



The National Center on  
Addiction and Substance Abuse  
at Columbia University

633 Third Avenue  
New York, NY 10017-6706

phone 212 841 5200  
fax 212 956 8020  
www.casacolumbia.org

*Board of Directors*

Joseph A. Califano, Jr.  
*Chairman and President*

Lee C. Bollinger  
Columba Bush  
Kenneth I. Chenault  
Jamie Lee Curtis  
James Dimon  
Mary Fisher  
Douglas A. Fraser  
Leo-Arthur Kelmenson  
Donald R. Keough  
David A. Kessler, M.D.  
LaSalle D. Leffall, Jr., M.D.  
Manuel T. Pacheco, Ph.D.  
Joseph J. Plumeri II  
Shari E. Redstone  
E. John Rosenwald, Jr.  
Michael P. Schulhof  
Louis W. Sullivan, M.D.  
Michael A. Wiener

*Directors Emeritus*

James E. Burke (1992-1997)  
Betty Ford (1992-1998)  
Barbara C. Jordan (1992-1996)  
Nancy Reagan (1995-2000)  
Linda Johnson Rice (1992-1996)  
George Rupp, Ph.D. (1993-2002)  
Michael I. Sovern (1992-1993)  
Frank G. Wells (1992-1994)

# Food for Thought: Substance Abuse and Eating Disorders

December 2003

Funded by:  
National Institute on Drug Abuse  
Abercrombie Foundation  
The Commonwealth Fund

## **Board of Directors**

**Lee C. Bollinger**

President of Columbia University

**Columba Bush**

First Lady of Florida

**Joseph A. Califano, Jr.**

Chairman and President of CASA

**Kenneth I. Chenault**

Chairman and Chief Executive Officer of American Express Company

**Jamie Lee Curtis**

**James Dimon**

Chairman and CEO of Bank One Corporation

**Peter R. Dolan**

Chairman and CEO of Bristol-Myers Squibb Company

**Mary Fisher**

Mary Fisher Care Fund

**Victor F. Ganz**

President and Chief Executive Officer of The Hearst Corporation

**Leo-Arthur Kelmenson**

Chairman of the Board of FCB Worldwide

**Donald R. Keough**

Chairman of the Board of Allen and Company Incorporated, (Former President of The Coca-Cola Company)

**David A. Kessler, M.D.**

Dean, School of Medicine and Vice Chancellor for Medical Affairs, University of California, San Francisco

**Manuel T. Pacheco, Ph.D.**

**Joseph J. Plumeri II**

Chairman and CEO of The Willis Group Limited

**Shari E. Redstone**

President of National Amusements, Inc.

**E. John Rosenwald, Jr.**

Vice Chairman of Bear, Stearns & Co. Inc.

**Michael P. Schulhof**

**Louis W. Sullivan, M.D.**

President Emeritus of Morehouse School of Medicine

**John J. Sweeney**

President of AFL-CIO

**Michael A. Wiener**

Founder and Chairman Emeritus of Infinity Broadcasting Corporation

### ***Directors Emeritus***

**James E. Burke** (1992-1997)

**Betty Ford** (1992-1998)

**Douglas A. Fraser** (1992-2003)

**Barbara C. Jordan** (1992-1996)

**LaSalle D. Leffall, Jr., M.D., F.A.C.S.** (1992-2001)

**Nancy Reagan** (1995-2000)

**Linda Johnson Rice** (1992-1996)

**George Rupp** (1993-2002)

**Michael I. Sovern** (1992-1993)

**Frank G. Wells** (1992-1994)

**A Special Acknowledgement to the Individuals  
Who Participated as Moderators and Panelists in the CASACONFERENCE  
*Food for Thought: Substance Abuse and Eating Disorders*  
January 23, 2001  
The National Center on Addiction and Substance Abuse (CASA) at Columbia University  
New York, NY**

**W. Stewart Agras, M.D.**, Professor Emeritus of Psychiatry and Behavioral Sciences,  
Stanford University School of Medicine

**Deborah Amos**, *ABC News*

**Christian Crandall, Ph.D.**, Department of Psychology, University of Kansas

**Caroline Davis, Ph.D.**, School of Kinesiology and Health Science, York University

**William Davis, Ph.D.**, Vice President of Research and Outpatient Site Programming,  
The Renfrew Center

**Stephanie Dolgoff**

**Karin Eklund, M.A., M.F.T.**

**Diane Elliot, M.D.**, Oregon Health Sciences University

**Peggy Girshman**, *Dateline NBC*

**Marks S. Gold, M.D.**, Distinguished Professor, University of Florida

**Steven Hyman, M.D.**, Former Director, National Institute of Mental Health (NIMH)

**Craig Johnson, Ph.D.**, Director, Eating Disorders Program, Laureate Clinic

**Jean Kilbourne, Ed.D.**

**Dean Krahn, M.D.**, Wisconsin Psychiatric Institute and Clinics

**Elizabeth Lambert**

**Alan I. Leshner, Ph.D.**, Former Director, National Institute on Drug Abuse (NIDA);

Chief Executive Officer of the American Association for the  
Advancement of Science and Executive Publisher of Science

**Steve Levenkron, M.S.**

**Lisa Lilienfeld, Ph.D.**, Department of Psychology, Georgia State University

**Margo Maine, Ph.D.**, Institute of Living, Eating Disorders Program

**Perri Peltz**, *CNN*

**Niva Piran, Ph.D.**, Professor of Education, University of Toronto

**Judith Reichman, M.D.**, Laureate Clinic

**Karen Spedowski, Ph.D.**

**G. Terence Wilson, Ph.D.**, Professor of Psychology, Rutgers University

## Table of Contents

<b>Foreword and Accompanying Statement</b> .....	i
<b>I. Substance Abuse and Eating Disorders: What is the Link and Who is at Risk?</b> ....	1
Co-Occurring Eating Disorders and Substance Abuse .....	1
Anorexia Nervosa .....	2
Bulimia Nervosa .....	2
Other Types of Eating Disorders .....	3
Eating Disorders and Caffeine Use.....	3
Eating Disorders and Tobacco Use.....	3
Eating Disorders and Alcohol Use.....	4
Eating Disorders and the Misuse of Over-the-Counter Medications.....	5
Eating Disorders and Illicit Drug Use.....	6
Health Consequences of Eating Disorders.....	7
Anorexia Nervosa .....	7
Bulimia Nervosa.....	7
Binge Eating Disorder.....	7
Who is at Risk? .....	7
Teenage Girls Are Particularly Vulnerable.....	7
Puberty is a Risky Time for Girls .....	8
Athletes Are at High Risk for Disordered Weight-Control Behaviors .....	9
Gender and Racial/Ethnic Differences in Eating Disorders .....	9
Which Comes First: Substance Abuse or Eating Disorders?.....	11
<b>II. Explaining the Co-Occurrence: Common Personal, Social and Societal Risks</b> ....	13
Common Brain Chemistry .....	13
Common Family History .....	14
Common Personal Risks .....	14
Anxiety and Depression.....	14
Low Self-Esteem.....	14
Stress and Coping .....	15
Childhood Abuse .....	15
Common Links to Other Psychiatric Disorders .....	15
Common Family Characteristics.....	16
Modeling of Substance Use and Disordered Eating Behaviors .....	16
Parental Monitoring of Children’s Behaviors.....	17
Parent-Child Relationship.....	17
Peers and the Social Environment .....	17
Advertising, Marketing and Entertainment Industries.....	18
The Drive for Perfection .....	18
The Prevailing Media Message: One Can Never Be Too Thin .....	18
Bodies for Sale: Advertising and Eating Disorders .....	20
Advertising an Addiction: Selling the Body Ideal With Ads for Cigarettes and Alcohol.....	20
<b>III. Treating Eating Disorders and Co-Occurring Substance Abuse</b> .....	23
Treatment Considerations .....	23
Best Practices for Treatment.....	24
The Treatment Plan.....	25

Types of Treatment .....	25
Relapse and Recovery .....	26
<b>IV. Prevention of Eating Disorders and Substance Abuse.....</b>	<b>29</b>
Models of Prevention .....	29
Information-Based Prevention Programs:	
What Are They and Do They Work? .....	30
Who Are the Target Audiences for Prevention and When, Where and How	
Should They be Reached?.....	30
Whom to Target and When.....	30
Specific Programs Aimed at Preventing Eating Disorders and Substance Use.....	31
Programs Aimed at Preventing Eating Disorders .....	31
The Role of Families in Substance Use and Eating Disorder Prevention.....	32
Schools Offer An Important Venue for Comprehensive Prevention .....	33
<b>V. Opportunities and Next Steps .....</b>	<b>35</b>
Opportunities for Action .....	35
What Parents Can Do .....	35
What Schools Can Do .....	36
What Health Professionals Can Do .....	37
What Advertising, Marketing and Entertainment Industries Can Do .....	37
What Policymakers Can Do .....	37
What Researchers Can Do.....	38
<b>Notes .....</b>	<b>39</b>
<b>Reference List.....</b>	<b>49</b>



## Foreword and Accompanying Statement by Joseph A. Califano, Jr., Chairman and President

---

For the past three years, The National Center on Addiction and Substance Abuse (CASA) at Columbia University has been examining the link between substance abuse and eating disorders. The result of this intensive study--the most comprehensive ever undertaken on the subject--is this report, *Food for Thought: Substance Abuse and Eating Disorders*. The findings are deeply troubling:

***Individuals with eating disorders are up to five times likelier to abuse alcohol or illicit drugs and those who abuse alcohol or illicit drugs are up to 11 times likelier to have eating disorders.***

Both problems afflict the very young and quickly spiral out of control. High school girls with eating disorder symptoms are much likelier to smoke cigarettes, drink alcohol or use drugs than those without such symptoms. Girls who smoke, drink or use drugs are much likelier to report past month eating disorder symptoms than those who do not use such substances.

Even middle-school girls--typically age 10 to 14--who have dieted in the previous month and evidence no eating pathology are almost twice as likely to become smokers as nondieters. Girls this age who report dieting more than once a week are nearly four times likelier to become smokers compared to nondieters. The more severely girls and young woman diet, the more likely they are to drink frequently and heavily as well as to use marijuana and other illicit drugs.

People with eating disorders abuse caffeine, tobacco, alcohol, amphetamines, cocaine, heroin and over-the-counter medications such as diuretics, emetics or laxatives to suppress appetite, increase metabolism and purge themselves. Substance abuse also occurs in people with eating disorders who are trying to self-medicate the negative feelings and emotions that typically accompany such disorders.

Eating disorders and substance abuse have a number of characteristics in common. Shared risk factors for these disorders include common brain chemistry and common family history; both emerge in times of stress or transition; both are more likely to develop in individuals with low self-esteem, depression, anxiety or a history of physical or sexual abuse; and both may be influenced by unhealthy parental substance use or dieting behaviors, social pressures, and the advertising, marketing and entertainment industries.

Other shared characteristics of the disorders include an obsessive preoccupation with a substance (food or a drug), intense craving, compulsive behavior, attempts to keep the problem a secret, social isolation and risk for suicide. The two disorders also have similar effects on the brain and both are linked to other psychiatric disorders such as obsessive-compulsive disorder and mood disorders. Finally, both are chronic, recurring, life-threatening diseases.

In America the message that one can never be too thin broadcasts loud and clear to millions of women and adolescent girls. Many products, including tobacco and weight loss drugs, are marketed to women and girls as passkeys to beauty, joy, success--and slimness.

This report constitutes the most extensive analysis of the current state of knowledge on the link between eating disorders and substance abuse. The findings are based on CASA's analyses of national data sets and on a review of nearly 500 articles, books and reports from the most current scientific literature available addressing these issues.

## **Key Findings**

Up to 50 percent of individuals with an eating disorder abuse alcohol or illicit drugs compared to approximately nine percent in the general population. Up to 35 percent of alcohol or illicit drug abusers have an eating disorder compared to up to three percent in the general population.

Although rates of eating disorders are relatively low, disordered weight-related attitudes and behaviors are rampant. Teenage girls are particularly vulnerable. While only 15 percent of teenage girls and boys can be classified as overweight:

- 62.3 percent of teenage girls report trying to lose weight (compared to 28.8 percent of teenage boys), 58.6 percent are actively dieting (compared to 28.2 percent of boys) and 68.4 percent exercise with the goal of losing weight or to avoid gaining weight (compared to 51 percent of boys).
- 19.1 percent of teenage girls fast for 24 hours or more (compared to 7.6 percent of teenage boys), 12.6 percent use diet pills, powders or liquids (compared to 5.5 percent of boys) and 7.8 percent vomit or take laxatives to lose weight or to avoid gaining weight (compared to 2.9 percent of boys).

Many individuals who engage in unhealthy weight-control behaviors or have full-blown eating disorders use or abuse substances such as caffeine, tobacco, alcohol, cocaine, heroin and over-the-counter medications such as appetite suppressants, diuretics, laxatives and emetics.

- Caffeine is used to alleviate hunger or boost energy. People with eating disorders often consume large amounts of diet sodas which frequently are high in caffeine content.
- People with eating disorders smoke cigarettes to suppress their appetite and provide themselves with an alternative oral activity to eating. The link between smoking and weight concerns can be seen in girls and women of all ages.
- Alcohol abuse is common in people with eating disorders, particularly bulimia. Bulimic women who are alcohol dependent report a higher rate of suicide attempts, anxiety disorders, personality disorders, conduct disorder and other substance dependence than bulimic women who are not alcohol dependent.

- Illicit drug use is particularly common among bulimics. Drugs such as heroin and cocaine are used to facilitate weight loss by suppressing appetite, increasing metabolism and purging.
- In addition to appetite suppressants, other over-the-counter medications that are used by people with eating disorders--often inappropriately to facilitate purging--include diuretics, emetics and laxatives.

Like substance abuse, the adverse effects of eating disorders are well documented and often quite severe, ranging from hair loss, tooth decay and osteoporosis to heart failure and a destabilization of virtually all body systems. Severe cases may be fatal.

Eating disorders occur in five to 10 million Americans, mostly girls and young women. Although white, upper-middle class girls and young women are the primary victims, the population afflicted by these disorders is becoming more diverse.

- Hispanic girls report some symptoms of eating disorders--such as fasting, vomiting and taking laxatives to lose weight or to avoid gaining weight--at higher rates than white or black girls.
- Eating disorders appear to be on the rise among middle-aged women and preadolescent girls.
- Approximately one million boys and men suffer from eating disorders and this number is growing; a high proportion of males with eating disorders are gay.

Western culture idealizes thin women and, as a result, many women equate being thin with self-worth. The advertising, marketing and entertainment industries, which inundate adults and children with iconic images of thin beauty, have become a major force in the development of women's body dissatisfaction and disordered eating attitudes and behaviors.

Women's magazines contain 10.5 times more ads and articles related to weight loss than men's magazines--the same sex ratio reported for eating disorders. While the average American woman is 5'4" tall and weighs approximately 140 pounds, the average model is 5'11" tall and weighs 117 pounds.

The commercial world, including the diet, cigarette and alcohol industries, have not shied away from targeting women's desire to be thin in order to promote their products. In particular, the tobacco companies understood the relationship between smoking and weight control long before the public health experts.

- The 1920s *Lucky Strike* cigarette advertising campaign encouraged women to "reach for a Lucky instead of a sweet." The *Virginia Slims* brand tagline was "slimmer, longer, not like those fat cigarettes men smoke." The slogan for *Misty* cigarettes is "slim n' sassy." *Capri* cigarette ads claim, "there's no slimmer way to smoke" and call *Capri* cigarettes "the slimmest slim in town."

Unfortunately, public health professionals, including prevention and treatment specialists are way behind the commercial industries in recognizing the link between substance use and disordered eating. This report demonstrates clearly that it is time for action by health professionals.

### ***What Parents Can Do***

To help prevent eating disorders and substance abuse in their children, parents should model and promote healthy, positive and reasonable messages about eating and exercise as well as consistent messages about the dangers of substance use.

### ***What Schools Can Do***

Schools should make it a priority to educate parents, teachers, administrators and coaches to recognize the relationship of eating disorders and substance abuse and intervene quickly and effectively.

### ***What Health Professionals Can Do***

The public health community, including doctors, dentists, nurses and prevention and treatment specialists, should educate their patients and the public about nutrition and the negative health effects of eating disorders and substance abuse.

The link between eating disorders and substance abuse is not well understood and often is overlooked by healthcare professionals. Healthcare practitioners should routinely screen all patients for both of these disorders so that they can catch them in time and get patients who need it into treatment. Unfortunately, despite their high rates of co-occurrence, few treatment programs exist that address both eating disorders and substance abuse simultaneously and effectively. Prevention programs that target both disorders are rare as well.

### ***What the Advertising, Marketing and Entertainment Industries Can Do***

Many commercial industries, including the diet and fashion industries, prey on women's weight concerns to market their products. When this type of marketing approach is used by the tobacco and alcohol industries, it is particularly pernicious given the serious health consequences associated with the abuse of their products. Tobacco and alcohol companies should refrain from linking smoking and drinking to unrealistically thin images of women. The entertainment industry, including television, film and music, also should refrain from making positive associations between thinness and smoking, drinking and using drugs.

### ***What Policymakers Can Do***

Policymakers should increase public awareness about the connection between substance abuse and eating disorders and inform the public about how to recognize the warning signs of these disorders and how best to help combat unhealthy societal messages. Managed care program policies should be modified to cover both mental and physical health treatments for substance use and eating disorders.

### ***What Researchers Can Do***

More research is needed on the genetic and biological bases of substance use and eating disorders as well as on co-occurring psychiatric disorders. Research also is needed to develop new and better approaches to preventing, assessing, diagnosing and treating substance use and eating disorders.

### **Acknowledgements**

This report emerges from a landmark national conference--one of a series of CASACONFERENCES designed to raise awareness and concern about the relation of substance abuse to other problems, spark new research and shape public policy. The conference was hosted by CASA on January 23, 2001 to explore the potentially deadly relationship between eating disorders and substance abuse.

We extend our appreciation to all who participated in that conference for bringing their insight and expertise to this problem and for helping to raise public awareness. For the financial support that made the conference and this report possible, we express our appreciation to the National Institute on Drug Abuse (NIDA), the Abercrombie Foundation and The Commonwealth Fund.

Susan E. Foster, M.S.W., CASA's Vice President and Director of Policy Research and Analysis, directed this effort. Linda Richter, Ph.D., senior research manager, was the Project Manager. Other CASA staff who contributed to the research were: Emma Berndt, research assistant; Courtney Petersen, M.A., research assistant; Sarah Winkeller, research assistant; David Man, Ph.D., librarian; Ivy Truong, library research associate; Barbara Kurzweil, library research specialist; Alex Greenshields, bibliographic database manager; and Paula Perlmutter, M.P.H., research associate. Tisha Hooks helped edit the report. Jane Carlson and Jennie Hauser handled the administrative responsibilities.

We gratefully acknowledge William Davis, Ph.D., Director, Renfrew Center; Mark S. Gold, Professor, Department of Psychiatry, University of Florida; Margo D. Maine, Ph.D., clinical psychologist and author; Adele Roman, R.N., M.S.W., Deputy Women's Health Coordinator of the National Institutes of Health; and Cora Lee Wetherington, Ph.D., Women and Gender Research Coordinator, NIDA, for their professional review of this work.

While many individuals and institutions contributed to this effort, the findings and opinions expressed herein are the sole responsibility of CASA.



# Chapter I

## Substance Abuse and Eating Disorders: What is the Link and Who is at Risk?

---

Eating disorders, which include anorexia nervosa, bulimia nervosa and binge eating disorder, affect more than five million Americans.<sup>1</sup> Millions more display some configuration of symptoms, if not the full-blown disorder.<sup>2</sup> Eating disorders can have devastating physical and mental health consequences, not the least of which is the increased potential for substance use and abuse. Between 30 and 50 percent of individuals with bulimia and between 12 and 18 percent of those with anorexia abuse or are dependent on alcohol or drugs,<sup>\*</sup> compared to approximately nine percent in the general population.<sup>4</sup> Up to 35 percent of individuals who abuse or are dependent on alcohol or drugs also have an eating disorder,<sup>5</sup> compared to up to three percent<sup>†</sup> in the general population.<sup>6</sup> Girls and young women are particularly vulnerable to the development of eating disorders,<sup>7</sup> but the problem is increasing among males<sup>8</sup> and racial/ethnic minorities.<sup>9</sup>

### **Co-Occurring Eating Disorders and Substance Abuse**

When an individual demonstrates distorted or extreme weight-related attitudes or behaviors or when extreme weight control measures occur among those who are not overweight,<sup>‡</sup> it may signal a pathological eating disorder.

---

\* No national data exist that speak to rates of co-occurrence of these disorders. Therefore, data are derived from multiple smaller studies, many based on clinical samples. These rates do not include the many individuals with eating disorders who smoke or abuse prescription medications.

† Up to one percent in the general population has anorexia nervosa and up to three percent has bulimia nervosa.

‡ According to the National Institutes of Health's clinical guidelines for adults, overweight is defined as a body mass index (BMI) of 25 to 29.9 and obesity as a BMI of 30 or higher.

The substances most frequently abused by individuals with eating disorders or with sub-clinical symptoms of these disorders include: caffeine, tobacco, alcohol, laxatives, emetics, diuretics, appetite suppressants (amphetamines), heroin and cocaine.<sup>10</sup>

### ***Anorexia Nervosa***

Anorexia nervosa is a disorder characterized by the pursuit of thinness and refusal to maintain weight at or above a minimally acceptable standard for age and height.\*<sup>11</sup> Anorexia typically develops in adolescent girls and is characterized by the denial of illness, an overriding and irrational fear of becoming overweight and a distorted perception of body image.<sup>12</sup> Although the most common ages of onset of anorexia nervosa are the mid-teens,<sup>13</sup> up to five percent of anorexic patients experience the onset of the disorder in their early 20s,<sup>14</sup> increasing numbers of adults are seeking treatment for it<sup>15</sup> and more and more preadolescents are exhibiting early signs of the disorder.<sup>16</sup>

Anorexia occurs in about 0.5 to one percent of women in the general population,<sup>17</sup> and 10 to 20 times more often in females than in males.<sup>18</sup> The incidence of anorexia nervosa has increased in the past 30 years both in the United States and Western Europe.<sup>19</sup>

---

\* According to the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), diagnostic criteria for anorexia nervosa include: (1) Refusal to maintain body weight at or above a minimally normal weight for age and height; (2) Intense fear of gaining weight or becoming fat even though underweight; (3) Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation or denial of the seriousness of current low body weight; and (4) In post-menarcheal females, the absence of at least three consecutive menstrual cycles.

### ***Bulimia Nervosa***

Bulimia nervosa, which only was recognized as diagnostically distinct from anorexia nervosa in 1980,<sup>20</sup> is characterized by recurrent episodes of binge eating and vomiting, laxative use, fasting and/or excessive exercise to counteract the binge eating.<sup>† 21</sup>

Bulimia nervosa typically is accompanied by feelings of being out of control and unable to voluntarily stop eating.<sup>22</sup> Unlike patients with anorexia nervosa, those with bulimia often maintain a normal body weight,<sup>23</sup> making it more difficult to detect the disease. About one-fourth to one-third of bulimia nervosa patients have had a previous history of anorexia nervosa.<sup>24</sup> The onset of bulimia often occurs later in adolescence than anorexia or in early adulthood.<sup>25</sup> Individuals, ages 12 to 35, are prime candidates for bulimia, with an average age of onset of 18.<sup>26</sup>

Bulimia is more prevalent than anorexia nervosa and occurs in approximately one to three percent of young women.<sup>27</sup> Like anorexia, bulimia is significantly more common in females than in males.<sup>28</sup> More than one in 10 girls in grades nine through 12 (11.4 percent) and almost one in every 20 boys of the same age (4.7 percent) have at least four of the five symptoms of the disorder.<sup>29</sup> In addition to the full-blown disorder, symptoms of bulimia, such as

---

† According to the DSM-IV, diagnostic criteria for bulimia nervosa include: (1) Recurrent episodes of binge eating, characterized by both a) eating, in a discrete period of time (within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances; and b) a sense of lack of control over eating during the period; (2) Recurrent inappropriate compensatory behavior in order to prevent weight gain (e.g., vomiting; the misuse of laxatives, diuretics, enemas, or other medications; fasting or excessive exercise); (3) Binge/purge episodes occur, on average, at least twice a week for three months; (4) Self-evaluation is unduly influenced by body shape and weight; and (5) The disturbance does not occur exclusively during episodes of anorexia nervosa.

occasional episodes of binge eating and purging, occur in up to 40 percent of college women.<sup>30</sup>

### ***Other Types of Eating Disorders***

Individuals with disordered eating symptoms or behaviors who do not meet the full diagnostic criteria for either anorexia or bulimia are classified as having an “eating disorder not otherwise specified.” Some of these individuals have symptoms of both anorexia and bulimia (sometimes referred to as being bulimirexic) but do not meet the full diagnostic criteria for either one; nevertheless, they often suffer greatly from their disorder.

Binge eating disorder, another type of eating disorder, is similar to bulimia in that it involves a pattern of eating excessive amounts of food in one sitting. However, individuals with binge eating disorder are not obsessed with body shape and weight and do not engage in purging, but they do tend to feel anxious about the amount of food consumed.\*<sup>31</sup>

The majority of persons with binge eating disorder are obese.<sup>32</sup> Obesity is a growing problem in the United States.<sup>33</sup> Approximately 64 percent of American adults are either overweight or obese and 15 percent of children, ages six to 19 years, are overweight.<sup>34</sup> Although obese individuals may demonstrate certain addictive qualities (e.g., compulsive behavior, substance-seeking behavior)<sup>35</sup> and brain chemistry (e.g., low dopamine receptor levels) as individuals who are addicted to drugs, they

---

\* According to the DSM-IV, diagnostic criteria for binge eating disorder include: (1) Exhibiting three or more of the following: (a) eating much more rapidly than normal; (b) eating until feeling uncomfortably full; (c) eating large amounts of food when not feeling physically hungry; (d) eating alone because of being embarrassed by how much one is eating; (e) feeling disgusted with oneself, depressed or very guilty after overeating; (2) Recurrent episodes, occurring at least two days a week for six months; (3) Distress linked to the behavior; and (4) The behavior does not meet diagnostic criteria for anorexia nervosa or bulimia nervosa.

appear to be less likely than individuals without a binge eating disorder to abuse illicit drugs.<sup>36</sup>

### ***Eating Disorders and Caffeine Use***

Individuals with eating disorders or eating disorder symptoms may rely on coffee or caffeinated diet beverages to help alleviate hunger and boost energy. An eight-ounce serving of brewed coffee contains 135 milligrams of caffeine, an eight-ounce serving of diet Mountain Dew contains 37 milligrams of caffeine and an eight-ounce serving of Diet Coke contains even more caffeine than regular Coke (31 milligrams compared to 23 milligrams).<sup>37</sup> Regular caffeine use may result in tolerance and withdrawal symptoms<sup>38</sup>--effects that may be exacerbated in low-weight women and men who drink large amounts of diet, caffeinated beverages.<sup>39</sup>

Data from a survey of girls and young women conducted for CASA’s report, *The Formative Years: Pathways to Substance Abuse Among Girls and Young Women Ages 8-22*, indicate that girls and young women who drink coffee with caffeine are significantly likelier than those who do not to report that they are trying to lose weight (35.9 percent vs. 25.1 percent)<sup>40</sup> or that they take diet pills to help them control their weight (15.7 percent vs. six percent).<sup>41</sup> The data also indicate that girls and young women who take diet pills to help them control their weight drink coffee more frequently than those who do not take diet pills.<sup>42</sup>

### ***Eating Disorders and Tobacco Use***

Dieting and eating disorder symptoms are strongly related to smoking.<sup>43</sup> Weight loss is an important motivational factor for smoking, particularly among girls and young women.<sup>44</sup> Smoking not only suppresses appetite, but also provides an alternative oral activity to eating, which is particularly enticing to individuals with eating disorders who often are obsessed with food.

