhea for at least three consecutive menstrual cycles. The individual may engage in binge-eating or purging. Prevalence studies for AN suggest rates of 0.5-1%.^{2,3}

The main features of bulimia nervosa (BN) are recurrent episodes of binge eating and inappropriate compensatory behaviours to prevent weight gain (self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise) at least twice a week for three months, and self-evaluation excessively influenced by body shape and weight. Prevalence rates are 1%-3% in females¹ and 0.10% in males.^{2,3}

Most studies on the co-occurrence of substance use disorders (SUD) and ED have restricted their investigation to the frequency of SUD in ED populations. Only a few have examined the reverse: the frequency of ED in SUD populations. Although a variety of criteria have been used to define ED and SUD in the literature, reports indicate that SUD range from 3%-49% in individuals with ED.^{1,3-8}

Since the prevalence of ED in individuals with SUD has not been as widely reported, clinicians who treat chemically dependent individuals may be unaware of how pervasive EDs are in their clients and these disorders may go unaddressed. EDs occur in from less than 1%-32% of people with SUD.⁹⁻¹³ This wide range may be explained in part by varying degrees of methodological soundness. Also, most researchers limit their scope to women¹ because of low prevalence of ED reported in men.^{2,9} It is not clear, however, whether the prevalence of ED in substance-abusing clients is similar across genders because data on males with ED are limited.

OBJECTIVE

The goal of the present study was to clarify this gender issue by examining the co-prevalence of SUD and ED in men and women using DSM-IV criteria for identifying both disorders. The study involves a significantly larger sample than previous research in this area. Given that various forms of psychopathology often accompany ED,¹⁴ the present study also sought to identify co-occurring disorders.

METHOD**Participants**

The sample consisted of 1,613 consecutively referred self-selected individuals (16 to 49 years) seeking treatment for SUD in a large metropolitan addiction treatment centre over a one-year period and who agreed to participate in research and who spoke sufficient English (see Table I). There were no gender differences in demographics except that women tended to be more educated than men [$X^2(6, N=1610)=22.75, p<0.001$].

Materials

The CAMH Concurrent Disorders Screener¹⁵ (CAMH-CDS) was used to screen for psychopathology. The screener is a computerized self-report measure that screens for DSM-IV Axis I psychiatric disorders and history of conduct disorder. The measure opens with broad, highly sensitive screening questions for each disorder; a positive answer triggers a sequence of questions aimed at eliciting the co-occurrence of symptoms, duration, and degree of disability required to meet diagnostic criteria. The questions relate to all of the clinical features listed in the DSM-IV diagnostic criteria. The CAMH-CDS has demonstrated acceptable levels of test-retest reliability, validity, sensitivity, and specificity.¹⁶

Procedure

Participants underwent a 1.5-hour, face-to-face, semi-structured interview with a clinician to establish their demographics, SUD behaviours, and stressors. Subsequently, they completed the CAMH-CDS.¹⁶

RESULTS

Frequency distributions suggested that among the total sample, 64.20% of clients

TABLE I**Demographics for Total Sample**

	Males (n=1,177)		Females (n=433)		Total (N=1,610)	
	n	%	n	%	N	%
Age						
Teens	91	7.70	29	6.70	120	7.50
20s	268	22.80	102	23.60	370	23.00
30s	504	42.80	186	43.00	690	42.90
40s	314	26.70	116	26.80	430	26.70
Education						
Public School only	112	9.50	22	5.10	134	8.30
Some High School	368	31.30	107	24.70	475	29.50
Graduated High School	348	29.60	137	31.60	485	30.10
Some Post Secondary	159	13.50	68	15.70	227	14.10
BA/BSc	135	11.50	69	15.90	204	12.70
MA/MSc/LLB	37	3.10	17	3.90	54	3.40
MD/PhD*	18	1.50	13	3.00	31	1.90
Marital Status						
Single	722	61.70	246	56.80	968	60.30
Married/Common law	275	23.50	112	25.90	387	24.10
Same Sex Couple	5	0.40	2	0.50	7	0.40
Separated	91	7.80	29	6.70	120	7.50
Divorced	73	6.20	39	9.00	112	7.00
Widowed	5	0.40	5	1.2	10	0.60

* Gender difference, $p<0.001$ (p-value corrected by Bonferroni test for multiple comparisons).

