

CAN SELF-DETERMINATION HELP PROTECT WOMEN AGAINST SOCIOCULTURAL INFLUENCES ABOUT BODY IMAGE AND REDUCE THEIR RISK OF EXPERIENCING BULIMIC SYMPTOMS?

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According to the sociocultural approach of eating pathology, the more women perceive sociocultural pressures about body image, the more they endorse society's beliefs related to thinness and obesity which in turn, is associated with greater body dissatisfaction. Also, the more dissatisfied women are about their body image, the more they report bulimic symptoms. In the present study, the same sequence of variables was tested with the addition of a Global Self-Determination variable to examine why sociocultural pressures are associated with bulimic symptomatology in only a subset of women. Participants ($N = 300$) consisted of female university students. Analyses revealed that the more women were globally self-determined towards the different aspects of their life, the less they perceived sociocultural pressures about body image, the less they endorsed society's beliefs related to thinness and obesity, and the less they experienced bulimic symptoms. These findings suggest that a global self-determined motivational profile in life could possibly act as a buffer against sociocultural influences about body image and decrease women's risk of experiencing bulimic symptoms.

It is now well recognized that many young women engage in a variety of disordered eating patterns and unhealthy weight control strate-

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gies associated with eating pathology (Leon, Fulkerson, Perry, & Cudeck, 1993). For instance, a study by Crowther, Post, and Zaynor (1985) revealed that 11% of the adolescent girls in their sample engaged in self-induced vomiting, 5% took laxatives, and 46% reported binge eating. Similarly, a study by Williams, Schaefer, Shisslack, Gronwaldt, and Comerci (1986) revealed that 25% of the sample of adolescents were dieting, 22% were binge eaters, 8% vomited after eating, and 4% took drugs to lose weight. Although many women only exhibit some symptoms of eating pathology, a recent epidemiological study of 3,000 individuals (Hay, 1998) revealed that 3.2% of the participants engaged in regular binge eating, 16% regularly fasted and used dieting, and around 1% purged. Heatherton, Nichols, Mahamedi, and Keel (1995) observed that the prevalence of these behaviors in the population of U.S. college students was much higher: 19% of women (and 6% of men) reported binge eating, 12% of women (and 3% of men) indicated that they were fasting regularly, and 3% of women (1.3% of men) used regular vomiting to control weight. Nevertheless, when the most conservative estimates of prevalence are considered, bulimia nervosa still represents one of the most prevalent forms of psychopathology among adolescent and young women. It is characterized by episodes of uncontrollable eating binges typically followed by compensatory behaviors (e.g., self-induced vomiting, laxative use, severe restrictive dieting) aimed at avoiding weight gain (Weltzin & Bolton, 1998).

Different models have been proposed to explain etiological or perpetuating factors of eating pathology. According to several researchers, eating disorders are largely a sociocultural phenomenon (Gordon, 1990; Wolf, 1991). They are considered a product of increasing pressures for women to achieve the ultra-slender body image promoted by society (Striegel-Moore, Silberstein, & Rodin, 1986).

Stice (1994, 2001) has proposed a theoretical model that specifies the mechanisms by which sociocultural pressures are linked to eating pathology. This model posits that sociocultural pressures to be thin lead women to endorse the ubiquitous thin-ideal stereotype as the standard for feminine beauty. Because the ideal body weight portrayed in society is extremely low, many women are dissatisfied with their body image. Body dissatisfaction in turn, is thought to promote the use of unhealthy weight control strategies (e.g., dietary restraint) and/or to produce negative affect. Both dietary restraint and negative affect are hypothesized to increase the likelihood of binge eating and hence the onset of bulimia nervosa. Stice's theoretical model of bulimia, the Dual Pathway Model of Bulimia Nervosa, has been empirically supported in both cross-sectional (Stice, Nemeroff, & Shaw,

1996) and longitudinal studies (Stice, Shaw, & Nemeroff, 1998). Also, some evidence suggests that the sociocultural pressures may be experienced by women of different ethnic groups within the U.S. (Smolak & Striegel-Moore, 2001).

Thompson, Heinber, Altabe, and Tantleff-Dunn (1999) have suggested that disordered eating should be placed on a continuum, and the Dual Pathway Model of Bulimia Nervosa can account for this continuum by providing a good explanation of the mechanisms that link sociocultural pressures to actual eating disorders. The presence of this continuum would suggest that some women are not influenced by sociocultural pressures and that they have the ability to resist external pressures and to act more in accordance with their own self-congruent values. But how can we explain that some women, although exposed to sociocultural pressures about body image, may not, or at least to a lesser degree, endorse the thin-ideal, and consequently be less at risk of experiencing symptoms of disordered eating?