Recent research, however, contradicts the popular belief among girls that smoking

enhances weight loss.<sup>45</sup> In one study, teens who initiated smoking actually demonstrated an increase in body mass index (BMI)<sup>\*</sup> for up to two years after initiation.<sup>†</sup><sup>46</sup> Furthermore, no difference was found in average body weight between teens who smoked for three or more years and those who never smoked.<sup>47</sup> Finally, teens who were followed for up to three years after initiating smoking demonstrated no significant reductions in their body weight.<sup>48</sup>

Among adolescent girls with eating disorders, those who smoke have the highest levels of eating disordered thoughts and attitudes.<sup>49</sup> Smoking is common among bulimics--even more so than among anorexics<sup>50</sup>--and it is particularly prevalent in people with bulimia who vomit as a compensatory behavior for caloric intake.<sup>51</sup>

Even nondisordered weight-control behaviors significantly increase the risk of smoking,<sup>52</sup> perhaps because of the perceived weight loss benefits of smoking. Teen girls who smoke report greater body image concerns than nonsmokers.<sup>53</sup> Conversely, adolescent girls who have a poor body image and who engage in disordered weight control behaviors are more than four times likelier to initiate smoking as other girls.<sup>54</sup>

Weight concerns are related to smoking in the long-term as well. Girls who report trying to lose weight at ages 11 or 12 are approximately twice as likely to engage in daily smoking in their late teens.<sup>55</sup> Over the course of one year, 10- to 15-year old girls and boys with strong weight concerns were approximately twice as likely to begin smoking as those less concerned about their weight.<sup>56</sup> Middle-school girls who are "normal" dieters--dieting once per week or less in the previous month and showing no signs of eating pathology--are almost twice as likely to become smokers as nondieters.<sup>57</sup> Girls this

age who report more frequent dieting (i.e., more than once per week) are nearly four times likelier to become smokers compared to nondieters.<sup>58</sup>

Girls and young women who smoke to suppress their appetite are a potential group of new nicotine addicts, making females who are concerned about their weight particularly vulnerable targets for the tobacco industry.<sup>59</sup>

Females who smoke are more than twice as likely as males to cite weight concerns as a reason not to quit.<sup>60</sup> Young women also are far more likely than young men to report weight gain as a cause of smoking relapse.<sup>61</sup> In one study of college students, 39 percent of female students and 25 percent of male students stated that smoking was a dieting strategy.<sup>62</sup> Among those in this study who attempted to quit smoking, 20 percent of females and seven percent of males cited weight gain as the reason for relapse.<sup>63</sup>

### *Eating Disorders and Alcohol Use*

Extensive research documents an association between eating disorders and alcohol misuse and abuse.<sup>64</sup> This relationship can be found across the continuum from chronic dieting to full-blown eating disorders.<sup>65</sup> The prevalence of alcohol abuse in females with eating disorders is much higher than in the general female population and, conversely, females with alcohol use disorders report eating-disordered behavior more often than the general population.<sup>66</sup>

The relationship between alcohol use and abuse and eating disorders appears to be strongest for individuals with bulimia nervosa<sup>67</sup> and the combination can be particularly damaging. Bulimic women who also are alcohol dependent report a higher rate of suicide attempts, anxiety disorders, personality disorders (such as borderline and histrionic personality disorders),

---

\* A common measure of body weight.

† The authors argue that this relationship can most likely be attributed to factors that contribute both to smoking and to weight gain rather than being a function of any weight-gaining properties of smoking itself.

conduct disorder and other substance dependence than bulimic women who are not alcohol dependent.<sup>68</sup>

Even nondisordered weight-control behaviors are related to alcohol use and abuse. Preadolescent and early adolescent girls who report being highly concerned about their weight are nearly twice as likely to begin getting drunk as girls who are less concerned about their weight.<sup>69</sup> The reverse pattern is also true. Girls who have a history of getting drunk are at approximately three times the risk of beginning to purge in order to control their weight as girls who have never consumed enough alcohol to get drunk.<sup>70</sup>

Girls who drink more alcohol are significantly likelier to perceive themselves as overweight, to want to lose weight and to engage in unhealthy dieting behaviors, such as fasting, taking diet pills, vomiting or taking laxatives.<sup>71</sup> CASA's report, *The Formative Years: Pathways to Substance Abuse Among Girls and Young Women Ages 8-22*, indicates that girls who engaged in unhealthy dieting behaviors, such as fasting, taking diet pills or bingeing and purging, reported drinking significantly more alcohol than nondieters.<sup>72</sup>

The more severely a young woman diets, the more likely she is to use alcohol.<sup>73</sup> A study of incoming female college freshmen showed that 72 percent of at-risk\* and bulimic dieters reported using alcohol in the past month compared to 44 percent of those who did not diet.<sup>74</sup> Another study found that chronic dieters may not drink more frequently than other women, but when they do drink they consume significantly greater quantities of alcohol.<sup>75</sup> Although excessive dieting generally is related to restraint from alcohol use because of the high caloric content of alcohol, when a chronic dieter who significantly restricts food intake does consume alcohol, she is at greater risk for binge drinking than a woman who engages in less dietary restraint.<sup>76</sup>

### ***Eating Disorders and the Misuse of Over-the-Counter Medications***

Individuals with eating disorders often resort to prescription and over-the-counter (OTC) drugs to reduce water retention rapidly or to induce purging.<sup>77</sup> In 2001, 12.6 percent of female high school students reported that in the previous month they had taken diet pills, powders or liquids without a doctor's advice to lose weight or to keep from gaining weight.<sup>78</sup>

Diuretics, which are available both OTC and in prescription form, are used to increase urination and reduce water retention. Diuretics are considered safe when used within the recommended guidelines but when used in large quantities, they can produce nausea, vomiting and gastrointestinal distress. Tolerance develops with repeated use and withdrawal symptoms may occur when stopped.<sup>79</sup>

Some individuals with eating disorders use emetic agents--substances that induce vomiting--to control their weight. A common drug of this type is syrup of ipecac, a readily available OTC substance. Ipecac produces short-term weight reduction but when used frequently, it can result in muscle weakness, nausea and excessive vomiting or diarrhea. Because it remains in the body for a long time, repeated use can result in toxic buildup that can produce severe and even lethal gastrointestinal, cardiac and neuromuscular complications.<sup>80</sup>

The use of laxatives--drugs that relieve constipation--also is common among individuals with bulimia (and among anorexics of the binge eating/purging type). Bulimics (and some anorexics) self-administer laxatives to lose weight and reduce feelings of bloating following bingeing. Common complaints of individuals abusing laxatives include diarrhea, weakness, abdominal pain, nausea and dehydration.<sup>81</sup> Both tolerance and withdrawal occur with repeated laxative use.<sup>82</sup> Though rare, chronic abuse of laxatives can be fatal.<sup>83</sup>

---

\* Met two of the three DSM-III-R criteria for bulimia.

Most OTC diet pills used to contain varying strengths of phenylpropanolamine (PPA), an ingredient that helps suppress appetite and that serves as a nasal and bronchial decongestant. First introduced as a replacement to ephedrine,\* in November of 2000, the Food and Drug Administration (FDA) issued a public health advisory concerning PPA, which was found to increase the risk of hemorrhagic stroke (bleeding into the brain or into tissue surrounding the brain), and began taking steps to remove PPA from all OTC drug products.<sup>84</sup>

Diet pills containing the ingredient ephedra, which are used by some people trying to control their weight, are currently at the center of a regulatory debate. Ephedra is a naturally occurring substance and is not regulated as a drug; however its principal active ingredient, ephedrine, is regulated as a drug by the FDA if it is chemically synthesized.<sup>85</sup> Dietary supplements containing ephedra (often combined with or “stacked” on top of caffeine, aspirin or both) often are marketed as weight loss pills that “burn fat” and increase metabolic rates. They also are marketed as athletic performance enhancers.

A recent study by the RAND Corporation found that while there is an association between short-term weight loss and the short-term use of ephedrine/ephedra or ephedrine/ephedra plus caffeine, there are no studies that examine the long-term effects of these substances. The study also found that the use of ephedrine/ephedra or ephedrine/ephedra plus caffeine was associated with two to three times the risk of nausea, vomiting, psychiatric symptoms such as anxiety and mood change, hyperactivity and heart palpitations. Furthermore, from thousands of case reports that were examined, researchers identified five deaths, five heart attacks, 11 strokes, four seizures, and eight psychiatric cases that might reasonably be linked to the use of ephedra or ephedrine and in which no other contributing factors were identified.<sup>86</sup>

---

\* Ephedrine is commonly used for the relief of hay fever, asthma and nasal congestion, but it also is one of the key ingredients in methamphetamine.

The FDA recently issued a set of warning letters to companies that market dietary supplements containing ephedra explaining that all the claims they make for their product (e.g., its athletic performance enhancement capabilities) must be substantiated and must not be misleading. The letters strongly warn these companies of the regulatory steps that the FDA may take against them if they make false or misleading claims about their product.<sup>87</sup>

### *Eating Disorders and Illicit Drug Use*

Bulimia nervosa is the eating disorder most strongly linked to illicit drug abuse.<sup>88</sup> Bulimics are likelier to abuse a wider variety of drugs than anorexics.<sup>89</sup> In a study comparing anorexic women with bulimic women, women with bulimia nervosa were more likely to have abused amphetamines, barbiturates, marijuana, tranquilizers and cocaine.<sup>90</sup> The heaviest illicit drug use is found among those who binge and then purge (e.g., by vomiting or taking pills) to compensate for the binge eating.<sup>91</sup> Indeed, some bulimics report that they use heroin to help them vomit.<sup>92</sup>

Women with eating disorders may use cocaine and other stimulants as a means to control or lose weight by suppressing appetite and increasing metabolism.<sup>93</sup> Anorexics and bulimics may be drawn to cocaine because it is an appetite suppressant<sup>94</sup> that makes them not want to eat and gives them an enhanced sense of power or control.<sup>95</sup> In a study of male and female cocaine abusers, almost half of the women and 13 percent of the men used cocaine as a weight control measure.<sup>96</sup> In another study, cocaine abusers with an eating disorder were significantly likelier to use diet pills and laxatives for weight loss than were cocaine abusers without a diagnosed eating disorder.<sup>97</sup>

## Health Consequences of Eating Disorders

The behaviors associated with eating disorders--fasting, excessive exercising, bingeing, self-induced vomiting and ingesting laxatives, diuretics or other substances--are extremely dangerous and can lead to a host of medical problems. A severe eating disorder essentially can destabilize and impair all body systems, including the digestive, cardiovascular, skeletal, muscular, endocrine, dermatological and reproductive systems.<sup>98</sup>

Pregnancy can exacerbate conditions associated with eating disorders, such as potentially fatal liver, kidney and cardiac damage.<sup>99</sup> During pregnancy, women with anorexia or bulimia experience higher rates of miscarriage.<sup>100</sup> Babies of eating disordered women can be born prematurely and may be slower to develop physically, mentally and emotionally.<sup>101</sup>

### *Anorexia Nervosa*

Individuals with anorexia nervosa can suffer from acute hair loss, malnutrition, severe dehydration, osteoporosis and muscle atrophy.<sup>102</sup> Anorexics may begin to grow a downy layer of body hair as their bodies attempt to keep warm.<sup>103</sup> Perhaps most alarming, the death rate among young women with anorexia is up to 12 times higher than that of other women of the same age.<sup>104</sup> Premature death most commonly results from organ failure or cardiac arrest due to starvation as well as from suicide.<sup>105</sup> A severe substance use disorder further increases the risk of death among anorexics; one study of women with eating disorders found that one of the strongest predictors of death among anorexics is a severe alcohol use disorder.<sup>106</sup>

### *Bulimia Nervosa*

Bulimia nervosa can cause tooth decay, bowel irregularity, peptic ulcers, pancreatitis, gastric ruptures during bingeing and rupture of the esophagus during vomiting.<sup>107</sup> It is not uncommon for bulimics to experience

electrolyte imbalances that may lead to arrhythmia and possible heart failure.<sup>108</sup>

### *Binge Eating Disorder*

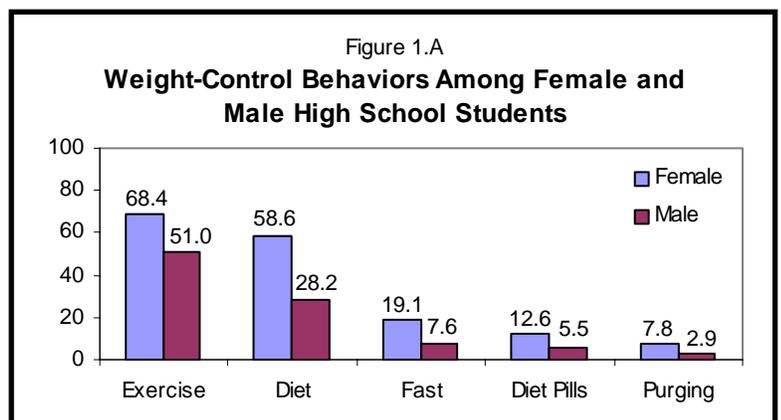
Binge eating disorder often is associated with obesity and the health risks involved include high blood pressure and cholesterol levels, heart disease, secondary diabetes and gall bladder disease.<sup>109</sup>

## Who is at Risk?

Although teenage girls are at the greatest risk for the development of eating disorders, the prevalence of these disorders among males, particularly gay males, is on the rise. Young people involved in certain forms of athletics also face a higher risk of eating disorders. Whereas black girls traditionally have had the lowest rates of eating disorders compared to other racial/ethnic groups, they too are facing increasing risk.

### *Teenage Girls Are Particularly Vulnerable*

Teenage girls are significantly likelier than boys to be on diets and to engage in unhealthy weight-control behaviors.<sup>110</sup> Girls are likelier than boys to report trying to lose weight (62.3 percent vs. 28.8 percent), dieting (58.6 percent vs. 28.2 percent) and exercising (68.4 percent vs. 51.0 percent) to lose weight or avoid gaining weight. They also are likelier to report engaging in unhealthy weight-control measures such as



fasting (19.1 percent vs. 7.6 percent), using diet pills, powders or liquids (12.6 percent vs. 5.5 percent) and purging by vomiting or taking laxatives (7.8 percent vs. 2.9 percent).<sup>111</sup> (Figure 1.A)

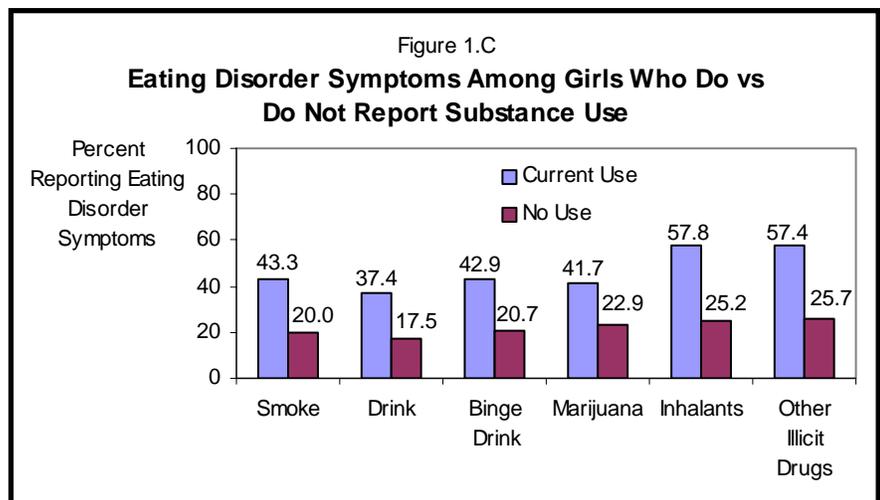
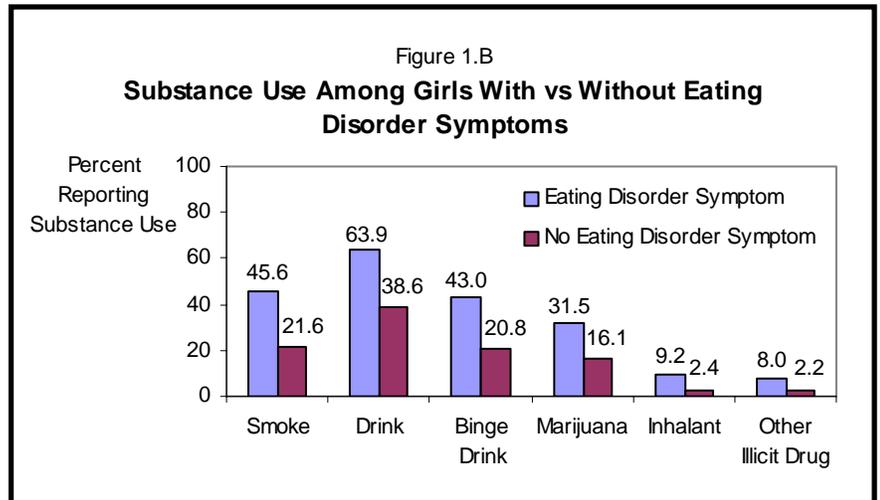
Although the risk for disordered dieting behaviors is particularly elevated in high school, many elementary school aged children also are overly concerned about their body shapes.<sup>112</sup> Children as young as six years old believe that being fat is undesirable.<sup>113</sup> Forty percent of girls (25 percent of boys) in grades one through five report that they are trying to lose weight.<sup>114</sup> By the fourth grade, an overwhelming 40 percent of girls report dieting behavior.<sup>115</sup> Among sixth graders, twice as many girls as boys report that they prefer to be thinner than they actually are.<sup>116</sup>

Poor body image and unhealthy eating and dieting behaviors increase markedly during adolescence for girls.<sup>117</sup> These are precisely the same years when girls are at high risk for engaging in substance use.<sup>118</sup>

CASA's analysis of data from the 2001 *Youth Risk Behavior Survey (YRBS)* found that female high school students with eating disorder symptoms are approximately twice as likely to report current\* smoking, drinking or drug use as those without eating disorder symptoms. Specifically, smoking (45.6 percent vs. 21.6 percent), drinking (63.9 percent vs. 38.6 percent), binge drinking (43.0 percent vs. 20.8 percent) and marijuana (31.5 percent vs. 16.1 percent), inhalant (9.2 percent vs. 2.4 percent) or cocaine (eight percent vs. 2.2 percent) use are likelier among girls who report disordered weight-control behaviors than among girls who do not.<sup>119</sup> (Figure 1.B)

Conversely, female high school students who report current smoking, drinking or drug use are two or more times likelier to report past month eating disorder symptoms as girls who are not

\* Past 30 days.



current substance users. Specifically, girls who smoke (43.3 percent vs. 20.0 percent), drink (37.4 percent vs. 17.5 percent), binge drink (42.9 percent vs. 20.7 percent) or use marijuana (41.7 percent vs. 22.9 percent), inhalants (57.8 percent vs. 25.2 percent) or cocaine (57.4 percent vs. 25.7 percent) are significantly likelier to report disordered weight-control behaviors than girls who do not use these substances.<sup>120</sup> (Figure 1.C)

### ***Puberty is a Risky Time for Girls***

Puberty, or the transition from childhood to adolescence, poses a particular risk for the development of eating disorders like anorexia, especially among girls.<sup>121</sup> While males may be at decreased risk for the development of eating disorders at this time because, for them, puberty is accompanied by a desirable increase in muscle

mass, puberty among females is accompanied by weight gain from fat tissue, which is considered by many girls to be undesirable.<sup>122</sup>

There also is a strong link between puberty, particularly early puberty, and the onset of substance use among girls. Girls who experience early puberty are at increased risk of engaging in substance use earlier, more often and in greater quantities than their peers whose physical maturity occurs later.<sup>123</sup> The desire to maintain one's pre-pubertal appearance can lead girls to smoke or use certain prescription or illicit drugs to help them fight natural weight gain.

### ***Athletes Are at High Risk for Disordered Weight-Control Behaviors***

Eating disorders are common in the athletic population, particularly among females.<sup>124</sup> One study found that 35 percent of female and 10 percent of male college athletes were at risk for anorexia nervosa and 58 percent of female and 38 percent of male college athletes were at risk for bulimia nervosa;<sup>\*</sup><sup>125</sup> these rates are significantly higher than those in the general college population.<sup>126</sup>

Athletes are at high risk of resorting to certain forms of substance abuse--including the abuse of diuretics, ephedrine or other stimulants--to help maintain a preferred body weight.<sup>127</sup>

Although athletes generally are at greater risk for disordered weight control behaviors than nonathletes, the degree of risk varies by sport and by the professional level of the athlete.<sup>128</sup> Among dancers and the most elite college athletes, particularly those engaged in sports that

emphasize a lean physique (e.g., gymnastics, figure skating) or weight restriction (e.g., wrestling, rowing), the prevalence of eating disorders is even higher.<sup>129</sup> Athletes involved in sports for fun, fitness or social interaction may be at reduced risk for disordered eating, in large part because of the self-esteem enhancing qualities of involvement in these sports.<sup>130</sup>

### ***Gender and Racial/Ethnic Differences in Eating Disorders***

Although the classic portrait of an individual with an eating disorder is one of an upper middle class white teenage girl or young women, eating disorders are by no means limited to this group.<sup>131</sup> A substantial number of males suffer from eating disorders,<sup>132</sup> as do increasing numbers of minority group members.<sup>133</sup>

**Males.** As many as one million men suffer from eating disorders<sup>134</sup> and more males are seeking treatment for eating disorders than in the past.<sup>135</sup> Males account for five to 10 percent of anorexics and 10 to 15 percent of bulimics.<sup>136</sup> The onset of eating disorders in males tends to be later than in females<sup>137</sup> but the characteristics of males with eating disorders are similar to those seen in females with eating disorders.<sup>138</sup> Anorexic males are more similar to anorexic females, in terms of their body image and weight concerns, than they are to bulimic males.<sup>139</sup> Like girls, adolescent boys with disordered eating patterns express greater body dissatisfaction, perfectionism and depression than other boys.<sup>140</sup>

---

\* In this study, athletes who had a BMI less than or equal to 20, amenorrhea or high scores on measures of drive for thinness or body dissatisfaction were considered "at risk" for anorexia nervosa. Those who had six episodes of binge eating or vomiting, abused laxatives or diuretics, used diet pills or had high scores on measures of drive for thinness or body dissatisfaction were considered "at risk" for bulimia nervosa. Comparison data on the general college population is not available in this study.

Sexual orientation is an important factor in the occurrence of eating disorders. Compared to heterosexual males, gay and bisexual males are at increased risk for developing eating disorders, with reported prevalence rates ranging from nine to 27 percent.<sup>\* 141</sup> Gay men are likelier than heterosexual men to be dissatisfied with their body weight and to value physical appearance as more important to their sense of self.<sup>142</sup>

**Racial/Ethnic Minorities.** There are significant racial/ethnic differences in disordered eating attitudes and behaviors.<sup>143</sup> White girls generally report greater dissatisfaction with their bodies than black girls and a greater drive to be thin.<sup>144</sup> Compared to white and Hispanic teenage girls, black girls are less likely to report that in the past month they exercised to lose weight (53.4 percent vs. 72.5 and 66.2 percent), dieted (40.2 percent vs. 63.1 and 56.5 percent), fasted (15.2 percent vs. 19.7 and 23.1 percent), took diet pills (7.5 percent vs. 13.6 and 13.5 percent) or purged (4.2 percent vs. 8.2 and 10.8 percent) to lose weight or avoid gaining weight.<sup>145</sup> It is important to note that Hispanic girls have caught up with and, in some cases, surpassed white girls when it comes to certain weight-control behaviors.<sup>† 146</sup> (Figure 1.D)

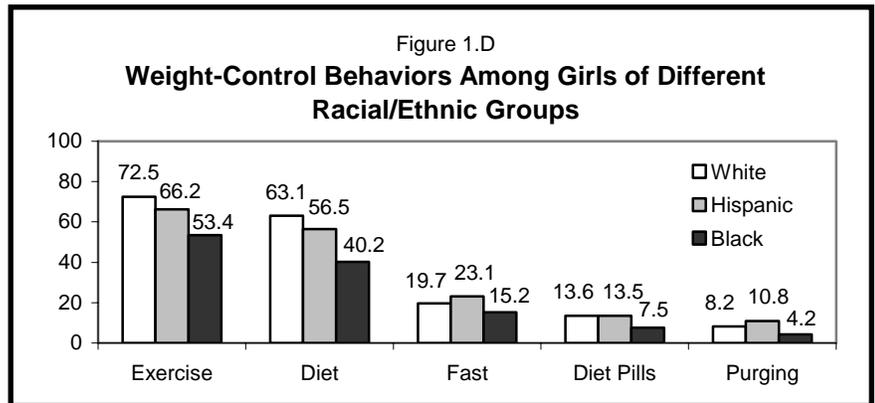
There is some evidence that rates of disordered eating attitudes and dieting behaviors are increasing among black girls and women.<sup>147</sup> One study found that although black girls generally are not as concerned about being very thin, they are likelier than white girls to demonstrate signs of perfectionism and fear of maturity--factors also associated with eating

\* Heterosexual females report the highest levels of eating disorder symptoms; gay males and lesbians report levels of eating disorder symptoms that fall between the heterosexual groups. Because no national data exist, prevalence rates are based on various small-scale studies that yield a wide range of estimates.