TABLE II**Primary Substance Use, by Gender**

Primary Substance Use Endorsed	Males (n=1,161)		Females (n=431)		Total (N=1,592)	
	n	%	n	%	N	%
Alcohol	540	46.50	193	44.80	733	46.00
Cocaine/Crack*	257	41.40	75	31.50	332	38.60
Opium/Heroin/ Rx† +/-or OTC† Opioids*	114	9.80	73	16.90	187	11.70
Cannabis*	146	12.60	31	7.20	177	11.10
Tobacco*	26	2.20	30	7.00	56	3.50
Benzodiazepines	20	1.70	11	2.60	31	1.90
Stimulants	6	0.50	6	0.50	12	0.80
Hallucinogens	6	0.50	4	0.90	10	0.60
Glue/Other Inhalants	2	0.20	2	0.50	4	0.30
Barbituates	2	0.20	0	0.00	2	0.10
Other	5	0.40	2	0.50	7	0.40

* Gender difference, $p<0.005$ (p-value corrected by Bonferroni test for multiple comparisons).

† Rx = Prescription, OTC = Over-the-Counter

TABLE III**Prevalence of Eating Disorders by Gender**

	Males (n=1,161)		Females (n=431)		Total (N=1,592)	
	n	%	n	%	N	%
Anorexia Nervosa Present†	30	2.60*	32	7.40*	62	3.90*
Past	40	3.40*	27	6.20*	67	4.20*
Bulimia Nervosa Present	17	1.50	33	7.60*	50	3.10
Past	6	0.50	17	3.90	23	1.40

* Exceeds prevalence in general population, $p<0.0005$.

† Presently occurring eating disorders are defined as active at time of assessment according to DSM criteria, otherwise are defined as past disorders. For each disorder, past and present are mutually exclusive.

screened positive for DSM-IV criteria for substance dependence and 2.00% for substance abuse for their primary problematic substance. The most common primary problem substance for both men and women was alcohol followed by cocaine/crack (see Table II). More women

than men used opioids [$X^2(1, N=1592)=15.36, p<0.0001$] and tobacco [$X^2(1, N=1592)=20.64, p<0.0001$]. As shown in Table III, 2.60% of men and 7.40% of women screened positive for current AN, and 1.50% of men and 7.60% of women screened positive for current BN.

TABLE IV
Average Number of Days Substance Used (90 Days Prior to Assessment), by Current Eating Disorder and Gender

	Current Eating Disorder					
	Yes			No		
	Mean Days Used	SD	n	Mean Days Used	SD	n
Tobacco (ED†, G‡)*						
Males	74.32	30.09	38	83.50	20.23	1065
Females	83.85	20.66	46	85.48	16.19	360
Total	79.54	25.65	84	84.00	19.30	1425
Cocaine (G)*						
Males	31.79	30.69	24	19.81	25.33	512
Females	16.33	25.55	21	19.59	25.20	148
Total	24.58	29.15	45	19.76	25.29	660
OTC‡ Narcotics (G)*						
Males	16.60	20.22	10	23.08	29.95	146
Females	38.12	36.99	17	30.10	35.82	92
Total	30.15	33.10	27	25.79	32.45	238
Heroin/Opium (G, EDxG†)*						
Males	4.43	5.35	7	33.75	37.51	139
Females	69.67	31.82	3	31.94	34.10	48
Total	24.00	35.17	10	33.28	36.58	187

* p<0.05 or less
 † ED = Eating Disorder (Current); G = Gender; EDxG = Eating Disorder (Current) x Gender
 ‡ OTC = Over-the-Counter
 Maximum eta-squared ≤0.034

