

Chapter 14

Preventing Eating Disorders in Adolescents

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14.1 Overview of Eating Disorders

Eating disorders (EDs) comprise anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and other specified feeding or eating disorder (OSFED) (American Psychiatric Association, 2013). Anorexia nervosa is characterized by excessive restriction of energy intake as well as significantly low body weight, body image disturbance, and an intense fear of gaining weight (American Psychiatric Association, 2013). The latter criteria may be fulfilled by behavior that undermines weight gain when at a significantly low weight. Bulimia nervosa involves frequent episodes of binge eating. Binge eating is defined as episodes of eating large amounts of food given the context during which individuals feel a loss of control. Individuals with BN also must engage in compensatory behaviors, such as purging, excessive dieting, exercise, or use of laxatives or diuretics, with the aim of preventing weight gain. Binge eating disorder is characterized by episodes of binge eating without a succeeding compensatory behavior. OSFED is a diagnosis used for individuals who

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have a clinically significant ED that does not meet criteria for one of the three listed above. Examples include atypical anorexia nervosa that does not meet the low weight requirement and purging disorder (American Psychiatric Association, 2013).

Often chronic (Beumont & Touyz, 2003), EDs are both costly (e.g., Agras, 2001) and difficult to treat (e.g., Agras et al., 2004). Together, studies support average durations of 4–11 years (Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000; Beumont & Touyz, 2003; Stice, Marti, Shaw, & Jaconis, 2009). EDs additionally have the highest mortality rate out of any of the psychiatric disorders (Arcelus, Mitchell, Wales, & Nielsen, 2011; Sullivan, 1995). Research indicates that mortality rates typically result from complications arising from the disorder (e.g., cardiovascular complications; Jáuregui-Garrido & Jáuregui-Lobera, 2012), as well as suicide (Herzog et al., 2000). Unfortunately, EDs are frequently undertreated (Hudson, Hiripi, Pope, & Kessler, 2007). In addition to costs in terms of psychological and physical well-being, treatment for EDs is often financially expensive. For instance, BN and BED are as costly to treat as obsessive–compulsive disorder, and AN has treatment costs comparable to schizophrenia (Agras, 2001). Given the typical course and costs of EDs, recent efforts have targeted the prevention of their development.

Although EDs may onset at various points in the lifespan, adolescence is a particularly vulnerable time for the emergence of factors increase risk for developing an ED. Additionally, research demonstrates higher rates of EDs and/or disordered eating behaviors among this age group (e.g., Jones, Bennett, Olmsted, Lawson, and Rodin, 2001). In terms of mere prevalence, studies suggest that a high percentage of adolescent populations may present with partial or full syndromal EDs. For example, Jones et al. (2001) found that disordered eating behaviors were present in 27% of a sample of teenage girls ages 12–18. In terms of the development over the adolescent time-span, longitudinal research by Stice and colleagues (2009) suggests that between 13 and 17% of individuals with subthreshold status for an ED go on to develop threshold cases for BN and BED, respectively. Subthreshold cases were prevalent in about 17% of this sample (mean age = 13 years), providing evidence for the need for earlier prevention efforts. Research supported by the McKnight Foundation (McKnight Investigators, 2003) additionally found that across time, 3% of a sample of adolescent girls in grades 6–9 developed at least sub-syndromal eating disordered behavior.

In addition to the finding that a subthreshold foundation for EDs may develop in early adolescence, research indicates that full criteria EDs commonly emerge in late adolescence. Anorexia nervosa, for example, has an average age of onset of 17 years (e.g., Steiner et al., 2003; Wentz, Gillberg, Anckarsäter, Gillberg, & Råstam, 2009). With regard to EDs more generally, research by Hudson et al. (2007) yielded an average age for onset for AN, BN, BED, subthreshold BED, and any binge eating of 18–21 years. Further, Stice and Agras (1998) found that an estimated 3% of adolescents engage in binge eating and purging. Given the high prevalence of risk factors and subclinical symptoms in adolescent populations, as well as the emergence of EDs in late adolescence, this particular age group is of great interest to researchers who seek to prevent the onset of an ED. The following provides a

brief overview of the rationale for targeting adolescents, structural elements of prevention interventions, risk factors related to the onset of EDs, as well as a review of a selection of specific interventions that seek to reduce or eliminate these known risk factors in early to late adolescent populations.

14.2 Why Target Adolescence?

As noted above, significant evidence suggests that many EDs onset during adolescence and into young adulthood. As a result, a great deal of research has focused on the trajectory of the development of disordered eating behaviors among adolescent samples. Although the exact causes of adolescent onset are not entirely established, etiology likely involves a myriad of biological, psychological, and social–environmental factors. More specifically, adolescence is a period of time in which children undergo various changes that occur at these three levels. For instance, increases in levels of gonadal steroid hormones (e.g., testosterone, estrogen) lead to the development of external characteristics of reproductive maturation such as enlarged breast and facial hair (Sisk & Zehr, 2005). Thus, adolescents experience the development of both primary and secondary reproductive characteristics (Herpertz-Dahlmann, Bühren, & Remschmidt, 2013), which may impact body image. Importantly, body dissatisfaction has been found to be a potent risk factor for EDs (Jacobi & Fittig, 2010; see below for discussion).

