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The prevalence of eating disorders and their relationship to sexual abuse among college women

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THE PREVALENCE OF EATING DISORDERS AND THEIR RELATIONSHIP TO SEXUAL ABUSE AMONG COLLEGE WOMEN

by

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STATEMENT BY AUTHOR

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APPROVAL BY THESIS DIRECTOR

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Date

DEDICATIONS

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ABSTRACT

This study examines the relationship of sexual abuse and eating disorders (anorexia nervosa, bulimia nervosa) in a non-clinical population. Questionnaires were completed by 553 women belonging to 13 sororities at a large southwestern state university and were evaluated with respect to the prevalence of eating disorders and their relationship to sexual abuse. The Bulimia Test (BUILT), Eating Disorders Inventory-2 (EDI-2), and questions from the Women's Life Experiences Longitudinal Interview were used. Women who report severe abuse were found to score significantly higher on the BUILT than those not reporting such abuse. $X^2(1)=5.54$, $p=.019$. Women reporting severe abuse also scored higher on the Center for Epidemiological Studies - Depression (CES-D) and questions related to alcohol consumption.

INTRODUCTION

Several authors have noted that the etiology of eating disorders (anorexia nervosa, bulimia nervosa) might be linked to a socii-cultural factors (Garner, Garfinkel, Schwartz, & Thompson, 1980; Nasser 1988). Evidence to support this notion includes the observations that certain groups exist in which there are increased risks for developing an eating disorder. These groups include runners (Yates, Leehy, & Shisslak 1983), gymnasts (Warren, Stanton, & Blessing, 1990), ballet dancers (Cohen, Pocosnak, Frank, & Baker, 1985; Hamilton, Brooks-Gunn, & Warren, 1985; Hamilton & Ollendick 1986; Frusztager, Dhuper, Warren, Brooks-Gunn, & Fox, 1990) and fashion models (Garner, 1980). It is perhaps not surprising to find a high incidence of eating disorders among these populations when one recognizes that these are vocations or hobbies that require speed, gracefulness, and/or today's widely accepted standard of beauty, that is, excessive slimness. In general, these groups have constant exposure to external pressures to conform to sub-normal standards of body weight in order to perform well.

Another group that demands attention regarding eating disorders is the college population. Several studies have found a high rate of eating disorders within this group (Strangler & Pritz, 1980; Halmi, Falk, & Schwartz, 1981; Pyle,

Mitchell, & Eckert, 1981; Pyle, Mitchell, Eckert, Halvorson, & Goff, 1983; Katzman, Wolchik, & Braver, 1983; Pope, Hudson, Yurgelun-Todd, & Hudson, 1984; Gray & Ford, 1985; Hart & Ollendick, 1985; Nevo, 1985; Zuckerman, Colby, Ware, & Lazerson, 1986; Schotte & Stunkard, 1987; Thelen & McLaughlin, 1987; Drewnowski, Yee, & Krahn, 1988; Striegel-Moore, Silberstein, Fresch, & Rodin, 1989; Pyle, Halvorson, Neuman, & Mitchell, 1991). These studies have found the incidence of eating disorders in the female college populations range from 1.3% (Schotte et al. 1987) to 19% (Halmi et al. 1981).

In 1981 Halmi et al. surveyed 355 college summer school students. The ages range of the summer school students ranged from 14 to 67 years. They developed a 23-item questionnaire created to obtain information regarding symptoms of bulimia nervosa, use of diet aids and medications, weight changes in the past year, and a history of lowest and highest weights. Information such as physical stature and demographic information was also gathered. Nineteen percent of the female population reported all major symptoms of bulimia nervosa.

In 1980, 1983, and 1986, Pyle et al. conducted studies evaluating a possible trend toward increasing rates of bulimia among freshman college students. Students from freshman English classes completed a 43-item questionnaire; the questions developed by the authors reflected DSM-III criteria for bulimia. Results indicate that between 1980 and 1983

there was an increase from 1% to 3.2% in the prevalence of bulimia. Results of the 1986 study (2.2% prevalence) indicate a decrease from the 1983 study.

