

Comorbidity and age of onset of eating disorders in gay men, lesbians and bisexuals
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Abstract

Objective: This study examines the prevalence of psychiatric disorders among lesbian, gay, and bisexual (LGB) men with eating disorders. *Method:* 388 white, black, Latino LGB men and women were sampled from community venues. DSM-IV diagnoses of anorexia, bulimia, and binge eating disorder were assessed using the World Health Organization's Composite International Diagnostic Interview. *Results:* Gay and bisexual men with eating disorders were more likely to have an anxiety or substance abuse disorder compared than gay and bisexual men without eating disorders, while lesbian and bisexual women with eating disorders were more likely to have a mood disorder compared to lesbian and bisexual women with an eating disorder. For individuals diagnosed with an eating and anxiety or major depressive disorder, the onset of the psychiatric disorder was more likely to precede the onset of the eating disorder. *Conclusion:* Researchers should study potential explanations of the relationship eating and psychiatric disorders among LGB men and women.

KEY WORDS: lesbian; gay; bisexual; age-of-onset; eating disorders; psychiatric disorders

1. Introduction

Research has consistently demonstrated that there is a high prevalence of comorbid psychiatric disorders among individuals with eating disorders. Studies using both clinical and community samples have shown that individuals with eating disorders are more likely to have comorbid mood or anxiety disorders than individuals without eating disorders (Bushnell et al., 1994; Garfinkel et al., 1995; Godart et al., 2003; Halmi et al., 1991; Herpetz-Dahlmann et al., 2001; Hudson et al., 1987a; 1987b; Lilenfeld et al., 1998; Rastam et al., 1995). Recent reviews of this literature have suggested that among individuals with eating disorders, the lifetime prevalence of comorbid anxiety disorders ranges from 23% to 75%, and of mood disorders, 24% to 90% (Godart et al., 2002; Swinbourne and Touyz, 2007). Studies have also found that individuals with eating disorders have higher rates of specific phobia and generalized anxiety disorder compared to individuals without eating disorders (Garfinkel et al., 1995; Kendler et al., 1991; Lilenfeld et al., 1998; Walters and Kendler, 1995). This has been shown to be true for both men and women. Men with eating disorder have higher prevalence of mood, anxiety, and substance abuse or dependence disorders compared to men without eating disorders (Mangweth et al., 1997; Olivardia et al., 1995; Striegel-Moore et al., 1999a, 1999b; Woodside et al., 2001). There has also been a considerable amount of research that has documented the comorbidity between eating disorders and psychiatric disorders in women (Godart et al., 2002, 2007; Swinbourne & Touyz, 2007).

Compared with heterosexuals, gay and bisexual men seem to have high prevalence of body image dissatisfaction (Morrison et al., 2004), eating disorder symptoms (Wichstrom, 2006), and eating disorders (Carlat et al., 1997; Feldman & Meyer, 2007a; Herzog et al., 1984). Although it is a commonly held convention that lesbians and bisexual women are less likely to

have an eating disorder than heterosexual women, several studies have found no significant differences between the two groups in terms of eating disorder diagnoses (Feldman & Meyer, 2007a) or eating disorder symptoms (Moore & Keel, 2002; Share & Mintz, 2002). In one study, Wichstrom (2006) found that lesbian and bisexual women had higher levels of disordered eating compared to heterosexual women. Research has also found that psychiatric disorders are prevalent among lesbian, gay, and bisexual (LGB) individuals. A recent meta-analysis of such studies showed that LGB individuals have about twice the odds of mood, anxiety, and substance use disorders as heterosexuals (Meyer, 2003).

Despite the prevalence of both eating and psychiatric disorders in this population, there has been no comorbidity study using a community-based sample. Only one study has assessed eating disorder comorbidity using DSM criteria (Carlat et al., 1997), but this study did not have a comparison group of men without eating disorders with which prevalence rates of psychiatric disorders could be compared. There has only been one study that has examined the relationship between disordered eating and depression in lesbian and bisexual women, however it did not use DSM-IV criteria to define disorders (Strong et al., 2000).