Few studies have examined women's characteristics that may protect them from sociocultural influences related to the development of eating disorders (Crago, Shisslak, & Ruble, 2001). Twamley and Davis (1999) replicated Stice's (1994) Mediational Model of Bulimia with a sample of undergraduate students, and extended it by examining the influence of personality and environmental factors hypothesized to be protective. They found that the internalization of a thin-ideal and body dissatisfaction were mediators of the relation between exposure to thinness norms and eating pathology. However, nonconformity (the propensity to disregard norms or convention) and low family pressures to control weight moderated the relation between exposure to thinness norms and body dissatisfaction. The authors concluded that these factors could then increase women's resiliency against sociocultural pressures about the thin-ideal.

Although nonconformity can make a woman more resistant to sociocultural pressures about thinness, it seems that the process by which nonconformity leads to a greater resistance is not clear. The issue that needs to be addressed is whether nonconformity is adopted as a way to rebel against external pressures (i.e., not truly chosen) or as a personal choice in agreement with one's inner self (i.e., commitment). According to Deci and Ryan (1985) behaviors for which the regulation is experienced as chosen and as emanating from the self are integrated with one's self and therefore should be maintained over time. For instance, individuals could show nonconformity as a true expression of themselves because they choose to disregard society's values and to follow what they believe to be true. Their behavior would not be a way to rebel

against external forces. Rather, it would be an extension of what they personally feel and value.

Other behaviors such as defiance may be adopted as a way to rebel against external pressures. These behaviors are said to be controlled because the regulation of these behaviors is not self-initiated but rather it is initiated by sources located outside the self. For example, adolescents may adopt nonconformist behaviors as a way to rebel against overprotective parents, authority, or society in general. Thus, adolescents may do the opposite of what is demanded simply because they feel controlled. In this case, the nonconformist behavior is intentional but not truly chosen. It is a reactance against a loss of freedom and an attempt to regain a sense of autonomy to compensate for the thwarted need to be agentic. This nonconformist behavior is unlikely to persist over time because its regulation is characterized by rigidity and tension rather than by flexibility and cohesion. For example, a study by Greenstein and Koestner (1996) has shown that goals enacted through controlling rather than autonomous regulation are likely to suffer from "weakness of will." In other words, individuals who adopt controlling, regulated goals eventually lack the strength necessary to carry out the behavior in the face of competing demands.

In sum, it appears that nonconformity, although reflecting an intentional action, may not always be self-initiated and autonomously regulated, and therefore is likely to be transient. Accordingly, to better understand why some women, in comparison to others, may be less influenced by sociocultural pressures related to body image and consequently be at lesser risk of bulimic symptoms, we propose to examine Global Self-Determination (GSD), a variable that takes into account one's general level of autonomy in life. The Self-Determination Theory proposed by Deci and Ryan (1985; Ryan & Deci, 2000) has proven to be a useful theoretical framework for distinguishing intentional actions that represent human agency from those that do not. Thus, the purpose of this article is to expand upon the existing literature on the risk factors of eating pathology by examining how Global Self-Determination (GSD) could contribute to the understanding of why some women, although exposed to sociocultural pressures related to body image, may be less influenced by them and be less at risk of experiencing bulimic symptoms.

In the next section, we present an overview of the variables that have traditionally been investigated within the sociocultural approach of eating pathology. This section will then be followed by the description of Self-Determination Theory. The specific hypotheses of the present study will be presented subsequently.

EVIDENCE SUPPORTING THE SOCIOCULTURAL APPROACH OF EATING PATHOLOGY

SOCIOCULTURAL PRESSURES ABOUT BODY IMAGE

Several authors have argued that families, friends, dating partners, and media may all play a role in the development of eating disorders by the generation and transmission of different messages about the thin-ideal (Stice, 1994). For example, Mitchell, Hatsukami, Pyle, and Eckert (1986) found that 53% of the participants with bulimic symptomatology had initiated bulimic behavior following pressure from their families to lose weight, and more specifically pressure from their mothers (Pike & Rodin, 1991).

Media may also play a role in the development of eating disorders because of their impact on the values, norms, and aesthetic standards embraced by society (Harrison & Cantor, 1997). For instance, evidence suggests that the rise in eating pathology over the last several decades has been concomitant with a decrease in the weight of the ideal body for women portrayed in society (Pyle, Halvorson, Neuman, & Mitchell, 1986), and with an increase in the number of articles promoting methods of weight loss in women's magazines (Garner & Garfinkel, 1980; Wiseman, Gray, Mosimann, & Ahrens, 1992). Finally, Stice, Schupak-Neuberg, Shaw, and Stein (1994) found that media consumption was related to increased gender role stereotype endorsement and heightened subscription to the thin-ideal.