Katzman et al. (1984) surveyed students enrolled in an introductory psychology class. Initially, subjects were screened based on a positive response to the questions "Do you binge eat?" and "Do you frequently consume large quantities of food at times other than meals?"; these questions were a part of a comprehensive questionnaire handed out at the beginning of the semester. Seventy-one percent of the people who answered these questions positively completed an additional questionnaire related to DSM-III criteria for bulimia. Four percent of these women met criteria for bulimia nervosa.

Pope et al. (1984) sampled three student populations. In this study, 1,060 subjects were recruited from two different college campuses and a secondary school. Subjects completed a questionnaire consisting of items representative of DSM-III criteria for anorexia nervosa and bulimia nervosa. The authors concluded that 1% to 4.2% of these women met DSM-III criteria for a history of anorexia nervosa (with or without reporting a history of bulimia nervosa) and an additional 6.5% to 18.6% met DSM-III criteria for a history of bulimia nervosa. A total of 544 women were involved in the study, of these 15.4% were characterized as having a major eating disorder.

Gray and Ford (1985) surveyed spring-semester and summer-school students enrolled in an introductory psychology class. Two hundred-twenty female students completed the questionnaire. The questionnaire was developed by the authors and resulted in 13% of the female subjects meeting DSM-III criteria for bulimia.

Zuckerman et al. (1986) randomly selected 400 freshman women and 400 senior women in college classes. Questionnaires were mailed to all the subjects; 75% of the subjects returned the questionnaire. Questionnaires contained demographic information as well as 26 items from the Eating Disorder Inventory. Four percent of those women surveyed were classified as bulimic.

Schotte and Stunkard (1987) surveyed 1,965 students at an eastern university. Students in 21 different courses completed a 15-item self-report questionnaire created by the authors. This questionnaire included basic demographic information, weight, height, and frequency and occurrence of symptoms related to bulimia nervosa. Results indicated that 1.3% of the female population met diagnostic criteria for bulimia nervosa.

Thelen et al. (1987) used the BUILT in evaluating three college female populations. Subjects were students enrolled in introductory psychology classes. A total of 1,858 women were surveyed. In the three samples surveyed 3.8%, 2.% and

3.4% of the subjects were classified as having clinical eating disorders.

Drewnowski et al. (1988) conducted a longitudinal study of university freshmen to evaluate the incidence and recovery rates of bulimia. The questionnaires administered contained questions that reflected DSM-III-R criteria for bulimia. The initial survey conducted in the Fall, found that 2.9% of the female students could be characterized as having a probable diagnosis of bulimia. Subjects were then questioned six months later at which time 3.3% of the sample were classified as bulimic.

Striegel-Moore et al. (1989) assessed eating behaviors of students at the beginning and end of their freshman year. Questionnaires distributed to subjects consisted of several components: body weight, body image, perfectionism and ineffectiveness, The Work and Family Orientation Questionnaire (WOFO; Helmreich & Spence, 1978), perceived stress, and symptoms of disordered eating (consisting of questions examining diet, bingeing and purging behaviors as well as a five item *Disordered Eating Symptom Scale* developed by the authors to correspond with the features of bulimia according to the DSM-III-R). Four hundred and fifty women completed the survey at the beginning of the semester. At this time 3.8% of this sample were characterized with probable bulimia. Four hundred and three women completed the survey at the end of the

semester; 2.7% were described as having met diagnostic criteria of bulimia.

Hart and Ollendick (1985) evaluated the prevalence of bulimia among 139 working and 234 university women. Subjects in this study completed the Eating Disorder Inventory and the Eating Behavior Questionnaire, modified from Halmi et al. (1981). One percent of the working women in the sample were considered to have the diagnosis of bulimia nervosa. Interestingly, a considerably greater number of university women (5%) were found to suffer from bulimia.

Several socio-cultural factors may contribute to a high rate of eating disorders among college women. College is an impressionable time for most. Many leave home for the first time. There may be limited social support in the new environment and they may have feelings of insecurity regarding acceptance from others. Risman (1982) notes that one's self-concept is developed through interaction with others and that group norms and values become singularly influential. In addition, it has been suggested that eating disorders tend to become a problem during stressful periods in people's lives (Garner et al. 1985).