† Specifically, fasting for 24 hours or more and vomiting or taking laxatives to lose weight or to avoid gaining weight.

disorders.<sup>148</sup> Black girls are especially vulnerable to developing eating disorders where binge eating is the core clinical feature (i.e., binge eating disorder and bulimia nervosa), whereas white girls are more vulnerable to eating disorders that involve restriction of food intake.<sup>149</sup>

A variety of factors, including socioeconomic status, cultural norms and inconsistent or inaccurate medical diagnoses may contribute to observed variations in eating disorder prevalence among different racial/ethnic groups. Lower socioeconomic status (SES) is associated with lower rates of anorexia and bulimia nervosa but not binge eating disorder.<sup>150</sup> The more socialized or assimilated a racial/ethnic minority group member is to American/Western culture,



the greater her risk for developing an eating disorder.<sup>151</sup> In contrast, the more a racial/ethnic minority group member has a sense of ethnic pride and remains involved in a supportive racial/ethnic subculture, the lower the risk.<sup>152</sup> A study of Cuban-American women found that decreased involvement in traditional Cuban culture<sup>‡</sup> increased the risk of eating disorders while continuing identification with and participation in Cuban culture seemed to protect against the development of eating disorders.<sup>153</sup> It also is possible that the rates of eating disorders among different racial/ethnic groups actually are rather similar, but minority group members are less likely to be diagnosed with an eating disorder because of the widespread belief among health care providers

‡ In terms of language use and food choices.

that such disorders are not common among them.<sup>154</sup>

*In the last 10 years we've seen a real homogenization of eating disorders and disordered eating and negative body image through all races and classes and subcultures in the United States.*<sup>155</sup>

--Margo D. Maine, Ph.D., Clinical Psychologist  
Former President of Eating Disorders  
Awareness and Prevention

substance use disorder.<sup>158</sup> Patients whose substance abuse occurs prior to their eating disorders typically are dependent on more substances<sup>159</sup> and are more likely to have developed their dependency at an early age.<sup>160</sup>

## **Which Comes First: Substance Abuse or Eating Disorders?**

The temporal order or causal relationship between eating disorders and substance use disorders is not yet well understood.<sup>156</sup>

Individuals with eating disorders may use certain substances as tools to help them reduce their weight or as a means of self-medicating the often-distressing psychological symptoms associated with eating disorders (e.g., low self-esteem, need for control, obsessions and compulsions). Conversely, excessive smoking, drinking and certain forms of drug use, which suppress the appetite or replace food intake, often precipitate the development of an eating disorder. In addition, withdrawal from tobacco, alcohol and drugs may increase the risk that one will overeat to compensate for the lost stimulation to the pleasure centers in the brain.

*Well, the data are that the eating disorder comes first more often, but it's certainly not exclusive in that regard. It can go the other way around.*<sup>157</sup>

--Dean Krahn, M.D.  
Department of Psychiatry  
University of Wisconsin

Individuals whose eating disorder precedes their substance use disorder appear to have higher rates of obsessive-compulsive disorder (OCD), panic disorder and social phobia in comparison to patients with eating disorders only or those whose eating disorder was preceded by a





## Chapter II

### Explaining the Co-Occurrence: Common Personal, Social and Societal Risks

---

Eating disorders and substance use disorders have much in common. Both are long-term, difficult-to-treat and life threatening disorders that may require ongoing and intensive therapy.<sup>1</sup> Eating- and substance-related behaviors both operate on similar reinforcing and rewarding motivational systems in the brain.<sup>2</sup> Both disorders involve an obsessive preoccupation with a substance (drugs or food), craving and compulsive behavior characterized by a loss of control. They often include ritualistic behaviors, which may involve a specific way of cutting a line of cocaine or slicing into a piece of food.

Engaging in either of the disordered behaviors--whether abusing drugs or restricting, bingeing or purging--can have mood altering effects, particularly feelings of calm or numbness. Individuals with these disorders often use drugs or engage in disordered food-related behaviors as a method of coping and both groups continue to engage in the disordered behavior despite negative consequences.<sup>3</sup> Other parallels, particularly between bulimia nervosa and substance use problems, include impulsive behavior, secretiveness of the behavior, low self-esteem, the experience of social isolation that often accompanies the disorder, resistance to treatment and high risk of relapse.<sup>4</sup>

The risk for developing each disorder is determined by a variety of common factors within an individual's brain chemistry, personality, family, peer group and social environment.

#### **Common Brain Chemistry**

Drugs of abuse appear to achieve their rewarding effects by activating the same brain circuits that are responsible for natural

rewarding or pleasurable activities, including eating.<sup>5</sup> For example, nicotine and alcohol suppress appetite by activating the same reward mechanisms in the brain that otherwise would trigger the experience of pleasure from food.

Both substance use disorders and certain forms of disordered eating (i.e., bulimia nervosa and binge eating disorder) are related to the common actions of a particular brain chemical--the neurotransmitter dopamine--that produces feelings of pleasure or reward.<sup>6</sup> Low levels of dopamine stimulate the urge to eat or ingest psychoactive drugs, whereas higher doses inhibit those urges.<sup>7</sup> Just as certain drugs of abuse initially trigger a rush of dopamine and then, over time, render dopamine receptors less responsive to stimulation, a similar effect is produced with food. Perpetual bingeing or overeating ultimately inhibits the experience of dopamine-related reward, with increasing doses (of food or a drug) needed to achieve a pleasurable effect.

Eating disorders (particularly bulimia) and substance use disorders also may be related to another brain chemical--the neurotransmitter serotonin, which is partly responsible for regulating mood as well as appetite.<sup>8</sup> For example, cocaine increases serotonin levels in the brain and, in so doing, also inhibits appetite and eating.<sup>9</sup>

## **Common Family History**

A family history of either substance abuse or eating disorders may increase the risk for the development of the other disorder.<sup>10</sup> One study found that female teenage children of alcohol-abusers were significantly likelier than other teenagers to have a poor body image and to engage in binge eating, dieting and vomiting.<sup>11</sup> Conversely, an increased risk for substance use problems has been found among individuals with eating disorders and their relatives; this is especially true of those with bulimia nervosa and those with anorexia nervosa who engage in bingeing and purging behaviors.<sup>12</sup> However, a recent study found no significant link between parents' substance use and daughters' disordered

eating or parents' eating disorders and daughters' substance use.<sup>13</sup>

## **Common Personal Risks**

Both substance use and certain forms of eating disorders may represent ways for people with particular personality types (e.g., impulsive) or mental health problems (e.g., anxiety, depression) to deal with these conditions.<sup>14</sup> For example, the strong association between substance abuse and bulimia nervosa may be due, at least in part, to the shared tendency in individuals with these disorders to behave impulsively and to have difficulty controlling their appetites.<sup>15</sup> One study that compared bulimic women with alcohol and drug-abusing women found that the two groups had similar psychological profiles, displaying depression, anxiety, impulsivity, anger, rebelliousness and social withdrawal.<sup>16</sup>

### ***Anxiety and Depression***

Bulimics tend to be more vulnerable to feelings of anxiety,<sup>17</sup> which is related to alcohol abuse.<sup>18</sup> Depressed individuals may develop either an eating disorder (particularly bulimia) or a substance use problem when attempting to self-medicate their depression.<sup>19</sup>

### ***Low Self-Esteem***

Low self-esteem is a common characteristic of individuals who have eating disorders and/or substance use problems.<sup>20</sup> People who are low in self-esteem may be less able to resist peer pressure--increasing their risk for substance use, or may be more likely to engage in behaviors that superficially (and unhealthily) enhance their image or appearance--increasing their risk for eating disorders. Low self-esteem may pose a greater risk for the development of eating disorders among females than males, perhaps because females are likelier to base their self-esteem on the degree to which others approve of them rather than on self-approval.<sup>21</sup>

## ***Stress and Coping***

Stressful events can provoke the onset of either substance use or eating disorders, particularly among those who have difficulty coping with life problems.<sup>22</sup> In one study, 58 percent of anorexics and 77 percent of bulimics experienced a stressful event or difficulty that precipitated the eating disorder.<sup>23</sup> Another study found that women with eating disorders are more likely to try to avoid or escape from their problems and less likely to seek support or try to solve their problems compared to women without eating disorders.<sup>24</sup> Similar poor coping styles are employed by substance abusers.<sup>25</sup>

## ***Childhood Abuse***

More than one in five (21 percent) high school girls report having been physically (17 percent) or sexually (12 percent) abused.<sup>26</sup> Females who report childhood abuse, particularly sexual abuse, are at increased risk for both substance use and eating disorders.<sup>27</sup> Girls who have been sexually or physically abused are twice as likely to smoke, drink or use drugs as those who were not abused<sup>28</sup> and childhood sexual abuse is associated with an approximate three-fold increase in the risk for alcohol and other drug dependence.<sup>29</sup> Sexual abuse has been reported in up to 65 percent of women with eating disorders.<sup>30</sup> Anorexics have a comparatively lower rate of sexual abuse history than bulimics.<sup>31</sup>

Rates of sexual abuse are highest among people with bulimia nervosa and a lifetime history of substance dependence disorder.<sup>32</sup> Some estimate that approximately one-fourth of the women in the United States with bulimia would likely not engage in disordered eating had they not been sexually abused as children.<sup>33</sup> The psychological effects of sexual or physical abuse often contribute to dangerous body image distortions. Survivors of sexual abuse may deliberately try to make themselves unattractive in order to avoid further abuse.<sup>34</sup> Furthermore, women who have been abused are at increased risk of suffering from post-traumatic stress disorder (PTSD),<sup>35</sup> which increases the risk both

of eating disorders<sup>36</sup> and of substance use disorders.<sup>37</sup>

## ***Common Links to Other Psychiatric Disorders***

Approximately 65 percent of females with a clinical diagnosis of substance abuse or dependence have an additional psychiatric diagnosis.<sup>38</sup> Certain psychiatric disorders in addition to posttraumatic stress disorder-- particularly obsessive-compulsive disorder, mood disorders and personality disorders<sup>39</sup>-- frequently are found among those with eating disorders, with estimates ranging from 42 percent to 75 percent.<sup>40</sup>

**Obsessive-Compulsive Disorder.** Considerable research demonstrates a strong link between eating disorders and obsessive-compulsive disorder (OCD).<sup>41</sup> Up to 69 percent of patients with anorexia nervosa have a coexisting diagnosis of OCD<sup>42</sup> and up to 33 percent of patients with bulimia nervosa also have OCD.<sup>43</sup> One study found that patients with a previous history of eating disorders had an earlier onset of obsessive-compulsive symptoms than other OCD patients and that early onset OCD may increase the risk of eating disorders.<sup>44</sup> Patients with eating disorders and OCD display significantly more disturbed weight-related attitudes and behaviors than do patients without OCD.<sup>45</sup>

Research also suggests a relationship between OCD and substance use disorders.<sup>46</sup> One study found that 24 percent of teenagers with OCD were dependent on alcohol and 19 percent were dependent on marijuana.<sup>47</sup> Substance abuse, particularly cocaine and concurrent use of marijuana, increases the risk for the development of OCD.<sup>48</sup> Patients with OCD may engage in substance use as a means of self-medicating their distressing psychiatric symptoms.

One explanation for why eating disorders and substance abuse co-occur with OCD is that the three disorders have similar obsessional and compulsive qualities. The food- and body

image-related thoughts associated with anorexia and bulimia and the drug-seeking thoughts associated with substance abuse often are described as obsessional. An anorexic's drive to exercise excessively and a bulimic's or substance abuser's drive to binge on food or alcohol often are described as compulsions.<sup>49</sup>

**Mood Disorders.** Anorexia nervosa and bulimia nervosa are related to depression, bipolar disorder and other mood disorders.<sup>50</sup> Major depression has been reported in about 50 percent of women with anorexia nervosa and in about one-half to two-thirds of bulimic patients.<sup>51</sup> In fact, bulimia was originally regarded as a type of mood disorder.<sup>52</sup> Mood disorders also are found in approximately 35 percent of people with substance abuse problems.<sup>53</sup>

Depression appears to be an important component of the link between eating disorders and substance abuse.<sup>54</sup> Depression, depressive symptoms and a family history of depression are found both among patients with eating disorders and among those with substance use disorders.<sup>55</sup> Individuals with eating disorders who have high rates of depression also tend to have high rates of substance use disorders.<sup>56</sup>

The link between depression and both eating disorders and substance use disorders also can be seen in the effectiveness of antidepressant medications in treating both types of disorders. Specifically, because nicotine serves an antidepressant function (at least initially),<sup>57</sup> the use of antidepressant medications (e.g., Bupropion) in smoking cessation has proven promising.<sup>58</sup> Likewise, the use of such medications in treating certain types of eating disorders, particularly bulimia nervosa, has proven promising as well.<sup>59</sup>

**Personality Disorders.** Patients with eating disorders frequently suffer from personality disorders such as histrionic, obsessive-compulsive, avoidant, dependent or borderline personality disorders.<sup>60</sup> Likewise, there is a high rate of co-occurrence of personality disorders--

particularly antisocial personality disorder and borderline personality disorder--and substance use disorders both in the general population and in clinical settings.<sup>61</sup>

## **Common Family Characteristics**

Certain features of the parent-child relationship, particularly parents' modeling of unhealthy behaviors, limited parental monitoring of children's behaviors and familial conflict, lack of warmth or support and poor communication all increase the risk of substance use and eating disorders.

### ***Modeling of Substance Use and Disordered Eating Behaviors***

One of the most important risk factors for substance use is parental modeling of substance use behaviors.<sup>62</sup> Children seem to form their beliefs about substances more on the basis of their parents' actions than on the basis of their parents' words.<sup>63</sup> Likewise, children of mothers who are overly concerned about their weight are at increased risk for modeling their unhealthy attitudes and behaviors.<sup>64</sup> Mothers of girls with eating disorders, compared to mothers of noneating-disordered girls, tend to have more pathological eating behaviors and attitudes and longer dieting histories.<sup>65</sup>

Some eating disorder behaviors may be learned, in part, through modeling of parental behaviors or may arise from direct parental (usually maternal) pressure on daughters to lose weight. If weight and appearance are consistently held up as highly significant indicators of one's attractiveness and self-worth, children in such households may begin to internalize these messages and act accordingly.<sup>66</sup> Typically, familial characteristics of women with eating disorders include a family environment in which perfection and control are the norms and in which discussion of weight and appearance are common.<sup>67</sup>

*Mom was always on a diet, talking about the battle of the bulge, and I got this conception that if I am fat, I am horrible, nobody will like me and I'll never amount to anything.<sup>68</sup>*

--Karin Eklund, M.A.  
In-patient counselor at the Betty Ford Center  
Recovered from bulimia for 17 years,  
Sober for 18 years

### ***Parental Monitoring of Children's Behaviors***

A key risk for the development of substance use and eating disorders is low parental involvement in a child's life.<sup>69</sup> Children whose parents monitor their behaviors are less likely to engage in high-risk behaviors.<sup>70</sup> The normal transition to adolescence and the distancing from parents and reduced parental monitoring that typically accompany this transition can precipitate greater health risk behaviors, such as substance use and unhealthy eating or excessive exercise. With greater independence, adolescents tend to eat fewer meals with their parents, skip meals more often and indulge in more "junk" food.<sup>71</sup> Parents who eat with their children can monitor their children's eating habits as well as their substance use behaviors.

### ***Parent-Child Relationship***

The nature of the parent-child relationship is an important factor in youth substance use.<sup>72</sup> People who grow up in caring and supportive family environments, in which parents have high, yet realistic expectations of their children are less likely to use or abuse substances.<sup>73</sup> Open parent-child communication, support, flexibility and bonding all reduce the risk of substance abuse.<sup>74</sup> According to CASA's teen survey, *Back to School 1999--National Survey of American Attitudes on Substance Abuse V: Teens and Their Parents*, teens with an excellent relationship with either parent had risk scores for substance abuse that were 25 percent lower than the average teen; those with excellent relationships with both parents had risk scores 40 percent lower.<sup>75</sup>

Unhealthy parent-child relationships also can be seen in some individuals with eating disorders. Typical family dynamics implicated in eating disorders include ineffective conflict resolution, communication difficulties, lack of warmth and less time spent with parents during early adolescence.<sup>76</sup> Often, in this body of research, mothers are described as demanding, hypercritical, jealous, intrusive, nonresponsive, withdrawn, passive, dependent or preoccupied with weight and appearance. Fathers often are described as either authoritative and strict or distant and uninvolved.<sup>77</sup> Children might rebel against critical and coercive parents by asserting personal control over their own bodies and environments by engaging in disordered weight-control behaviors.<sup>78</sup>

### ***Peers and the Social Environment***

Unhealthy social norms and pressures to conform to peers' high-risk behaviors increase the risk of developing substance use or eating disorders. People with friends who smoke, drink or use drugs are likelier to do so as well.<sup>79</sup> Peers play an important role in establishing the attitudes, beliefs and group norms for substance use behavior.<sup>80</sup>

Social pressures also play a significant role in the development of eating disorders. Members of the same social group tend to be relatively similar in their attitudes and behaviors,<sup>81</sup> making those who stray from the norm subject to pressure and ridicule. Social groups, such as athletic teams, cheerleading squads and sororities or fraternities, develop social norms about what is appropriate behavior for each of their members and tend to exert subtle and overt pressure on their group members to conform to those behavioral standards.<sup>82</sup> Deviation from these norms can result in rejection by the group.<sup>83</sup> One study found that in a sorority group, binge eating levels of group members were strongly related to the binge eating levels of their friends, suggesting the considerable power of peer influence on disordered eating behaviors.<sup>84</sup>

## **Advertising, Marketing and Entertainment Industries**

Commercial advertising and marketing, including the fashion, diet, tobacco and alcohol industries sell their products by making people (especially women) feel that these products--whether it is clothing, diet shakes, cigarettes or beer--will enhance their lives, bring them more joy and gain them societal approval. Although this type of marketing adversely influences girls and women's eating and dieting behaviors, it is particularly pernicious when used by tobacco or alcohol companies because of the compounded health risks associated with their products. The profitability of these industries depends in large part on their ability to recruit new substance users and ensure that they retain as many consumers as possible who already use their products.

Other forms of media--TV programming, movies, newspapers and some magazines--also glamorize extreme thinness and provide distorted information to consumers about how to improve their lives or obtain happiness.<sup>85</sup> Too often these messages and images portray smoking cigarettes or drinking alcohol as fun, "cool" or glamorous.

Although not every person who is exposed to these influences develops weight-control problems or begins to smoke or drink, individuals who already are at risk for developing a substance use or eating disorder--either because of low self-esteem,<sup>86</sup> a dysfunctional family,<sup>87</sup> or a greater tendency to be influenced by societal pressures<sup>88</sup>--may be particularly vulnerable to the influences of advertising, marketing and the entertainment industries.

### ***The Drive for Perfection***

Although many of the psychological risk factors for eating disorders have been around for centuries, there has been a tremendous increase in the incidence of eating disorders in the past few decades. What has changed is the body type

regarded as ideal and the methods used to achieve this ideal.<sup>89</sup>

Approximately 64 percent of American adults are either overweight or obese and approximately 15 percent of children and adolescents (ages six to 19 years) are classified as overweight.<sup>90</sup> The average American woman is 5'4" tall and weighs approximately 140 pounds.<sup>91</sup> At the same time, the average model, who purportedly epitomizes our standard of beauty, is 5'11" tall and weighs 117 pounds.<sup>92</sup> Turning the average physique into a tall, thin body is impossible for the majority of women. Unfortunately, it is not just biology that confounds women, but the goal of having an "ideal" body has become a moral imperative in our society, suggesting laziness or weakness on the part of women who do not strive to attain it. The mass media has played a critical role in reinforcing in women the motivation to be thin and the sense of failure among those who fail to become thin enough.<sup>93</sup>

### ***The Prevailing Media Message: One Can Never Be Too Thin***

The "ideal" female body images portrayed in television, movies and fashion magazines are harmful to the emotional well-being and body satisfaction of girls and women<sup>94</sup> and encourage boys and men to have unhealthy and unrealistic expectations of women. Trying to look like the girls or women portrayed on TV and in magazines is a significant risk factor for the development of weight concerns, particularly in teenage girls.<sup>95</sup> One study found that 70 percent of girls ages 10 through 14 who read magazines such as *Teen*, *Sassy*, *Young Miss* and *Seventeen* reported that these magazines are an important source of beauty and fitness information.<sup>96</sup> Twenty-two percent of the girls who read these magazines regularly also reported wanting to emulate the fashion models.<sup>\* 97</sup> Another study found that exposure to ultra-thin models, compared to average weight models or no models, produced greater depression, stress,

---

\* Several new magazines became available in recent years that are aimed at teenage girls, among them *Cosmo Girl*, *Teen People*, *Elle Girl* and *Teen Vogue*.

guilt, shame, insecurity and body dissatisfaction among female undergraduate students.<sup>98</sup> These psychological states were associated in these women with symptoms of bulimia.<sup>99</sup>

### **Unrealistically Thin Portrayals of Models and Celebrities**

The feminine beauty ideal that is featured in fashion magazines often is criticized for being excessively thin. Less widely discussed is the fact that these images often are not even real. The practice of digitally manipulating photographs, while forbidden by most newspapers, is considered standard by many fashion magazines.<sup>100</sup> This practice not only involves removing pimples or smoothing wrinkles, but actually trimming down the images of models and celebrities. In one widely publicized case, the British version of the fashion magazine *GQ* featured an airbrushed and slimmed down image of the actress Kate Winslet on their February 2003 cover and in an accompanying photo spread. In reaction to these images the actress told the press, “the re-touching is excessive. I do not look like that and more importantly I don’t desire to look like that.” She also added, “they’ve reduced the size of my legs by about a third.”<sup>101</sup> Yet, those in the fashion industry defend the practice. Pascal Dangin, founder and chief executive of Box Studios, a photo retouching business with clients such as *W*, *Harper’s Bazaar* and *Allure*, said in a recent interview with *The New York Times*, “Basically we are selling a product – we’re selling an image. To those who say too much retouching, I say you are bogus. This is the world that we’re living in. Everything is glorified.”<sup>102</sup>

Portrayals of the thin ideal may contribute to disordered eating behaviors in several ways. As exposure to these images induces women to compare their actual selves to their ideal selves, some women will respond to their feelings of body dissatisfaction with binge eating to help allay their negative mood, whereas others may become even more restrictive in their food intake.<sup>103</sup> Research indicates that those who are attracted to thin media personalities are the most likely to demonstrate disturbed eating patterns.<sup>104</sup> The standard of physical attractiveness presented in the media is slimmer and more oriented to dieting and staying in shape for women than it is for men, and the

standard for women also is less curvaceous than it had been in the past.<sup>105</sup>

Laura Fraser, author of *Losing It: America’s Obsession with Weight and the Industry that Feeds On It*, reports that a senior level editor at a national women’s magazine explained that it was “absolutely taboo to run photos of women who aren’t slender and attractive--even if they’re the subject of the profile.”<sup>106</sup> In 2000, actress Renée Zellweger was pulled from the cover of *Harper’s Bazaar* because she was deemed “too fat,” although she had lost most of the weight she had put on for her portrayal of an “average-sized” woman in the film, *Bridget Jones’ Diary*.<sup>107</sup>

American women are not the only ones who are vulnerable to the influences of the advertising, marketing and entertainment industries. Whereas historically, women in Fiji revered tall and large bodies that evince strength, hard work and health, a few short years after the introduction of Western television programs, 29 percent of Fijian teenage girls demonstrated symptoms of eating disorders, with 15 percent reporting vomiting to control their weight.<sup>108</sup> Seventy-four percent of Fijian girls felt that they were “too big or too fat” and 62 percent said they had dieted in the past month.<sup>109</sup> The Fijian girls who were frequent viewers of television were 50 percent more likely to describe themselves as fat and 30 percent more likely to diet than were those who watched television less frequently.<sup>110</sup>

*The [Fijian] teenagers see TV as a model for how one gets by in the modern world. They believe the shows depict reality.*<sup>111</sup>

--Anne Becker, M.D., Ph.D., Director  
Adult Eating and Weight Disorders Program  
Massachusetts General Hospital  
Harvard Medical School

## ***Bodies for Sale: Advertising and Eating Disorders***

One of every 11 commercials that the average person sees per day has a direct message about beauty.<sup>112</sup> Thinness is a potent advertising theme used to create body dissatisfaction and sell a host of products, ranging from diet pills and fashion to perfume and cigarettes.<sup>113</sup> Young females typically are the main targets for appearance-enhancing products. One study found that an overwhelming majority (86.4 percent) of commercials for appearance-enhancing products<sup>†</sup> during Saturday morning programming<sup>‡</sup> was aimed at females, with none aimed specifically at males.<sup>114</sup>

Women's magazines contain 10.5 times more advertisements and articles related to dieting and weight loss than men's magazines--the same sex ratio often reported for eating disorders.<sup>116</sup> Advertisers are well aware of their powerful role as influencing agents and do not hesitate to take advantage of the insecurities and anxieties of young people, especially girls.<sup>117</sup> Perhaps the most glaring example of the advertising industry's promotion of unhealthy thinness and exploitation of women who desire to be thin is the "heroin chic" fad of the mid-1990s. Slick advertisements celebrated the anorexic heroin addict--gaunt women and men with pallid complexions, blackened eyes and hollow, brittle bodies. So pervasive and so insidious was the new look that even the President could not ignore it. At the U.S. Conference of Mayors in 1997, President Clinton railed against the idea of "glorifying death" and "the images projected in fashion photos ... [that] have made heroin addiction seem glamorous and sexy and cool."<sup>118</sup>

<sup>†</sup> Products that can be used to increase the attractiveness of a person, a doll or a toy animal.

<sup>‡</sup> Excluding commercials that were clearly adult oriented, public service announcements and commercials for television programming.

*No, it [media images] didn't cause their eating disorder, but it created the mechanism by which they thought they could solve the problems they had in their lives, the problem of being unhappy, the problem of not feeling anyone listened to them or paid attention to them...so it gave them the solution.*<sup>115</sup>

--Jean Kilbourne, Ed.D.  
Lecturer and Author

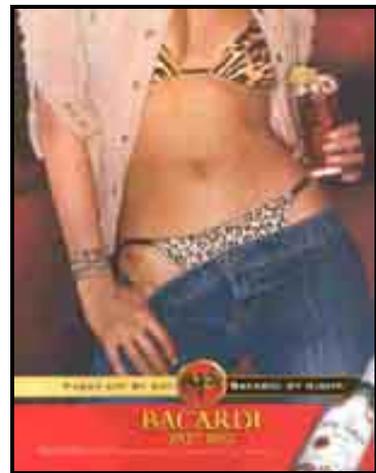
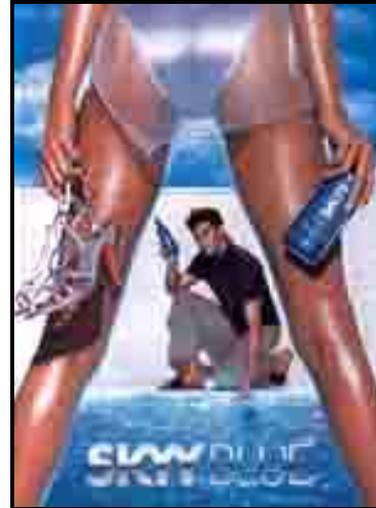
## ***Advertising an Addiction: Selling the Body Ideal With Ads for Cigarettes and Alcohol***

Advertisers frequently use unrealistically thin models to sell addictive products, including cigarettes and alcohol.<sup>119</sup> Cigarettes often are marketed to women and girls as a means to control their weight. Tobacco companies sometimes give their products names that directly relate to the ideal of thinness (e.g., *Virginia Slims* cigarettes).