Cognitively, a rewiring of cortical and limbic systems occurs, which leads to the development of adult cognitions, decision-making strategies, and social behaviors (Sisk & Zehr, 2005). Importantly, changes in the brain may differ by gender. Boys, for example, experience volume growth in the amygdala, an area involved in emotion processing and motivation, while girls experience growth in the hippocampus, an area associated with spatial navigation and memory (Herpertz-Dahlmann et al., 2013). Such changes are of significance, as they may indicate a neurological basis for gender-biased disorders among this population (e.g., depression, EDs). In addition to changes associated with puberty, the *timing* of such changes is also a factor that may influence the development of certain forms of psychopathology. Sisk and Zehr (2005) suggest that variations in the onset of puberty potentially lead to individual differences in behavior. Specifically, the development of EDs and depression has been found to be associated with early onset of puberty (Herpertz-Dahlmann et al., 2013; Stice, Presnell, & Bearman, 2001). Thus, interactions between such hormonal and cognitive changes may increase risk for developing some forms of psychopathology, particularly those that appear to be gender biased.

Research also has investigated genetic influence across this time period, demonstrating a variable influence of genetics over time. For instance, research conducted by Klump, McGue, and Iacono (2003) indicates that heritability for ED symptoms increases across puberty with genetics accounting for 0% of variance in 11-year-old prepubertal twins and 54% of the variance in 11- and 17-year-old *pubertal* twins. Thus, regarding heritability, 11-year-old pubertal twins appear more similar to 17-year-old pubertal twins than prepubertal twins their own age. Additional research

suggests that the *influence* of genetics on disordered eating increases linearly as females advance through puberty (Klump, Burt, McGue, & Iacono, 2007). In summary, the multilevel changes experienced by this population have thus facilitated research investigating factors that adolescent populations may experience that put them at further risk for developing EDs, as well as strategies for prevention.

14.3 Eating Disorders Prevention: Overview

Prevention programs targeting adolescents generally employ a public health approach to mitigating the emergence of new ED cases by reducing associated risk factors. A risk factor is an initial condition that is associated with a later outcome (World Health Organization, 2002). ED prevention interventions seek to reduce the strength of risk factors or prevent them altogether as a means of decreasing one's likelihood for developing an ED. For example, body dissatisfaction is one of the most empirically supported risk factors for the development of an ED (e.g., Jacobi & Fittig, 2010; Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006). An ED prevention program might then seek to reduce/eliminate body dissatisfaction as a way of decreasing onset of EDs. Public health approaches thus rely on the identification of known risk factors in the creation and implementation of prevention interventions.

True prevention is commonly taken to mean that one has prevented the emergence of the disorder. In other words, prevention happens when an intervention has reduced the actual onset of EDs that otherwise would have occurred. To demonstrate this, researchers typically utilize a randomized controlled trial (RCT) in which participants are randomly assigned to either the intervention condition or an assessment-only/wait-list control condition; the latter condition allows for observation of the natural occurrence of new cases of the disorder during the course of the trial. One challenge in ED prevention research is that the base rate of full syndrome EDs is high enough to be problematic but low enough to make finding statistical differences in onset challenging. As such, studies aimed at documenting true prevention typically need to be quite large (hundreds of participants) and have a fairly long follow-up. In other words, they are expensive to conduct.

In the absence of sufficient resources to investigate true prevention effects, many researchers measure reductions in known risk factors as a proxy for prevention effects. This is not an uncommon approach. For instance, researchers in other areas measure risk factors such as smoking cessation (a known risk factor for lung cancer and heart disease) as well as reductions in blood pressure and cholesterol as study outcomes. Yet, it is important to recognize that successfully reducing a very well-established risk factor may or may not actually prevent onset of the disorder of interest. For example, a given intervention might successfully reduce blood pressure but not sufficiently to actually impact heart attack onset. Thus, it is important to distinguish between studies that clearly demonstrate true prevention effects (e.g., a reduction in EDs) versus those that simply document a reduction in a risk factor (e.g., body dissatisfaction) and may or may not have yielded true prevention effects if such effects had been studied.

With regard to types of prevention efforts, according to the Institute of Medicine (Mrazek & Haggerty, 1994), prevention programs can be classified as universal, selective, or indicated. Universal programs seek to reach all individuals regardless of whether or not they are at a high or low risk for developing a disorder. Selective programs, alternatively, target individuals identified to be at risk for developing a disorder. Indicated programs are those designed to reach individuals who are experiencing symptoms of a disorder but do not yet meet full criteria. Thus, if an individual is provided with a prevention program due to the presentation of early symptoms, the program is considered indicated. Many ED prevention programs work at a somewhat selected level, though recent efforts have focused on universal programs. It is important to note that the Institute of Medicine's classification of programs applies categorical classification to degree of population risk, a variable which actually is more continuous in nature. As such, it can be difficult at times to accurately classify prevention efforts using the three category system. For instance, because being female is a significant risk factor for the development of EDs, one could argue that any prevention approach aimed at females is selective. Yet this obscures important differences between prevention approaches that target all females in a given community (thus reaching females who are at lower- and higher relative risk) versus those who target females with additional risk factors (e.g., elevated body dissatisfaction). For this reason, we focus more on whether or not programs clearly target high-risk samples (e.g., females with elevated body dissatisfaction) versus those that seek to intervene with mixed risk samples.