A subclass of college women exists which has received little attention with respect to eating disorders. A substantial number of college women choose to join the sorority system which, at many universities, represents a sub-

culture with its own set of norms and values. To become a member of a given sorority, women must participate in "rush". Rush is a selection process in which sorority members invite certain women to join their organization. Many sorority women admit that, when looking for potential members they are looking primarily for physical attractiveness combined with social skills (Risman, 1982). Evaluating each other with respect to the approval of men is also common among sorority women. "Through rush, each woman learns that the important ingredients for a woman's success, *for her own success,* are physical attractiveness, social skills, and social class" (Risman, 1982, p.237). Sororities place considerable emphasis on factors such as physical attractiveness and thinness (Carter & Eason, 1983). In general, on college campuses sororities can be arranged in an unofficial hierarchy based on the above factors. The prestige associated with membership in a given sorority, therefore, may exceed that of membership in others.

Participation in a sorority can result in continuous comparison to others. Membership in a given sorority may be associated with certain stereotypes (e.g. friendly, pretty, thin). Women may feel they must continue to fulfill these standards in order to be accepted. In such a social system where the need of acceptance from others can play such an important role there may exist a constant evaluation of one's

self in relation to others and/or in relation to today's ideal body image; this may promote the occurrence of eating disorders. Carter and Eason (1983, p.113), for example, found that sorority members who vomit when compared to non-vomiters "...envy other people...". Risman (1982) discusses sororities in the context of Shurr's (1971) description of the consequences of internalizing stereotypes whereby "...behavior is increasingly organized 'around' the role, and that cultural expectations attached to the role have come to have precedence..." (Shurr, 1971, p.69). So, much like the woman who must maintain a low weight to excel as a ballet dancer, so might the college woman in order to belong to the sorority of her choice. Thus, membership in a sorority may aggravate or accentuate eating disorders among the women who, by virtue of being in college, are already at increased risk for developing them.

The problem of eating disorders is further complicated by the relationship to a history of sexual abuse. Many investigators have examined the possibility that a history of abuse predisposes women to the development of eating disorders (Oppenheimer, Howells, Palmer & Chaloner 1985; Sloan & Leichner, 1986; Goldfarb 1987; Calam & Slade, 1989; Minovitz & Driol, 1989; Beckman & Burns, 1990; Palmer, Oppenheimer, Dignon & Chaloner 1990; Root & Fallon, 1990; Smolak & Levine, 1990; Steiger & Zanko, 1990; Goldner & Cockhill, 1991; Root &

Fallon, 1991), but results have been difficult to interpret. In several studies eating disorder patients have reported a high rate of sexual abuse (Sloan et al. 1986; Goldfarb 1987; Minovitz et al. 1989; Goldner et al. 1991). These studies, however, have used clinical populations, leading one to question whether the high rates of sexual abuse found in eating disordered women who seek treatment would also hold for those who do not seek treatment.

In the present study the prevalence of eating disorders in a non-clinical population (sororities) is evaluated and the possible relationship to sexual abuse is examined.

It is hypothesized that:

1. There is a high incidence of clinical and sub-clinical eating disorders among sorority women relative to rates reported in similar populations.

2. Rankings of sororities based on prestige will correlate positively with the incidence of eating disorders.

3. Sorority women who have eating disorders will report a higher rate of sexual abuse relative to sorority women without eating disorders.

For exploratory purposes, in order to examine other possible relationships, data related to subjects' depression and alcohol consumption were also questioned.

METHOD

Subjects

Subjects were 553 women surveyed from 13 sororities at a large southwestern state university. Questionnaires remained anonymous; to assure complete anonymity, no identification other than sorority house affiliation was used. Each questionnaire contained a cover letter which explained the study, affirmed subjects' anonymity, and informed subjects that, by completing the questionnaire they consented to participate in the study. It was made clear to subjects (in the cover letter as well as by the researcher who distributed questionnaires) that some of the questions were of a sensitive nature and that they may refuse to answer any questions with which they were uncomfortable.

Questionnaires were distributed to sorority members during their weekly meetings. In 9 of the 13 sororities, with the researcher present, all members attending the weekly meeting completed the questionnaires in approximately 30 minutes. Due to unavoidable conflicts, in four of the sororities the questionnaire was explained at the weekly meeting and then left behind for the women to complete in the researchers absence. These questionnaires were then retrieved at a later time. This resulted in a poorer return rate since less than 20% of the women from these four sorority houses completed the questionnaires.