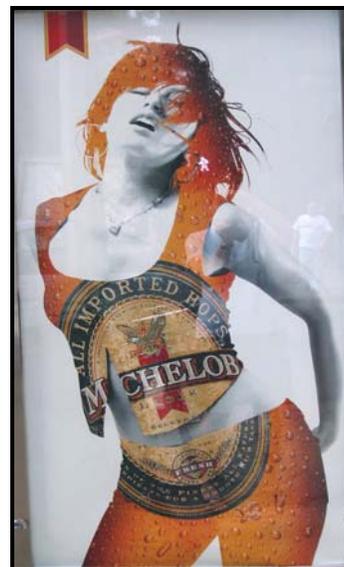


The tobacco companies understood the relationship between smoking and weight control long before the public health experts. They began pitching cigarettes to women as a route to thinness in the 1920s with their *Lucky Strike* brand advertisements encouraging women to "reach for a Lucky instead of a sweet."<sup>120</sup> When the 1964 Surgeon General's report highlighted the harmful effects of smoking, the male smoking market began to level off and tobacco companies began targeting women more vigorously. They created the *Virginia Slims*

brand with its tagline, “slimmer, longer, not like those fat cigarettes men smoke.” The slogan for *Misty* cigarettes is “slim n’ sassy.” *Capri* cigarette ads claim, “there’s no slimmer way to smoke” and call *Capri* cigarettes “the slimmest slim in town.” Tobacco companies place these ads in women’s magazines, which rarely feature “health” articles on the risks of smoking.



The alcohol industry also has used weight-related images to target female consumers. A 1991 advertisement for *Michelob Light* beer exploited anxiety about body image by juxtaposing common women’s magazine exhortations for self-improvement (e.g., “perfect arms in 14 days”) with the message, “Relax. You’re OK. Improve your beer.”<sup>121</sup> More generally, alcohol advertisements consistently portray extremely thin models enjoying their beer or liquor, promoting the illusion that drinking alcohol equates with being thin and attractive when, in fact, alcohol is quite fattening.



Unfortunately, these advertisements appear to be working. Only about half (56 percent) of the girls and young women surveyed for CASA’s study, *The Formative Years: Pathways to Substance Abuse Among Girls and Young Women Ages 8-22*, were aware that alcohol is high in calories and contributes to weight gain. In fact, 5.7 percent even thought that drinking alcohol makes one lose weight. These latter girls tended to drink more than those who believed that alcohol has no effect on weight.<sup>122</sup>





## Chapter III

### Treating Eating Disorders and Co-Occurring Substance Abuse

---

The link between eating disorders and substance abuse is not well understood and often is overlooked by health care professionals. This lack of understanding and awareness can lead to improper care. Because the two disorders require different forms of treatment, patients often are placed in substance abuse treatment programs that are ill equipped to handle eating disorders or in eating disorder treatment programs in which the staff does not know how to diagnose or treat substance abuse. Patients may receive adequate treatment for one disorder or the other, but rarely for both.

*One of the biggest problems we are having in the drug abuse community is that we don't really have very good strategies for dealing with complex co-morbidity and I would argue that in the area of eating disorders it's a tremendous problem.<sup>1</sup>*

--Alan Leshner, Ph.D.  
Former Director  
National Institute on Drug Abuse

### Treatment Considerations

Eating disorders and substance use disorders are chronic, highly variable problems that often are quite resistant to treatment and susceptible to frequent relapse.<sup>2</sup> Shame is a common component of both disorders and may cause people to go to great lengths to deny or hide the severity of their problems, making treatment difficult.<sup>3</sup>

*Ideally, we would have eating disorder and chemical dependency programs that intersected for the people who needed it.<sup>4</sup>*

--Karen Spedowski, Ph.D.  
Psychological Assistant  
Kaiser Permanente Chemical Dependency  
Recovery Program, Santa Clara, CA

In some cases, treatment of one disorder may lead to an exacerbation of the other. Recovered smokers and substance abusers might develop a binge eating disorder to satisfy the need for oral stimulation or a restrictive eating disorder to remove the weight that may be gained during or after substance abuse treatment.<sup>5</sup> Likewise, patients recovering from an eating disorder may still suffer from the same sources of stress and problems in their lives that first contributed to its onset. These individuals, if not treated properly, might turn to alcohol or drugs to self-medicate.<sup>6</sup> One study found that during drug detoxification, many patients turned to binge eating to help provide relief and ward off feelings of emptiness and hopelessness. The eating exacerbated the women's poor self-image and caused them to engage in compensatory purging behaviors (e.g., vomiting).<sup>7</sup>

*I finally went into treatment for alcoholism because I was caught drinking, but my bulimia was very secretive. Nobody knew about it.*<sup>11</sup>

--Karin Eklund, M.A.

In-patient counselor at the Betty Ford Center  
Abstinent from bulimia for 17 years  
Sober for 18 years

The high rates of co-occurring eating disorders and substance abuse have begun to pose a major problem in treatment settings traditionally designed to treat only one of these disorders.<sup>8</sup> Traditionally, each unit in a treatment center contains trained personnel who deal with specific disorders. Consequently, health care professionals in substance abuse treatment centers often have little experience or formal education regarding the treatment of eating disorders. Likewise, those who treat eating disorders often are not aware of or trained in the best practices for treating substance abuse. Although the significant overlap between substance abuse and eating disorders first came to light in the 1970s, physicians and other health care professionals only recently have begun to attempt to treat patients with these co-occurring disorders.<sup>9</sup>

Because of the high rates of co-occurrence, particularly among females, patients in a substance abuse treatment program should routinely be assessed for the presence of a concurrent eating disorder and patients in an eating disorder treatment program should routinely be assessed for the presence of a concurrent substance use disorder.<sup>10</sup>

Approaches for treating substance use and eating disorders may not always coincide.<sup>12</sup> For example, much substance abuse treatment is based on an abstinence model. This model clearly is inappropriate for treating eating disorders. If an eating disorder is not treated effectively, the patient may have residual weight problems following treatment as well as other mental health problems that can increase the risk of relapse. Within four years of the onset of the disorder, approximately 44 percent of anorexic patients in treatment restore their weight to within 15 percent of that which is recommended for their height while 24 percent never reach the recommended weight.<sup>13</sup> Even among the 44 percent who do achieve an appropriate weight, many still have other psychiatric symptoms, such as substance abuse, obsessive-compulsive disorder and social phobia.<sup>14</sup>

*All women entering substance abuse treatment should be screened for eating disorders. Simple screening tools are very easy to complete in 10 to 12 minutes.*<sup>15</sup>

--G. Terence Wilson, Ph.D.  
Professor of Psychology  
Rutgers University

## Best Practices for Treatment

Often, patients with an eating disorder and co-occurring substance abuse are trapped in cycles of overeating, bulimia and intoxication.<sup>16</sup> A multidisciplinary treatment strategy, that uses focused interventions for addiction and disordered eating, combined with individualized, group and family therapy holds the greatest promise for helping these patients.<sup>17</sup> Unfortunately, research on the long-term effectiveness of various treatment approaches

for patients with eating disorders and co-occurring substance use disorders is scarce.<sup>18</sup>

### ***The Treatment Plan***

One of the main steps in treatment, whether for a substance use disorder, an eating disorder or both, is to conduct a complete medical and psychiatric evaluation of the patient. Many patients with co-occurring disorders do not admit to having both disorders or to the severity of the disorders and a comprehensive physical and psychiatric examination often can reveal important information about the patient. Second, both disorders can affect severely a patient's nutritional health and, therefore, appraising the patient's nutritional status is critical for incorporating appropriate nutritional rehabilitation and maintenance into the treatment program.<sup>19</sup> In addition, the limited research that focuses on the treatment of co-occurring substance abuse and eating disorders emphasizes the importance of designing individualized treatment plans that make use of the full range of available therapeutic approaches.<sup>20</sup> This literature also calls for the integration of substance abuse treatment with treatment protocols for eating disorders.<sup>21</sup> Too often, only one disorder is treated at the expense of the other; a practice that may ultimately compromise treatment and attempts to recover from both disorders.<sup>22</sup>

To date, most of the literature on the treatment of co-occurring substance abuse and eating disorders has focused on inpatient substance abuse treatment settings and has tended to emphasize strategies designed primarily for bulimic alcoholics.<sup>23</sup> More research is needed to study the efficacy of such a model as well as to assess other types of treatment options available to patients with different types of eating disordered behavior and co-occurring substance abuse.

### ***Types of Treatment***

Cognitive-behavioral therapy and pharmacological therapy are the treatment modalities most frequently discussed and most heavily researched among those involved in the

treatment of eating disorders. These approaches are promising--particularly for the treatment of bulimia nervosa,<sup>24</sup> yet there is some debate about their efficacy.<sup>25</sup>

Although far more expensive and time consuming, some experts argue that long-term individual psychotherapy that examines underlying causes of the illness, helps patients develop more adaptive coping mechanisms, strengthens patients' self-image and identity and teaches them how to adaptively express their feelings or emotions is the best route to long-lasting recovery. In addition, family therapy and/or marital therapy are considered critical for many patients suffering from eating disorders (and substance abuse). Unfortunately, compared to cognitive-behavioral therapy and pharmacological therapy, it is far more difficult to conduct empirical investigations of the efficacy of these more long-term and complex approaches to treatment.<sup>26</sup>

**Hospitalization.** A patient who has anorexia nervosa or bulimia nervosa may be at significant risk for dehydration, starvation and electrolyte imbalance, which can lead to serious health complications and sometimes death.<sup>27</sup> When eating disorder patients are in this type of immediate danger, the first treatment consideration is to stabilize their nutritional status, which often is done in a hospital setting. Once a patient is stabilized medically and has achieved an adequate weight, substance abuse issues can begin to be addressed. Among those who do not require in-patient hospitalization, partial hospitalization and day hospital programs are viable options and increasingly are used in attempt to decrease the length of inpatient hospitalization.<sup>28</sup>

**Cognitive-Behavior Therapy (CBT).** After being stabilized medically, an eating disorder patient typically undergoes a regimen of psychotherapy. Cognitive-behavior therapy (CBT), an approach most commonly used with bulimic patients,<sup>29</sup> attempts to correct unhealthy or distorted thinking patterns as a means of influencing emotions and behaviors.<sup>30</sup> CBT is a short-term therapy that involves active collaboration between patient and therapist to

help the patient understand how certain thinking patterns cause or exacerbate mental health problems and how to learn to think more clearly and resolve problems more effectively.<sup>31</sup> CBT is the most extensively studied treatment modality for bulimic patients; approximately 50 percent of bulimic patients who are treated with CBT recover from their disorder.<sup>32</sup> One study found that those who dropped out of the treatment program had more frequent bulimic-related thoughts and greater impulsivity than did patients who completed treatment. Those who dropped out of treatment also were more likely to have a history of anorexia, depression and poorer social adjustment than those who completed treatment.<sup>33</sup> The effectiveness of CBT for anorexic patients has yet to be determined.<sup>34</sup>

Cognitive-behavioral therapy strategies also have proven to be effective in treating substance abuse.<sup>35</sup> However, little is known about the effectiveness of this approach in treating the co-occurrence of substance abuse and eating disorders.

**Pharmacological Therapy.** Another common approach for treating eating disorders, particularly bulimia nervosa, is the use of antidepressant medication.<sup>36</sup> Clinical studies have shown that antidepressant drugs help reduce binge eating and purging in bulimic patients to a significantly greater extent than treatment with a placebo.<sup>37</sup> The serotonin reuptake inhibitors (SSRIs), such as fluoxetine (Prozac), have proven effective in the treatment of chronic eating disorders, which are characterized in part by altered serotonin activity in the brain.<sup>38</sup> SSRI medications such as fluoxetine tend to be preferred over other forms of antidepressants, such as tricyclics, because they have fewer side effects.<sup>39</sup> SSRIs help alleviate depression and promote weight gain in anorexic patients and help reduce the frequency of bingeing and purging in bulimic patients.<sup>40</sup> The antidepressant fluoxetine also has been used in the treatment of alcoholism<sup>41</sup> and preliminary research suggests that it may help decrease cocaine cravings.<sup>42</sup> This bodes well for the treatment of patients with co-occurring substance use and eating disorders.

Other classes of medication have been tested in the treatment of eating disorders, including antipsychotics (e.g., Olanzapine), lithium carbonate, appetite stimulants (for anorexia), anticonvulsants and drugs such as zinc and naltrexone.<sup>43</sup> Although there have been some promising findings, many of these drugs are used infrequently because of their potentially severe side effects.

**Combination Therapies.** Most combination treatment approaches are tailored to the individual and focus on integrating components of the cognitive, psychological, behavioral, nutritional and pharmacological methods. Research suggests that combining pharmacological treatments with CBT may be more effective than using medication alone.<sup>44</sup> Although research on the short-term effectiveness of certain forms of CBT and medication treatment is promising, only long-term studies can determine their impact. Furthermore, because multiple risk factors often precipitate an eating disorder, these factors all must be addressed to ensure proper long-term recovery.

*In our field, not always but all too often we create this sense that biological and behavioral approaches are competitive, when, if fact, ultimately we need both.*<sup>45</sup>

--Steven Hyman, M.D.  
Former Director  
National Institute of Mental Health

### ***Relapse and Recovery***

To be effective, treatment must emphasize effective means of avoiding relapse.<sup>46</sup> As is the case with addiction to tobacco, alcohol and drugs, the relapse rates for eating disorders are quite high. Approximately one-third of patients with eating disorders relapse after recovery.<sup>47</sup> For anorexic patients who do attain an appropriate body weight, preoccupation with food and weight often continues throughout life, social relationships often continue to suffer and patients in recovery often continue to be plagued by depression.<sup>48</sup> Therefore, many recovered

eating disorder patients remain highly vulnerable to relapse.

Table 3.1 presents classic signs and symptoms suggesting a relapse of an eating disorder<sup>49</sup> or a substance use disorder.<sup>50</sup> Relapse prevention approaches encourage the patient to make healthy decisions and avoid situations where alcohol, drugs or food have been misused in the past. Likewise, those patients who are on the verge of relapse are taught enhanced coping skills to help them build their capacity to overcome their vulnerability to relapse.<sup>51</sup>

Table 3.1  
**Common Signs of Relapse for Eating Disorders (ED)  
and Substance Use Disorders (SUD)**

- Obsessive thinking:
  - ED: about food or weight
  - SUD: about the substance of abuse
- Control problems:
  - ED: strong need to assert control
  - SUD: feeling a loss of control
- Fantasies of perfection; wishful thinking:
  - ED: imagining that being the perfect weight will provide total happiness
  - SUD: demonstrating the “if only” syndrome; having fantasies of “being rescued from it all”
- Hopelessness:
  - ED: about relationships, school or work, or the eating disorder itself
  - SUD: sense of failure, depression, powerlessness
- Denial:
  - ED: denying the relationship between stress, anxiety and the ED symptoms
  - SUD: denying concern about relapsing
- Withdrawal from friends:
  - ED: becoming isolated and unsociable
  - SUD: creating rifts with people who can help
- Justifying minor lapses:
  - ED: believing that one can purge “just once;” skipping meals; choosing only “safe” foods
  - SUD: believing that one can drink or use drugs only socially\*

\* If the person is alcohol or drug dependent





## Chapter IV

# Prevention of Eating Disorders and Substance Abuse

---

Parents, schools, community organizations, health care providers, advertisers and the media all share responsibility for the development of substance use and eating disorders, for their increasing prevalence and, ultimately, for their solution. Despite the significant rates of co-occurring substance abuse and eating disorders, few prevention programs currently address both disorders together.

### **Models of Prevention**

The majority of prevention programming takes place in schools and these school-based programs vary widely in terms of the intensity, frequency and duration of the delivery of prevention messages, with some presenting students with a single intervention and others being part of multi-year, comprehensive programs.<sup>1</sup>

For most health-risk prevention efforts, whether for substance abuse, eating disorders or other problems like violence, there are two general levels of prevention that can be implemented: programs targeting all youth and programs targeting youth who are known to be at risk for the development of a disorder.<sup>2</sup>

Programs targeting all youth, called universal programs, attempt to target unhealthy substance use and eating behaviors prior to their onset and seek to prevent the onset of these disorders by stressing that these behaviors are abnormal and can have serious adverse consequences.<sup>3</sup> Some experts believe that universal prevention has the greatest chance of success when it approaches the problem of eating disorders as a social problem rather than as an individual or behavioral problem.<sup>4</sup> Prevention efforts aimed at reducing societal-level risk factors for these disorders include efforts to modify the practices of the diet,<sup>5</sup> tobacco and alcohol industries.<sup>6</sup> These efforts also might focus on modifying

young people's perceptions of social norms and making them more critical and skeptical consumers of the media's often-distorted messages.<sup>7</sup>

Programs that target high-risk youth, called selective programs, attempt to minimize and eliminate unhealthy behaviors even after their onset and begin treating people who are in the early stages of the disorder. In contrast to universal prevention, such efforts might encourage people to seek help by suggesting that substance use and eating disorders are relatively common and treatable.<sup>8</sup>

### ***Information-Based Prevention Programs: What Are They and Do They Work?***

Information or curriculum-based substance use and eating disorder prevention programs provide information about the symptoms, consequences and known risk factors for the development of the disorder, and healthy ways of avoiding them. Some programs also teach skills to resist social pressures to engage in these behaviors.<sup>9</sup> Unfortunately, there is little evidence that these information-based programs are effective.

Information-based programs work on the premise that providing facts increases knowledge, which then will result in a positive change in students' eating-related or substance use attitudes and behaviors. However, increased knowledge does not necessarily lead to attitude or behavior change.<sup>10</sup> Students may learn the information presented to them; however, when they are in a situation that tests their resolve, they may succumb to pressures to engage in disordered eating or substance use.

Although some research indicates that information-based programs are more effective when targeted to at-risk youth, rather than when implemented more universally,<sup>11</sup> the information-based approach is common in prevention programs offered to all youth.

The majority of information-based prevention efforts are based less on theoretical models than they are on the availability or accessibility of

particular components of a program.<sup>12</sup> Thus, students often are offered a hodgepodge of interventions that lack coherence, relevance or consistency, rather than a comprehensive program that targets those areas that are most important to the onset of the disorder in a meaningful and developmentally appropriate manner.

## **Who Are the Target Audiences for Prevention and When, Where and How Should They be Reached?**

### ***Whom to Target and When***

Prevention efforts can be highly effective if they target critical, high-risk behaviors before they commence.<sup>13</sup> However, like substance use prevention efforts, studies suggest that one reason eating disorder prevention programs tend to be relatively ineffective is that they often are implemented too late, once distorted body image and weight-related attitudes already have developed.<sup>14</sup> The majority of existing prevention efforts attempt to interrupt disturbed eating behaviors rather than address the antecedents of the preoccupation with food and body image.<sup>15</sup>

Despite the fact that males also develop potentially damaging body image and weight-related concerns,<sup>16</sup> most current eating disorder prevention efforts primarily are aimed at young females. In addition, many prevention programs are targeted to middle and high school students and thereby miss a critical opportunity to intervene before these behaviors begin.<sup>17</sup>

Because the goals of universal and selective types of prevention are sometimes at odds, programs must be targeted to the appropriate audience. In one of the only large-scale studies of eating disorder prevention programs conducted with college students, freshmen women--including at-risk and not at-risk students--were exposed to informational presentations by students with a history of eating disorders.<sup>18</sup> The study found an *increase* in eating disorder symptoms among women

exposed to these presentations.<sup>19</sup> This finding, and others like it,<sup>20</sup> highlights the danger of mixing universal and selective prevention efforts in one program.

## **Specific Programs Aimed at Preventing Eating Disorders and Substance Use**

Few comprehensive prevention programs currently are available that focus on eating disorders. Even more rare are programs that attempt to target the co-occurrence of substance use and eating disorders.

The field of study concerning the prevention of eating disorders is still in its infancy. With few exceptions, programs targeting eating disorders have proven to be largely ineffective, primarily because they suffer from some of the same problems as substance use prevention programs. That is, many of these efforts target isolated risk factors and fail to take the admittedly more difficult, expensive and time-consuming approach of targeting multiple risks and attempting to effect comprehensive change.

As with substance use prevention, there is a striking disconnect between what is known from the literature about risk factors for eating disorders and what typically is targeted by eating disorder prevention programs. Young girls in particular need to get the message that their body image and appearance is but one component of who they are, and they must be taught ways to feel good about themselves that are not intricately tied to weight and appearance. However, few prevention programs target these important factors. Similarly, despite what is known about the tremendous influence of parental attitudes and behaviors, as well as the larger societal and cultural influences on eating disorders (and substance use disorders), few programs target these risk factors.

## ***Programs Aimed at Preventing Eating Disorders***

A model educational program developed by the Harvard Eating Disorders Center for pre-adolescent and adolescent girls, *Full of Ourselves: Advancing Girl Power, Health and Leadership*, aims to sustain girls' health and decrease their vulnerability to the development of body preoccupation and eating disorders.<sup>21</sup> The overarching goal of the program, which can be adopted by schools or youth organizations, is to enable girls to gain higher levels of body-acceptance, self-acceptance, self-esteem and a wide range of coping skills.<sup>22</sup> Results indicate that participants in this program gained significantly more knowledge about society's bias against women who are not thin, as well as about nutrition and puberty. Participants also had significantly better scores on measures of self-esteem and body image than nonparticipants.<sup>23</sup>

Many substance use prevention efforts and programs promoting healthy eating behaviors are incorporated into larger school-based, universal prevention programs based on the Centers for Disease Control and Prevention's (CDC) *Coordinated School Health Program* model.<sup>24</sup> This program recognizes that education and health are interrelated and that healthy children who feel safe and accepted in their environment can learn more. The program includes the following interdependent components: health education, physical education and activity, counseling services, food services, a healthy school environment, health programs for faculty and staff, health services and parent and community involvement. In each of these components, schools address several high-risk behaviors, including injuries from accidents, violence, suicide, tobacco, alcohol and other drug use, poor nutrition, lack of physical activity and sexual behavior (sexually transmitted diseases, unwanted pregnancies).

One selective, yet comprehensive, prevention program addresses both eating disorders and substance abuse in young female athletes--a group disproportionately affected by these problems. The program focuses on girls participating in school-sponsored athletic, dance and drill and rally teams because they are at increased risk for using physique-altering drugs (amphetamines, cocaine, anabolic steroids, diet pills, diuretics, laxatives and tobacco) as well as disordered eating behaviors. *Athletes Targeting Healthy Exercise and Nutrition Alternatives (ATHENA)* is aimed at students in middle and high school.<sup>25</sup> It involves peer-taught and coach-facilitated small interactive learning groups in which discussions focus on sport nutrition, strength training, self-esteem, the media, depression prevention, peer norms and health promotion. The participants learn to focus on performance rather than appearance. Preliminary outcome data suggest that *ATHENA* participants had lower risk for future drug use and harmful eating behaviors. *ATHENA* participants reported one-sixth the amount of new diet pill use and one-half the amount of cigarette use compared to the control group of student athletes.<sup>26</sup>

*It [ATHENA and ATLAS, the male counterpart to ATHENA] really gives a positive message... how to be healthy and how to be a better athlete, which is immediately relevant to both the boy and girl athletes.<sup>27</sup>*

--Diane Elliot, M.D.  
Professor of Medicine  
Oregon Health Sciences University

### ***The Role of Families in Substance Use and Eating Disorder Prevention***

Few prevention programs that target substance use and eating disorders have included parents or families.<sup>28</sup> The family can serve either as a critical, positive force in defusing the public health crisis of disordered eating and substance abuse or as a critical, negative force in exacerbating these problem behaviors.<sup>29</sup> Prevention efforts often overlook the

tremendous influence of parents on young people's consumption of societal messages and on their weight- and substance-related attitudes and behaviors.<sup>30</sup>

Often, parents and other adults do not know how to recognize the warning signs of an eating disorder or substance use problem nor do they know how to deal with it properly once recognized. Furthermore, the transition to adolescence, a time of great risk for the development of these disorders, is fraught with difficult parent-child interactions.<sup>31</sup> In order to be effective, prevention programs must take into account the dynamic nature of the parent-child relationship during adolescence.<sup>32</sup>

Research on eating disorder prevention programs has reported significantly more behavioral changes in programs that have involved parents in addition to the target child.<sup>34</sup> Some components of programs that include parents involve homework assignments that must be completed by the parent and adolescent together to ensure more time spent together or role-playing activities that help parents develop their conflict resolution and communication skills.<sup>35</sup>

*One of the bigger protective factors and one of the best ways to screen your kids for eating disorders is to eat with them. Family dinners, where you talk and eat together, are incredibly protective and incredibly informative.<sup>33</sup>*

--Dean Krahn, M.D.  
Department of Psychiatry  
University of Wisconsin

One important thing parents can do to help prevent the development of eating and substance use disorders in their children is to regularly eat meals as a family and monitor their children's eating habits and general behaviors. To this end, CASA has instituted *Family Day -- A Day to Eat Dinner With Your Children*, a national effort to promote parental engagement as a simple, effective way to reduce youth substance abuse risk and raise healthier children. *Family Day* is meant to emphasize the importance of regular family activities as a way to facilitate parent-

child communication and encourage Americans to make family dinners a regular feature of their lives. In 2001, CASA launched Family Day as an annual event, which takes place on the fourth Monday of each September.

### ***Schools Offer An Important Venue for Comprehensive Prevention***

Schools generally are a good venue for implementing prevention programs,<sup>36</sup> whether for substance use, eating disorders, risky sexual behaviors, violence or other health-risk behaviors. Perhaps one of the most significant problems facing school-based prevention efforts is that the prevention of substance abuse, eating disorders and other health risk behaviors often is seen as a goal distinct from academic goals. What many schools fail to realize is the multiple ways in which these health risk behaviors are detrimental to the school's and the individual student's academic achievement. For substance abuse, prevention discussions often are relegated to a limited number of sessions within a general health class and prevention messages typically are not connected to the rest of the academic curriculum.<sup>37</sup> A student who is abusing substances<sup>38</sup> or experiencing eating disturbances cannot be expected to function in an academically optimal manner. Schools benefit tremendously from having a healthy, focused, high-functioning student body. It is in their best interest to contribute, along with parents, communities and the media, to the prevention of these disorders.