With adolescent populations, school-based prevention interventions appear to have a great deal of potential in terms of reaching many individuals in a structured community setting. Research currently suggests that these interventions can be further improved in terms of efficacy as well as logistics—particularly by increasing feasibility of implementing such programs (e.g., Sharpe, Schober, Treasure, & Schmidt, 2013). With regard to school-based prevention programs, researchers often study their effects by randomly assigning entire classrooms to receive either the intervention of interest or class as usual (e.g., Richardson, Paxton, & Thomson, 2009; Wilksch, Durbridge, & Wade, 2008). In some cases, the control condition is assessment only/wait-list. Although use of classrooms as the unit of randomization may create some limitations in terms of generalizability, such studies also can shed light on factors that may contribute to future success and/or failure of implementation. We may then evaluate these programs in distinct ways, including efficacy/effectiveness in reducing risk factors, how feasible they are to implement in various settings (e.g., schools and community spaces), and acceptability by participants.

Research has identified several structural factors that are commonly associated with increased efficacy of ED prevention programs. For instance, a meta-analysis of ED prevention programs conducted by Stice and Shaw (2004) found that selective programs (i.e., those programs targeting individuals with a higher risk) produced larger effects compared to universal programs (i.e., programs employed without any consideration of an individual's level of risk). Stice and Shaw also found that selected intervention programs prevented the future development of eating pathology that was observed in control groups. These findings are promising in that the intervention programs not only decreased initial eating disturbances but also future development

of syndromes. In terms of the success of selected interventions, the authors suggest that the distress experienced by the selected high-risk individuals may encourage or motivate such participants to actively engage in the program. It also is possible, however, that increased base rates of risk factors in selective programs makes it easier to find larger effects secondary to regression to the mean and/or a reduction in problems with floor effects. It also should be noted that some have argued that a majority of new cases will emerge from lower- and middle-risk samples because of differences in sample sizes in the general population (see Austin, 2001). Thus, there remain good reasons to continue universal prevention efforts with EDs.

Alcohol-intervention research conducted by Larimer and Cronic (2002) initially demonstrated that psychoeducational interventions (i.e., those programs that focused on information and education) were not as effective as interventions during which participants actively engaged in receiving feedback and developing skills. Stice and Shaw's meta-analysis replicated this finding with EDs, indicating that interactive programs (i.e., programs that required active participation) may be more effective compared to didactic/psychoeducational programs. A possible explanation for this finding is that interactive prevention programs facilitate engaged and active participants and in doing so, increase participant compliance with program materials. This engagement assists in the development of new ideas and skills, and encourages behavioral and attitudinal change.

Additionally, programs that used validated measures to track changes in participants yielded greater effects (Stice & Shaw, 2004). The use of validated measures may be advantageous as they are more sensitive in assessing dependent variables and are better indicators of areas in which participants have room to improve. Finally, multi-session intervention programs were more effective compared to single session programs (Stice & Shaw, 2004). Multi-session programs may allow individuals to properly learn skills and reflect upon material between sessions. Program leaders may also be able to provide feedback to participants who would like to improve upon learned skills from session to session.

A great deal of ED prevention programs have borrowed from these identified factors by designing interactive, multi-session programs that use validated measures to evaluate change. In addition to intervention structure, however, Stice and Shaw's (2004) meta-analysis further suggested that certain targeted risk factors (e.g., body dissatisfaction, thin-ideal internalization) and actual program content (e.g., dissonance-based, cognitive behavioral interventions) may be associated with greater effect sizes.

14.4 Risk Factors for EDs

There are a number of identified risk factors for the development of EDs. Prevention focuses on altering modifiable risk factors (i.e., those that can be changed) versus fixed markers that put individuals at risk for developing an ED but cannot be altered (see Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). For example, research

indicates that females are at a higher risk for developing an ED (e.g., Newman et al., 1996). Because gender is a marker that cannot be changed, however, prevention programs do not seek to intervene with this factor. Fixed markers are, however, helpful in identifying high-risk populations that may benefit from such programs. For instance, Stice and Shaw's meta-analysis (2004) found that intervention effects were significantly larger in programs that focused solely on females compared to programs that included males.

14.4.1 Fixed Markers

Both gender and ethnicity have been studied as fixed markers for the development of EDs. Research on ethnicity remains mixed, however, and future research is warranted to determine whether or not it is a true marker for ED development.

14.4.1.1 Gender

Females are at a higher relative risk for developing an ED, most likely due to both biological and sociocultural factors. As a result, many prevention programs have been designed with a female population in mind, though efforts are being made to address the prevention of EDs in males. From a biological perspective, differences in gonadal steroid hormone concentrations (e.g., estradiol, testosterone, progesterone) likely affect gender-biased prevalence rates across the ED spectrum. Gender-biased hormonal differences may occur at both the organizational (i.e., prenatal) and activation (i.e., postnatal) level (Klump et al., 2006). For example, lower levels of prenatal testosterone exposure, and higher levels of estradiol in puberty are associated with increased levels of disordered eating, indicating females are at a biologically higher risk for developing an ED, due to disparate endocrine function (Klump et al., 2006). These biological risk factors may then be exacerbated by cultural body messages that, in particular, target females and increase some of the modifiable risk factors discussed below (e.g., body dissatisfaction, thin-ideal internalization, self-objectification). More specifically, females experience significant cultural pressure to conform to the thin-ideal standard of female beauty (i.e., a figure that is very thin, with low body fat, narrow hips, long lean limbs, and large breasts). Because the thin-ideal is unachievable for the vast majority of females and because most girls move further away from the thin-ideal during puberty (i.e., experience increases in body fat), adolescence is a prime time for increasing body dissatisfaction. Adolescent girls also may experience significant increases in sexual objectification compared to younger girls (see Calogero, Tantleff-Dunn, & Thompson, 2011; Smolak & Murnen, 2011 for objectification review; see below for discussion of self-objectification).