Measures

Subjects completed six different questionnaires:

I. The Bulimia Test (BUILT) - The BUILT is made up of 35 multiple choice questions. It has been shown to be a reliable (test-retest coefficient of $r=.87$, $p>.0001$) and valid predictor (validity coefficient of $r=.54$, $p>.0001$) of bulimia in a non-clinical population (Smith & Thelen, 1984).

II. The Eating Disorder Inventory - 2 (EDI-2) - The EDI-2 is made up of 11 sub-scales: Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity.

Among female non-patients the internal consistency of the sub-scales of the EDI-2 are between .65 and .93 (Garner & Olmsted, 1984; Raciti & Norcross, 1987; Vanderheyd, Fekken & Boland, 1988) (Garner 1984). Test-retest reliability in non-patient samples have been found to range from .41 to .97 (Welch, 1988; Wear & Praz, 1987; Crowther, Lilly, Crawford, Shepherd & Oliver, 1990). Research conducted to establish the validity of the EDI for clinical utility has been insufficient (Eberly & Eberly, 1985). However, in a comparison of anorexic patients, male college subjects and female comparison subjects, the anorexic group had significantly higher scores ($p>.001$) than the male college subjects and female comparison

subjects (Garner, 1984).

The EDI-2 was used in this study for two purposes. First, the EDI-2 can serve in nonclinical settings to identify individuals who have "subclinical" eating problems or those who are at risk for developing eating disorders. Second, whereas the BUILT is primarily concerned with the characteristics of Bulimia, the EDI-2 poses questions relevant to anorexia as well.

III. Women's Life Experiences Longitudinal Interview - This questionnaire contains items relating to many different aspects of possible life experiences. For the purpose of this study, questions regarding verbal/physical abuse (Finkelhor, 1979) and sexual abuse (Koss, Woodruff & Koss, 1991) were extracted from this questionnaire. Questions asked subjects to report whether specific events had taken place in their lives. The questions regarding a history of abuse are classified into four different groups each of which contains two elements, age of victim and age of abuser. The categories are as follows:

A. Verbal/Physical Abuse - Questions regarding verbal/physical abuse while the subject was growing up by a parent or step-parent.

B. Childhood Sexual Abuse - Questions regarding an instance before the 18th birthday in which

someone at least 5 years older attempted or succeeded in sexually abusive behavior.

C. Peer Sexual Assault - Questions regarding attempted or successful sexually abusive behavior from the age of 14 through the age of 18 with boys about the same age.

D. Adult Sexual Assault - Questions regarding sexually abusive experiences with anyone after the age of 18.

In the present study, the highest score a subject can receive on this scale is 60. A subject's score placed her in one of three groups:

1. Those who had never experienced any abusive events (abuse score=0). These subjects are referred to a non-abused.

2. Those who have experienced some abusive events (abuse score is greater than 0 and less than 11.2). These subjects are referred to as abused.

3. Those who have experience severely abusive events (abuse score is greater than 11.2 which is one standard deviation above the mean. These subjects are referred to as severely abused.

IV. National Survey of Inter-Gender Relationships - This questionnaire contains items in order to evaluate inter-gender

relationships. Three questions from this survey were included to assess subjects consumption of alcohol (Wechsler & McFadden, 1979).

V. Center for Epidemiological Studies - Depression (CES-D). The CES-D is a 20 item self-report questionnaire designed to measure depressive symptomatology in the general population. When used with non-clinical populations, this scale's internal consistency is .85 (Radloff, 1977). The CES-D has been shown to correlate well with other self-report measures of depression (Radloff, 1977; Lewinsohn, Hoberman & Rosenbaum, 1988).

VI. Demographics Questionnaire - These questions were related to participants' weight, height, GPA, etc. (table 1). In addition subjects are asked, in their opinion, to rank from "best" to "worst" the sororities involved in the study.