A history of being teased about weight during childhood or adolescence represents another source of external pressure that might reinforce the glorification of slenderness. Because adolescence represents a period where young females are often seeking outside information to form a self-identity (Asbach, 1994; Strasburger, 1995), they are particularly vulnerable to teasing messages that convey the importance of thinness. Repeated teasing is thought to lead to endorsement of the thin-ideal, which in turn, can lead to body dissatisfaction. Several studies have confirmed the significant relationships between a reported history of being teased about appearance and weight, and a negative body image in adulthood (Cattarin & Thompson, 1994; Fabian & Thompson, 1989; Thompson, Cattarin Fowler, & Fisher, 1995; Thompson, Fabian, Moulton, Dunn, & Altabe, 1991).

ENDORSEMENT OF SOCIETY'S BELIEFS RELATED TO THINNESS AND OBESITY

Several authors (e.g., Garner & Garfinkel, 1980; Silverstein, Perdue, Peterson, Vogel, & Fantini, 1986) have argued that society encourages and

rewards women who strive for the thin-ideal. The thin-ideal is not only falsely associated with female attractiveness but it is also associated with different characteristics such as being interesting, strong, poised, kind, socially outgoing, and sexually warm (Rodin, Silberstein, & Striegel-Moore, 1985). Conversely, obesity is perceived as socially undesirable and is highly stigmatized (Rand & Kuldau, 1990). Some studies indicate that obese people are rated more negatively than are nonobese people on characteristics such as intelligence, success, and desirability as an employee (Harris, Harris, & Bochner, 1982; Larkin & Pines, 1982). Endorsement of these beliefs is likely to lead women to develop an ideal body image (standard) to which they will compare their actual self. Again, because this standard is often too extreme, many women feel dissatisfied with their body image (Heinberg, Thompson, & Stormer, 1995; Stice et al., 1998).

BODY DISSATISFACTION

Several studies, using both cross-sectional and longitudinal designs, have documented an important link between body dissatisfaction and eating pathology. For instance, studies have found that body dissatisfaction was highly correlated with eating disturbance (Fabian & Thompson, 1989), and it was one of the strongest predictors of risk factors associated with eating pathology (Leon et al., 1993). Attie and Brooks-Gunn (1989), in a two-year, longitudinal study of female adolescents, found that body dissatisfaction was a significant predictor of increased eating disturbance a year later. Thompson and colleagues (1995) found a positive association between body dissatisfaction and eating pathology. Finally, Stice et al. (1996) and Stice et al. (1998) found that body dissatisfaction could lead to bulimia through restrained eating and negative affect. Negative affect is also thought to promote binge eating and/or purging behaviors (e.g., Stice & Agras, 1998; Stice et al., 1998) as these behaviors enable individuals to escape from the aversive emotions they experience toward their bodies (Heatherton & Baumeister, 1991).

In sum, sociocultural pressures about body image are thought to play a central role in the promotion and maintenance of eating pathology by emphasizing thinness as an essential component of feminine beauty. As an attempt to conform to the unrealistic ideal body image, some women may adopt unhealthy weight control strategies such as self-induced vomiting or overuse of laxatives. However, the fact that most women are exposed to sociocultural pressures related to body image but that only a minority develop eating pathology suggests that individual differences might protect against sociocultural pressures. In the next section, we will examine the concept of self-determination, and how it could help us

to understand why some women, although exposed to sociocultural pressures about body image may be less influenced by them, and be at lesser risk of experiencing bulimic symptoms.

SELF-DETERMINATION THEORY (SDT)

According to Deci and Ryan (1985), individuals have a general tendency to be motivated and to regulate behaviors through choice as an expression of themselves, or to be generally moved to act as a result of feeling pressured or coerced by intrapsychic and environmental forces. In the former case, individuals are motivated to pursue their own interests and not what others dictate them to do. The regulation of behaviors is said to be autonomously initiated and is characterized as self-determined. In the latter case, individuals are not behaving from a sense of personal commitment and choice. Individuals' actions are a result of sources outside the self that are defined as controlling. These sources may not be limited to forces outside the person. For example, an inner impulse or drive (e.g., guilt, shame, rebellious feelings) represents forces that are inner to the person but external to one's self. Indeed, the fact that one feels compelled to follow a drive suggests that it is not something that emanates from the self. In that case, the regulation of behaviors is said to be characterized by an heteronomous initiation and is referred to as non-self-determined (Deci & Ryan, 1985). According to this theory, the regulation of behavior could take many forms that can be differentiated along a continuum of self-determination. This self-determination continuum is thought to reflect a gradation in the degree of choice and freedom implied in each behavior. The different forms of regulation can be grouped into three broad categories: intrinsic motivation, extrinsic motivation, and amotivation.

Intrinsically motivated behaviors represent the natural manifestation of one's innate propensity to explore, integrate, and master the environment in the absence of rewards or extrinsic contingency to perform an activity (Deci, 1975). When intrinsically motivated, individuals voluntarily engage in activities for the pleasure and the satisfaction inherent to participation itself, along with the experience of competence and self-determination derived while experiencing conquering challenges, and relating to others in the social environment (Deci & Ryan, 1985).