Because the pathways to substance abuse and eating disorders are many and varied, it is necessary to address multiple risk factors that make youth vulnerable to the development of these disorders. Research has shown that a comprehensive prevention program, whether it is aimed at preventing substance use or eating disorders, should work on multiple levels and involve youth, parents, the school system, the larger community and the media in its efforts.<sup>39</sup> Occasional lectures or isolated interventions have little value. (Table 4.1) In addition, CASA's research has shown that unisex programs may not be effective for substance use

or eating disorders, as girls and boys often have different risks for these disorders and suffer unique consequences.<sup>40</sup>

Table 4.1  
**Key Components of Comprehensive School-Based Prevention Programs<sup>41</sup>**

1. Staff training for teachers, coaches and guidance counselors.
2. Classroom interventions aimed at preventing eating disorders and substance abuse.
3. Integration of prevention material into existing curricula.
4. Opportunities for healthy eating at school.
5. Outreach activities within the school and to the community by students, staff and parents.
6. Individual counseling and small group-work for high-risk youth.
7. Referral systems within school and between school and health resources in the community for students with eating disorders or substance use disorders.





## Chapter V

### Opportunities and Next Steps

---

Reducing the growing rates of substance use and eating disorders, particularly among young people, requires increasing public awareness of the problem, improving prevention and treatment efforts, conducting needed research and changing policies and industry practices.

#### **Opportunities for Action**

Parents, schools, health professionals, the media and policymakers can help young people fight the pressures placed on them to engage in unhealthy substance use and weight-control behaviors.

#### ***What Parents Can Do***

- Model healthy attitudes and behaviors with regard to substance use and eating.
- Provide and promote healthy, positive and reasonable messages about eating and exercise behavior as well as consistent messages about the dangers of substance use.
- Help children learn to value their attributes and develop a sense of comfort with their appearance.
- Help children combat unhealthy societal messages by informing them of the profit motives of industries that push diet products, cigarettes and alcohol.
- Eat meals with children regularly to strengthen family bonds, which are clearly protective against eating disorders and substance use, and to monitor children's behaviors.

### **Parents' Checklist to Help Prevent Eating Disorders and Substance Abuse**

- ✓ **Convey clear and consistent messages:**
  - Avoid communicating to children that their appearance is related to their worth and avoid negative statements about your own body and eating habits;
  - Avoid communicating to children that experimenting with substances is a normal rite of passage and avoid showing children that it takes a drink or a cigarette to relax.
- ✓ **Give children perspective on media messages:**
  - Discuss with children the unrealistic images of females presented on television and in fashion magazines;
  - Give children perspective on the monetary incentives of the tobacco, alcohol and diet industries in glamorizing substance use and extreme thinness.
- ✓ **Communicate openly with children about the dangers of unhealthy behaviors:**
  - Teach children the risks of trying to alter body shape through inappropriate dieting; the value of moderate exercise for health, strength and stamina; and the importance of eating a variety of nutritious foods.
  - Inform children of the health and social consequences of smoking, drinking and drug use.
- ✓ **Monitor children's friends, whereabouts and activities:**
  - Supervise children's media usage to limit their exposure to unhealthy and unrealistic images of women;
  - Ensure that children do not gain access to cigarettes or alcohol from home and enforce consequences if they do.
- ✓ **Make eating together a family routine:**
  - Provide nutritious meals and refrain from commenting on children's eating, resolving family conflicts at the table or using food either as punishment or reward;
  - Use family meals as an opportunity to communicate openly with children about substance abuse and its dangers.
- ✓ **When your child needs help, get treatment--fast!**

**Sources:** Adapted from Smolak and Levine (as cited in Berg, 1997); The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).

### ***What Schools Can Do***

- Educate parents, teachers, administrators and coaches to recognize the signs of an eating disorder or substance use problem and intervene quickly and effectively.
- Promote healthy and nutritious eating behaviors among students by ridding schools of vending machines that sell high fat foods and caffeinated beverages and by offering healthy yet tasty options for meals and snacks.
- Offer students the means for improving their coping skills so that they do not turn to unhealthy behaviors to alleviate stress, anxiety or negative mood.
- Provide students with accurate information about normal physical development, nutrition and appropriate means of weight control.
- Teach students to place more value on inner strengths and to appreciate their own attributes rather than deriving their self-approval from standards prescribed by the media.
- Teach younger students the adverse effects of substance use and unhealthy weight-control behaviors; provide those at high risk for these disorders opportunities for recovery.
- Target critical, high-risk behaviors before they commence.
- Make prevention programs gender and culturally sensitive.
- Comprehensive school-based prevention programs should:
  - Integrate prevention programming into schools' academic curricula rather than relegating prevention messages to isolated school assemblies or classroom lectures;

- Attempt to change peer norms;
- Involve parents;
- Have teachers and other school personnel function as mentors;
- Include media literacy training;
- Offer specific programming for high-risk youth;
- Provide resources and referrals to treatment providers for youth who display symptoms of a disorder.
- Educating patients about nutrition and about their illness, its consequences, and the factors that contribute to its development and maintenance;
- Provide individual, group and family therapy;
- Implement psychopharmacological treatments when appropriate;
- Design an appropriate outpatient follow-up program to help prevent relapse.

### ***What Health Professionals Can Do***

- Educate patients about nutrition and the negative health effects of eating disorders and substance abuse.
- Routinely screen patients of all ages and from all backgrounds for eating disorders and substance abuse. The profile of the typical patient who might have these disorders is rapidly changing; therefore, assumptions should not be made that certain patients from particular demographic backgrounds are at lower or higher risk.
- Routinely screen (and, if necessary, treat) patients in a substance abuse treatment program for eating disorders and patients in an eating disorder treatment program for substance abuse.
- Educate treatment providers of the increased risk that patients who are recovering from one disorder might begin to engage in behaviors consistent with the other disorder.
- Assure that treatment programs adopt best practices for treatment such as:
  - Conducting proper medical and nutritional assessments of incoming patients;

### ***What Advertising, Marketing and Entertainment Industries Can Do***

- Advertisers should refrain from linking smoking and drinking with unrealistically thin images of women.
- Tobacco and alcohol companies should refrain from linking smoking and drinking to unrealistically thin images of women.
- Television programs and films should refrain from making positive associations between thinness and smoking, drinking and using drugs.
- Magazines with high proportions of young female readers should refuse advertisements from cigarette and alcohol companies, include more articles that convey prevention messages against smoking, drinking and excessive dieting and discuss the dangers of such conduct.

### ***What Policymakers Can Do***

- Increase public awareness about the connection between substance abuse and eating disorders.
- Inform parents, school personnel, clergy and other adults who come into contact with young people how to recognize the warning signs of these disorders and how best to help combat unhealthy societal messages by modeling healthy attitudes and behaviors.

- Alter managed care program policies to cover both mental and physical health treatments for eating disorders and for substance use disorders.
- Ensure that physicians are trained to recognize and treat these disorders by including questions about the co-occurrence of substance use and eating disorders in licensing exams.
- Improve the dissemination of effective intervention programs to treatment providers and make available the resources to train providers in their implementation.
- Fund needed research on the links between substance abuse and eating disorders.
- Other psychiatric disorders that co-occur with substance use and eating disorders, such as depression, anxiety and personality disorders;
- The effects of the advertising, marketing and entertainment industries and societal norms on the development of substance use and eating disorders, and characteristics of effective counter-advertising;
- New approaches to increasing media literacy in children and families to limit the often-pernicious effects on people's self-concepts and on their reliance on unhealthy means of reducing negative feelings (e.g., by smoking, excessive eating);
- New and better approaches to assessing, diagnosing and treating co-occurring substance use and eating disorders and preventing relapse in various populations.

### ***What Researchers Can Do***

Although researchers have begun to make progress in understanding the link between eating disorders and substance abuse, many issues remain unexplored and many questions have yet to be answered:

- The links between each type of eating disorder (i.e., anorexia nervosa vs. bulimia nervosa vs. binge eating disorder) and the different forms of substance use (i.e., smoking, drinking, using illicit drugs, abusing over-the-counter medications);
- The genetic and biological bases of these disorders and risks for their development;
- The nature of the co-occurrence of eating disorders with substance use disorders: to what extent are both types of disorders by-products of similar risk factors and to what extent does one disorder cause the other?
- The efficacy of new drug therapies;
- Gender and cultural differences in the development of eating disorders and substance abuse;

## Chapter I Notes

- <sup>1</sup> American Psychiatric Association. (1994); Kaplan, H. I., & Sadock, B. J. (1998); National Eating Disorders Association. (2002b).
- <sup>2</sup> American Psychiatric Association. (1994); Levine, M. P., & Smolak, L. (1992); Kaplan, H. I., & Sadock, B. J. (1998); National Eating Disorders Association. (2002b).
- <sup>3</sup> American Psychiatric Association. (2000); Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992); O'Brien, K. M., & Vincent, N. K. (2003); Striegel-Moore, R. H., Garvin, V., Dohm, F. A., & Rosenheck, R. A. (1999a); von Ranson, K. M., Iacono, W. G., & McGue, M. (2002).
- <sup>4</sup> Office of Applied Studies. (2003)..
- <sup>5</sup> Beary, M. D., Lacey, J. H., & Merry, J. (1986); Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Krahn, D. D. (1991); Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992).
- <sup>6</sup> American Psychiatric Association. (1994); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>7</sup> Centers for Disease Control and Prevention. (2002).
- <sup>8</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999); Nelson, W. L., Hughes, H. M., Katz, B., & Searight, H. R. (1999).
- <sup>9</sup> Pike, K. M., & Walsh, B. T. (1996); Pumariega, A. J., Gustavson, C. R., Gustavson, J. C., & Motes, P. S. (1996); Striegel-Moore, R., & Smolak, L. (1996).
- <sup>10</sup> Fahy, T. A., & Treasure, J. (1991); Jonas, J. M., Gold, M. S., Sweeney, D., & Pottash, A. L. C. (1987); Marsh, L. D., Key, J. D., & Spratt, E. (1997); Wilson, J. R. (1992); Zweben, J. E. (1987).
- <sup>11</sup> American Psychiatric Association. (1994); Halmi, K. A. (1994).
- <sup>12</sup> American Psychiatric Association. (1994).
- <sup>13</sup> American Psychiatric Association. (1994).
- <sup>14</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>15</sup> Bellafante, G. (2003); Wiseman, C. V., Sunday, S. R., Klapper, F., Harris, W. A., & Halmi, K. A. (2001).
- <sup>16</sup> Schreiber, G. B., Robins, M., Striegel-Moore, R., Obarzanek, E., Morrison, J. A., & Wright, D. J. (1996).
- <sup>17</sup> American Psychiatric Association. (2000); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>18</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>19</sup> Halmi, K. A. (1994).
- <sup>20</sup> Blinder, B. J., & Chao, K. H. (1994).
- <sup>21</sup> American Psychiatric Association. (1994).
- <sup>22</sup> Halmi, K. A. (1994); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>23</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>24</sup> Halmi, K. A. (1994).
- <sup>25</sup> American Psychiatric Association. (1994).
- <sup>26</sup> Halmi, K. A. (1994).
- <sup>27</sup> American Psychiatric Association. (1994); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>28</sup> Halmi, K. A. (1994); Kaplan, H. I., & Sadock, B. J. (1998); Ross, H. E., & Ivis, F. (1999).
- <sup>29</sup> Timmerman, M. G., Wells, L. A., & Chen, S. (1990).
- <sup>30</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>31</sup> American Psychiatric Association. (1994); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>32</sup> Halmi, K. A. (1994).
- <sup>33</sup> National Center for Chronic Disease Prevention and Health Promotion. (2002a).
- <sup>34</sup> National Center for Health Statistics. (2002).
- <sup>35</sup> Wang, G. J., Volkow, N. D., Thanos, P. K., & Fowler, J. S. (2003).
- <sup>36</sup> Gold, M. S. (2003); Wang, G. J., Volkow, N. D., Thanos, P. K., & Fowler, J. S. (2003).
- <sup>37</sup> National Soft Drink Association. (1999).
- <sup>38</sup> Nehlig, A. (1999).
- <sup>39</sup> Haug, N. A., Heinberg, L. J., & Guarda, A. S. (2001).
- <sup>40</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).  $\chi^2 (3) = 15.26$ ,  $p < .01$

- <sup>41</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).  $\chi^2 (1) = 13.32$ ,  $p < .001$
- <sup>42</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).  $F (1, 202) = 9.07$ ,  $p < .01$
- <sup>43</sup> Austin, S. B., & Gortmaker, S. L. (2001); French, S. A., Perry, C. L., Leon, G. R., & Fulkerson, J. A. (1994); French, S. A., Story, M., Downes, B., Resnick, M. D., & Blum, R. W. (1995); Fulkerson, J. A., & French, S. A. (2003); Tomeo, C. A., Field, A. E., Berkey, C. S., Colditz, G. A., & Frazier, A. L. (1999).
- <sup>44</sup> Camp, D. E., Klesges, R. C., & Relyea, G. (1993); Delnevo, C. D., Hrywna, M., Abatemarco, D. J., & Lewis, M. J. (2003); Frank, R. E., Serdula, M. K., & Adame, D. (1991); Fulkerson, J. A., & French, S. A. (2003); Ogden, J., & Fox, P. (1994); Wee, C. C., Rigotti, N. A., Davis, R. B., & Phillips, R. S. (2001).
- <sup>45</sup> Cooper, T. V., Klesges, R. C., Robinson, L. A., & Zbikowski, S. M. (2003).
- <sup>46</sup> Cooper, T. V., Klesges, R. C., Robinson, L. A., & Zbikowski, S. M. (2003).
- <sup>47</sup> Cooper, T. V., Klesges, R. C., Robinson, L. A., & Zbikowski, S. M. (2003).
- <sup>48</sup> Cooper, T. V., Klesges, R. C., Robinson, L. A., & Zbikowski, S. M. (2003).
- <sup>49</sup> Wiseman, C. V., Turco, R. M., Sunday, S. R., & Halmi, K. A. (1998).
- <sup>50</sup> Crisp, A., Sedgwick, P., Halek, C., Joughin, N., & Humphrey, H. (1999); Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992); Suzuki, K., Takeda, A., & Matsushita, S. (1995); Welch, S. L., & Fairburn, C. G. (1998); Wiseman, C. V., Turco, R. M., Sunday, S. R., & Halmi, K. A. (1998).
- <sup>51</sup> Crisp, A., Sedgwick, P., Halek, C., Joughin, N., & Humphrey, H. (1999).
- <sup>52</sup> Tomeo, C. A., Field, A. E., Berkey, C. S., Colditz, G. A., & Frazier, A. L. (1999).
- <sup>53</sup> Wiseman, C. V., Turco, R. M., Sunday, S. R., & Halmi, K. A. (1998).
- <sup>54</sup> Stice, E., & Shaw, H. (2003).
- <sup>55</sup> Voorhees, C. C., Schreiber, G. B., Schumann, B. C., Biro, F., & Crawford, P. B. (2002).
- <sup>56</sup> Field, A. E., Austin, B., Frazier, A. L., Gillman, M. W., Camargo, C. A., & Colditz, G. A. (2002).
- <sup>57</sup> Austin, S. B., & Gortmaker, S. L. (2001).
- <sup>58</sup> Austin, S. B., & Gortmaker, S. L. (2001).
- <sup>59</sup> Camp, D. E., Klesges, R. C., & Relyea, G. (1993); Harvard Eating Disorders Center. (2000).
- <sup>60</sup> Klesges, R. C., Meyers, A. W., Klesges, L. M., & La Vasque, M. E. (1989); Pirie, P. L., Murray, D. M., & Luepker, R. V. (1991).
- <sup>61</sup> Perkins, K. A. (2001); Samet, J. M., & Yoon, S. Y. (2001).
- <sup>62</sup> Office of the Surgeon General. (2001).
- <sup>63</sup> Office of the Surgeon General. (2001).
- <sup>64</sup> Cochrane, C., Malcolm, R., & Brewerton, T. (1998); Dansky, B. S., Brewerton, T. D., & Kilpatrick, D. G. (2000); Goldbloom, D. S. (1993); Goldbloom, D. S., Naranjo, C. A., Bremner, K. E., & Hicks, L. K. (1992); Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Krahn, D. D. (1991); Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992); Timmerman, M. G., Wells, L. A., & Chen, S. (1990); Zweben, J. E. (1987).
- <sup>65</sup> Stewart, S. H., Angelopoulos, M., Baker, J. M., & Boland, F. J. (2000).
- <sup>66</sup> Krahn, D. D. (1991).
- <sup>67</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992); Wiederman, M. W., & Pryor, T. (1996a).
- <sup>68</sup> Bulik, C. M., Sullivan, P. F., Carter, F. A., & Joyce, P. R. (1997).
- <sup>69</sup> Field, A. E., Austin, B., Frazier, A. L., Gillman, M. W., Camargo, C. A., & Colditz, G. A. (2002).
- <sup>70</sup> Field, A. E., Austin, B., Frazier, A. L., Gillman, M. W., Camargo, C. A., & Colditz, G. A. (2002).
- <sup>71</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2002a).
- <sup>72</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).  $F (2,277) = 3.11$ ,  $p < .05$
- <sup>73</sup> Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992).
- <sup>74</sup> Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992).
- <sup>75</sup> Stewart, S. H., Angelopoulos, M., Baker, J. M., & Boland, F. J. (2000).
- <sup>76</sup> Stewart, S. H., Angelopoulos, M., Baker, J. M., & Boland, F. J. (2000).
- <sup>77</sup> Bulik, C. M. (1992); Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992).
- <sup>78</sup> Centers for Disease Control and Prevention. (2002).
- <sup>79</sup> Bulik, C. M. (1992).
- <sup>80</sup> Bulik, C. M. (1992).

- <sup>81</sup> Bulik, C. M. (1992).
- <sup>82</sup> Bulik, C. M. (1992).
- <sup>83</sup> Bulik, C. M. (1992).
- <sup>84</sup> Horwitz, R. I., Brass, L. M., Kernan, W. N., & Viscoli, C. M. (2000).
- <sup>85</sup> U.S. Food and Drug Administration, Office of Public Affairs. (2003).
- <sup>86</sup> Shekelle, P., Hardy, M., Morton, S. C., Maglione, M., Suttorp, M., Roth, E., et al. (2003).
- <sup>87</sup> U.S. Food and Drug Administration. (2003).
- <sup>88</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Wiederman, M. W., & Pryor, T. (1996a); Wiederman, M. W. & Pryor, T. (1996b).
- <sup>89</sup> Wiederman, M. W., & Pryor, T. (1996a).
- <sup>90</sup> Wiederman, M. W., & Pryor, T. (1996a).
- <sup>91</sup> Ross, H. E., & Ivis, F. (1999).
- <sup>92</sup> Zweben, J. E. (1987).
- <sup>93</sup> Halmi, K. A. (1994); Hudson, J. I., Weiss, R. D., Pope, H. G., McElroy, S. K., & Mirin, S. M. (1992); Sansone, R. A., & Sansone, L. A. (1994); Substance Abuse and Mental Health Services Administration. (1997); Wiederman, M. W., & Pryor, T. (1996a).
- <sup>94</sup> Gold, M. S. (1992).
- <sup>95</sup> Zweben, J. E. (1987).
- <sup>96</sup> Cochrane, C., Malcolm, R., & Brewerton, T. (1998).
- <sup>97</sup> Jonas, J. M., Gold, M. S., Sweeney, D., & Pottash, A. L. C. (1987).
- <sup>98</sup> National Eating Disorders Association. (2002a).
- <sup>99</sup> Anorexia Nervosa and Related Eating Disorders. (2002a).
- <sup>100</sup> Anorexia Nervosa and Related Eating Disorders. (2002a).
- <sup>101</sup> Anorexia Nervosa and Related Eating Disorders. (2002a).
- <sup>102</sup> Kaplan, H. I., & Sadock, B. J. (1998); National Eating Disorders Association. (2002a).
- <sup>103</sup> National Eating Disorders Association. (2002a).
- <sup>104</sup> American Psychiatric Association. (2000); Keel, P. K., Dorer, D. J., Eddy, K. T., Franko, D., Charatan, D. L., & Herzog, D. B. (2003); Sullivan, P. F. (1995).
- <sup>105</sup> American Psychiatric Association. (1994); Keel, P. K., Dorer, D. J., Eddy, K. T., Franko, D., Charatan, D. L., & Herzog, D. B. (2003).
- <sup>106</sup> Keel, P. K., Dorer, D. J., Eddy, K. T., Franko, D., Charatan, D. L., & Herzog, D. B. (2003).
- <sup>107</sup> Kaplan, H. I., & Sadock, B. J. (1998); National Eating Disorders Association. (2002a).
- <sup>108</sup> Kaplan, H. I., & Sadock, B. J. (1998); National Eating Disorders Association. (2002a).
- <sup>109</sup> National Eating Disorders Association. (2002a).
- <sup>110</sup> Centers for Disease Control and Prevention. (2002).
- <sup>111</sup> Centers for Disease Control and Prevention. (2002).
- <sup>112</sup> Smolak, L., & Levine, M. P. (1994).
- <sup>113</sup> Berg, F. M. (1997).
- <sup>114</sup> Berg, F. M. (1997).
- <sup>115</sup> Gustafson-Larson, A. M., & Terry, R. D. (1992).
- <sup>116</sup> Sands, R., Tricker, J., Sherman, C., Armatas, C., & Maschette, W. (1997).
- <sup>117</sup> Lewinsohn, P. M., Striegel-Moore, R. H., & Seeley, J. R. (2000); Stice, E., Killen, J. D., Hayward, C., & Taylor, C. B. (1998).
- <sup>118</sup> Centers for Disease Control and Prevention. (2002).
- <sup>119</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2002b).
- <sup>120</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2002b).
- <sup>121</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999); Smolak, L., Levine, M. P., & Gralen, S. (1993).
- <sup>122</sup> Carlat, D. J., & Camargo, C. A. (1991); Graber, J. A., & Brooks-Gunn, J. (1996a).
- <sup>123</sup> Dick, D. M., Rose, R. J., Viken, R. J., & Kaprio, J. (2000); Harrell, J. S., Bangdiwala, S. I., Deng, S., Webb, J. P., & Bradley, C. (1998); Martin, C., Logan, T. K., Leukefeld, C., Milich, R., Omar, H., & Clayton, R. (2001); Prokopčáková, A. (1998); Tarter, R., Vanyukov, M., Giancola, P., Dawes, M., Blackson, T., Mezzich, A., et al. (1999); Tschann, J. M., Adler, N. E., Irwin Jr., C. E., Millstein, S. G., Turner, R. A., & Kegeles, S. M. (1994); Wichstrøm, L. (2001); Wiesner, M., & Ittel, A. (2002); Wilson, D. M., Killen, J. D., Hayward, C., Robinson, T. N., Hammer, L. D., Kraemer, H. C., et al. (1994).

- <sup>124</sup> Johnson, C., Powers, P. S., & Dick, R. (1999).
- <sup>125</sup> Johnson, C., Powers, P. S., & Dick, R. (1999).
- <sup>126</sup> Heatherton, T. F., Nichols, P., Mahamedi, F., & Keel, P. (1995); Mintz, L. B., & Betz, N. E. (1988).
- <sup>127</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2000).
- <sup>128</sup> Smolak, L., Murnen, S. K., & Ruble, A. E. (2000).
- <sup>129</sup> Picard, C. L. (1999); Smolak, L., Murnen, S. K., & Ruble, A. E. (2000); Thompson, R. A., & Sherman, R. T. (1999).
- <sup>130</sup> Smolak, L., Murnen, S. K., & Ruble, A. E. (2000).
- <sup>131</sup> Brumberg, J. J. (1988); Neuman, P. A., & Halvorson, P. A. (1983); Pike, K. M., & Walsh, B. T. (1996).
- <sup>132</sup> National Eating Disorders Association. (2002b); Anorexia Nervosa and Related Eating Disorders. (2002b).
- <sup>133</sup> Pike, K. M., & Walsh, B. T. (1996); Pumariega, A. J., Gustavson, C. R., Gustavson, J. C., & Motes, P. S. (1996); Striegel-Moore, R., & Smolak, L. (1996).
- <sup>134</sup> National Eating Disorders Association. (2002).
- <sup>135</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999).
- <sup>136</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999); Carlat, D. J., & Camargo, C. A. (1991).
- <sup>137</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999); Carlat, D. J., & Camargo, C. A. (1991).
- <sup>138</sup> Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999); Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997).
- <sup>139</sup> Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997).
- <sup>140</sup> Keel, P. K., Klump, K. L., Leon, G. R., & Fulkerson, J. A. (1998).
- <sup>141</sup> Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997); Russell, C. J., & Keel, P. K. (2002); Strong, S. M., Williamson, D. A., Netemeyer, R. G., & Geer, J. H. (2000).
- <sup>142</sup> Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997).
- <sup>143</sup> Centers for Disease Control and Prevention. (2002); George, V. A., & Johnson, P. (2001); Granner, M. L., Abood, D. A., & Black, D. R. (2001); Hamilton, L. H., Brooks-Gunn, J., & Warren, M. P. (1985); Pike, K. M., & Walsh, B. T. (1996).
- <sup>144</sup> Striegel-Moore, R. H., Schreiber, G. B., Lo, A., Crawford, P., Obarzanek, E., & Rodin, J. (2000).
- <sup>145</sup> Centers for Disease Control and Prevention. (2002).
- <sup>146</sup> Centers for Disease Control and Prevention. (2002).
- <sup>147</sup> Pike, K. M., & Walsh, B. T. (1996); Pumariega, A. J., Gustavson, C. R., Gustavson, J. C., & Motes, P. S. (1996); Striegel-Moore, R., & Smolak, L. (1996).
- <sup>148</sup> Striegel-Moore, R. H., Schreiber, G. B., Lo, A., Crawford, P., Obarzanek, E., & Rodin, J. (2000).
- <sup>149</sup> Striegel-Moore, R. H., Schreiber, G. B., Lo, A., Crawford, P., Obarzanek, E., & Rodin, J. (2000).
- <sup>150</sup> Pike, K. M., & Walsh, B. T. (1996).
- <sup>151</sup> Perez, M., Voelz, Z. R., Pettit, J. W., & Joiner, T. E. (2002).
- <sup>152</sup> Pumariega, A. J., Gustavson, C. R., Gustavson, J. C., & Motes, P. S. (1996).
- <sup>153</sup> Jane, D. M., Hunter, G. C., & Lozzi, B. M. (1999).
- <sup>154</sup> Pike, K. M., & Walsh, B. T. (1996).
- <sup>155</sup> Stewart, S. H., Angelopoulos, M., Baker, J. M., & Boland, F. J. (2000).
- <sup>156</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>157</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>158</sup> Wiseman, C. V., Sunday, S. R., Halligan, P., Korn, S., Brown, C., & Halmi, K. A. (1999).
- <sup>159</sup> Wiseman, C. V., Sunday, S. R., Halligan, P., Korn, S., Brown, C., & Halmi, K. A. (1999).
- <sup>160</sup> Wiseman, C. V., Sunday, S. R., Halligan, P., Korn, S., Brown, C., & Halmi, K. A. (1999).