TABLE 1. DEMOGRAPHIC QUESTIONNAIRE

Please fill in the following blanks

1. Age _____ 2. Year in school __
3. Sorority member for __ years. 4. Cumulative GPA __
5. Number of siblings __ 6. Current height __
7. Please fill in you weight in the past five years:

_____	_____	_____	_____	_____
1988	1989	1990	1991	1992

8. I am the _____ child in my family (oldest, middle, youngest).

9. I would describe myself to be:

a) Native American
b) Asian
c) Hispanic
d) African American
e) Caucasian
f) Other _____

10. I spent most of my life in this major region of the U.S.

a) North
b) Northeast
c) Northwest
d) East
e) South
f) Southeast
g) Southwest
h) West
i) Midwest
j) Alaska
k) Moved around
l) Hawaii
m) Other U.S. Territory

11. Have you ever been diagnosed with Anorexia? Yes No

12. Have you ever been diagnosed with Bulimia? Yes No

13. Has anyone in your family ever been diagnosed with Anorexia?
If yes, who?_____

14. Has anyone in your family ever been diagnosed with Bulimia?
If yes, who?_____

15. In your opinion, please rank (1-13) the following sororities on the XX campus (1 being "best", 2 = "second best", etc...)

___ Alpha Delta Pi
___ Alpha Epsilon Phi
___ Alpha Phi
___ Alpha Chi Omega
___ Kappa Kappa Gamma
___ Sigma Delta Tau
___ Zeta Tau Alpha
___ Gamma Phi Beta
___ Delta Delta Delta
___ Kappa Alpha Theta
___ Alpha Omicron Pi
___ Sigma Kappa
___ Chi Omega

RESULTS

Data Analytic Strategy

Exploratory data analysis of the variables measured (EDI-2, BUILT, Sexual abuse) indicated that these variables were not normally distributed. Due to the restriction of range (i.e., a non-normal distribution) parametric statistic (ANOVA, Correlational methods) were not appropriate. Instead, percentages and chi square analyses were evaluated.

Sample Characteristic

The mean age of the women involved in this study was 20 years. The majority were caucasian, primarily from the southwest region of the United States. Most were juniors in college with grade point averages in the range of 2.5 - 3.0.

Questionnaires were administered to 608 women. If subjects left more than 10% of the questionnaire blank they were not included in the study; a total of 553 women (91%) were included. For subjects who answered less than 90% of the questions, the overall mean answer for each question replaced those questions which were unanswered.

Prevalence of Eating Disorders

Using a cutoff score of 102 on the BUILT, 6% of this sample were classified as bulimic. As this cutoff score has been shown to overlook some who do, in fact, have eating

disorders, a more lenient cutoff score of 88 was used. This gives a false negative rate of 0 (Smith and Thelen 1984). By this standard 12.5% of the subjects were classified as having a clinical or sub-clinical diagnosis of bulimia.

Mean total scores on the EDI-2 can be found in table 2; the eleven sub-scales are also shown. The most important of these for purposes here is the Drive for Thinness scale which identifies people with significant eating problems. A cutoff score of 14 on this sub-scale has been shown to define a group of "weight preoccupied" college women (Garner 1984). Applying this criterion, 14.8% of the women in this sample were so classified. Following Norring and Sohlberg (1988) we also applied a more stringent criterion of 17 on this sub-scale which should identify only those who would be diagnosed with clinical eating disorders. Those subjects whose score exceeded 17 represent 8.5% of the sample.

Sorority Rankings

Using data supplied by the women themselves, we were able to rank the sororities in terms of prestige. The empirically determined social status of a particular sorority house appears to bear no relationship to the prevalence of eating disorders in that house. Rather, it appears that the occurrence of eating disorders is equally distributed among the sorority houses.

TABLE 2. EATING DISORDER INVENTORY MEAN SCORES

TEST	M (sd)
EDI TOTAL	48.54 (32.09)
DRIVE FOR THINNESS	6.00 (5.93)
BULIMIA	1.86 (3.21)
BODY DISSATISFACTION	13.32 (8.93)
INTEROCEPTIVE AWARENESS	3.46 (4.65)
INEFFECTIVENESS	2.55 (4.37)
PERFECTIONISM	7.12 (4.41)
INTERPERSONAL DISTRUST	1.91 (2.95)
MATURITY FEARS	2.90 (3.51)
ASCETICISM	4.19 (2.78)
IMPULSE REGULATION	2.71 (4.01)
SOCIAL INSECURITY	2.52 (3.03)

Prevalence of Sexual Abuse

The prevalence of sexual abuse can be found in table's 3 and 4.