Contrary to intrinsic motivation, extrinsic motivation pertains to a variety of behaviors that are engaged in as a means to an end and not for their own sake (Deci, 1975). When extrinsically motivated, individuals are not interested in the activity per se but rather, they engage in it in order to experience pleasant consequences or to avoid unpleasant ones. Recently, Deci and Ryan (1985, 1991; Ryan & Deci, 2000) have proposed

different forms of extrinsic motivation that can be ordered along a self-determination continuum. From lower to higher levels of self-determination, they are: external, introjected, identified, and integrated regulation.

External regulation corresponds to the traditional definition of extrinsic motivation. When motivated by external regulation, individuals perform behaviors not for the satisfaction derived from doing the activity itself but rather to obtain a desired outcome following completion of the activity or to avoid an undesired one. With introjected regulation, the formerly external source of control (external regulatory process) has been internalized such that its actual presence is no longer needed to initiate behavior. Instead, the control stems from within the person in the form of self-imposed pressure or emotions such as guilt or anxiety (Ryan & Connell, 1989). For this reason, introjected regulation is defined as nonself-determined and internally controlled. With identified regulation, external regulatory processes have been internalized into one's sense of self. The behavior is valued and is perceived as being chosen by oneself. One personally decides to perform the behavior because it is congruent with that person's values and goals. Individuals experience a sense of direction and purpose in performing the activity. With integrated regulation, the identification with one's motives has reached a high level of generality within the self-system. The instrumental behavior has been valued to an extent such that it has become part of the person's self-definition. The regulation of behavior is fully integrated and assimilated with one's sense of self.

Deci and Ryan (1985) also proposed that it was necessary to consider a third category in order to fully understand the nature of human behaviors, that is, amotivation. Amotivation refers to a state where individuals do not perceive contingencies between their actions and the outcomes of their actions. Therefore, individuals are unable to foresee the consequences of their behavior. When amotivated, individuals have a pervasive sense that their behavior is caused by forces beyond their control. They experience feelings of incompetence, lack of control and alienation.

The existence and validity of the self-determination continuum has been supported by the results of several studies in which a distinct correlational pattern was obtained between the different styles of regulation forming the continuum. This correlational structure is called a "simplex pattern" (Guttman, 1954). Specifically, in that particular structure, each regulatory style displays positive correlations with the adjacent regulatory style on the continuum. The magnitude of the correlations between a particular construct and the others is expected to decrease progressively, and eventually, to grow negative as a function of the distance separating the constructs on the continuum. This simplex

pattern has been identified in several different life domains (see Vallerand, 1997, for a review).

CONSEQUENCES OF SELF-DETERMINATION

Numerous studies have investigated the relationship among the six regulatory styles previously identified (i.e., intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation) and different consequences. Because self-determination has been hypothesized to be associated with enhanced psychological functioning (Deci & Ryan, 1985), one would expect self-determined regulatory styles (intrinsic motivation, integrated and identified regulations) to be associated with positive outcomes, whereas the least self-determined regulatory styles (external regulation, introjected regulation, and amotivation) would be associated with negative outcomes. This pattern of results has been established in many laboratory and field studies conducted in a number of life domains (see Vallerand, 1997, for a review). Globally, these studies have found that the more self-determined styles of regulation were positively associated with enhanced learning, increased life satisfaction, psychological well-being, greater effort, persistence, and enhanced physical health, whereas the less self-determined forms were negatively associated with these outcomes.

In agreement with SDT, one would expect that the more globally self-determined individuals are toward the different activities of their lives, the less they should perceive sociocultural pressures about body image and the less they should endorse society's beliefs related to thinness and obesity. For them, messages about body image should be perceived as information that they will evaluate in relation to their own experiences, goals, and values. This information should be used to generate their own criteria about body image and to choose the best courses of action that will lead them to attain their own integrated goals or to continue to uphold their own values. If incongruent with their values, the information should simply be disregarded. Also, because self-determination has been found to be associated with a better general functioning, one would expect that people who are globally self-determined in their lives would be at lesser risk of experiencing bulimic symptomatology.

PURPOSE OF THE STUDY

In the present study we examined two alternative models of bulimic symptomatology. The first model is an adapted version of Stice's

Sociocultural Model of eating pathology. According to this model, it is hypothesized that sociocultural pressures about body image will be positively associated with endorsement of society's beliefs related to thinness and obesity, which in turn, will be positively associated with body dissatisfaction. It is hypothesized that body dissatisfaction will be positively associated with bulimic symptomatology. In this first model, the influence of GSD was not assessed (Holmbeck, 1997). In the second model, we examined more specifically, how GSD can be helpful in better understanding why some women may be less influenced by them and may be less susceptible to present bulimic symptoms. As in the first model, it is hypothesized that sociocultural pressures about body image will be positively associated with endorsement of society's beliefs related to thinness and obesity which will be positively associated with body dissatisfaction. In turn, body dissatisfaction will be positively associated with bulimic symptomatology. It is also hypothesized that GSD will be directly and negatively related to perceived sociocultural pressures about body image, to endorsement of society's beliefs related to thinness and obesity, and to bulimic symptoms. Although, these analyses may offer support for the predictive role of self-determined motivation, they may not rule out the possibility that self-determined motivation is a moderator of the relationships observed in the model of bulimic symptomatology. In order to rule out this possibility, moderating effects were tested using multiple regression (Holmbeck, 1997). More specifically, we examined, if, for the same level of sociocultural pressures about body image, high self-determined individuals experience fewer bulimic symptoms than low self-determined individuals.