TABLE V
Average Substance Use (Amount), by Current Eating Disorder and Gender

	Current Eating Disorder					
	Yes			No		
	Average Amount of Use	SD	n	Average Amount of Use	SD	n
Tobacco (ED†)*						
Males	16.70	12.03	37	19.68	12.02	1053
Females	15.00	8.60	46	17.92	11.12	357
Total	15.76	10.24	83	19.23	11.82	1410
Cocaine						
Males	15.50	15.05	20	15.17	18.23	416
Females	15.33	18.50	15	21.53	25.91	110
Total	15.43	16.35	35	16.50	20.22	526
Alcohol (G†)*						
Males	9.29	8.24	34	7.97	7.80	1083
Females	6.61	4.48	41	6.23	9.30	359
Total	7.83	6.55	75	7.54	8.23	1442

* p<0.05 or less
 † ED = Eating Disorder (Current); G = Gender
 Maximum eta-squared ≤0.003

TABLE VI
Psychiatric Co-morbidity Among Patients

Co-morbid Diagnosis	Present†		Past	
	ED‡ %	No ED %	ED %	No ED %
Depression	59.00*	34.80	—	—
Social Phobia	37.90*	15.40	7.80	3.60
Manic Episode	30.80*	13.00	12.50	6.10
Conduct Disorder, CO§	28.0	22.10	—	—
Conduct Disorder, AO§	21.00	14.30	—	—
Schizophrenia	20.60*	8.70	2.50	3.50
Panic with Agoraphobia	20.00*	6.20	6.20	2.80
Schizophreniform	11.20*	3.80	11.20*	3.90
Panic without Agoraphobia	7.40	3.00	5.40	2.00
Gambling	5.10	2.00	1.10	2.20

* p<0.005 (p-value corrected by Bonferroni test for multiple comparisons).
 † Presently occurring co-morbid disorders are defined as active within the last thirty days, otherwise are defined as past disorders. For each disorder, past and present are mutually exclusive.
 ‡ ED = Eating Disorder.
 § Conduct Disorder = still not significant when CO (Childhood Onset) and AO (Adolescent Onset) collapsed into one variable (p<0.009).
 || Panic Disorder without Agoraphobia, p=0.033 (when Panic Disorder with and without Agoraphobia = collapsed into one variable, becomes significant at p<0.0001).

While the total prevalence of current AN was similar to that of current BN, past AN was reported more frequently than past BN [t(82)=5.23, p<0.0005].

Analyses of variance suggested that, in comparison to clients with no ED, individuals with ED used a greater number of substances overall [F(1, 346)=6.78, p<0.01] and endorsed more adverse consequences related to substance use [F(1, 346)=5.41, p<0.02]. In addition, these same individuals smoked tobacco on fewer days [F(1, 1425)=5.84, p<0.016] (see Table IV), and smoked less tobacco per day [F(1, 1410)=4.81, p<0.028] (Table V). Among heroin users (Table IV), men with ED reported using heroin on fewer days than both men without ED and women irrespective of whether they had an ED [F(1, 146)=6.13, p<0.015]. No data were available to investigate if this decreased use was due to substitution or control. Overall, women with ED smoked tobacco on more days than men with ED [F(1, 1425)=6.62, p<0.01] (Table IV). There was no increase in eating with certain substances [F(1, 1593)=3.15, p<0.08].

As shown in Table VI, among all clients with current ED, depression was the most frequently co-occurring psychiatric problem (at 59.00%), followed by social phobia (at 36.00%). Overall, individuals with current ED had a higher prevalence of depression [X²(1, N=1616)=23.99, p<0.0001], social phobia [X²(1, N=1562)=32.33, p<0.0001], mania [X²(1, N=1526)=22.51, p<0.0001], schizophrenia [X²(1, N=1562)=14.97, p<0.0001], panic with agoraphobia [X²(1, N=1568)=25.66, p<0.0001], and schizophreniform [X²(1, N=1546)=11.22, p<0.003].