Among nongay individuals with eating disorders, 17-71% had a mood disorders and 57-94% had anxiety disorders with an onset prior to the eating disorder (Brewerton et al., 1995; Bulik et al., 1997; Deep et al., 1995; Godart et al., 2000, 2003; Kaye et al., 2004; Kendler et al., 1991; Schwalberg et al., 1992; Zaidler et al., 2002), however little information is available about comorbidity in LGB populations. Research on eating disorder comorbidity has critical implications for the treatment of eating disorders as it can lead to early identification of risk for eating disorders and design of appropriate prevention interventions.

To address this gap in knowledge we describe eating disorder comorbidity and age of onset in a community sample of LGB persons. Based on the existing literature in the general population, we hypothesize that LGB persons with a lifetime diagnosis of eating disorders will have a higher prevalence of other psychiatric disorders compared with LGB men and women without eating disorders. We further hypothesize that comorbid disorders will predate eating disorders.

2. Methods

2.1 Study Design

This study is based on data from Project Stride, a research study that investigated associations between stress, identity, and mental health among diverse groups defined by sexual, racial/ethnic, and gender identity in New York City. We report on a subgroup of study participants described below. Two previous have been written on eating disorders using these sample based on the entire sample (n= 516; Feldman and Meyer, 2007a) and then a subsample of gay and bisexual men (n=193; Feldman and Meyer, 2007b).

2.2 Sampling

Participants were sampled by direct solicitation in diverse New York City venues (e.g., business establishments, such as bookstores and cafes, social groups, outdoor areas, such as parks), and through snowball referrals. Sampling venues were selected to ensure a wide diversity of cultural, political, ethnic, and sexual representation within the demographics of interest. To reduce bias, venues were excluded from our venue-sampling frame if they were likely to over- or underrepresent people receiving support for mental health problems (e.g., 12-

step programs, HIV/AIDS treatment facilities), or significant life events (e.g., organizations that provide services to people who have experienced domestic violence).

Between February 2004 and January 2005, 25 outreach workers visited a total of 274 venues in 32 different New York City zip codes. Participants were eligible if they were between the ages of 18-59 years old, New York City residents for two or more years, and self-identified as: a) heterosexual or lesbian, gay, or bisexual; b) male or female; and c) white, black or Latino (participants may have used other identity terms in referring to these social groups). Eligible participants were then invited to participate in a face-to-face interview that lasted a mean of 3.8 hours (SD = 55 minutes). The cooperation rate for the study was 79% and the response rate was 60% (37). Response and cooperation rates did not vary greatly by gender, race, and sexual orientation. Recruitment efforts were successful at reaching individuals who resided in diverse New York City neighborhoods and avoided concentration in particular “gay neighborhoods” that is often characteristic of sampling of LGB populations. Interviewed individuals resided in 128 different New York City zip codes and no more than 3.8% of the sample resided in any one zip code area. The research protocol was reviewed by the Western Institutional Review Board.

2.3 *Participants*

This analysis is based on the subsample of LGB male and female participants ($n = 388$). The mean age for the gay and bisexual men in this sample is 33 (SD = 9). Of the men, 85% identify as gay, and 14% as bisexual, and 23% of the gay and bisexual men had a high school diploma or less education. The mean age for the lesbian and bisexual women in the sample is 32 (SD=9.5), and 78% identify as gay, while 21% identify as bisexual. Of the women, 21% had a high school diploma or less. The black and Latino participants had a lower socio-economic status as indicated by lower education and lower income.

2.4 Measures

Eating disorder diagnoses were made using the computer-assisted personal interview version 19 of the WMH-CIDI, a fully structured measure used in the National Comorbidity Study (www.hcp.med.harvard.edu/ncs) (Kessler and Ustun, 2004; Kessler et al., 2005). We assessed the presence of both lifetime and current (12 months) eating disorders, including *full syndrome anorexia, bulimia, and binge eating disorder*. To classify participants, we used the algorithms from Hudson et al.'s (2007) study of the prevalence of eating disorders in the National Comorbidity Survey Replication (www.hcp.med.harvard.edu/ncs/eating.php) with one exception. To satisfy criterion D for the DSM-IV bulimia diagnosis, we only used EA17f (did you feel like your self-esteem and confidence depended on your weight or body shape?), which Hudson et al. acknowledge would be the stricter interpretation of this criterion.