14.4.1.2 Ethnicity

Research, involving ethnically diverse samples, though limited, has also identified ethnicity as a potential fixed marker for the development of certain types of EDs. Hispanic populations, for example, are postulated to be at a greater risk for developing disorders characterized by episodes of binge eating (e.g., BN and BED; Reyes-Rodríguez & Bulik, 2010), and Caucasian populations appear to be at greater risk than African-American women for developing AN and BN (Striegel-Moore et al., 2003). The McKnight Investigators (2003) additionally found that Hispanic girls at one site in their study were at a greater risk for developing an ED. It is important to note that more research on ethnicity is needed, as the literature on ethnicity and eating disorders is quite mixed. Further, Smolak and Striegel-Moore (2001) suggest it may be difficult to disentangle the relationship between ethnicity and EDs due to the fact that ethnicity is a summary variable encompassing various experiences (e.g., discrimination, immigration status). In summary, although existing research suggests that ethnicity may be a fixed marker for some EDs, additional research involving diverse samples is warranted to untangle the relationship between ethnicity and EDs.

14.4.2 Variable Risk Factors

14.4.2.1 Body Dissatisfaction

One of the most established risk factors for the development of an ED (see Jacobi & Fittig, 2010 for review), body dissatisfaction impacts up to 70 % of female adolescents (Levine & Smolak, 2004). Body dissatisfaction includes concerns that individuals have about weight and shape and may also relate to specific areas of the body. Body dissatisfaction has been shown to predict a multitude of negative outcomes in addition to full threshold EDs. These include depression and low self-esteem (e.g., Johnson & Wardle, 2005). Additionally, a study conducted by Neumark-Sztainer et al. (2006) found that higher levels of body dissatisfaction were associated with unhealthy versus healthy weight management behaviors in adolescent males and females. As such, programs targeting body dissatisfaction theoretically have the potential to reduce both EDs and other concerns (see Becker, Plasencia, Kilpela, Briggs, & Stewart, 2014 for further discussion), which may be one reason why many programs target this risk factor.

14.4.2.2 Dieting/Dietary Restriction

Severe dieting/dietary restriction also has been identified as a variable risk factor in the development of an ED (e.g., Fairburn, Welch, Doll, Davies, & O'Connor, 1997). Patton, Selzer, Coffey, Carlin, and Wolfe (1999) explored this risk factor in

a longitudinal study of nearly 2000 Australian secondary school students. Results indicated that 8 % of adolescent females (age 15) reported dieting at severe levels and 60 % at moderate levels. Severe dieters were 18 times more likely to develop an ED within 6 months and at 12 months severe dieters had a one in five chance of developing a new ED. Additionally, moderate dieters were five times more likely to develop an ED within 6 months, and after 12 months, had a 1 in 40 chance of developing a new ED compared to participants who did not diet. Apart from level of dieting, type of dieting also may predict the onset of an ED. For instance, research suggests that depressed and feeling-fat dieters, versus vanity and overweight dieters (i.e., those who diet to avoid adverse health consequences), are more likely to report having a lifetime ED (Isomaa, Isomaa, Marttunen, Kaltiala-Heino, & Björkqvist, 2010). Some research also suggests that fasting is a particular form of dieting that may confer increased risk for EDs (Stice, Davis, Miller, & Marti, 2008).

14.4.2.3 Negative Affect

Research also supports the role of negative affect in the development of bulimic behaviors (e.g., Stice, 2001; Stice & Agras, 1998). For instance, the dual pathway model, which is supported by research, proposes that body dissatisfaction increases both negative affect and dietary restraint, which in turn increase risk for EDs (Stice, 2001; Stice, Nemeroff, & Shaw, 1996). It is important to recognize, however, that the relationship between body dissatisfaction and negative affect, and EDs is likely complicated and multidirectional.

14.4.2.4 Self-Esteem

Low self-esteem also may serve as a risk factor for BN (e.g., Jacobi & Fittig, 2010). More specifically, research suggests that self-esteem may interact with other risk factors (e.g., perfectionism, body dissatisfaction) to predict bulimic pathology (Vohs, Bardone, Joiner, & Abramson, 1999; see Stice, 2002 for review). Isomaa et al. (2010) also found that depressed and feeling-fat dieters reported lower levels of self-esteem than other types of dieters and were 15 times more likely to develop an ED by age 18. In addition to being a risk factor, research has shown that high self-esteem may serve as a protective factor against the development of an ED (Cervera et al., 2003).

14.4.2.5 Self-Objectification

Self-objectification refers to the extent to which women internalize society's objectifying gaze of their bodies (i.e., views women's bodies as sexual objects) and begin to evaluate themselves in those terms (Fredrickson & Roberts, 1997). According to

objectification theory, self-objectification increases body-related shame which in turn increases risk for both EDs and depression (Fredrickson & Roberts, 1997). Cross-sectional research supports the relationship between self-objectification and disordered eating (Greenleaf, 2005; see Tiggemann, 2011 for review). It is important to note, however, that objectification theory has not yet received robust longitudinal support (Becker, Hill, Greif, Han, & Stewart, 2013). As such, it is unclear if self-objectification is a risk factor or correlate of disordered eating.