DISCUSSION

Supporting previous research, we found a high clinical and statistical prevalence of eating disorders in individuals with substance use disorders.^{1,10,13,16} A significant clinical and statistical proportion of our clients had anorexia nervosa in the past. Thus, it is critical to screen for ED in clients seeking SUD treatment. It is common for clinicians to dismiss emaciation as a secondary effect of SUD. Inquiry of ED must not be limited to clients who appear underweight, as a high prevalence of BN exists in clients with SUD.^{17,18} Individuals

with bulimia nervosa frequently appear to be of normal weight or can be obese.^{2,19} Inquiring about a past history of ED is crucial because, as we have observed in our practice, when individuals with a history of ED are treated only for their SUD, ED symptoms often resurface or worsen as the addiction improves. A treatment specifically designed to address concurrent SUD and ED may be required as these clients demonstrate more problems achieving early abstinence and may be more likely to relapse.²⁰

Studies suggest a low prevalence of ED in men in general.^{3,6,10,17,21} However, as in previous research,¹⁰ we found that a high proportion of men, who have been ignored in previous studies and whose ED symptoms are overlooked and under-treated, in fact exhibited the co-occurring disorders. Health professionals may be more likely to inquire about ED in very thin women than in very thin men. Additionally, symptoms such as overeating may be considered more socially acceptable and not attract as much attention in men.²¹ Our findings suggest the need to improve our health promotion and prevention programs, recognition of ED in men with SUD, and the development of early intervention and appropriate treatment programs.

In general, clients with ED used more substances and experienced more adverse health, social, and economic consequences related to SUD than clients without ED. Whether these differences are due to the added distress of having an ED will be the subject of further research. The combined effect of having both problems renders these individuals more vulnerable to profound self-doubts and an intropunitive stance than individuals without the co-occurring disorders.²²

Compared with other individuals, those with ED evidenced a higher incidence of other concurrent disorders. Depression was higher than in the reports of Bushnell et al.²³ Panic disorders and social phobia were also higher than in the research of Telch and Stice.²⁴ Social phobia and mania were similar to reports by Bulik et al.⁴

Individuals with SUD and concurrent depression or anxiety frequently self-medicate.²² Clinicians in concurrent disorders and general substance abuse treatment programs tend to be more sensitive to these issues. However, they may be

unequipped to address disordered eating in chemically dependent patients.

While our findings suggest a high co-occurrence of SUD and ED, it is important to acknowledge some limitations to our conclusions. First, the sample consisted of individuals seeking SUD treatment in a large urban centre for addiction. Therefore this high prevalence may be explained, in part, by detection and referral bias. Further research may focus on other populations to make a comparison with other individuals with SUD. Second, while the diagnoses of SUD were made by both a clinical interview and self-report measures, the diagnosis of ED only included questionnaire responses. The prevalence of ED may differ slightly if a clinical interview designed to specifically assess ED were also administered to clients. Third, we did not investigate which disorder might be secondary to the other.

Further research that focusses on the prevalence of SUD and ED in both men and women will confirm and extend the present findings. Nevertheless, the present study has several implications. First, clinicians who treat patients with substance abuse problems should assess both male and female clients for ED, irrespective of their appearance. Treatment of concurrent disorders is complex and may improve by taking both ED and SUD into account in treatment planning. Other concurrent Axis I disorders may play a significant role as well and should be attended to, since disorders like depression, panic and social anxiety can interfere with individuals' ability to actually attend and participate actively in treatment sessions.

Second, our findings suggest the need to create treatments that address concurrent SUD and ED. This requires more funding allocated to hospitals, community centres and mental health clinics. It also requires more professional development and training for clinicians and students to improve their ability to detect and treat concurrent ED and SUD, and change in university curricula which would ensure an increased number of health professionals competent in this field. Due to the high co-morbidity of depression, panic and social anxiety and the contributing role that these additional problems might have for individuals with concurrent ED and SUD, additional public education, screening by treatment

providers and augmented treatments could be valuable in addressing the complexity of the potential problems experienced by individuals with this array of symptoms.