Although most of the CIDI questions reflected the DSM-IV criteria, Hudson et al. (2007) identified two exceptions. To meet the criteria for binge eating disorder, the DSM-IV requires a minimum of six months of regular binge eating episodes, while the CIDI asked only whether the individual experienced three months of symptoms. Therefore, participants who reported more than three months of symptoms, but less than six months of regular binge eating would be classified as having binge eating disorder according to this algorithm, but not the DSM-IV criteria. Also, for eating binges in bulimia and binge eating disorders, the DSM-IV requires an assessment of loss of control. For binge eating disorder, the DSM-IV further requires an assessment of marked distress. These items were assessed in the CIDI by a series of questions about attitudes and behaviors that are indicators of loss of control and distress, rather than by direct questions.

Consistent with others (Cotrufo et al., 2004; Woodside et al., 2001), we defined *subclinical anorexia* as characterized by (a) having a fear of gaining weight or becoming fat and (b) experiencing disturbance in how one perceives their body. *Subclinical bulimia* was defined using the same criteria as full syndrome bulimia except there was no requirement regarding the frequency of bingeing and compensatory behavior. We also used Hudson et al.'s (2007) algorithm for *subclinical binge eating disorder*, which was defined as binge eating episodes that occur at least twice a week for at least three months, and not during the course of anorexia, bulimia, or full syndrome binge eating disorder. All of the subclinical diagnosis categories included full syndrome and subthreshold cases. We used this expanded category in this study because the eating disorder literature has suggested that the full syndrome diagnosis criteria may be too restrictive (Sloan et al., 2005; Striegel-Moore et al., 2005).

Psychiatric diagnoses were also made using the WMH-CIDI (Kessler and Ustun, 2004; Kessler et al., 2005). We assessed DSM-IV lifetime and current (12 months) diagnoses for *anxiety disorders* (panic disorder, specific phobia, social phobia, generalized anxiety disorder), *mood disorders* (major depressive disorder and dysthymia; bipolar disorder was not a possible diagnosis with this version of the WMH-CIDI), and *substance use disorders* (alcohol and drug abuse and dependence).

Retrospective *age-of-onset* reports were obtained in the WMH-CIDI using the following questions that are designed to emphasize the importance of accurate responses. First, the respondent is asked if they can remember the exact age s/he had the syndrome. Participants who answer “no” were probed for a bound of uncertainty by moving up the age range incrementally (e.g., “Was it before you started school?” “Was it before you became a teenage?”). Age of onset was defined as the age at which all of the symptoms necessary to make a full syndrome diagnosis

were present concurrently.

2.5 *Statistical analysis*

To test the differences in prevalence of lifetime and current psychiatric disorders among LGB men and women with a lifetime full syndrome or subclinical disorders as compared to those without eating disorders (the reference group) we used logistic regression analyses. In these analyses, we present the odds ratios (OR) and 95% confidence intervals (CI). Where risk estimate statistics could not be computed due to empty expected cells, we used Fisher's exact test (drug dependence in gay and bisexual men, and alcohol abuse and dependence in lesbian and bisexual women).

To test whether onset of comorbid disorders was more likely to have occurred before or after the onset of eating disorders, we used a one-sample test of proportion (Fleiss, 1981). Only participants with full syndrome eating disorders were included in the age of onset analysis. Data were analyzed using SPSS statistical software (Version 13.0).