14.4.2.6 Thin-Ideal Internalization

Defined as the extent to which individuals believe in/internalize the media's thin-ideal standards of beauty (e.g., Thompson & Stice, 2001), thin-ideal internalization may be viewed as a risk factor for other risk factors (e.g., body dissatisfaction and negative affect and dietary restraint; Stice, 2001; Stice, Schupak-Neuberg, Shaw, & Stein, 1994). Research has investigated both the direct and indirect role of thin-ideal internalization on ED pathology. For example, research by Stice et al. (1994) indicates that exposure to media predicts greater gender-role endorsement, which is associated with greater thin-ideal internalization. Thin-ideal internalization also predicts greater body dissatisfaction, which is both a correlate and risk factor for ED pathology. Thus, thin-ideal internalization mediates the effects of exposure to idealized images in the media on the development of ED pathology. Additional research has indicated that thin-ideal internalization prospectively predicts body dissatisfaction, dieting, and negative affect (Stice, 2001). Research also suggests that internalization of appearance-ideals in the media are associated with greater self-objectification (Calogero, Davis, & Thompson, 2005).

14.4.2.7 Perfectionism

Perfectionism also has been shown to predict and even maintain subclinical or full criteria EDs. More specifically, in a review of cross-sectional, longitudinal, and retrospective studies in the ED literature, Jacobi et al. (2004) concluded that perfectionism should be considered a risk factor for EDs. Research is mixed as to whether perfectionism differentially predicts the development of, or maintains, specific EDs. However, it is known to be present before onset of AN and BN, and may lead other known risk factors (e.g., severe dieting; Fairburn, Cooper, Doll, & Welch, 1999).

14.4.3 Environmental Factors

14.4.3.1 Family Mealtime Interactions

Various studies have explored the role that structured family meals and family mealtime interactions play in the development of disordered eating (Godfrey, Rhodes, & Hunt, 2013; Hamilton & Wilson, 2009). For instance, Neumark-Sztainer

and colleagues (Neumark-Sztainer, Eisenberg, Fulkerson, Story, & Larson, 2008) concluded that families play a protective role in disordered eating behaviors among girls. More specifically, at 5-year follow-up girls whose families had regular family meals, engaged in less weight control behaviors, including self-induced vomiting, and use of diet pills or laxatives (Neumark-Sztainer et al., 2008). To our knowledge, however, prevention programs have yet to include components incorporating parents, but future work may seek to do so.

14.4.3.2 Peer Influences

A number of sociocultural models of disordered eating identify peers as a formative sociocultural influence that impacts body dissatisfaction among adolescents (Linville, Stice, Gau, & O'Neil, 2011; Shroff & Thompson, 2006). Studies support that notion that peers, directly and indirectly, may promote appearance-related norms, beauty ideals, and the importance of appearance. For instance, in a study with 433 adolescent girls, Jones, Vigfusdottir, and Lee (2004) found that appearance conversations with friends increased body dissatisfaction, with the relationship being mediated by appearance-ideal internalization. In addition, peer appearance criticism both indirectly (i.e., mediated by appearance-ideal internalization) and directly impacted body dissatisfaction. In the same study, with a sample of 347 boys, Jones et al. (2004) found that peer appearance criticism had the strongest association with body dissatisfaction. It is important to note, however, that this research was cross-sectional versus longitudinal. Moreover, although longitudinal research has partially supported the role of peers in later body dissatisfaction, that pattern appears to be complicated with the association varying across age groups (see Paxton, Eisenberg, & Neumark-Sztainer, 2006).

14.5 Common Components of Prevention Interventions for Adolescents

In addressing risk factors and certain environmental influences, there are several components that are common to many prevention programs aimed at adolescents. Media literacy is perhaps the most common, and entails learning about the unrealistic thin-ideal standard of beauty promoted in western culture's media (e.g., Wilksch & Wade, 2009). This component sheds light on photo editing, lighting, and the manner in which many images presented by the media are unattainable constructions of a profiting industry. Education on media literacy is based on social inoculation theory (McGuire, 1964; see Turner & Shepherd, 1999 for review), which aims to help participants build skills to resist social persuasions and pressures. A second component involves learning about interactions with peers and social comparisons. Usually, these sessions include lessons about "fat talk" (Nichter & Nichter, 2009) or any speech that implicitly or explicitly reinforces the thin-ideal.

An example of this negative body talk may be, “Does this dress make me look fat?” or, “You look so great. Have you lost weight?” Participants learn that these commonplace phrases and comparisons perpetuate the thin-ideal standard of beauty and are encouraged to eliminate this speech themselves in addition to preventing fat talk from occurring within their friend groups. Finally, many, though not all, adolescent prevention programs have a material devoted to self-esteem, which is put in place to not only buffer the development of EDs, but provide adolescents with a general tool for healthy and happy development across a time period marked by radical changes.

Although programs may vary in content, mode of delivery, theoretical basis, and duration, many prevention programs carry some or all of the above components. Below we describe a selection of programs that have been developed and tested by researchers. Many are evaluated when delivered in school or university settings. Note that it is beyond the scope of this chapter to review all programs available.