## Chapter II Notes

- <sup>1</sup> Vastag, B. (2001).
- <sup>2</sup> Vastag, B. (2001).
- <sup>3</sup> Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992); Specker, S., Westermeyer, J., & Thuras, P. (2000).
- <sup>4</sup> Hatsukami, D., Owen, P., Pyle, R., & Mitchell, J. (1982); Kaye, W. H., & Wisniewski, L. (1996).
- <sup>5</sup> Cabeza de Vaca, S., & Carr, K. D. (1998); Vastag, B. (2001).
- <sup>6</sup> Institute of Medicine. (1996).
- <sup>7</sup> Halmi, K. A. (1994); Leibowitz, S. F. (1980); Wang, G. J., Volkow, N. D., Logan, J., Pappas, N. R., Wong, C. T., Zhu, W., et al. (2001).
- <sup>8</sup> Kaye, W. H., & Wisniewski, L. (1996).
- <sup>9</sup> Kaye, W. H., & Wisniewski, L. (1996); Naranjo, C. A., Kadlec, K. E., Sanhueza, P., Woodley-Remus, D., & Sellers, E. M. (1990).
- <sup>10</sup> Chandy, J. M., Harris, L., Blum, R. W., & Resnick, M. D. (1995); Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a).
- <sup>11</sup> Chandy, J. M., Harris, L., Blum, R. W., & Resnick, M. D. (1995).
- <sup>12</sup> Mitchell, J. E., Hatsukami, D., Pyle, R., & Eckert, E. (1988); Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992); Strober, M., Freeman, R., Bower, S., & Rigali, J. (1996).
- <sup>13</sup> von Ranson, K. M., McGue, M., & Iacono, W. G. (2003).
- <sup>14</sup> Krahn, D. D. (1991); Lacey, J. H., & Mourelis, E. (1986).
- <sup>15</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a); Schuckit, M. A., Tipp, J. E., Anthenelli, R. M., Bucholz, K. K., Hesselbrock, V. M., & Nurnberger, J. I. (1996); Wiederman, M. W., & Pryor, T. (1996a).
- <sup>16</sup> Hatsukami, D., Owen, P., Pyle, R., & Mitchell, J. (1982).
- <sup>17</sup> Katz, J. L. (1990b).
- <sup>18</sup> Prescott, C. A., Neale, M. C., Corey, L. A., & Kendler, K. S. (1997).
- <sup>19</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a).
- <sup>20</sup> Scheir, L. M., Botvin, G. J., Griffin, K. W., & Diaz, T. (2000); Silverstone, P. H. (1992).
- <sup>21</sup> Silverstone, P. H. (1992).
- <sup>22</sup> Brady, K. T., & Sonne, S. C. (1999); Brook, D. W., Brook, J. S., Richter, L., Whitemann, M., Win, P. T., Masci, J. R., et al. (1999); Cerbone, F. G., & Larison, C. L. (2000); Ghaderi, A., & Scott, B. (2000); Sussman, S., & Dent, C. W. (2000); Troop, N. A., & Treasure, J. L. (1997).
- <sup>23</sup> Troop, N. A., & Treasure, J. L. (1997).
- <sup>24</sup> Ghaderi, A., & Scott, B. (2000).
- <sup>25</sup> Wagner, E. F., Myers, M. G., & McIninch, J. L. (1999); Wills, T. A. (1986).
- <sup>26</sup> Schoen, C., Davis, K., Collins, K. S., Greenberg, L., & Des Roches, C. A. M. (1997).
- <sup>27</sup> de Groot, J., & Rodin, G. M. (1999); Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1996); Hernandez, J. (1995); Kendler, K. S., Bulik, C. M., Silberg, J., Hettema, J. M., Myers, J., & Prescott, C. A. (2000); Stotland, N. L. (1994); Wilsnack, S. C., Vogeltanz, N. D., Klassen, A. D., & Harris, T. R. (1997); Wonderlich, S. A., Wilsnack, R. W., Wilsnack, S. C., & Harris, T. R. (1996).
- <sup>28</sup> Commonwealth Fund. (1997).
- <sup>29</sup> Kendler, K. S., Bulik, C. M., Silberg, J., Hettema, J. M., Myers, J., & Prescott, C. A. (2000).
- <sup>30</sup> Connors, M. E., & Morse, W. (1993); Deep, A. L., Lilienfeld, L. R., Plotnicov, K. H., Pollice, C., & Kaye, W. H. (1999).
- <sup>31</sup> Deep, A. L., Lilienfeld, L. R., Plotnicov, K. H., Pollice, C., & Kaye, W. H. (1999).
- <sup>32</sup> Deep, A. L., Lilienfeld, L. R., Plotnicov, K. H., Pollice, C., & Kaye, W. H. (1999).
- <sup>33</sup> Wonderlich, S. A., Wilsnack, R. W., Wilsnack, S. C., & Harris, T. R. (1996).
- <sup>34</sup> Hernandez, J. (1995).
- <sup>35</sup> McLean, L. M., & Gallop, R. (2003).
- <sup>36</sup> Dansky, B. S., Brewerton, T. D., Kilpatrick, D. G., & O'Neil, P. M. (1997); Dansky, B. S., Brewerton, T. D., & Kilpatrick, D. G. (2000).
- <sup>37</sup> Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000); Dansky, B. S., Brewerton, T. D., & Kilpatrick, D. G. (2000).

- <sup>38</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>39</sup> Bushnell, J. A., Wells, J. E., McKenzie, J. M., Hornblow, A. R., Oakley-Browne, M. A., & Joyce, P. R. (1994).
- <sup>40</sup> American Psychiatric Association. (2000); Rosenvinge, J. H., Martinussen, M., & Østensen, E. (2000).
- <sup>41</sup> Anderluh, M. B., Tchanturia, K., Rabe-Hesketh, S., & Treasure, J. (2003); Formea, G. M., & Burns, L. (1995); Thiel, A., Broocks, A., Ohlmeier, M., Jacoby, G. E., & Schüssler, G. (1995); Thiel, A., Züger, M., Jacoby, G. E., & Schüssler, G. (1998).
- <sup>42</sup> von Ranson, K. M., Kaye, W. H., Weltzin, T. E., Rao, R., & Matsunaga, H. (1999).
- <sup>43</sup> von Ranson, K. M., Kaye, W. H., Weltzin, T. E., Rao, R., & Matsunaga, H. (1999).
- <sup>44</sup> Fahy, T. A., Osacar, A., & Marks, I. (1993).
- <sup>45</sup> Thiel, A., Broocks, A., Ohlmeier, M., Jacoby, G. E., & Schüssler, G. (1995).
- <sup>46</sup> Crum, R. M., & Anthony, J. C. (1993); Douglass, H. M., Moffitt, T. E., Dar, R., McGee, R., & Silva, P. (1995); Eisen, J. L., & Rasmussen, S. A. (1989); Friedman, I., Dar, R., & Shilony, E. (2000).
- <sup>47</sup> Douglass, H. M., Moffitt, T. E., Dar, R., McGee, R., & Silva, P. (1995).
- <sup>48</sup> Crum, R. M., & Anthony, J. C. (1993).
- <sup>49</sup> Halmi, K. A., Sunday, S. R., Strober, M., Kaplan, A., Woodside, D. B., Fichter, M., et al. (2000); Kaye, W. H., Weltzin, T., & Hsu, G. (1993); Thiel, A., Broocks, A., Ohlmeier, M., Jacoby, G. E., & Schüssler, G. (1995).
- <sup>50</sup> Kaplan, H. I., & Sadock, B. J. (1998); Katz, J. L. (1990a); Wade, T. D., Bulik, C. M., Neale, M., & Kendler, K. S. (2000).
- <sup>51</sup> Bushnell, J. A., Wells, J. E., McKenzie, J. M., Hornblow, A. R., Oakley-Browne, M. A., & Joyce, P. R. (1994); Kennedy, S. H., Kaplan, A. S., Garfinkel, P. E., Rockert, E., Toner, B., & Abbey, S. E. (1994).
- <sup>52</sup> Laessle, R. G., Kittl, S., Fichter, M. M., & Pirke, K. M. (1988); Levy, A. B., Dixon, K. N., & Stern, S. L. (1989).
- <sup>53</sup> Merikangas, K. R., Mehta, R. L., Molnar, B. E., Walters, E. E., Swendsen, J. D., Aguilar-Gaziola, S., et al. (1998).
- <sup>54</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994b).
- <sup>55</sup> Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994b).
- <sup>56</sup> Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997); Ross-Durow, P. L., & Boyd, C. J. (2000); Striegel-Moore, R. H., Garvin, V., Dohm, F. A., & Rosenheck, R. A. (1999b).
- <sup>57</sup> Picciotto, M. R., Brunzell, D. H., & Caldarone, B. J. (2002).
- <sup>58</sup> Hall, S. M., Humfleet, G. L., Reus, V. I., Muñoz, R. F., Hartz, D. T., & Maude-Griffin, R. (2002).
- <sup>59</sup> Casper, R. C. (2002).
- <sup>60</sup> Tomotake, M., & Ohmori, T. (2002).
- <sup>61</sup> Sher, K. J., & Trull, T. J. (2003).
- <sup>62</sup> Andrews, J. A., Hops, H., & Duncan, S. C. (1997); Bandura, A. (1977); Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (2000); Farkas, A. J., Distefan, J. M., Choi, W. S., Gilpin, E. A., & Pierce, J. P. (1999); Jacobs, G. A., Jerome, A., Sayers, S., Spielberger, C. D., & Weinberg, H. (1988); Richter, L., & Richter, D. M. (2001).
- <sup>63</sup> Chassin, L., Presson, C. C., Rose, J. S., & Sherman, S. J. (1998).
- <sup>64</sup> Haworth-Hoepfner, S. (2000); Pike, K. M., & Rodin, J. (1991).
- <sup>65</sup> Pike, K. M., & Rodin, J. (1991).
- <sup>66</sup> Goode, E. (2003); Haworth-Hoepfner, S. (2000).
- <sup>67</sup> Haworth-Hoepfner, S. (2000).
- <sup>68</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>69</sup> Barnes, G. M., & Farrell, M. P. (1992); Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>70</sup> Barnes, G. M., & Farrell, M. P. (1992); Fletcher, A. C., & Jefferies, B. (1999); The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001c).
- <sup>71</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>72</sup> Ary, D. V., Duncan, T. E., Duncan, S. C., & Hops, H. (1999); Barnes, G. M., & Farrell, M. P. (1992); Cohen, D. A., Richardson, J., & LaBree, L. (1994); Zucker, R. A., & Fitzgerald, H. E. (1991).
- <sup>73</sup> Benard, B. (1991).
- <sup>74</sup> Anderson, A. R., & Henry, C. S. (1994); Wills, T. A., Vacarro, D., & McNamara, G. (1992).
- <sup>75</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (1999).
- <sup>76</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>77</sup> Haworth-Hoepfner, S. (2000).
- <sup>78</sup> Haworth-Hoepfner, S. (2000).

- <sup>79</sup> Clapper, R. L., Martin, C. S., & Clifford, P. R. (1994); Kandel, D. B. (1985); Ouellette, J. A., Gerrard, M., Gibbons, F. X., & Reis-Bergan, M. (1999); Simons-Morton, B., Haynie, D. L., Crump, A. D., Eitel, P., & Saylor, K. E. (2001).
- <sup>80</sup> Kandel, D. B. (1996); Oetting, E. R., Donnermeyer, J. F., & Deffenbacher, J. L. (1998).
- <sup>81</sup> Crandall, C. S. (1988).
- <sup>82</sup> Crandall, C. S. (1988).
- <sup>83</sup> Schachter, S. (1951).
- <sup>84</sup> Crandall, C. S. (1988).
- <sup>85</sup> Thompson, J. K., & Heinberg, L. J. (1999).
- <sup>86</sup> Silverstone, P. H. (1992).
- <sup>87</sup> Haworth-Hoepfner, S. (2000).
- <sup>88</sup> Thompson, J. K., & Heinberg, L. J. (1999).
- <sup>89</sup> Seid, R. P. (1994).
- <sup>90</sup> National Center for Health Statistics. (2002).
- <sup>91</sup> Underwood, N. (2000).
- <sup>92</sup> Underwood, N. (2000).
- <sup>93</sup> Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986); McKnight Investigators. (2003).
- <sup>94</sup> Stice, E., & Shaw, H. E. (1994).
- <sup>95</sup> Taylor, C. B., Sharpe, T., Shisslak, C., Bryson, S., Estes, L. S., Gray, N., et al. (1998).
- <sup>96</sup> Levine, M. P., Smolak, L., & Hayden, H. (1994).
- <sup>97</sup> Levine, M. P., Smolak, L., & Hayden, H. (1994).
- <sup>98</sup> Stice, E., & Shaw, H. E. (1994).
- <sup>99</sup> Stice, E., & Shaw, H. E. (1994).
- <sup>100</sup> Betts, K. (2003).
- <sup>101</sup> Bamigboye, B., & Shakinovsky, T. (2003).
- <sup>102</sup> Betts, K. (2003).
- <sup>103</sup> Stice, E., & Shaw, H. E. (1994).
- <sup>104</sup> Harrison, K. (1997).
- <sup>105</sup> Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986).
- <sup>106</sup> Fraser, L. (1997).
- <sup>107</sup> Williams, J. (2002).
- <sup>108</sup> Harvard Medical School. (1999).
- <sup>109</sup> Harvard Medical School. (1999).
- <sup>110</sup> Harvard Medical School. (1999).
- <sup>111</sup> BBC News. (1999).
- <sup>112</sup> Dittrich, L. (1998).
- <sup>113</sup> Berg, F. M. (1997).
- <sup>114</sup> Ogletree, S. M., Williams, S. W., Raffeld, P., Mason, B., & Fricke, K. (1990).
- <sup>115</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>116</sup> Anderson, A. E., & DiDomenico, L. (1992).
- <sup>117</sup> Kilbourne, J. (1999).
- <sup>118</sup> CNN.com. (1997).
- <sup>119</sup> Kilbourne, J. (1999).
- <sup>120</sup> Kilbourne, J. (1994).
- <sup>121</sup> Kilbourne, J. (1994).
- <sup>122</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).  $F(2,502) = 3.45, p < .05$

### Chapter III Notes

- <sup>1</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>2</sup> American Psychiatric Association. (2000); Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>3</sup> Zerbe, K. J. (1995).
- <sup>4</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>5</sup> Hodgkins, C. C., Jacobs, W. S., & Gold, M. S. (2003); Perkins, K. A. (1992).
- <sup>6</sup> Zerbe, K. J. (1995).
- <sup>7</sup> Katzman, M. A., Greenberg, A., & Marcus, I. D. (1991).
- <sup>8</sup> Katz, J. L. (1990b); Marcus, R. N., & Katz, J. L. (1990).
- <sup>9</sup> Vastag, B. (2001).
- <sup>10</sup> Walfish, S., Stenmark, D. E., Sarco, D., Shealy, J. S., & Krone, A. M. (1992).
- <sup>11</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>12</sup> Marcus, R. N., & Katz, J. L. (1990).
- <sup>13</sup> American Psychiatric Association. (2000).
- <sup>14</sup> American Psychiatric Association. (2000).
- <sup>15</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>16</sup> Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993).
- <sup>17</sup> Katz, J. L. (1990b); Marcus, R. N., & Katz, J. L. (1990).
- <sup>18</sup> Sinha, R., & O'Malley, S. S. (2000).
- <sup>19</sup> Zerbe, K. J. (1995).
- <sup>20</sup> Marcus, R. N., & Katz, J. L. (1990); Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993); Zweben, J. E. (1987).
- <sup>21</sup> Marcus, R. N., & Katz, J. L. (1990); Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993); Zweben, J. E. (1987).
- <sup>22</sup> Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993); Zweben, J. E. (1987).
- <sup>23</sup> Marcus, R. N., & Katz, J. L. (1990); Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993).
- <sup>24</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>25</sup> M. Maine. (personal communication, December 18, 2002)
- <sup>26</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>27</sup> Kaplan, H. I., & Sadock, B. J. (1998).
- <sup>28</sup> American Psychiatric Association. (2000).
- <sup>29</sup> Agras, W. S., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G. T., & Kraemer, H. C. (2000); Wilson, G. T. (1996).
- <sup>30</sup> Sarason, I. G., & Sarason, B. R. (1993).
- <sup>31</sup> Kaplan, H. I., & Sadock, B. J. (1998); Sarason, I. G., & Sarason, B. R. (1993).
- <sup>32</sup> Agras, W. S., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G. T., & Kraemer, H. C. (2000); Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>33</sup> Agras, W. S., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G. T., & Kraemer, H. C. (2000).
- <sup>34</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>35</sup> Miller, W. R. (1993).
- <sup>36</sup> Wilson, G. T. (1996); Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>37</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>38</sup> American Psychiatric Association. (2000); Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>39</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>40</sup> American Psychiatric Association. (2000).
- <sup>41</sup> Volpicelli, J. R. (2002); National Institute on Alcohol Abuse and Alcoholism. (2000).
- <sup>42</sup> Burmeister, J. J., Lungren, E. M., & Neisewander, J. L. (2003).
- <sup>43</sup> Jonas, J. M., & Gold, M. S. (1987); Malina, A., Gaskill, J., McConaha, C., Frank, G. K., LaVia, M., Scholar, L., et al. (2003); Zerbe, K. J. (1995).
- <sup>44</sup> Wilson, G. T., & Fairburn, C. G. (1998).
- <sup>45</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>46</sup> Zerbe, K. J. (1995).

<sup>47</sup> Herzog, D. B., Dorer, D. J., Keel, P. K., Selwyn, S. E., Ekeblad, E. R., Flores, A. T., et al. (1999).

<sup>48</sup> Kaplan, H. I., & Sadock, B. J. (1998).

<sup>49</sup> Zerbe, K. J. (1995).

<sup>50</sup> Gorski, T., & Miller, M. (2003); Gorski, T. T., & Miller, M. (1982); Miller, W. R., & Harris, R. J. (2000).

<sup>51</sup> Zerbe, K. J. (1995).

## Chapter IV

### Notes

- <sup>1</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>2</sup> Mrazek, P. J. & Haggerty, R. J. (Eds.). (1994); Sloboda, Z., & David, S. L. (1997).
- <sup>3</sup> Franko, D. L., & Orosan-Weine, P. (1998); Kumpfer, K. L. (2001).
- <sup>4</sup> Steiner-Adair, C. (1994).
- <sup>5</sup> Rosen, D. S., & Neumark-Sztainer, D. (1998).
- <sup>6</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>7</sup> DeBenedittis, P. (2003); Rosen, D. S., & Neumark-Sztainer, D. (1998).
- <sup>8</sup> Franko, D. L., & Orosan-Weine, P. (1998).
- <sup>9</sup> Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000); The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>10</sup> Berg, F. M. (1997); Franko, D. L., & Orosan-Weine, P. (1998); Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997); Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000).
- <sup>11</sup> Franko, D. L., & Orosan-Weine, P. (1998).
- <sup>12</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>13</sup> Kater, K. J., Rohwer, J., & Levine, M. P. (2000); The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>14</sup> Berg, F. M. (1997).
- <sup>15</sup> Friedman, S. S. (1998).
- <sup>16</sup> Neumark-Sztainer, D. (1996); Rosen, D. S., & Neumark-Sztainer, D. (1998).
- <sup>17</sup> Centers for Disease Control and Prevention. (2002).
- <sup>18</sup> Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997).
- <sup>19</sup> Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997).
- <sup>20</sup> Carter, J. C., Stewart, D. A., Dunn, V. J., & Fairburn, C. G. (1997).
- <sup>21</sup> Harvard Eating Disorders Center. (2001).
- <sup>22</sup> Harvard Eating Disorders Center. (2001).
- <sup>23</sup> Harvard Eating Disorders Center. (2001).
- <sup>24</sup> National Center for Chronic Disease Prevention and Health Promotion. (2002b).
- <sup>25</sup> Oregon Health and Science University, Department of Medicine, Health Promotion and Sport Medicine. (2003).
- <sup>26</sup> Oregon Health and Science University, Department of Medicine, Health Promotion and Sport Medicine. (2003).
- <sup>27</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>28</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>29</sup> Berg, F. M. (1997); Watts, W. D., & Ellis, A. M. (1992).
- <sup>30</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>31</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>32</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>33</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a).
- <sup>34</sup> Perry, C. L., Luepker, R. V., Murray, D. M., Hearn, M. D., Halper, A., Dudovitz, B., et al. (1989).
- <sup>35</sup> Graber, J. A., & Brooks-Gunn, J. (1996b).
- <sup>36</sup> *Adapted from:* Rosen, D. S., & Neumark-Sztainer, D. (1998); The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>37</sup> Rosen, D. S., & Neumark-Sztainer, D. (1998).
- <sup>38</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b).
- <sup>39</sup> Dewey, J. D. (1999).
- <sup>40</sup> Rosen, D. S., & Neumark-Sztainer, D. (1998).
- <sup>41</sup> The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003).

## Reference List

- Agras, W. S., Crow, S. J., Halmi, K. A., Mitchell, J. E., Wilson, G. T., & Kraemer, H. C. (2000). Outcome predictors for the cognitive behavior treatment of bulimia nervosa: Data from a multisite study. *American Journal of Psychiatry*, *157*(8), 1302-1308.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders, DSM-IV*. Washington, DC: American Psychiatric Association.
- American Psychiatric Association. (2000). Practice guideline for the treatment of patients with eating disorders (revision). *American Journal of Psychiatry*, *157*(Suppl. 1), 1-39.
- Anderluh, M. B., Tchanturia, K., Rabe-Hesketh, S., & Treasure, J. (2003). Childhood obsessive-compulsive personality traits in adult women with eating disorders: Defining a broader eating disorder phenotype. *American Journal of Psychiatry*, *160*(2), 242-247.
- Anderson, A. E., & DiDomenico, L. (1992). Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? *International Journal of Eating Disorders*, *11*(3), 283-287.
- Anderson, A. R., & Henry, C. S. (1994). Family system characteristics and parental behaviors as predictors of adolescent substance abuse. *Adolescence*, *29*(114), 405-420.
- Andrews, J. A., Hops, H., & Duncan, S. C. (1997). Adolescent modeling of parent substance use: The moderating effect of the relationship with the parent. *Journal of Family Psychology*, *11*(3), 259-270.
- Anorexia Nervosa and Related Eating Disorders. (2002a). *Eating disorders and pregnancy*. [On-line]. Retrieved August 2, 2002 from the World Wide Web: <http://www.anred.com>.
- Anorexia Nervosa and Related Eating Disorders. (2002b). *Males with eating disorders*. [On-line]. Retrieved April 10, 2003 from the World Wide Web: <http://www.anred.com>.
- Ary, D. V., Duncan, T. E., Duncan, S. C., & Hops, H. (1999). Adolescent problem behavior: The influence of parents and peers. *Behavior Research and Therapy*, *37*(3), 217-230.

- Austin, S. B., & Gortmaker, S. L. (2001). Dieting and smoking initiation in early adolescent girls and boys: A prospective study. *American Journal of Public Health, 91*(3), 446-450.
- Bamigboye, B., & Shakinovsky, T. (2003, January 10). Kate's digital diet. *Daily Mail*, 8-9.
- Bandura, A. (1977). *Social learning theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Barnes, G. M., & Farrell, M. P. (1992). Parental support and control as predictors of adolescent drinking, delinquency, and related problem behaviors. *Journal of Marriage and the Family, 54*(4), 763-776.
- BBC News. (1999). *TV brings eating disorders to Fiji*. [On-line]. Retrieved October 10, 2002 from the World Wide Web: <http://news.bbc.co.uk>.
- Beary, M. D., Lacey, J. H., & Merry, J. (1986). Alcoholism and eating disorders in women of fertile age. *British Journal of Addiction, 81*(5), 685-689.
- Bellafante, G. (2003, March 9). When midlife seems just an empty plate. *New York Times*, 9.1.
- Benard, B. (1991). *Fostering resiliency in kids: Protective factors in the family, school, and community*. Portland, OR: Northwest Regional Educational Laboratory.
- Berg, F. M. (1997). *Afraid to eat: Children and teens in weight crisis*. Hettinger, ND: Healthy Weight Journal.
- Betts, K. (2003, February 2). The man who makes the pictures perfect. *New York Times*, 9.1.
- Biederman, J., Faraone, S. V., Monuteaux, M. C., & Feighner, J. A. (2000). Patterns of alcohol and drug use in adolescents can be predicted by parental substance use disorders. *Pediatrics, 106*(4), 792-797.
- Blinder, B. J., & Chao, K. H. (1994). Eating disorders: A historical perspective. In L. Alexander-Mott & D. B. Lumsden (Eds.), *Understanding eating disorders: Anorexia nervosa, Bulimia nervosa, and obesity* (pp. 3-35). Washington, DC: Taylor and Francis.
- Brady, K. T., Killeen, T. K., Brewerton, T., & Lucerini, S. (2000). Comorbidity of psychiatric disorders and posttraumatic stress disorder. *Journal of Clinical Psychiatry, 61*(Suppl. 7), 22-32.
- Brady, K. T., & Sonne, S. C. (1999). The role of stress in alcohol use, alcoholism treatment, and relapse. *Alcohol Research and Health, 23*(4), 263-271.

- Braun, D. L., Sunday, S. R., Huang, A., & Halmi, K. A. (1999). More males seek treatment for eating disorders. *International Journal of Eating Disorders, 25*(4), 415-424.
- Brook, D. W., Brook, J. S., Richter, L., Whitemann, M., Win, P. T., Masci, J. R., et al. (1999). Coping strategies of HIV-positive and HIV-negative female injection drug users: A longitudinal study. *AIDS Education and Prevention, 11*(5), 373-388.
- Brumberg, J. J. (1988). *Fasting girls*. Cambridge, MA: Harvard University Press.
- Bulik, C. M. (1992). Abuse of drugs associated with eating disorders. *Journal of Substance Abuse, 4*(1), 69-90.
- Bulik, C. M., Sullivan, P. F., Carter, F. A., & Joyce, P. R. (1997). Lifetime comorbidity of alcohol dependence in women with bulimia nervosa. *Addictive Behaviors, 22*(4), 437-446.
- Burmeister, J. J., Lungren, E. M., & Neisewander, J. L. (2003). *Effects of fluoxetine and d-fenfluramine on cocaine-seeking behavior in rats*. [On-line]. Retrieved June 30, 2003 from the World Wide Web: <http://www.springer.de>.
- Bushnell, J. A., Wells, J. E., McKenzie, J. M., Hornblow, A. R., Oakley-Browne, M. A., & Joyce, P. R. (1994). Bulimia comorbidity in the general population and in the clinic. *Psychological Medicine, 24*(3), 605-611.
- Cabeza de Vaca, S., & Carr, K. D. (1998). Food restriction enhances the central rewarding effect of abused drugs. *Journal of Neuroscience, 18*(18), 7502-7510.
- Camp, D. E., Klesges, R. C., & Relyea, G. (1993). The relationship between body weight concerns and adolescent smoking. *Health Psychology, 12*(1), 24-32.
- Carlat, D. J., & Camargo, C. A. (1991). Review of bulimia nervosa in males. *American Journal of Psychiatry, 148*(7), 831-843.
- Carlat, D. J., Camargo, C. A., & Herzog, D. B. (1997). Eating disorders in males: A report on 135 patients. *American Journal of Psychiatry, 154*(8), 1127-1132.
- Carter, J. C., Stewart, D. A., Dunn, V. J., & Fairburn, C. G. (1997). Primary prevention of eating disorders: Might it do more harm than good? *Journal of Eating Disorders, 22*(2), 167-172.
- Casper, R. C. (2002). How useful are pharmacological treatments in eating disorders? *Psychopharmacology Bulletin, 36*(2), 88-104.
- Centers for Disease Control and Prevention. (2000). Youth risk behavior surveillance: United States 1999. *Morbidity and Mortality Weekly Report, 49*(SS-5).