3. Results

As displayed in Table 1, gay and bisexual men with a history of a lifetime full syndrome or subclinical eating disorder were significantly more likely to have a lifetime diagnosis of specific phobia, generalized anxiety disorder, drug dependence disorder, any anxiety disorder, and any psychiatric disorder than gay or bisexual men without an eating disorder. Gay and bisexual men with a history of a lifetime full syndrome or subclinical eating disorder were also significantly more likely to have a current diagnosis of alcohol abuse, drug abuse and

dependence disorder, and any psychiatric disorder than gay or bisexual men without a lifetime history of having an eating disorder.

Lesbian and bisexual women with a history of a lifetime full syndrome or subclinical eating disorder were significantly more likely to have a lifetime diagnosis of a major depressive disorder (MDD) or any depressive disorder compared to lesbian and bisexual women without a lifetime history of an eating disorder. There were no significant differences between lesbian and bisexual women with and without a history of a full syndrome or subclinical eating disorder in terms of the prevalence of current psychiatric diagnoses.

INSERT TABLE 1

The mean age of onset for a full syndrome eating disorder was 19.2 years ($SD= 6.6$). In Table 2, we present the proportion of participants with onset of comorbid disorders preceding the onset of eating disorders as compared with those with onset of comorbid disorders following the onset of eating disorder. Of 22 people with comorbid anxiety disorders, 19 (86%) had an anxiety disorder prior to the onset of the eating disorder, and only 1 (4%) had an anxiety disorder following the onset of an eating disorder. Of 14 people with a comorbid MDD, 11 (77%) had MDD prior to the onset of the eating disorder, and only 1 (7%) had MDD following the onset of an eating disorder. There were no significant difference in onset of comorbid substance use disorders, they were as likely to have and an onset before as after onset of an eating disorder.

INSERT TABLE 2

4. Discussion

This is the first study to examine the comorbidity and the age of onset of eating disorders using a reliable and valid measure of DSM-IV psychiatric disorder in a community sample of LGB persons. We found that the gay and bisexual men with an eating disorder had a

significantly higher prevalence of anxiety and substance abuse disorders than gay and bisexual men without an eating disorder. These results are consistent with studies that found that presumably nongay men with eating disorders in the general population are more likely to have anxiety and substance abuse disorders compared with men without eating disorders (Mangweth et al., 1997; Olivardia et al., 1995; Striegel-Moore et al., 1999b, Woodside et al., 2001).

Lesbians and bisexual women with eating disorders were more likely to have a mood disorder than the lesbians and bisexual women who did not have an eating disorder. This too is consistent with what has been found in studies of eating disorders in presumably nongay women (Bushnell et al., 1994; Hudson et al., 1987a; 1987b; Garfinkel et al., 1995; Herpetz-Dahlmann et al., 2001; Lilenfeld et al., 1998). Therefore, our results suggest that the patterns for comorbidity among LGB men and women are similar to those found in the general population.

It is interesting to note that while the gay and bisexual men with eating disorders were more likely to have a comorbid anxiety or substance use disorder, lesbian and bisexual women with eating disorders were more likely to have a comorbid mood disorder. Most studies with non-LGB persons have found that there are no significant differences in terms of psychiatry comorbidity between men and women with eating disorders (Braun et al., 1999; Striegel-Moore et al., 1999a; Tanofsky et al., 1997; Woodside et al., 2001). Fewer studies found that men with eating disorders were significantly more likely to have a comorbid psychiatric diagnosis than women with eating disorders (Bramon-Bosch et al., 2000; Tanofsky et al., 1997).

We found that LGB individuals with eating disorders who had comorbid anxiety disorder or MDD were more likely to have had the comorbid disorders prior the eating disorder. This too is consistent with other studies that have reported that comorbid psychiatric disorders predate eating disorders (Brewerton et al., 1995; Bulik et al., 1997; Deep et al., 1995; Godart et al., 2000,

2003; Kaye et al., 2004; Kendler et al., 1991; Zaider et al., 2002). Our results are consistent with the hypothesis that anxiety and mood disorders could increase risk for eating disorders (Schwalberg et al., 1992). Other studies have also found that depressive symptoms and negative affect predicted the onset of eating disorder symptoms (Leon et al., 1999; Zaider et al., 2002). Also like other research, we did not find that substance use disorders increase risk for eating disorders (Johnson et al., 2002, Stice et al., 2004; Zaider et al., 2002).