14.6 Programs Targeting Early Adolescence (11–13 Years of Age)

14.6.1 Me, You, and Us

The program *Me, You, and Us* (Sharpe et al., 2013) is a 6-session program that covers various topics including media literacy on standards of beauty, peer interactions such as fat talk, and sessions based on positive psychology principles (e.g., noticing one’s strengths, increasing self-esteem). This program has been evaluated when delivered by teachers in school settings. In a recent study with adolescent girls in UK secondary schools grades 8–9, or girls approximately 12–14 years of age, this program was found to increase body esteem and reduce thin-ideal internalization (Sharpe et al., 2013). Both of these effects were maintained 3 months after intervention. However, *You, Me, and Us* was not found to produce any differences in eating pathology, peer factors, or depression (Sharpe et al., 2013), and the finding with regard to eating pathology raises concerns about its ability to actually prevent EDs.

14.6.2 BodyThink

BodyThink is the Australian version of a workshop developed by the Dove Self-Esteem Project (formerly the Dove Self-Esteem Fund). Other contributors included the Butterfly Foundation in Australia, Girls Scouts of the USA and BEAT (the UK ED association). In the UK, the program is distributed under the name *BodyTalk*. *BodyThink* focuses on media literacy, self-esteem, and seeks to reduce factors such as appearance teasing, thin-ideal internalization, and appearance, or

body comparisons. Richardson et al. (2009) evaluated this program with 277 students in grade 7 (mean age = 12 years) from four secondary schools in Australia. This study was unusual in that it included males in its sample. In order to evaluate the program, researchers assigned entire classes to the intervention group or the control group. Participants in the intervention group completed four 50-min interactive sessions of *BodyThink*. Outcome variables were assessed baseline, post-intervention, and 3-month follow-up.

Results revealed that girls in the intervention group had higher media literacy on a majority of specified content and lower thin-ideal internalization. However, Richardson et al. (2009) found no significant differences on measures of body dissatisfaction, dietary restraint, or bulimic symptoms raising concerns about the program's efficacy. These findings are particularly problematic given the widespread dissemination of this program. For instance by June of 2008, 40,000 adolescents had participated in the program (Richardson et al., 2009).

14.6.3 *Media Smart*

Wilksch and Wade (2009) evaluated the effectiveness of *Media Smart*, a media literacy program, compared to a control condition in grade 8 students (mean age = 13.62; $N=540$) when delivered in a universal fashion. The program consists of eight 50-min sessions designed to be interactive through the use of group work. Participants received two lessons per week in this study. Wilksch and Wade sought to reduce weight and shape concern, though dieting, body dissatisfaction, media internalization, perceived pressure, ineffectiveness, depression, and self-esteem also were evaluated. Entire classes were randomly assigned to receive either *Media Smart* or a control condition. Data was collected at pre-intervention, post-intervention (i.e., 1 month after the intervention), and 6-month follow-up. This study also included 30-month follow-up, the longest follow-up in this age group for this type of program.

The group receiving *Media Smart* had lower mean scores for shape and weight concerns, dieting, body dissatisfaction, feelings of ineffectiveness, and depression at post-intervention, 6-month follow-up, and 30-month follow-up. When evaluated by gender, girls receiving *Media Smart* reported lower feelings of ineffectiveness at posttest, and lower shape and weight concern than controls at 30-month follow-up. Boys had lower rates of body dissatisfaction, feelings of ineffectiveness, and dieting at posttest. At 6-month follow-up, boys reported lower weight and shape concern. Although girls receiving *Media Smart* reported lower weight and shape concern at a 30-month follow-up, attrition had reached approximately 46% at this time point, and this finding was not present at post or 6-month follow-up. Limitations of this study included the fact that the control group did not receive an alternate intervention, there was no assessment of disordered eating habits, and there was missing data from almost half of study participants at 30-month follow-up. It should be

noted that a preliminary trial of *Media Smart* with 15 year-olds (see below for review) indicated that it was comparable to a control condition (i.e., class as usual) and was not as effective as a perfectionism-based intervention. Overall, replication trials are needed to ascertain the effectiveness of *Media Smart* in adolescent populations.

14.6.4 Cognitive-Dissonance-Based Prevention

A recent study by Halliwell and Diedrichs (2014) evaluated a cognitive-dissonance-based intervention delivered to 12- and 13-year-old girls in a school setting. The theory of cognitive dissonance (Festinger, 1957) proposes that psychological discomfort arises when an individual's beliefs and behaviors are misaligned. In order to mitigate this discomfort, individuals typically alter beliefs to comply with behaviors and actions. Dissonance-based programs aimed at ED prevention aim to have participants speak and act against the thin-ideal, which should lower investment in the thin-ideal. This theoretically creates a cascading effect reducing body dissatisfaction, negative affect, dietary restraint, and early stage eating disorder pathology (see Stice, Rohde, & Shaw, 2013 for review of dissonance-based programs). Research does provide support for the theoretical mechanism of action of this type of program (see Stice, Becker, & Yokum, 2013).

Though cognitive-dissonance-based approaches have received substantial empirical support in older populations (e.g., females 14 years of age or older, see Becker, Mackenzie, & Stewart, *in press* for review), this type of intervention has only recently been examined with younger samples. To test the younger adolescent version of the dissonance-based intervention, Halliwell and Diedrichs assigned two classes to receive the intervention and two classes to attend class as usual. The intervention was administered once per week for 4 weeks by a doctoral student or one of the authors. Each session was 20 min long. Four weeks after the intervention, participants took part in a media exposure task in which they were asked to rate the effectiveness of four advertisements featuring models or control images.

Results indicated that participants receiving the intervention reported lower levels of body dissatisfaction and thin-ideal internalization from pre- to posttest. Additionally, these participants experienced no changes in body satisfaction after being exposed to images of models vs. control images, whereas control participants reported greater body dissatisfaction after viewing advertisements containing models. Longer, more controlled trials, however are needed to ultimately determine the degree to which this program is efficacious for this age group.