- Centers for Disease Control and Prevention. (2002). Youth risk behavior surveillance: United States, 2001. *Morbidity and Mortality Weekly Report*, 51(SS-4).
- Cerbone, F. G., & Larison, C. L. (2000). A bibliographic essay: The relationship between stress and substance use. *Substance Use and Misuse*, 35(5), 757-786.
- Chandy, J. M., Harris, L., Blum, R. W., & Resnick, M. D. (1995). Female adolescents of alcohol misusers: Disordered eating features. *International Journal of Eating Disorders*, 17(3), 283-289.
- Chassin, L., Presson, C. C., Rose, J. S., & Sherman, S. J. (1998). Maternal socialization of adolescent smoking: Intergenerational transmission of smoking-related beliefs. *Psychology of Addictive Behaviors*, 12(3), 206-216.
- Clapper, R. L., Martin, C. S., & Clifford, P. R. (1994). Personality, social environment, and past behavior as predictors of late adolescent alcohol use. *Journal of Substance Abuse*, 6(3), 305-313.
- CNN.com. (1997). *Clinton decries "heroin chic" fashion look*. [On-line]. Retrieved October 15, 2002 from the World Wide Web: <http://cnn.com/allpolitics>.
- Cochrane, C., Malcolm, R., & Brewerton, T. (1998). The role of weight control as a motivator for cocaine abuse. *Addictive Behaviors*, 23(2), 201-207.
- Cohen, D. A., Richardson, J., & LaBree, L. (1994). Parenting behaviors and the onset of smoking and alcohol use: A longitudinal study. *Pediatrics*, 94(3), 368-375.
- Commonwealth Fund. (1997). *Facts on risky behaviors: The Commonwealth Fund Survey on the Health of Adolescent Girls* [Fact sheet]. New York: Commonwealth Fund.
- Connors, M. E., & Morse, W. (1993). Sexual abuse and eating disorders: A review. *International Journal of Eating Disorders*, 13(1), 1-11.
- Cooper, T. V., Klesges, R. C., Robinson, L. A., & Zbikowski, S. M. (2003). A prospective evaluation of the relationships between smoking dosage and body mass index in an adolescent, biracial cohort. *Addictive Behaviors*, 28(3), 501-512.
- Crandall, C. S. (1988). Social contagion of binge eating. *Journal of Personality and Social Psychology*, 55(4), 588-598.
- Crisp, A., Sedgwick, P., Halek, C., Joughin, N., & Humphrey, H. (1999). Why may teenage girls persist in smoking? *Journal of Adolescence*, 22(5), 657-672.
- Crum, R. M., & Anthony, J. C. (1993). Cocaine use and other suspected risk factors for obsessive-compulsive disorder: A prospective study with data from the

- Epidemiologic Catchment Area surveys. *Drug and Alcohol Dependence*, 31(3), 281-295.
- Dansky, B. S., Brewerton, T. D., & Kilpatrick, D. G. (2000). Comorbidity of bulimia nervosa and alcohol use disorders: Results from the National Women's Study. *International Journal of Eating Disorders*, 27(2), 180-190.
- Dansky, B. S., Brewerton, T. D., Kilpatrick, D. G., & O'Neil, P. M. (1997). The National Women's Study: Relationship of victimization and posttraumatic stress disorder to bulimia nervosa. *International Journal of Eating Disorders*, 21(3), 213-228.
- de Groot, J., & Rodin, G. M. (1999). The relationship between eating disorders and childhood trauma. *Psychiatric Annals*, 29(4), 225-229.
- DeBenedittis, P. (2003). *Media literacy for prevention: A science-based rationale*. [On-line]. Retrieved June 22, 2003 from the World Wide Web: <http://www.medialiteracy.net>.
- Deep, A. L., Lilenfeld, L. R., Plotnicov, K. H., Pollice, C., & Kaye, W. H. (1999). Sexual abuse in eating disorder subtypes and control women: The role of comorbid substance dependence in bulimia nervosa. *International Journal of Eating Disorders*, 25(1), 1-10.
- Delnevo, C. D., Hrywna, M., Abatemarco, D. J., & Lewis, M. J. (2003). Relationships between cigarette smoking and weight control in young women. *Family and Community Health*, 26(2), 140-146.
- Dewey, J. D. (1999). Reviewing the relationship between school factors and substance use for elementary, middle, and high school students. *Journal of Primary Prevention*, 19(3), 177-226.
- Dick, D. M., Rose, R. J., Viken, R. J., & Kaprio, J. (2000). Pubertal timing and substance use: Associations between and within families across late adolescence. *Developmental Psychology*, 36(2), 180-189.
- Dittrich, L. (1998). *About-Face facts on the media*. [On-line]. Retrieved January 4, 2001 from the World Wide Web: <http://www.about-face.org>.
- Douglass, H. M., Moffitt, T. E., Dar, R., McGee, R., & Silva, P. (1995). Obsessive-compulsive disorder in a birth cohort of 18-year-olds: Prevalence and predictors. *Journal of the American Academy of Child and Adolescent Psychiatry*, 34(11), 1424-1431.

- Eisen, J. L., & Rasmussen, S. A. (1989). Coexisting obsessive compulsive disorder and alcoholism. *Journal of Clinical Psychiatry*, *50*(3), 96-98.
- Fahy, T. A., Osacar, A., & Marks, I. (1993). History of eating disorders in female patients with obsessive-compulsive disorder. *International Journal of Eating Disorders*, *14*(4), 439-443.
- Fahy, T. A., & Treasure, J. (1991). Caffeine abuse in bulimia nervosa. *International Journal of Eating Disorders*, *10*(3), 373-377.
- Farkas, A. J., Distefan, J. M., Choi, W. S., Gilpin, E. A., & Pierce, J. P. (1999). Does parental smoking cessation discourage adolescent smoking? *Preventive Medicine*, *28*(3), 213-218.
- Fergusson, D. M., Horwood, L. J., & Lynskey, M. T. (1996). Childhood sexual abuse and psychiatric disorder in young adulthood: II. Psychiatric outcomes of childhood sexual abuse. *Journal of the American Academy of Child and Adolescent Psychiatry*, *34*(10), 1365-1374.
- Field, A. E., Austin, B., Frazier, A. L., Gillman, M. W., Camargo, C. A., & Colditz, G. A. (2002). Smoking, getting drunk, and engaging in bulimic behaviors: In which order are the behaviors adopted? *Journal of the American Academy of Child and Adolescent Psychiatry*, *41*(7), 846-853.
- Fletcher, A. C., & Jefferies, B. (1999). Parental mediators of associations between perceived authoritative parenting and early adolescent substance use. *Journal of Early Adolescence*, *19*(4), 465-487.
- Formea, G. M., & Burns, L. (1995). Relation between the syndromes of bulimia nervosa and obsessive compulsive disorder. *Journal of Psychopathology and Behavioral Assessment*, *17*(2), 167-176.
- Frank, R. E., Serdula, M. K., & Adame, D. (1991). Weight loss and bulimic eating behavior: Changing patterns within a population of young adult women. *Southern Medical Journal*, *84*(4), 457-460.
- Franko, D. L., & Orosan-Weine, P. (1998). The prevention of eating disorders: Empirical, methodological, and conceptual considerations. *Clinical Psychology: Science and Practice*, *5*(4), 459-477.
- Fraser, L. (1997). *Feat of fat: Why images of fat women are taboo*. [On-line]. Retrieved July 31, 2002 from the World Wide Web: <http://www.fair.org/extra>.
- French, S. A., Perry, C. L., Leon, G. R., & Fulkerson, J. A. (1994). Weight concerns, dieting behavior, and smoking initiation among adolescents: A prospective study. *American Journal of Public Health*, *84*(11), 1818-1820.

- French, S. A., Story, M., Downes, B., Resnick, M. D., & Blum, R. W. (1995). Frequent dieting among adolescents: Psychosocial and health behavior correlates. *American Journal of Public Health, 85*(5), 695-701.
- Friedman, I., Dar, R., & Shilony, E. (2000). Compulsivity and obsessionality in opioid addiction. *Journal of Nervous and Mental Disease, 188*(3), 155-162.
- Friedman, S. S. (1998). Girls in the 90s: A gender-based model for eating disorder prevention. *Patient Education and Counseling, 33*(3), 217-224.
- Fulkerson, J. A., & French, S. A. (2003). Cigarette smoking for weight loss or control among adolescents: Gender and racial/ethnic differences. *Journal of Adolescent Health, 32*(4), 306-313.
- George, V. A., & Johnson, P. (2001). Weight loss behaviors and smoking in college students of diverse ethnicity. *American Journal of Health Behavior, 25*(2), 115-124.
- Ghaderi, A., & Scott, B. (2000). Coping in dieting and eating disorders: A population-based study. *Journal of Nervous and Mental Disease, 188*(5), 273-279.
- Gold, M. S. (1992). Cocaine (and crack): Clinical aspects. In J. H. Lowinson, P. Ruiz, & R. B. Millman (Eds.), *Substance abuse: A comprehensive textbook* (pp. 205-221). Baltimore: Williams and Wilkens.
- Gold, M. S. (2003). Obesity and eating disorders [Editorial]. *Psychiatric Annals, 22*(3), 87-88, 90.
- Goldbloom, D. S. (1993). Alcohol misuse and eating disorders: Aspects of an association. *Alcohol and Alcoholism, 28*(4), 375-381.
- Goldbloom, D. S., Naranjo, C. A., Bremner, K. E., & Hicks, L. K. (1992). Eating disorders and alcohol abuse in women. *British Journal of Addiction, 87*(6), 913-920.
- Goode, E. (2003, June 22). How to talk to teenage girls about weight? Very carefully. *New York Times, 15.8*.
- Gorski, T. & Miller, M. (2003). *The phases and warning signs of relapse*. [On-line]. Retrieved July 18, 2003 from the World Wide Web: <http://www.webstree.ca>.
- Gorski, T. T., & Miller, M. (1982). *Counseling for relapse prevention*. Independence, MO: Herald House-Independence Press.

- Graber, J. A., & Brooks-Gunn, J. (1996a). Growing up female: Navigating body image, eating, and depression. *Journal of Emotional and Behavioral Problems, 5*(2), 76-80.
- Graber, J. A., & Brooks-Gunn, J. (1996b). Prevention of eating problems and disorders: Including parents. *Eating Disorders, 4*(4), 348-363.
- Granner, M. L., Abood, D. A., & Black, D. R. (2001). Racial differences in eating disorder attitudes, cigarette, and alcohol use. *American Journal of Health Behavior, 25*(2), 83-99.
- Gustafson-Larson, A. M., & Terry, R. D. (1992). Weight-related behaviors and concerns of fourth-grade children. *Journal of the American Dietetic Association, 92*(7), 818-822.
- Hall, S. M., Humfleet, G. L., Reus, V. I., Muñoz, R. F., Hartz, D. T., & Maude-Griffin, R. (2002). Psychological intervention and antidepressant treatment in smoking cessation. *Archives of General Psychiatry, 59*(10), 930-936.
- Halmi, K. A. (1994). Eating disorders: Anorexia nervosa, bulimia nervosa, and obesity. In R. E. Hales, S. C. Yudofsky, & J. A. Talbott (Eds.), *APP textbook of psychiatry*. (pp. 857-876). Washington, DC: American Psychiatric Press.
- Halmi, K. A., Sunday, S. R., Strober, M., Kaplan, A., Woodside, D. B., Fichter, M., et al. (2000). Perfectionism in anorexia nervosa: Variation by clinical subtype, obsessionality, and pathological eating behavior. *American Journal of Psychiatry, 157*(11), 1799-1805.
- Hamilton, L. H., Brooks-Gunn, J., & Warren, M. P. (1985). Sociocultural influences on eating disorders in professional female ballet dancers. *International Journal of Eating Disorders, 4*(4), 465-477.
- Harrell, J. S., Bangdiwala, S. I., Deng, S., Webb, J. P., & Bradley, C. (1998). Smoking initiation in youth: The roles of gender, race, socioeconomic, and developmental status. *Journal of Adolescent Health, 23*(5), 271-279.
- Harrison, K. (1997). Does interpersonal attraction to thin media personalities promote eating disorders? *Journal of Broadcasting and Electronic Media, 41*(4), 478-500.
- Harvard Eating Disorders Center. (2000). *Understanding eating disorders: Facts and findings*. [On-line]. Retrieved August 23, 2000 from the World Wide Web: <http://www.hedc.org>.
- Harvard Eating Disorders Center. (2001). *Full of ourselves: Advancing girl power, health and leadership*. [On-line]. Retrieved January 18, 2001 from the World Wide Web: <http://www.hedc.org>.

- Harvard Medical School. (1999). *Sharp rise in eating disorders in Fiji follows arrival of TV: After three years of Western programming, five times as many teenage girls report vomiting to control weight* [Press release]. Cambridge, MA: Harvard Medical School.
- Hatsukami, D., Owen, P., Pyle, R., & Mitchell, J. (1982). Similarities and differences on the MMPI between women with bulimia and women with alcohol or drug abuse problems. *Addictive Behaviors, 7*(4), 435-439.
- Haug, N. A., Heinberg, L. J., & Guarda, A. S. (2001). Cigarette smoking and its relationship to other substance use among eating disordered inpatients. *Eating and Weight Disorders, 6*(3), 130-139.
- Haworth-Hoepfner, S. (2000). The critical shapes of body image: The role of culture and family in the production of eating disorders. *Journal of Marriage and the Family, 62*(1), 212-227.
- Heatherton, T. F., Nichols, P., Mahamedi, F., & Keel, P. (1995). Body weight, dieting, and eating disorder symptoms among college students, 1982 to 1992. *American Journal of Psychiatry, 152*(11), 1623-1629.
- Hernandez, J. (1995). The concurrence of eating disorders with histories of child abuse among adolescents. *Journal of Child Sexual Abuse, 4*(3), 73-85.
- Herzog, D. B., Dorer, D. J., Keel, P. K., Selwyn, S. E., Ekeblad, E. R., Flores, A. T., et al. (1999). Recovery and relapse in anorexia and bulimia nervosa: A 7.5-year follow-up study. *Journal of the American Academy of Child and Adolescent Psychiatry, 38*(7), 829-837.
- Hodgkins, C. C., Jacobs, W. S., & Gold, M. S. (2003). Weight gain after adolescent drug addiction treatment and supervised abstinence. *Psychiatric Annals, 33*(2), 112-116.
- Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994a). Co-morbidity of eating disorders and substance abuse: Review of the literature. *International Journal of Eating Disorders, 16*(1), 1-34.
- Holderness, C. C., Brooks-Gunn, J., & Warren, M. P. (1994b). Eating disorders and substance use: A dancing vs. a nondancing population. *Medicine and Science in Sports and Exercise, 26*(3), 297-302.
- Horwitz, R. I., Brass, L. M., Kernan, W. N., & Viscoli, C. M. (2000). *Phenylpropanolamine and risk of hemorrhagic stroke: Final report of the Hemorrhagic Stroke Project*. [On-line]. Retrieved January 1, 2001 from the World Wide Web: <http://www.fda.gov>.

- Hudson, J. I., Weiss, R. D., Pope, H. G., McElroy, S. K., & Mirin, S. M. (1992). Eating disorders in hospitalized substance abusers. *American Journal of Alcohol Abuse, 18*(1), 75-85.
- Institute of Medicine. (1996). *Pathways of addiction: Opportunities in drug abuse research*. Washington, DC: National Academy Press.
- Jacobs, G. A., Jerome, A., Sayers, S., Spielberger, C. D., & Weinberg, H. (1988). Family smoking patterns and smoking among eighth and tenth grade students. *Applied Psychology: An International Review, 37*(3), 289-299.
- Jane, D. M., Hunter, G. C., & Lozzi, B. M. (1999). Do Cuban American women suffer from eating disorders? Effects of media exposure and acculturation. *International Journal of Eating Disorders, 21*(2), 212-218.
- Johnson, C., Powers, P. S., & Dick, R. (1999). Athletes and eating disorders: The National Collegiate Athletic Association Study. *International Journal of Eating Disorders, 26*(2), 179-188.
- Jonas, J. M., & Gold, M. S. (1987). Naltrexone treatment of bulimia: Clinical and theoretical findings linking eating disorders and substance abuse. *Advances in Alcohol and Substance Abuse, 7*(1), 29-37.
- Jonas, J. M., Gold, M. S., Sweeney, D., & Pottash, A. L. C. (1987). Eating disorders and cocaine abuse: A survey of 259 cocaine abusers. *Journal of Clinical Psychology, 48*(2), 47-50.
- Kandel, D. B. (1985). On processes of peer influences in adolescent drug use: A developmental perspective. *Advances in Alcohol and Substance Abuse, 4*(3/4), 139-163.
- Kandel, D. B. (1996). The parental and peer contexts of adolescent deviance: An algebra of interpersonal influences. *Journal of Drug Issues, 26*(2), 289-315.
- Kaplan, H. I., & Sadock, B. J. (1998). *Synopsis of psychiatry* (8th ed.). Baltimore, MD: Williams and Wilkins.
- Kater, K. J., Rohwer, J., & Levine, M. P. (2000). An elementary school project for developing healthy body image and reducing risk factors for unhealthy and disordered eating. *Eating Disorders, 8*(1), 3-16.
- Katz, J. L. (1990a). Eating disorders: A primer for the substance abuse specialist: 1. Clinical features. *Journal of Substance Abuse Treatment, 7*(3), 143-149.
- Katz, J. L. (1990b). Eating disorders: A primer for the substance abuse specialist: 2. Theories of etiology, treatment approaches, and considerations during co-

- morbidity with substance abuse. *Journal of Substance Abuse Treatment*, 7(4), 211-217.
- Katzman, M. A., Greenberg, A., & Marcus, I. D. (1991). Bulimia in opiate-addicted women: Developmental cousin and relapse factor. *Journal of Substance Abuse Treatment*, 8(3), 107-112.
- Kaye, W. H., Weltzin, T., & Hsu, G. (1993). Relationship between anorexia nervosa and obsessive and compulsive behaviors. *Psychiatric Annals*, 23(7), 365-373.
- Kaye, W. H., & Wisniewski, L. (1996). Vulnerability to substance abuse in eating disorders. In H. W. Gordon & M. D. Glantz (Eds.), *Individual differences in the biobehavioral etiology of drug abuse: NIDA research monograph 159* (pp. 269-311). Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse.
- Keel, P. K., Dorer, D. J., Eddy, K. T., Franko, D., Charatan, D. L., & Herzog, D. B. (2003). Predictors of mortality in eating disorders. *Archives of General Psychiatry*, 60(2), 179-183.
- Keel, P. K., Klump, K. L., Leon, G. R., & Fulkerson, J. A. (1998). Disordered eating in adolescent males from a school-based sample. *International Journal of Eating Disorders*, 23(2), 125-132.
- Kendler, K. S., Bulik, C. M., Silberg, J., Hettema, J. M., Myers, J., & Prescott, C. A. (2000). Childhood sexual abuse and adult psychiatric and substance use disorders in women: An epidemiological and co-twin control analysis. *Archives of General Psychiatry*, 57(10), 953-959.
- Kennedy, S. H., Kaplan, A. S., Garfinkel, P. E., Rockert, E., Toner, B., & Abbey, S. E. (1994). Depression in anorexia nervosa and bulimia nervosa: Discriminating depressive symptoms and episodes. *Journal of Psychosomatic Research*, 38(7), 773-782.
- Kilbourne, J. (1994). Still killing us softly: Advertising and the obsession with thinness. In P. Fallon, M. A. Katzman, & S. C. Wooley (Eds.), *Feminist perspectives on eating disorders* (pp. 395-418). New York: Guilford Press.
- Kilbourne, J. (1999). *Deadly persuasion*. New York: Free Press.
- Klesges, R. C., Meyers, A. W., Klesges, L. M., & La Vasque, M. E. (1989). Smoking, body weight and their effects on smoking behavior: A comprehensive review of the literature. *Psychological Bulletin*, 106(2), 204-230.

- Krahn, D., Kurth, C., Demitrack, M., & Drewnowski, A. (1992). The relationship of dieting severity and bulimic behaviors to alcohol and other drug use in young women. *Journal of Substance Abuse, 4*(4), 341-353.
- Krahn, D. D. (1991). The relationship of eating disorders and substance abuse. *Journal of Substance Abuse, 3*(2), 239-253.
- Kumpfer, K. L. (2001). *Identification of drug abuse prevention programs: Literature review*. [On-line]. Retrieved August 15, 2001 from the World Wide Web: <http://www.drugabuse.gov>.
- Lacey, J. H., & Moureli, E. (1986). Bulimic alcoholics: Some features of a clinical subgroup. *British Journal of Addiction, 81*(3), 389-393.
- Laessle, R. G., Kittl, S., Fichter, M. M., & Pirke, K. M. (1988). Cognitive correlates of depression in patients with eating disorders. *International Journal of Eating Disorders, 7*(5), 681-686.
- Leibowitz, S. F. (1980). Neurochemical systems of the hypothalamus: Control of feeding and drinking behavior and water electrolyte excretion. In P. J. Morgane & J. Panksepp (Eds.), *Handbook of the hypothalamus: Vol. 3, part A: Behavioral studies of the hypothalamus* (pp. 299-437). New York: Marcel Dekker.
- Levine, M. P., & Smolak, L. (1992). Toward a model of the developmental psychopathology of eating disorders: The example of early adolescence. In J. H. Crowther, D. L. Tennenbaum, S. E. Hobfoll, & M. A. P. Stephens (Eds.), *Etiology of bulimia nervosa: The individual and familial context* (pp. 59-80). Washington, DC: Hemisphere.
- Levine, M. P., Smolak, L., & Hayden, H. (1994). The relation of sociocultural factors to eating attitudes and behaviors among middle school girls. *Journal of Early Adolescence, 14*(4), 471-490.
- Levy, A. B., Dixon, K. N., & Stern, S. L. (1989). How are depression and bulimia related? *American Journal of Psychiatry, 146*(2), 162-169.
- Lewinsohn, P. M., Striegel-Moore, R. H., & Seeley, J. R. (2000). Epidemiology and natural course of eating disorders in young women from adolescence to young adulthood. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*(10), 1284-1292.
- Malina, A., Gaskill, J., McConaha, C., Frank, G. K., LaVia, M., Scholar, L., et al. (2003). Olanzapine treatment of anorexia nervosa: A retrospective study. *International Journal of Eating Disorders, 33*(2), 234-237.

- Mann, T., Nolen-Hoeksema, S., Huang, K., Burgard, D., Wright, A., & Hanson, K. (1997). Are two interventions worse than none? Joint primary and secondary prevention of eating disorders in college females. *Health Psychology, 16*(3), 215-225.
- Marcus, R. N., & Katz, J. L. (1990). Inpatient care of the substance-abusing patient with a concomitant eating disorder. *Hospital and Community Psychiatry, 41*(1), 59-63.
- Marsh, L. D., Key, J. D., & Spratt, E. (1997). Bulimia and dextromethorphan abuse: A case study. *Journal of Substance Abuse Treatment, 14*(4), 373-376.
- Martin, C., Logan, T. K., Leukefeld, C., Milich, R., Omar, H., & Clayton, R. (2001). Adolescent and young adult substance use: Associated with sensation seeking, self esteem and retrospective report of early pubertal onset: A preliminary examination. *International Journal of Adolescent Medicine and Health, 13*(3), 211-219.
- McKnight Investigators. (2003). Risk factors for the onset of eating disorders in adolescent girls: Results of the McKnight Longitudinal Risk Factor Study. *American Journal of Psychiatry, 160*(2), 248-254.
- McLean, L. M., & Gallop, R. (2003). Implications of childhood sexual abuse for adult borderline personality disorder and complex posttraumatic stress disorder. *American Journal of Psychiatry, 160*(2), 369-371.
- Merikangas, K. R., Mehta, R. L., Molnar, B. E., Walters, E. E., Swendsen, J. D., Aguilar-Gaziola, S., et al. (1998). Comorbidity of substance use disorders with mood and anxiety disorders: Results of the International Consortium in Psychiatric Epidemiology. *Addictive Behaviors, 23*(6), 893-907.
- Miller, W. R. (1993). Behavioral treatments for drug problems: Lessons from the alcohol treatment outcome literature. In L. S. Onken, J. D. Blaine, & J. J. Boren (Eds.), *Behavioral treatments for drug abuse and dependence: NIDA research monograph 137* (NIH Pub. No. 93-3684) (pp. 167-180). Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute on Drug Abuse.
- Miller, W. R., & Harris, R. J. (2000). A simple scale of Gorski's warning signs for relapse. *Journal of Studies on Alcohol, 61*(5), 759-765.
- Mintz, L. B., & Betz, N. E. (1988). Prevalence and correlates of eating disordered behaviors among undergraduate women. *Journal of Counseling Psychology, 35*(4), 463-471.
- Mitchell, J. E., Hatsukami, D., Pyle, R., & Eckert, E. (1988). Bulimia with and without a family history of drug abuse. *Addictive Behaviors, 13*(3), 245-251.