Third, we need to study further how these two disorders are related and what is required to reduce the high occurrence of ED in this population, especially among males. Perhaps targeting this population with public education would improve their awareness of community resources and treatment options. To increase health promotion, public health initiatives might include providing information to those with ED about SUD and vice versa, addressing issues of nutrition and healthy eating with those with SUD, and generally providing facts about the significant overlaps among ED, SUD and other mental health problems to encourage a more holistic understanding and help direct troubled individuals towards needed services. This process might begin in high school health classes, by discussing ED and SUD in more detail than the curriculum currently provides. Highlighting that EDs are not only "female problems" may also increase males' awareness of their vulnerability to these problems, and encourage them to seek help. Finally, to provide client-centred and evidence-based treatment, it is important to evaluate the long-term outcome of a treatment that addresses these concurrent disorders simultaneously.

Further research that focusses on underlying mechanisms of ED and SUD may inform a population-based intervention and healthy public policy and promotion approach. The present study focussed on individuals who screened positive for ED according to DSM criteria. However, many more clients with sub-threshold of DSM for these concurrent disorders routinely present to our service for treatment with lives seriously impaired by these problems.

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Received: July 11, 2003

Revisions requested: October 16, 2003 & May 26, 2004

Revised mss: March 29, 2004 & September 1, 2004

Accepted: October 7, 2004

RÉSUMÉ

Contexte : La co-prévalence de troubles alimentaires (TA) est documentée chez les personnes ayant des problèmes d'abus d'alcool et de drogues (PAAD), cependant, on en sait peu sur la co-occurrence d'autres troubles dans ce segment de la population. Il est primordial d'étudier ce problème, car il est lié aux politiques de santé publique et à la réussite des traitements.

Objectif : Cerner et évaluer la co-prévalence des TA et d'autres troubles psychiatriques chez les hommes et les femmes ayant un PAAD.

Méthode : L'échantillon était constitué de personnes à la recherche d'un traitement pour une toxicomanie. Nous avons utilisé des entrevues structurées et l'outil CAMH Concurrent Disorders Screener pour évaluer toute psychopathologie relevant du DSM-IV.

Résultats : Les analyses du khi-carré ont révélé des taux plus élevés de TA chez les femmes que chez les hommes. La prévalence des TA était plus élevée chez les deux sexes que dans la population générale, et la co-occurrence d'autres troubles était plus élevée chez les personnes ayant à la fois un PAAD et un TA que chez celles qui n'avaient qu'un PAAD.

Discussion : Les personnes ayant un TA et un PAAD semblent avoir des besoins multiples qui ne sont pas évalués facilement par les programmes existants de traitement de la toxicomanie. Les questions d'évaluations, le traitement, la prévention possible, ainsi que les répercussions sur la promotion de la santé, sont abordés dans cet article.

Canadian Breast Cancer Foundation – Ontario Chapter Call for Proposals

In spring 2005, the Canadian Breast Cancer Foundation (CBCF) – Ontario Chapter will be issuing a call for proposals for its Community Health Promotion Grant Program. If you are part of a community-based group within Ontario seeking to increase understanding of breast health needs and/or increase the ability of a community to respond to breast health needs, please visit our website at www.cbcf.org/ontario for eligibility criteria and an application form.

For more information, please contact:

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If you are interested in CBCF funding opportunities outside of Ontario, please contact your local CBCF Chapter for more information. Contact information is available on the CBCF website at www.cbcf.org. Additional funding opportunities through CBCF - Ontario Chapter will occur in fall 2005.

As the leading volunteer-based organization dedicated to creating a future without breast cancer, the Canadian Breast Cancer Foundation works collaboratively to fund, support and advocate for relevant and innovative breast cancer research; meaningful education and awareness programs; early diagnosis and effective treatment; and a positive quality of life for those living with breast cancer. Ontario is the largest of CBCF's five regional Chapters and since 2000, has allocated more than \$20 million to research, community health projects, and other programs that will make a difference.