Johnson et al. (2002) found that youths with depressive disorders and co-occurring psychiatric disorders during early adolescence were five times more likely than youths without any psychiatric disorders to develop eating disorders during middle adolescence or early adulthood. We hope to encourage researchers to investigate psychiatric comorbidities of LGB youth with eating disorders. This is particularly important because of the high risk that LGB person have for both eating disorders (Austin et al., 2004; French et al., 1996; Williamson & Harley, 1998) and psychiatric disorders (Fergusson et al., 2005; Kipke et al., 2007).

Our study has several limitations. First, our sample is based on non-probability sampling, which may bias our results. Of greatest concern would be a bias that led to over- or underrepresentation of individuals with eating disorders. Our sampling strategy was designed to minimize such bias and is a great improvement over current studies of LGB populations whose study volunteers may have been motivated by having greater difficulties around body image and eating disorders than nonvolunteers.

Second, small cell sizes prevented us from examining both the prevalence of psychiatric disorders by specific eating disorder types and age of onset by specific psychiatric disorders. Studies that employ larger samples of eating disorders and psychiatric disorders are necessary to continue to add to our knowledge of this topic among LGB populations.

Third, we also opted to report age of onset as the age at which all criteria for a full DSM eating diagnosis were met. In some cases, individuals may have exhibited subclinical eating disorder symptoms at younger ages. We were unable to include these cases in our analyses, because individuals who only met subclinical criteria for an eating disorder were not asked about the age of onset for eating disorder behaviors, due to skip patterns in the CIDI. Also, the age of onset for psychiatric disorders was not available for all participants because they were unable to recall with confidence the age of onset.

This study's results suggest that certain types of psychopathology are associated with the onset of eating disorders, which is an important clinical finding. Sinha and O'Malley (2000), in a discussion of alcohol and eating disorders, suggested that in the absence of adequate assessment these comorbid problems will not be communicated to the patient or factored into the treatment process, which could lead to poorer retention and treatment outcome than for patients who have either disorder alone. The assessment and identification of disordered eating among individuals with psychiatric disorders could be particularly important in terms of preventing the development of a full syndrome eating disorder, especially in light of our finding that comorbid psychiatric disorders are more likely to predate the onset of an eating disorder. Clinicians who work with LGB patients with eating disorders should assess and treat comorbid disorders. They should also be cognizant of the risk for eating disorders when treating anxiety disorders in gay and bisexual men and depression in lesbian and bisexual women.

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5. Table(s)

Table 1: Lifetime and current prevalence of DSM-IV/WMH-CIDI psychiatric disorders in lesbians, gay men, and bisexuals with and without a lifetime diagnosis of eating disorders* (n=388)