Relationship Between Eating Disorders and Sexual Abuse

Seventy seven percent of the entire sample was classified as abused or severely abused based on their responses to questions regarding verbal, physical or sexual abuse on the Women's Life Experiences Longitudinal Interview. Of those who are classified as bulimic (according to the BUILT), 84.8% report at least one abusive experience, compared to 76% among those who are not classified as bulimic. Considering sexual abuse only, 45.8% of the entire sample report at least one sexually abusive experience. Of those who are classified as bulimic, 56.9% report at least one sexually abusive experience compared to 44.2% who are not classified as bulimic.

Scores of abuse ranged from 0 to 47 with a mean score of 5.12 (SD 6.09). Relative to non-abused women, abused and severely abused women reported higher scores on the EDI-2, the BUILT, the CES-D, and questions related to alcohol consumption (table 5). Of the severely abused subjects, 14.5% scored above criterion (>101) on the BUILT. By comparison 5.1% scored above criterion in the abused group, and only 3.9% scored as highly in the non-abused group. With respect to the

TABLE 3. RESULTS OF SEXUAL ABUSE QUESTIONS

ABUSE QUESTIONS	N	PERCENT
VERBAL/PHYSICAL ABUSE	357	64.6%
CHILDHOOD SEXUAL ABUSE	118	21.3%
PEER SEXUAL ASSAULT	151	27.3%
ADULT SEXUAL ASSAULT	122	22.3

TABLE 4. RESULTS OF SEXUAL ABUSE

TYPES OF ABUSE.	N	PERCENT
NON-ABUSED	128	23.1%
ABUSED	356	64.4%
SEVERELY ABUSED	69	12.5%

TABLE 5. EATING DISORDER INVENTORY MEAN SCORES FOR ABUSED AND NON-ABUSED SUBJECTS

TEST	NON-ABUSED M (sd)	ABUSED M (sd)	SEVERELY ABUSED M (sd)
EDI TOTAL	40.15 (29.50)	47.97 (29.22)	67.06 (42.35)
DRIVE FOR THINNESS	4.88 (5.65)	6.07 (5.90)	7.71 (6.22)
BULIMIA	1.65 (3.09)	1.68 (2.93)	3.19 (4.37)
BODY DISSATISFACTION	11.67 (8.98)	13.45 (8.81)	15.71 (8.96)
INTEROCEPTIVE AWARENESS	2.56 (4.12)	3.24 (4.10)	6.26 (6.80)
INEFFECTIVENESS	1.83 (4.08)	2.35 (3.83)	4.90 (6.35)
PERFECTIONISM	6.05 (4.31)	7.22 (4.30)	8.61 (4.73)
INTERPERSONAL DISTRUST	1.44 (2.42)	1.92 (2.92)	2.71 (3.77)
MATURITY FEARS	2.75 (3.50)	2.78 (3.20)	3.77 (4.79)
ASCETICISM	3.86 (7.35)	4.16 (2.74)	4.93 (3.50)
IMPULSE REGULATION	1.59 (2.49)	2.60 (3.72)	5.36 (6.11)
SOCIAL INSECURITY	1.86 (2.57)	2.50 (2.88)	3.91 (3.98)

Drive for Thinness sub-scale of the EDI-2, a similar relation holds; 8.7% of those severely abused scored above criterion (>17), compared to 5.9% and 4.7% in the abused and non-abused groups, respectively. Furthermore, women who report being severely abused are statistically more likely to have an eating disorder (as measured by the BUILT) than women who have not been severely abused, $X^2(1)=5.54$, p=.019.

An evaluation of the four different groups of abuse were examined in relation to eating disorders as measured by the BUILT. Women reporting at least one instance of verbal or physical abuse by a parent or step-parent while growing up were more likely to have an eating disorder, $X^2(1)=4.57$, p=.033, than women who had not been abused. Women who were victims of at least one instance of an attempted or successful sexually abusive behavior from the age of 14 through the age of 18 with boys about the same age were also more likely to have an eating disorder $X^2(1)=4.04$, p=.044, than their non-abused counterparts. Finally, women reporting at least one instance of a sexually abusive experience with anyone after the age of 18 were more likely to have an eating disorder $X^2(1)=8.46$, p=.004. The only abused group not statistically different from non-abused women in terms of eating disorders were those women who reported at least one instance of attempted or successful sexual abuse which occurred before their 18th birthday with someone at least 5 years older

$X^2(1)=3.01$, $p=.083$.