METHOD

PARTICIPANTS AND PROCEDURE

Three hundred females students enrolled in an undergraduate (79.4%) or graduate (20.6%) course at the University of Ottawa were recruited for the present study. The participants' ages ranged between 17 and 50 years ($M = 22.2$). The average Body Mass Index (BMI; Kg/m^2) for the sample was 22.5 ($SD = 4.13$). Using the Bulimia Test-Revised (BULIT-R) cut-off provided by Thelen, Farmer, Wonderlich and Smith (1991), 2.8% of the women in the sample would be classified as putative bulimics. Women's participation was solicited during a designated class period. Some women completed the questionnaire at the beginning of a class ($N = 216$), whereas others completed the questionnaire at home and returned it during the next class in a sealed envelope ($N = 84$).

INSTRUMENTS

The Global Motivation Scale (GMS; Pelletier, Blanchard, Sharp, Otis, & Amiot, 2002). The GMS assesses the reasons why people perform the different activities of their lives. The 24 items (four items/subscale) are divided into six subscales that represent the six motivation subtypes defined by Deci and Ryan (1985). Examples of items for the different subscales are as follows: intrinsic motivation (e.g., in order to feel pleasant emotions); integrated regulation (e.g., because by doing them I am living in line with my deepest principles); identified regulation (e.g., because I choose to invest myself in what is important to me); introjected regulation (e.g., because otherwise I would feel guilty for not doing them); external regulation (e.g., in order to show others what I am capable of); and amotivation (e.g., although I do not see the benefit in what I am doing). Participants are asked to indicate on a seven-point Likert scale ranging from 1 ("Does not correspond at all") to 7 ("Corresponds exactly") the extent to which each item corresponds to their own motives for performing different activities in their lives.

Pelletier et al. (2002) reported results from five studies that supported the validity of the scale. Results of confirmatory factor analyses from two studies supported the factor structure of the scale, revealed satisfactory internal consistency, and supported the self-determination continuum. The construct validity of the scale was substantiated further in the third and fourth studies. Correlations among the subscales revealed a simplex pattern confirming that the self-determination continuum and the subscales of the GMS were related to antecedents of motivation (attachment styles, and perceptions of autonomy support and competence), constructs associated with motivation (self-control, vitality, ego-depletion, and motivation for different life domains), and consequences of motivation (psychological well-being, and success/failure at self-regulation) in a manner predicted by self-determination theory. In the fifth study, the GMS was administered in two occasions (six-week interval) and revealed adequate test-retest reliability.

In the present study, we were interested in measuring a global score of self-determination (self-determination index). Therefore, weights were assigned to each subscale as a function of their position on the self-determination continuum. Because they are considered self-determined forms of motivation, intrinsic motivation, integrated regulation, and identified regulation were assigned the weights of +3, +2, +1, respectively. On the other hand, because they are conceptualized as nonself-determined forms of motivation, amotivation, external regulation, and introjected regulation were assigned the following respective weights: -3, -2, -1.). As there were four items for each of the motivational

subscales, we computed four indices using individual motivational items. The four indices' (GSD1, GSD2, GSD3, GSD4) scores were computed using the following equation: $GSD = 3(IM) + 2(INTEG) + (IDEN) - (INTRO) - 2(ER) - 3(AMO)$. Ryan and Connell (1989) have reported extensive support for the construct validity of such a composite index (see also Vallerand, 1997).