	Gay and bisexual men (n=193)						Lesbian and bisexual women (n=195)					
	Comorbidity with lifetime disorders			Comorbidity with 12-month disorders			Comorbidity with lifetime disorders			Comorbidity with 12-month disorders		
	ED (n=31)	No ED (n=162)	OR (CI)	ED (n=31)	No ED (n=162)	OR (CI)	ED (n=19)	No ED (n=176)	OR (CI)	ED (n=19)	No ED (n=176)	OR (CI)
Anxiety disorders												
Panic disorder	10	4.3	2.4 (0.6, 10.1)	3.3	2.5	1.3 (0.1, 12.7)	5.3	4.5	1.1 (0.1, 9.8)	5.3	2.8	1.9 (0.2, 17.1)
Specific phobia	36.7	19	2.4 (1.0, 5.7)	26.7	14.1	2.2 (0.8, 5.5)	36.8	26.1	1.6 (0.6, 4.4)	31.6	18.2	2 (0.7, 5.8)
Social Phobia	36.7	21.5	2.4 (0.9, 4.8)	20	12.3	1.7 (0.6, 5)	21.1	20.5	1.0 (0.3, 3.3)	21.1	13.6	1.7 (0.5, 5.5)
Generalized anxiety disorder	20	8	2.8 (1, 8.3)	10	5.5	2 (0.4, 7.4)	5.3	8	0.6 (0.08, 5.1)	5.3	2.8	1.9 (0.2, 17.1)
Any anxiety disorder	63	39	2.6 (1.2, 6)	43.3	27.6	2 (0.9, 4.4)	52.6	45	1.3 (0.5, 3.5)	52.6	31.3	2.4 (0.9, 6.3)
Mood disorders												
Major Depressive disorder	36.7	24.5	1.7 (0.7, 4.0)	16.7	13.5	1.2 (0.4, 3.7)	58	32.4	2.8 (1.1, 7.5)	36.8	17.6	2.7 (0.9, 7.5)
Dysthymia	6.7	6.1	1.1 (0.2, 5.2)	3.3	5.5	0.6 (0.07, 4.8)	10.5	5.1	2.2 (0.4, 11)	5.3	4.0	1.3 (0.1, 11.5)
Any mood disorder	36.7	24.5	1.7 (0.7, 4)	16.7	13.5	1.3 (0.4, 3.7)	58	32.4	2.8 (1.1, 7.5)	36.8	17.6	2.7 (0.9, 7.5)
Substance abuse disorders												
Alcohol abuse	13.3	14.1	0.9 (0.3, 3.0)	13.3	3.7	4.0 (1.1, 15.2)	5.3	17	0.2 (0.3, 2.1)	0	3.4	$\chi^2=0.66$, ns ^a
Alcohol dependence	10	9.8	1.0 (0.2, 3.7)	3.3	3.1	1.1 (0.1, 9.6)	16	10.2	1.6 (0.4, 6.2)	0	1.1	$\chi^2=0.21$, ns ^a
Drug abuse	20	16	1.3 (0.5, 3.5)	16.7	3.7	5.2 (1.5, 18.4)	21	15	1.5 (0.5, 5.0)	10.5	3.4	3.3 (0.6, 17.8)
Drug dependence	23	5	5.8 (2, 17.8)	13.3	0	$\chi^2=22.2$, $p<.001$ ^a	21.1	16.5	1.3 (0.4, 4.3)	5.3	1.7	3.2 (0.3, 32.4)
Any substance abuse disorder	46	35	1.6 (0.7, 3.5)	20	8	2.8 (1.0, 8.3)	47	39	1.4 (0.5, 3.6)	10.5	6.8	1.6 (0.3, 7.8)
Any comorbid psychiatric disorder	83	62	3.0 (1.1, 8.4)	63	38	2.8 (1.2, 6.3)	89	72	3.1 (0.7, 14.3)	68	45	2.6 (0.9, 7.3)

* Includes cases who met criteria for a full syndrome eating disorder or a subclinical eating disorder. Subclinical categories include cases who also met criteria for a full syndrome eating disorder

^a Fisher's exact test performed because odds ratios are not calculable

Table 2: Age of onset of eating disorders* and comorbid psychiatric disorders among lesbians, gay men, and bisexuals (n=31)

Psychiatric disorder	Psychiatric disorder occurred before eating disorder	Psychiatric disorder developed simultaneous to or after eating disorder	z
^a Any anxiety disorder (n=22)	86% (n=19)	4% (n=1)	9.23, p < 0.001
^b Major Depressive Disorder (n=14)	77% (n=11)	7% (n=1)	5.22, p < 0.001
Any substance use disorder (n=14)	57% (n=8)	43% (n=6)	0.54, p = 0.6

* Includes cases who met criteria for a full syndrome eating disorder or a subclinical eating disorder. Subclinical categories include cases who also met criteria for a full syndrome eating disorder

^aAge of onset data was missing for 4 participants who were diagnosed with specific phobia. Two individuals had another anxiety disorder, and 2 participants had no other anxiety disorder, 9% (n=2).

^bMissing, 14% (n=2)