In summary, research is at a relatively young stage for this age group when it comes to ED prevention. Although there have been some promising advances, no study to date has demonstrated true prevention effects, and even risk-factor reduction effects need improving. Further, replication of positive findings is needed, ideally with better controlled and longer trials.

14.7 Programs Targeting Mid to Late Adolescents (14–19 Years)

14.7.1 *Media Literacy vs. Perfectionism-Based Prevention*

Research by Wilksch et al. (2008) evaluated two, 8-lesson programs that focused on either media literacy (note: this was an early version *Media Smart*) or perfectionism versus a control group receiving no intervention. Both interventions were interactive and involved some group work. Participants with a mean age of 15 years were randomly assigned by class to receive either of the interventions or the control. Data was collected at pre, post, and 3-month follow-up. Some classes received 8 sessions over 8 weeks while other classes received 8 sessions over 4 weeks. Dependent variables included concern over mistakes, weight and shape concerns, and personal standards.

Participants receiving the perfectionism-based intervention had lower scores on concern over mistakes than the other two groups at a 3-month follow-up. Additionally, they reported significantly lower mean scores on personal standards compared to the media literacy group. Regarding concern over mistakes, high-risk participants in the perfectionism-based intervention also scored lower than high-risk individuals the other groups at 3-month follow-up. Results indicated that high-risk individuals receiving the perfectionism-based intervention experienced the most improvement.

There were no interaction outcomes for weight and shape concern for any group, suggesting the programs had little impact on this key risk factor. On the positive side, this study demonstrated that high-risk individuals may benefit from a universal program. This is important because universal programs can be more convenient to implement in school settings where it may be less desirable (i.e., more stigmatizing) to separate high-risk participants from their peers. On the negative side, the effects of the media literacy-based intervention largely were comparable to the control group. Limitations of this study included the fact that the control group did not receive a placebo intervention, the short follow-up, no ED behaviors were measured, and there was a difference in the timing of delivery of the intervention. However, this study demonstrates that perfectionism-focused programs may decrease some, but not all, risk factors with mid adolescents (e.g., 15-year-olds).

14.7.2 *My Body My Life*

In a series of studies, Paxton and colleagues investigated related internet-based programs for adult women and adolescent girls. The first program, *Set Your Body Free* consisted of eight, 90-min sessions provided weekly, which included psycho-education along with interactive activities in order to improve body image, reduce ED symptomatology, and regulate eating patterns in women reporting higher levels

of body dissatisfaction (Gollings & Paxton, 2006). *Set Your Body Free* also includes motivational interviewing and provides information on monitoring eating and body dissatisfaction. Later sessions focus on body image and self-esteem, social comparisons, and the importance of thinness to one's self-concept. The final session is devoted to relapse prevention and strategies to help participants overcome slips.

Set Your Body Free has been tested in both face-to-face formats as well as synchronously via the Internet. The preliminary trial was aimed at young adult women including older adolescents. Results from this trial indicated that women experienced improvements in body dissatisfaction, eating behaviors, self-esteem, depression, and anxiety (Gollings & Paxton, 2006). These results were maintained at a 2-month follow-up. A later trial (Paxton, McLean, Gollings, Faulkner, & Wertheim, 2007) including a control group demonstrated that *Set Your Body Free* improved body dissatisfaction, eating attitudes and behaviors, and depression in body-dissatisfied women, with results maintained at a 6-month follow-up. Although face-to-face delivery was superior to the Internet-delivered program at post-intervention, the two delivery modes produced similar results at 6-month follow-up.

My Body My Life (Heinicke, Paxton, McLean, & Wertheim, 2007) explicitly targets adolescent girls. Like *Set Your Body Free*, *My Body My Life* combines psycho-education and self-help intervention activities. This program is delivered online over 6 sessions with a 2-month follow-up session, and incorporates information and activities about social pressures, fat talk, teasing, and social comparison all of which are postulated to be very relevant to adolescents (Heinicke et al., 2007). Relative to a delayed intervention control group, girls (mean age 14.4 years) who participated in *My Body My Life* reported significantly greater improvements in body dissatisfaction and disordered eating symptoms at post-intervention. Improvements in disordered eating symptoms were maintained through 6-month follow-up (Heinicke et al., 2007).

14.7.3 *Student Bodies*

An internet-based cognitive-behavioral intervention, *Student Bodies* seeks to improve body image and to reduce unhealthy weight control behaviors and binge eating (Winzelberg et al., 2000; Zabinski, Wilfley, Calfas, Winzelberg, & Taylor, 2004). This program involves a psycho-educational component regarding EDs as well as body-image-related content and cognitive-behavioral strategies to improve body satisfaction. The program consists of both mandatory and optional homework assignments, which include contributing to an online discussion group designed to foster emotional support among participants. It has been tested using both asynchronous and synchronous moderation, typically with high-risk college-aged women including older adolescents.

In a series of trials (e.g., Celio et al., 2000; Winzelberg et al., 2000; Zabinski et al., 2004; see Sinton & Taylor, 2010 for review) researchers demonstrated that *Student Bodies* improves body image and self-esteem, drive for thinness, eating pathology, and weight and shape concern among female adolescents and adults.