Perceived Sociocultural Pressures about Body Image. Perceived Sociocultural Pressures about Body Image is comprised of indicators about pressures to have a thin body as well as a history of being teased about body image. The Sociocultural Pressures to Have a Thin Body Scale (Stice, Nemeroff et al., 1996) is comprised of four subscales (two items/subscale) that represent four different sources of pressure (four indicators of the latent construct). The eight items describe the amount of pressure perceived from family, friends, dating partners, and the media to have a thin body. An example of item is: "I've perceived a strong message from my family to have a thin body." Participants are asked to rate, on a 5-point Likert scale ranging from 1 = ("Does not agree at all") to 5 = ("Strongly agree") the extent to which they agree with the different items. Stice, Ziemba, Margolis, and Flick (1996) reported a Cronbach's alpha of .87 for the scale and a test-retest reliability of .93 over two weeks. With the current sample, internal consistency for the full scale was .85. The History of Being Teased about Physical Appearance Scale (Thompson, 1990) is comprised of two subscales assessing a variety of body teasing experiences during childhood and adolescence (three items/subscale) that were combined to form one indicator. An example of an item for this subscale is: "When you were a child, or an adolescent, were you the brunt of family jokes because of your weight?" Participants are asked to rate, on a six-point Likert scale ranging from 1 = ("Never") to 6 = ("Always"), the extent to which the items reflect their past teasing experiences as a child or adolescent. Previous research has shown a Cronbach's alpha of .75 for the subscale, good test-retest reliability ($r = .87$) after one month, and good discriminant validity between nondisordered-eating women and those with high bulimic symptomatology (Boyer, 1991). Cronbach's alpha for the current study was .73.

Endorsement of Society's Beliefs Related to Thinness and Obesity (Boyer, 1991). This scale assesses the extent to which an individual endorses society's beliefs about thinness and obesity. The scale is comprised of two subscales of four items each that were added to create the two indicators of the internalization of society's beliefs. One of the subscales refers to beliefs about thinness whereas the other refers to beliefs about obesity. An example of an item for each subscale is: "Thin people are well liked" and "Fat people don't have any self-control." Participants are asked to

rate, on a seven-point Likert scale ranging from 1 = ("Do not agree at all") to 7 = ("Strongly agree"), the extent to which they agree with the different items. The scale has been shown to have a Cronbach's alpha of .80 for the beliefs about thinness and .81 for the beliefs about obesity. The scale has been shown to discriminate between women with bulimic symptoms and those without symptoms (Boyer, 1991). Internal consistency for the current sample was .85 and .80 for the thinness and obesity subscales, respectively.

Eating Disorder Inventory-2 (EDI-2) - Body Dissatisfaction Subscale (EDI-BD; Garner, 1991). This scale is comprised of nine items that assess the level of dissatisfaction with several body areas. For the purpose of the present study, participants were asked to rate, on a six-point Likert scale ranging from 1 = ("Do not agree at all") to 6 = ("Agree completely"), the extent to which they agree with the different items that describe body parts. An example of an item is: "Do you think your stomach is too big?" The EDI revealed a coefficient of internal consistency of .90 for the Body Dissatisfaction Subscale and good test-retest reliability (Garner & Olmstead, 1984). Several authors have also documented good test-retest reliability after one week, after three weeks, and after one year. Internal consistency for the current sample was .92. The items were grouped in sets of three that were to create three indicators of body dissatisfaction.

Bulimic Symptomatology. The BULIT-R (Thelen et al., 1991) was used to assess bulimic symptomatology in accordance with the DSM-III-R criteria. This instrument is comprised of 28 items (a total of 34 items with eight filler items unscored) and is useful in identifying individuals who are most likely to be diagnosed with bulimia nervosa on the basis of an interview. Prior research has shown that this self-report scale is a valid indicator of bulimia nervosa in both clinical and nonclinical populations. Participants are asked to choose one of five answers (1 to 5) that applies best to them. The number circled for each item can be summed in order to obtain a total score. A total score above 104 is possibly indicative of putative bulimia nervosa. The scale has been shown to have a high internal consistency ($\alpha = .97$), to discriminate well between individuals with bulimia nervosa and noneating disordered individuals, and to correlate with other measures of eating pathology. Also, good test-retest reliability ($r = .95$) has been documented (Thelen et al., 1991). Internal consistency for the current sample was .95. For the purpose of creating the indicators for the latent construct of Bulimic Symptomatology, three indicators were created by adding the scores of a first group of nine items, a second group of nine items, and a third group of ten items.

RESULTS

Structural Equation Modeling procedures using LISREL 8.3 (Jöreskog & Sörbom, 1996) were performed to test the two alternative models of bulimic symptomatology. The first model is comprised of four latent variables, namely sociocultural pressures about body image, endorsement of society's beliefs related to thinness and obesity, body dissatisfaction and bulimic symptomatology. The second model is comprised of the same sequence of variables with the addition of the GSD variable. Analyses were based on the covariance matrix using Maximum Likelihood estimation.

Preliminary analyses were performed to assess departures from basic assumptions for multivariate analyses. Inspection of the means and standard deviations of each variable included in the analyses indicated their values to be within the theoretical expected range for each of them (see Table 1). Values of kurtosis and skewness were all inferior to $|2|$ and ranged from $-.62$ to 1.28 and from $-.78$ to 1.14 , respectively. Moreover, from a multivariate perspective, the distribution of standardized residuals appeared normal. More specifically, the sum for the self-determination indices ranged from -8.00 to 28.00 with an average of 12.08 . Thus, the means indicate that our sample was slightly self-determined. However, the means are very similar to those reported by Pelletier et al. (2002) with different samples of university students.