Scores on the EDI-2's Drive for Thinness sub-scale were also compared for abused and non-abused women following the scheme above in terms of abuse type. Of the four categories of abuse, only those women who report at least one instance of a sexually abusive experiences with anyone after the age of 18 are more likely to suffer from an eating disorder than women who have not been abused $X^2(1)=6.132$, $p=.013$. A summary of these results as well as further analysis on subjects who scored in the sub-clinical ranges on the BUILT and EDI-2 are found in table 6.

TABLE 6. STATISTICAL ANALYSIS

TYPE OF ABUSE	BULIT>101	BULIT>88	BULIT>88 BULIT<101	THIN>17	THIN>14	THIN>14 THIN<17
TOTAL ABUSE	$X^2(1)=5.54$ p=.019	$X^2(1)=.909$ p=.340	$X^2(1)=.031$ p=.861	$X^2(1)=.486$ p=.486	$X^2(1)=1.604$ p=.205	$X^2(1)=.439$ p=.508
VERBAL/ PHYSICAL	$X^2(1)=4.57$ p=.033	$X^2(1)=1.934$ p=.164	$X^2(1)=.063$ p=.802	$X^2(1)=.41$ p=.520	$X^2(1)=1.934$ p=.164	$X^2(1)=2.867$ p=.090
CHILD SEXUAL ABUSE	$X^2(1)=3.01$ p=.083	$X^2(1)=2.734$ p=.098	$X^2(1)=.271$ p=.602	$X^2(1)=.176$ p=.675	$X^2(1)=.471$ p=.492	$X^2(1)=.009$ p=.926
CHILD SEXUAL ASSAULT	$X^2(1)=4.04$ p=.044	$X^2(1)=4.618$ p=.032	$X^2(1)=.855$ p=.355	$X^2(1)=.000$ p=.997	$X^2(1)=2.422$ p=.120	$X^2(1)=1.258$ p=.262
ADULT SEXUAL ASSAULT	$X^2(1)=8.46$ p=.004	$X^2(1)=7.604$ p=.006	$X^2(1)=.726$ p=.394	$X^2(1)=6.132$ p=.013	$X^2(1)=4.497$ p=.034	$X^2(1)=1.375$ p=.241

DISCUSSION

The present results using the BUILT and EDI-2 are somewhat higher than those reported by others investigating college populations. It is generally accepted that a score of 102 or greater on the BUILT characterizes an individual with a clinical eating disorder as defined by DSM-III. By this standard the present study confirms the results of previous studies reporting high incidence of eating disorders. Specifically, we found that 6% of these university sorority students would be diagnosed with bulimia nervosa; 12.5% of the subjects meet the lower cut off score of 88 and are classified as having a sub-clinical diagnosis of bulimia.

It is quite difficult to diagnose anorexia nervosa through self-report as many refuse to accept that there is a problem. The EDI-s identifies those who are "weight preoccupied" through its' Drive For Thinness sub-scale. This sub-scale is in widespread use for the detection of eating disorders. A score of 17 or greater on the Drive For Thinness sub-scale of this test has been shown to reflect eating disorders (Norring and Sohlberg, 1988). By this measure, 8.5% of our sample would be characterized as having a clinical eating disorder; 14.8% are defined as "weight preoccupied" based on a score greater than 14 on this sub-scale.

The relatively high rates of eating disorders in this

sample may be related to specific socii-cultural factors. This is the only study that we know of that addresses the prevalence of clinical eating disorders in a specific university sub-group of this type. We hypothesized that the social pressures involved with sorority membership (e.g. constant comparison, importance of appearance) would contribute to dysfunctional eating patterns.

There is partial support for this hypothesis. As previously discussed, other studies using similar measuring instruments have reported lower rates of eating disorders among the general college population (Pyle et al. 1981; Pyle et al. 1983; Katzman et al. 1984; Hart et al. 1985; Zuckerman et al. 1986; Schotte et al. 1987; Thelen et al. 1987; Drewnowski et al. 1988; Striegel-Moore et al. 1989; Pyle et al. 1991). In contrast, only three studies that we are aware of have reported a higher incidence of eating disorders among university students (Halmi et al. 1981; Pope et al. (1984); Gray et al. (1985). See table 7 for a summary of these results.