- Mitchell, J. E., Pyle, R. L., Specker, S., & Hanson, K. (1992). Eating disorders and chemical dependency. In J. Yager, H. E. Gwirtsman, & C. K. Edelstein (Eds.), *Special problems in managing eating disorders* (pp. 1-14). Washington, DC: American Psychiatric Press.
- Mrazek, P. J., & Haggerty, R. J. (Eds.). (1994). *Reducing risks of mental disorders: Frontiers for preventive intervention research*. Washington, DC: National Academy Press.
- Naranjo, C. A., Kadlec, K. E., Sanhueza, P., Woodley-Remus, D., & Sellers, E. M. (1990). Fluoxetine differentially alters alcohol intake and other consummatory behaviors in problem drinkers. *Clinical Pharmacology and Therapeutics*, 47(4), 490-498.
- National Center for Chronic Disease Prevention and Health Promotion. (2002a). *Defining overweight and obesity*. [On-line]. Retrieved July 24, 2002 from the World Wide Web: <http://www.cdc.gov/nccdphp/dnpa/>.
- National Center for Chronic Disease Prevention and Health Promotion. (2002b). *Division of Adolescent and School Health home page*. [On-line]. Retrieved October 11, 2002 from the World Wide Web: <http://www.cdc.gov/nccdphp/dash>.
- National Center for Health Statistics. (2002). *Overweight prevalence*. [On-line]. Retrieved July 24, 2002 from the World Wide Web: <http://www.cdc.gov/nchs>.
- National Eating Disorders Association. (2002a). *Health consequences of eating disorders*. [On-line]. Retrieved July 25, 2002 from the World Wide Web: <http://www.nationaleatingdisorders.org>.
- National Eating Disorders Association. (2002b). *Statistics: Eating disorders and their precursors*. [On-line]. Retrieved December 1, 2000 from the World Wide Web: <http://www.nationaleatingdisorders.org>.
- National Institute on Alcohol Abuse and Alcoholism. (2000). *Tenth special report to the U.S. Congress on alcohol and health: Highlights from current research from the Secretary of Health and Human Services* (NIH Pub. No. 00-1583). Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism.
- National Soft Drink Association. (1999). *Caffeine in soft drinks*. [On-line]. Retrieved October 15, 2002 from the World Wide Web: <http://www.nsda.org>.
- Nehlig, A. (1999). Does caffeine lead to psychological dependence? *Chemtech*, 29(7), 30-35.

- Nelson, W. L., Hughes, H. M., Katz, B., & Searight, H. R. (1999). Anorexic eating attitudes and behaviors of male and female college students. *Adolescence, 34*(135), 621-633.
- Neuman, P. A., & Halvorson, P. A. (1983). *Anorexia nervosa and bulimia: A handbook for counselors and therapists*. New York: Van Norstrand Reinhold.
- Neumark-Sztainer, D. (1996). School-based programs for preventing eating disturbances. *Journal of School Health, 66*(2), 64-71.
- O'Brien, K. M., & Vincent, N. K. (2003). Psychiatric comorbidity in anorexia and bulimia nervosa: Nature, prevalence and causal relationships. *Clinical Psychology Review, 23*, 57-74.
- Oetting, E. R., Donnermeyer, J. F., & Deffenbacher, J. L. (1998). Primary socialization theory: The influence of the community on drug use and deviance. *Substance Use and Misuse, 33*(8), 1629-1665.
- Office of Applied Studies. (2003). *Overview of findings from the 2002 National Survey on Drug Use and Health* (DHHS Pub. No. (SMA) 03-3774). Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Office of Applied Studies.
- Office of the Surgeon General. (2001). *Women and smoking: A report of the Surgeon General* (GPO Item No. 0483-L-06). Washington, DC: U.S. Government Printing Office.
- Ogden, J., & Fox, P. (1994). Examination of the use of smoking for weight control in restrained and unrestrained eaters. *International Journal of Eating Disorders, 16*(2), 177-185.
- Ogletree, S. M., Williams, S. W., Raffeld, P., Mason, B., & Fricke, K. (1990). Female attractiveness and eating disorders: Do children's television commercials play a role? *Sex Roles, 22*(11/12), 791-797.
- Oregon Health and Science University, Department of Medicine, Health Promotion and Sport Medicine. (2003). *Athena: Athletes Targeting Healthy Exercise and Nutrition Alternatives web site*. [On-line]. Retrieved April 10, 2003 from the World Wide Web: <http://www.ohsu.edu/som-hpsm/athena.html>.
- Ouellette, J. A., Gerrard, M., Gibbons, F. X., & Reis-Bergan, M. (1999). Parents, peers, and prototypes: Antecedents of adolescent alcohol expectancies, alcohol consumption, and alcohol-related life problems in rural youth. *Psychology of Addictive Behaviors, 13*(3), 183-197.

- Perez, M., Voelz, Z. R., Pettit, J. W., & Joiner, T. E. (2002). The role of acculturative stress and body dissatisfaction in predicting bulimic symptomatology across ethnic groups. *International Journal of Eating Disorders, 31*(4), 442-454.
- Perkins, K. A. (1992). Effects of tobacco smoking on caloric intake. *British Journal of Addiction, 87*(2), 193-205.
- Perkins, K. A. (2001). Smoking cessation in women: Special considerations. *CNS Drugs, 15*(5), 391-411.
- Perry, C. L., Luepker, R. V., Murray, D. M., Hearn, M. D., Halper, A., Dudovitz, B., et al. (1989). Parent involvement with children's health promotion: A one-year follow-up of the Minnesota Home Team. *Health Education Quarterly, 16*(2), 171-180.
- Picard, C. L. (1999). The level of competition as a factor for the development of eating disorders in female collegiate athletes. *Journal of Youth and Adolescence, 28*(5), 583-594.
- Picciotto, M. R., Brunzell, D. H., & Caldarone, B. J. (2002). Effect of nicotine and nicotinic receptors on anxiety and depression. *NeuroReport, 13*(9), 1097-1106.
- Pike, K. M., & Rodin, J. (1991). Mothers, daughters, and disordered eating. *Journal of Abnormal Psychology, 100*(2), 198-204.
- Pike, K. M., & Walsh, B. T. (1996). Ethnicity and eating disorders: Implications for incidence and treatment. *Psychopharmacology Bulletin, 32*(2), 265-274.
- Pirie, P. L., Murray, D. M., & Luepker, R. V. (1991). Gender differences in cigarette smoking and quitting in a cohort of young adults. *American Journal of Public Health, 81*(3), 324-327.
- Prescott, C. A., Neale, M. C., Corey, L. A., & Kendler, K. S. (1997). Predictors of problem drinking and alcohol dependence in a population-based sample of female twins. *Journal of Studies on Alcohol, 58*(2), 167-181.
- Prokopčáková, A. (1998). Drug experimenting and pubertal maturation in girls. *Studia Psychologica, 40*(4), 287-290.
- Pumariega, A. J., Gustavson, C. R., Gustavson, J. C., & Motes, P. S. (1996). Eating attitudes in African-American women: The Essence Eating Disorders Survey. *Eating Disorders, 2*(1), 5-16.
- Richter, L., & Richter, D. M. (2001). Exposure to parental tobacco and alcohol use: Effects on children's health and development. *American Journal of Orthopsychiatry, 71*(2), 182-203.

- Rosen, D. S., & Neumark-Sztainer, D. (1998). Review of options for primary prevention of eating disturbances among adolescents. *Journal of Adolescent Health, 23*(6), 354-363.
- Rosenvinge, J. H., Martinussen, M., & Østensen, E. (2000). The comorbidity of eating disorders and personality disorders: A meta-analytic review of studies published between 1983 and 1998. *Eating Weight Disorders, 5*(2), 52-61.
- Ross, H. E., & Ivis, F. (1999). Binge eating and substance use among male and female adolescents. *International Journal of Eating Disorders, 26*(3), 245-260.
- Ross-Durow, P. L., & Boyd, C. J. (2000). Sexual abuse, depression, and eating disorders in African American women who smoke cocaine. *Journal of Substance Abuse Treatment, 18*(1), 79-81.
- Russell, C. J., & Keel, P. K. (2002). Homosexuality as a specific risk factor for eating disorders in men. *International Journal of Eating Disorders, 31*(3), 300-306.
- Samet, J. M., & Yoon, S. Y. (2001). *Women and the tobacco epidemic: Challenges for the 21st century*. Geneva, Switzerland: World Health Organization, Institute for Global Tobacco Control, Johns Hopkins School of Public Health.
- Sands, R., Tricker, J., Sherman, C., Armatas, C., & Maschette, W. (1997). Disordered eating patterns, body image, self-esteem, and physical activity in preadolescent school children. *International Journal of Eating Disorders, 21*(2), 159-166.
- Sansone, R. A., & Sansone, L. A. (1994). Bulimia nervosa: Medical complications. In L. Alexander-Mott & D. B. Lumsden (Eds.), *Understanding eating disorders: Anorexia nervosa, bulimia nervosa, and obesity* (pp. 181-201). Washington, DC: Taylor and Francis.
- Sarason, I. G., & Sarason, B. R. (1993). *Abnormal psychology: The problem of maladaptive behavior* (7th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Schachter, S. (1951). Deviation, rejection, and communication. *Journal of Abnormal and Social Psychology, 46*, 190-207.
- Scheir, L. M., Botvin, G. J., Griffin, K. W., & Diaz, T. (2000). Dynamic growth models of self-esteem and adolescent alcohol use. *Journal of Early Adolescence, 20*(2), 178-209.
- Schoen, C., Davis, K., Collins, K. S., Greenberg, L., & Des Roches, C. A. M. (1997). *The Commonwealth Fund Survey of the Health of Adolescent Girls*. New York: Commonwealth Fund.

- Schreiber, G. B., Robins, M., Striegel-Moore, R., Obarzanek, E., Morrison, J. A., & Wright, D. J. (1996). Weight modification efforts reported by black and white preadolescent girls: National Heart, Lung, and Blood Institute Growth and Health Study. *Pediatrics*, *98*(1), 63-70.
- Schuckit, M. A., Tipp, J. E., Anthenelli, R. M., Bucholz, K. K., Hesselbrock, V. M., & Nurnberger, J. I. (1996). Anorexia nervosa and bulimia nervosa in alcohol-dependent men and women and their relatives. *American Journal of Psychiatry*, *153*(1), 74-82.
- Seid, R. P. (1994). Too "close to the bone": The historical context for women's obsession with slenderness. In P. Fallon, M. A. Katzman, & S. C. Wooley (Eds.), *Feminist perspectives on eating disorders* (pp. 3-16). New York: Guilford Press.
- Shekelle, P., Hardy, M., Morton, S. C., Maglione, M., Suttrop, M., Roth, E., et al. (2003). *Ephedra and ephedrine for weight loss and athletic performance enhancement: Clinical efficacy and side effects*. [On-line]. Retrieved March 11, 2003 from the World Wide Web: <http://www.fda.gov>.
- Sher, K. J., & Trull, T. J. (2003). Substance use disorder and personality disorder. *Current Psychiatry Reports*, *4*(1), 25-29.
- Silverstein, B., Perdue, L., Peterson, B., & Kelly, E. (1986). The role of the mass media in promoting a thin standard of bodily attractiveness for women. *Sex Roles*, *14*(9/10), 519-532.
- Silverstone, P. H. (1992). Is chronic low self-esteem the cause of eating disorders? *Medical Hypotheses*, *39*(4), 311-315.
- Simons-Morton, B., Haynie, D. L., Crump, A. D., Eitel, P., & Saylor, K. E. (2001). Peer and parent influences on smoking and drinking among early adolescents. *Health Education and Behavior*, *28*(1), 95-107.
- Sinha, R., & O'Malley, S. S. (2000). Alcohol and eating disorders: Implications for alcohol treatment and health services research. *Alcohol: Clinical and Experimental Research*, *24*(8), 1312-1319.
- Sloboda, Z., & David, S. L. (1997). *Preventing drug use among children and adolescents: A research-based guide* (NIH Pub. No. 97-4212). Rockville, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Institute on Drug Abuse.
- Smolak, L., & Levine, M. P. (1994). Toward an empirical basis for primary prevention of eating problems with elementary school children. *Eating Disorders*, *2*(4), 293-307.

- Smolak, L., Levine, M. P., & Gralen, S. (1993). The impact of puberty and dating on eating problems among middle school girls. *Journal of Youth and Adolescence*, 22(4), 355-368.
- Smolak, L., Murnen, S. K., & Ruble, A. E. (2000). Female athletes and eating problems: A meta-analysis. *International Journal of Eating Disorders*, 27(4), 371-380.
- Specker, S., Westermeyer, J., & Thuras, P. (2000). Course and severity of substance abuse in women with comorbid eating disorder. *Substance Abuse*, 21(3), 137-147.
- Steiner-Adair, C. (1994). The politics of prevention. In P. Fallon, M. A. Katzman, & S. Wooley (Eds.), *Feminist perspectives on eating disorders* (pp. 381-394). New York: Guilford Press.
- Stewart, S. H., Angelopoulos, M., Baker, J. M., & Boland, F. J. (2000). Relations between dietary restraint and patterns of alcohol use in young adult women. *Psychology of Addictive Behaviors*, 14(1), 77-82.
- Stice, E., Killen, J. D., Hayward, C., & Taylor, C. B. (1998). Age of onset for binge eating and purging during late adolescence: A 4-year survival analysis. *Journal of Abnormal Psychology*, 107(4), 671-675.
- Stice, E., Mazotti, L., Weibel, D., & Agras, W. S. (2000). Dissonance prevention program decreases thin-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms: A preliminary experiment. *International Journal of Eating Disorders*, 27(2), 206-217.
- Stice, E., & Shaw, H. E. (1994). Adverse effects of the media portrayed thin-ideal on women and linkages to bulimic symptomatology. *Journal of Social and Clinical Psychology*, 13(3), 288-308.
- Stice, E., & Shaw, H. (2003). Prospective relations of body image, eating, and affective disturbances to smoking onset in adolescent girls: How Virginia slims. *Journal of Consulting and Clinical Psychology*, 71(1), 129-135.
- Stotland, N. L. (1994). Women and psychiatry. In R. E. Hales, S. C. Yudofsky, & J. A. Talbott (Eds.), *APP textbook of psychiatry* (pp. 1355-1378). Washington, DC: American Psychiatric Press.
- Striegel-Moore, R., & Smolak, L. (1996). The role of race in the development of eating disorders. In L. Smolak, M. P. Levine, & R. Striegel-Moore (Eds.), *The developmental psychopathology of eating disorders: Implications for research, prevention, and treatment* (pp. 259-284). Mahwah, NJ: Lawrence Erlbaum.
- Striegel-Moore, R. H., Garvin, V., Dohm, F. A., & Rosenheck, R. A. (1999a). Eating disorders in a national sample of hospitalized female and male veterans: Detection

- rates and psychiatric comorbidity. *International Journal of Eating Disorders*, 25(4), 405-414.
- Striegel-Moore, R. H., Garvin, V., Dohm, F. A., & Rosenheck, R. A. (1999b). Psychiatric comorbidity of eating disorders in men: A national study of hospitalized veterans. *International Journal of Eating Disorders*, 25(4), 399-404.
- Striegel-Moore, R. H., Schreiber, G. B., Lo, A., Crawford, P., Obarzanek, E., & Rodin, J. (2000). Eating disorder symptoms in a cohort of 11 to 16-year-old black and white girls: The NHLBI Growth and Health Study. *International Journal of Eating Disorders*, 27(1), 49-66.
- Strober, M., Freeman, R., Bower, S., & Rigali, J. (1996). Binge eating in anorexia nervosa predicts later onset of substance use disorder: A ten-year prospective, longitudinal follow-up of 95 adolescents. *Journal of Youth and Adolescence*, 25(4), 519-532.
- Strong, S. M., Williamson, D. A., Netemeyer, R. G., & Geer, J. H. (2000). Eating disorder symptoms and concerns about body differ as a function of gender and sexual orientation. *Journal of Social and Clinical Psychology*, 19(2), 240-255.
- Substance Abuse and Mental Health Services Administration. (1997). *Drugs of abuse: Categories, descriptions, effects, symptoms of overdose, withdrawal symptoms, and indications of misuse*. Rockville, MD: U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration.
- Sullivan, P. F. (1995). Mortality in anorexia nervosa. *American Journal of Psychiatry*, 152(7), 1073-1074.
- Sussman, S., & Dent, C. W. (2000). One-year prospective prediction of drug use from stress-related variables. *Substance Use and Misuse*, 35(5), 717-735.
- Sutherland, L. A., Weaver, S. N., McPeake, J. D., & Quimby, C. D. (1993). The Beech Hill Hospital Eating Disorders Treatment Program for Drug Dependent Females: Program description and case analysis. *Journal of Substance Abuse Treatment*, 10(5), 473-481.
- Suzuki, K., Takeda, A., & Matsushita, S. (1995). Coprevalence of bulimia with alcohol abuse and smoking among Japanese male and female high school students. *Addiction*, 90(7), 971-975.
- Tarter, R., Vanyukov, M., Giancola, P., Dawes, M., Blackson, T., Mezzich, A., et al. (1999). Etiology of early age onset substance use disorder: A maturational perspective. *Development and Psychopathology*, 11(4), 657-683.

- Taylor, C. B., Sharpe, T., Shisslak, C., Bryson, S., Estes, L. S., Gray, N., et al. (1998). Factors associated with weight concerns in adolescent girls. *International Journal of Eating Disorders*, 24(1), 31-40.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (1999). *Back to school 1999: National survey of American attitudes on substance abuse V: Teens and their parents*. New York: The National Center on Addiction and Substance Abuse (CASA) at Columbia University.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2000). *Winning at any cost: Doping in Olympic sports*. New York: The National Center on Addiction and Substance Abuse (CASA) at Columbia University.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001a). *CASACONFERENCE: Food for thought: Substance abuse and eating disorders* [Transcript]. Unpublished manuscript.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001b). *Malignant neglect: Substance abuse and America's schools*. New York: The National Center on Addiction and Substance Abuse (CASA) at Columbia University.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2001c). *The national survey of American attitudes on substance abuse VI: Teens*. New York: The National Center on Addiction and Substance Abuse (CASA) at Columbia University.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2002a). *CASA analysis of the Youth Risk Behavior Survey (YRBS), 1999* [Data file]. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2002b). *CASA analysis of the Youth Risk Behavior Survey (YRBS), 2001* [Data file]. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion.
- The National Center on Addiction and Substance Abuse (CASA) at Columbia University. (2003). *The formative years: Pathways to substance abuse among girls and young women ages 8-22*. New York: The National Center on Addiction and Substance Abuse (CASA) at Columbia University.

- Thiel, A., Brooks, A., Ohlmeier, M., Jacoby, G. E., & Schüssler, G. (1995). Obsessive-compulsive disorder among patients with anorexia nervosa and bulimia nervosa. *American Journal of Psychiatry*, *152*(1), 72-75.
- Thiel, A., Züger, M., Jacoby, G. E., & Schüssler, G. (1998). Thirty-month outcome in patients with anorexia or bulimia nervosa and concomitant obsessive-compulsive disorder. *American Journal of Psychiatry*, *155*(2), 244-249.
- Thompson, J. K., & Heinberg, L. J. (1999). The media's influence on body image disturbance and eating disorders: We've reviled them, now can we rehabilitate them? *Journal of Social Issues*, *55*(2), 339-353.
- Thompson, R. A., & Sherman, R. T. (1999). Athletes, athletic performance, and eating disorders: Healthier alternatives. *Journal of Social Issues*, *55*(2), 317-337.
- Timmerman, M. G., Wells, L. A., & Chen, S. (1990). Bulimia nervosa and associated alcohol abuse among secondary school students. *Journal of the American Academy of Child and Adolescent Psychiatry*, *29*(1), 118-122.
- Tomeo, C. A., Field, A. E., Berkey, C. S., Colditz, G. A., & Frazier, A. L. (1999). Weight concerns, weight control behaviors, and smoking initiation. *Pediatrics*, *104*(4), 918-924.
- Tomotake, M., & Ohmori, T. (2002). Personality profiles in patients with eating disorders. *Journal of Medical Investigation*, *49*(3-4), 87-96.
- Troop, N. A., & Treasure, J. L. (1997). Psychosocial factors in the onset of eating disorders: Responses to life-events and difficulties. *British Journal of Medical Psychology*, *70*(4), 373-385.
- Tschann, J. M., Adler, N. E., Irwin Jr., C. E., Millstein, S. G., Turner, R. A., & Kegeles, S. M. (1994). Initiation of substance use in early adolescence: The roles of pubertal timing and emotional distress. *Health Psychology*, *13*(4), 326-333.
- U.S. Food and Drug Administration. (2003). *HHS acts to reduce potential risks of dietary supplements containing ephedra* [Press release]. Rockville, MD: U.S. Department of Health and Human Services, U.S. Food and Drug Administration.
- U.S. Food and Drug Administration, Office of Public Affairs. (2003). *Evidence on the safety and effectiveness of ephedra: Implications for regulation*. [On-line]. Retrieved March 14, 2003 from the World Wide Web: <http://www.fda.gov>.
- Underwood, N. (2000, August 14). Body envy: Thin is in and people are messing with mother nature as never before. *Macleans*, *113*(33), 36-40.

- Vastag, B. (2001). What's the connection? No easy answer for people with eating disorders and drug abuse [Editorial]. *JAMA*, 285(8), 1006-1007.
- Volpicelli, J. R. (2002). *Medications in the treatment of alcohol addiction*. [On-line]. Retrieved October 23, 2002 from the World Wide Web: <http://www.alcoholmd.com>.
- von Ranson, K. M., Iacono, W. G., & McGue, M. (2002). Disordered eating and substance use in an epidemiological sample: 1. Associations within individuals. *International Journal of Eating Disorders*, 31, 389-403.
- von Ranson, K. M., Kaye, W. H., Weltzin, T. E., Rao, R., & Matsunaga, H. (1999). Obsessive-compulsive disorder symptoms before and after recovery from bulimia nervosa. *American Journal of Psychiatry*, 156(11), 1703-1708.
- von Ranson, K. M., McGue, M., & Iacono, W. G. (2003). Disordered eating and substance use in an epidemiological sample: 2. Associations within families. *Psychology of Addictive Behaviors*, 17(3), 193-202.
- Voorhees, C. C., Schreiber, G. B., Schumann, B. C., Biro, F., & Crawford, P. B. (2002). Early predictors of daily smoking in young women: The National Heart, Lung, and Blood Institute Growth and Health Study. *Preventive Medicine*, 34(6), 616-624.
- Wade, T. D., Bulik, C. M., Neale, M., & Kendler, K. S. (2000). Anorexia nervosa and major depression: Shared genetic and environmental risk factors. *American Journal of Psychiatry*, 157(3), 469-471.
- Wagner, E. F., Myers, M. G., & McIninch, J. L. (1999). Stress-coping and temptation-coping as predictors of adolescent substance use. *Addictive Behaviors*, 24(6), 769-779.
- Walfish, S., Stenmark, D. E., Sarco, D., Shealy, J. S., & Krone, A. M. (1992). Incidence of bulimia in substance misusing women in residential treatment. *International Journal of the Addictions*, 27(4), 425-433.
- Wang, G. J., Volkow, N. D., Logan, J., Pappas, N. R., Wong, C. T., Zhu, W., et al. (2001). Brain dopamine and obesity. *Lancet*, 357(9253), 354-357.
- Wang, G. J., Volkow, N. D., Thanos, P. K., & Fowler, J. S. (2003). Positron emission tomographic evidence of similarity between obesity and drug addiction. *Psychiatric Annals*, 33(2), 104-111.
- Watts, W. D., & Ellis, A. M. (1992). Drug abuse and eating disorders: Prevention and implications. *Journal of Drug Education*, 22(3), 223-240.

- Wee, C. C., Rigotti, N. A., Davis, R. B., & Phillips, R. S. (2001). Relationship between smoking and weight control efforts among adults in the United States. *Archives of Internal Medicine, 161*(4), 546-550.
- Welch, S. L., & Fairburn, C. G. (1998). Smoking and bulimia nervosa. *International Journal of Eating Disorders, 23*(4), 433-437.
- Wichstrøm, L. (2001). The impact of pubertal timing on adolescents' alcohol use. *Journal of Research on Adolescence, 11*(2), 131-150.
- Wiederman, M. W., & Pryor, T. (1996a). Substance use among women with eating disorders. *International Journal of Eating Disorders, 20*(2), 163-168.
- Wiederman, M. W., & Pryor, T. (1996b). Substance use and impulsive behaviors among adolescents with eating disorders. *Addictive Behaviors, 21*(2), 269-272.
- Wiesner, M., & Ittel, A. (2002). Relations of pubertal timing and depressive symptoms to substance use in early adolescence. *Journal of Early Adolescence, 22*(1), 5-23.
- Williams, J. (2002, June 6). Zellweger too zaftig? It's "Bazaar." *USA Today*, D2.
- Wills, T. A. (1986). Stress and coping in early adolescence: Relationships to substance use in urban school samples. *Health Psychology, 5*(6), 503-529.
- Wills, T. A., Vacarro, D., & McNamara, G. (1992). The role of life events, family support, and competence in adolescent substance use: A test of vulnerability and protective factors. *American Journal of Community Psychology, 20*(3), 349-374.
- Wilsnack, S. C., Vogeltanz, N. D., Klassen, A. D., & Harris, T. R. (1997). Childhood sexual abuse and women's substance abuse: National survey findings. *Journal of Studies on Alcohol, 58*(3), 264-271.
- Wilson, D. M., Killen, J. D., Hayward, C., Robinson, T. N., Hammer, L. D., Kraemer, H. C., et al. (1994). Timing and rate of sexual maturation and the onset of cigarette and alcohol use among teenage girls. *Archives of Pediatrics and Adolescent Medicine, 148*(8), 789-795.
- Wilson, G. T. (1996). Treatment of bulimia nervosa: When CBT fails. *Behavioral Research and Therapy, 34*(3), 197-212.
- Wilson, G. T., & Fairburn, C. G. (1998). Treatment for eating disorders. In P. E. Nathan & J. M. Gorman (Eds.), *A guide to treatment that works* (pp.501-530). New York: Oxford University Press.
- Wilson, J. R. (1992). Bulimia nervosa: Occurrence with psychoactive substance use disorders. *Addictive Behaviors, 17*(6), 603-607.

- Wiseman, C. V., Sunday, S. R., Halligan, P., Korn, S., Brown, C., & Halmi, K. A. (1999). Substance dependence and eating disorders: Impact of sequence on comorbidity. *Comprehensive Psychiatry*, 40(5), 332-336.
- Wiseman, C. V., Sunday, S. R., Klapper, F., Harris, W. A., & Halmi, K. A. (2001). Changing patterns of hospitalization in eating disorder patients. *International Journal of Eating Disorders*, 30(1), 69-74.
- Wiseman, C. V., Turco, R. M., Sunday, S. R., & Halmi, K. A. (1998). Smoking and body image concerns in adolescent girls. *International Journal of Eating Disorders*, 24(4), 429-433.
- Wonderlich, S. A., Wilsnack, R. W., Wilsnack, S. C., & Harris, T. R. (1996). Childhood sexual abuse and bulimic behavior in a nationally representative sample. *American Journal of Public Health*, 86(8), 1082-1086.
- Zerbe, K. J. (1995). *The body betrayed: A deeper understanding of women, eating disorders, and treatment*. New York: Gurze Books.
- Zucker, R. A., & Fitzgerald, H. E. (1991). Early developmental factors and risk for alcohol problems. *Alcohol Health and Research World*, 15(1), 18-24.
- Zweben, J. E. (1987). Eating disorders and substance abuse. *Journal of Psychoactive Drugs*, 19(2), 181-192.