TEST OF AN ADAPTED VERSION OF STICE'S SOCIOCULTURAL MODEL OF EATING PATHOLOGY

As a first analysis, we tested an adapted version of Stice's Sociocultural Model of Eating Pathology. This model is depicted in Figure 1. It is comprised of five latent variables or factors, 17 measured variables serving as indicators, three standardized structural regression coefficients showing the hypothesized directional influences among the latent variables, 17 factor loadings from the factors onto the indicators, and 17 error variances associated with observed variables.

For purposes of identification, the loading between the first indicator and its latent construct was fixed to 1.0, as indicated in Table 2. Although the likelihood ratio chi-square was significant ($\chi^2(116, N = 299) = 347.08$, $p < .01$), the fit indices revealed that the correspondence between the estimated model and the sample covariance was satisfactory (RMSEA = .08; GFI = .90, CFI = .93; IFI = .93; PCFI = .79). All parameters were significant and of high magnitude. As predicted, sociocultural pressures about body image were positively correlated with endorsement of society's beliefs related to thinness and obesity ($\gamma = .88$), endorsement of society's be-

TABLE 1. Summary Statistics for the Indicators of the Two Models of Bulimic Symptomatology

Variables	Mean	Standard Deviation	Skewness	Kurtosis	Theoretical Range
GSD1	14.58	8.95	-.34	-.27	-36/+36
GSD2	11.39	9.59	-.19	-.23	-36/+36
GSD3	10.59	8.70	.08	-.21	-36/+36
GSD4	11.76	8.83	-.29	.40	-36/+36
TEASE	6.96	3.80	1.05	.48	3/18
FAMILY	3.84	2.16	1.17	.52	2/10
FRIENDS	3.30	1.63	1.24	1.09	2/10
PARTNER	3.93	2.28	1.10	.27	2/10
MEDIA	7.46	2.36	-.62	-.57	2/10
THINNESS	14.64	5.90	.15	-.73	4/28
OBESITY	9.71	4.69	.79	.02	4/28
DISAT1	10.86	3.88	.07	-.78	3/18
DISAT2	11.81	3.75	-.28	-.36	3/18
DISAT3	10.62	4.02	.17	-.75	3/18
BULIT1	18.80	7.12	.74	-.02	9/45
BULIT2	16.49	6.04	1.19	1.06	9/45
BULIT3	17.75	7.14	1.28	1.14	10/50

iefs related to thinness and obesity was positively associated with body dissatisfaction ($\beta = .76$), and body dissatisfaction in turn, was positively related to eating pathology ($\beta = .68$).

THE ROLE OF SELF-DETERMINATION IN THE SOCIOCULTURAL MODEL OF EATING PATHOLOGY

A second model that is comprised of the same variables that were included in the first model was tested with the addition of relationships between GSD and sociocultural pressures about body image, between GSD and endorsement of society's beliefs about thinness and obesity, and between GSD and bulimic symptoms. It was hypothesized that GSD would be directly and negatively associated with sociocultural pressures about body image, endorsement of society's beliefs related to thinness and obesity, and bulimic symptomatology. The model is depicted in Figure 2.

Although the likelihood ratio chi-square was significant ($\chi^2(113, N = 299) = 277.15, p < .001$), the other fit indices revealed that the correspon-

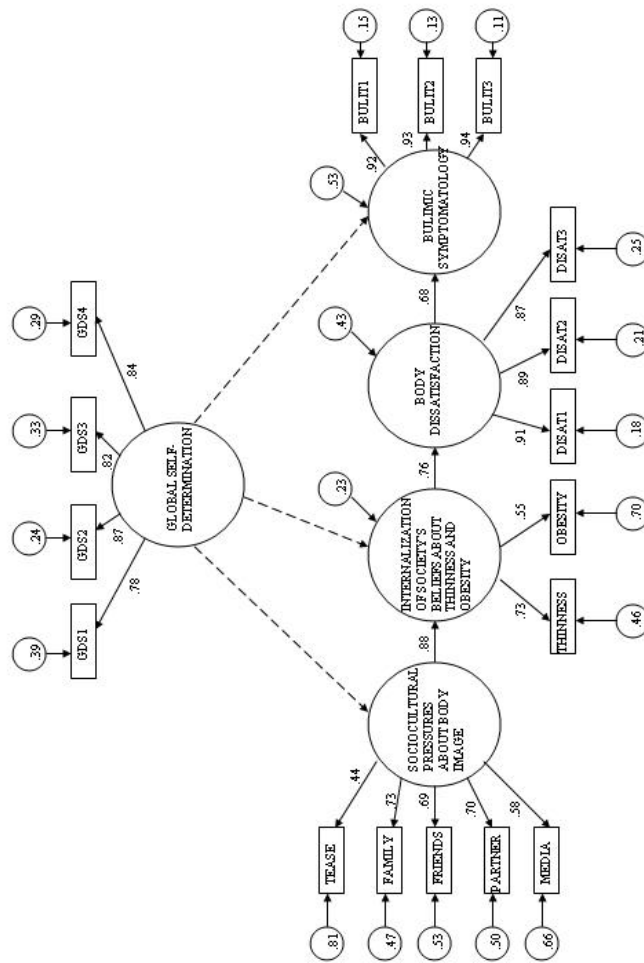


FIGURE 1. Test of an adapted version of Stice's Sociocultural Model Of Bulimic Symptomatology. All estimates are standardized and significant at the .05 level.