It should be noted however, that a direct comparison across studies must be viewed with caution as a variety of assessment instruments have been employed, not all of which have demonstrable reliability and validity. It seems reasonable however, to ascribe at least face validity to the instruments used by previous researchers since most were

TABLE 7. SUMMARY OF PREVIOUS EATING DISORDER STUDIES AMONG COLLEGE POPULATIONS

AUTHOR	N (women)	PERCENTAGE
Pyle et al. (1980)	575	1%
Halmi et al (1981)	~212	19%
Pyle et al. (1983)	724	3.2%
Katzman et al. (1984)	485	4%
Pope et al. (1984)	544	1%-4% (AN) 6.5%-18.6% (BN)
Gray et al. (1985)	220	13%
Hart et al. (1985)	234	5%
Pyle et al. 1986 (study published in 1991)	911	2.2%
Zuckerman et al. (1986)	800	4%
Schotte et al. (1987)	994	1.3%
Thelen et al. (1987)	1858	3.8% 2.0% 3.4%
Drewnowski et al. (1988)	931	2.9% 3.3%
Striegel-Moore et al. (1989)	450 403	3.8% 2.7%

~ = approximately

constructed based on DSM criteria. Future studies, with the intent of attempting to generate more meaningful comparisons, should limit themselves to measurement instruments such as the EDI-2 and the BUILT which have been proven valid and reliable.

We also expected, to the extent that social pressures are important in the etiology of eating disorders, that we would find a direct correlation between the status of a sorority in the social hierarchy (based on subjects rankings) and the prevalence of eating disorders. We failed to find such a relationship, however, suggesting perhaps a more complicated interaction between social pressures and social support. It is possible, for example, that sorority members derive some protection against eating disorders by virtue of the social support inherent in the system, and that this benefit partially offsets the risks associated with membership. More research is needed to address this possibility.

In the present sample 45.8% of the subjects report some type of sexual abuse either as a child or as an adult. This is consistent with Weisberg (1992) who summarizes estimates of sexual abuse involving contact in women ages 18-36 in the general population to be between 43% and 45% (Russell 1983; Wyatt 1985). In our sample, 63.6% of those with eating disorders report at least one incident of sexual abuse during childhood or as an adult. This is also consistent with findings evaluating eating disorder patients; these estimates

of sexual abuse range from 20% to 66% (Oppenheimer et al. 1985; Kearney-Cooke 1986; Sloan et al. 1986; Root et al. 1988; Hall, Tice, Beresford, Wooley, & Hall, 1989; Ross, Herber, Norton, & Anderson, 1989; Beckman & Burns, 1990; Lacy 1990; Miller, 1990; Steiger et al. 1990).

Answering positively to at least one question regarding abusive behavior in general, 84.8% of the bulimic subjects in this population report some type of abuse while growing up. One possible reason for this relatively high figure may relate to the five questions included in our questionnaire regarding verbal and physical abuse, as distinct from sexual abuse per se; other investigators have focused strictly on questions related to sexual abuse. Calam et al. (1989) however, note that sexually abusive experiences may be only one aspect of the relationship between violence and disordered eating, noting the importance of considering physical and verbal abuse as well as sexual abuse in the etiology of eating disorders.

It appears from our results that sexual abuse has a significant impact upon the development of eating disorders. However, it must be noted that the amount of sexual abuse among eating disorder patients appears to be no greater than levels of sexual abuse found in other psychiatric patient populations (Weisberg, 1992). In future research, it may be important to evaluate if and how the abusive situation(s) was resolved (e.g. perpetrator removed from situation immediately

versus prolonged abuse, counseling made available, etc.) in relation to the development and status of current eating disorders.

One firm conclusion that can be drawn from this study is that eating disorders among the college population continue to be a major health problem. Furthermore, in comparison to other college populations, women who choose to join sororities appear to be at an increased risk for the development of eating disorders. Many questions, however, remain unanswered. For example, the question of whether women who are prone to developing an eating disorder tend to join sororities or, conversely, that sororities somehow promote eating disorders cannot be resolved from this study.

In addition, many issues regarding the relationship between abuse and eating disorders need to be addressed. Of the women classified as bulimic, nearly half report no experiences of sexual abuse. It may be important, therefore, to examine why some who experience sexual abuse develop eating disorders while others do not. Effective prevention and treatment strategies will depend on a better understanding of the causes of eating disorders and factors which influence their development.

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