After observing early results, Taylor et al., 2006, tested *Student Bodies* against a wait-list control in an RCT including 480 participants with high weight and shape concerns. This trial indicated that *Student Bodies* was effective in reducing shape and weight concerns among college age women at a high risk for developing an ED out to 12-month follow-up (Taylor et al., 2006). Importantly, this was the first trial to find some evidence of true prevention effects. Although Taylor et al. (2006) did not find a significant difference in ED onset in the intervention versus control group when the full sample was analyzed, *Student Bodies* did decrease the onset of ED cases in participants with a higher BMI and, at one site, participants that engaged in compensatory behaviors prior to receiving the intervention.

14.7.4 *The Body Project*

The *Body Project* is a small group, cognitive dissonance-based intervention developed by Stice and colleagues. Based on the dual pathway model of ED etiology, the *Body Project* encourages participants to actively challenge the thin-ideal through activities, group discussion, and homework. Theoretically, anti-thin-ideal statements and behaviors result in cognitive dissonance that decreases thin-ideal internalization with cascading effects in body dissatisfaction, negative affect, dietary restraint, and ED pathology. As noted above, research supports the theoretical basis of the *Body Project* (Stice et al., 2013).

The *Body Project* is supported by a substantial research base. After preliminary studies supported the risk-factor reduction effects of the *Body Project* (e.g., Stice, Mazotti, Weibel, & Agras, 2000; Stice, Trost, & Chase, 2003), Stice and colleagues conducted a large-scale investigation of the program's efficacy with over 400 high-risk female students recruited from both high schools and colleges. Results indicated that the *Body Project* reduced thin-ideal internalization, body dissatisfaction, dieting, negative affect, and bulimic symptoms at post-intervention and 6-month follow-up. Many effects were maintained at 1-year follow-up (Stice, Shaw, Burton, & Wade, 2006). At 3-year follow-up, compared to an assessment only control condition, *Body Project* participants reported decreased body dissatisfaction, negative affect, and psychosocial impairment (Stice, Marti, Spoor, Presnell, & Shaw, 2008). Perhaps most importantly, at 3-year follow-up the *Body Project* reduced onset of EDs relative to the control condition by 60%, demonstrating true prevention effects for the full sample.

To date, the *Body Project* has amassed more support than any other ED prevention program. For instance, it has repeatedly produced superior effects compared to both active control interventions and assessment-only groups (Becker, Smith, & Ciao, 2006; Stice et al., 2001, 2003, 2006, 2008; Stice, Rohde, Gau, & Shaw, 2009) and is supported by studies conducted by labs independent from the intervention developers (e.g., Becker, Smith, & Ciao, 2005; Green, Scott, Diyankova, & Gasser, 2005; Matusek, Wendt, & Wiseman, 2004; Roehrig, Thompson, Brannick, & Van den Berg, 2006). Empirical research has additionally identified the *Body Project* as

a program with favorable effects when implemented in a universal/selective fashion using lower cost providers. For instance, research by Becker and colleagues (Becker et al., 2006, 2010; Becker, Bull, Schaumberg, Cauble, & Franco, 2008) investigated whether or not the *Body Project* could feasibly be run by peer leaders in sororities using a “task-shifting” model (Fairburn & Patel, 2014). This research evaluated if the *Body Project* would still be effective when provided on a mandatory basis to all members of a community (i.e., universal approach) using low-cost providers (i.e., peers). Even when delivered by peer leaders to participants who were required to participate, results indicated that the *Body Project* yielded significant changes in thin-ideal internalization, body dissatisfaction, dietary restraint, and ED pathology. This line of research provides preliminary support for its dissemination.

14.7.5 Healthy Weight

The *Healthy Weight* intervention was originally developed by Stice and colleagues as placebo intervention to be tested against the *Body Project*. In addition to a psychoeducational component, the most recently modified version of the *Healthy Weight* program incorporates elements of motivational interviewing and behavior modification in order to promote healthy weight management that, in turn, reduces risk of engaging in unhealthy weight management behaviors (e.g., bingeing and purging, extreme dieting, and exercise). After finding that this program led to reductions in dieting, negative affect, and ED symptoms in females with body image concerns (Stice, Chase, Stormer, & Appel, 2001), Stice and colleagues decided to test it as an actual intervention (Stice et al., 2003, 2006, 2008). In the previously discussed large-scale prevention trial (see *Body Project*), *Healthy Weight* was found to significantly reduce ED risk factors and bulimic symptoms at 1-year follow-up. At 3 years, *Healthy Weight* significantly reduced thin-ideal internalization, body dissatisfaction, negative affect, and bulimic symptoms. Importantly, *Healthy Weight* produced similar reductions in ED onset compared to assessment only as the *Body Project*. Thus, *Healthy Weight* also produces true ED prevention effects. Research also suggests that implementation of this small group intervention can be task-shifted to undergraduate peer leaders if the protocol is sufficiently modified to meet their needs as providers (Becker et al., 2010).

14.8 Conclusion

Although significant progress has been made in reducing ED risk factors, to date only three programs have any data to support their ability to actually prevent EDs. Further, many trials are underpowered, lack adequate control groups, and need longer follow-up periods. Future research should aim to address these limitations in the existing literature in addition to investigating strategies for disseminating existing

programs with documented efficacy/effectiveness. Additional research also is needed to identify better strategies for younger adolescents. Notably, no trial has prevented any eating disorders in this population. Future work also could further tailor programs to address gender-specific concerns regarding body image with a focus on greater inclusion of males.

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