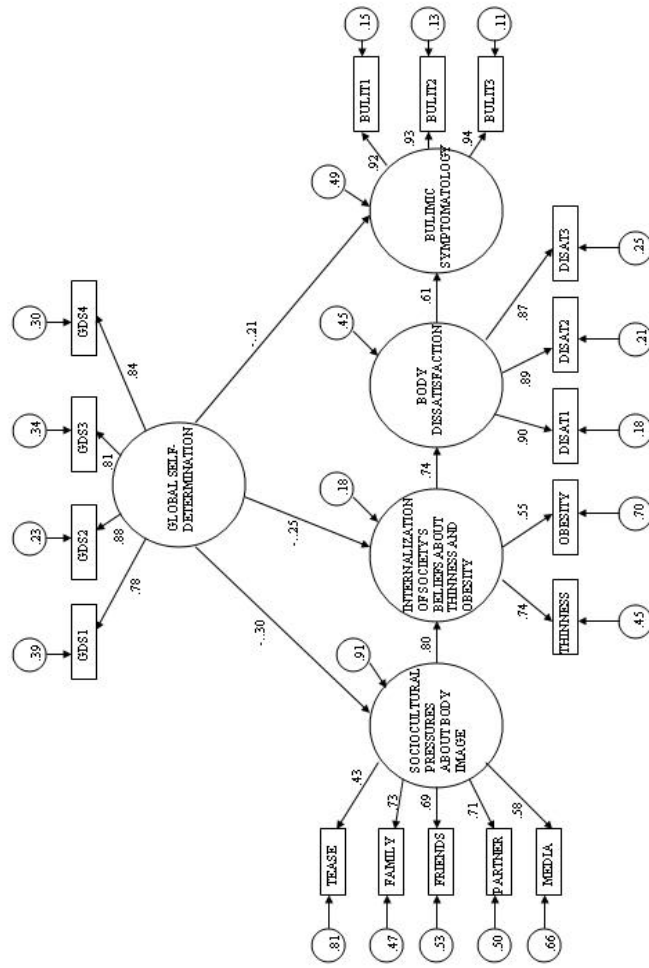


FIGURE 2. The role of global self-determination in the sociocultural model of bulimic symptomatology. All estimates are standardized and significant at the .05 level.

dence between estimated model and the sample covariance was very satisfactory (RMSEA = .07; GFI = .91, CFI = .95, IFI = .95, PCFI = .79). The addition of GSD revealed a better fit between the hypothesized model and the data than between the traditional sociocultural model of eating pathology and the data. Also, all estimated parameters were significant and of acceptable magnitude. As illustrated in Figure 2 (see also Table 2), sociocultural pressures about body image were positively associated with the endorsement of society's beliefs related to thinness and obesity ($\beta = .80$), which was positively associated with body dissatisfaction ($\beta = .74$). Body dissatisfaction in turn, was positively associated with bulimic symptomatology ($\beta = .61$). When compared to the first model, the second model suggests that the introduction of GSD contributed to a decline in the strength of the relationship between sociocultural pressures and endorsement of society's beliefs (from .88 - .80), and a decline in strength of the relationship between body dissatisfaction and bulimic symptomatology (from .68 - .61). Finally, GSD was found to be directly and negatively associated with sociocultural pressures about body image ($\gamma = -.30$), endorsement of society's beliefs related to thinness and obesity ($\gamma = -.25$), and bulimic symptomatology ($\gamma = -.21$). The addition of GSD contributed to an additional 5% of the variance in endorsement of society's beliefs related to thinness and obesity, and 4% more in bulimic symptomatology (for a total of 41% of the variance in bulimic symptomatology).

TESTING FOR MODERATING EFFECTS OF GSD

Considering the results above, there was a possibility that GSD could moderate the relationships between sociocultural pressures about body image and endorsements of society's beliefs about thinness and obesity. Regression analyses were performed to examine the possible interaction. To eliminate the possibility of multicollinearity effects between the predictor (sociocultural pressures about body image), the moderator (GSD), and the interaction term of the two variables, the independent variable and the moderator were centered before testing the significance of the interaction term. In agreement with the results obtained for the SEM, the results of the regression analysis revealed that endorsements of society's beliefs were affected by GSD, $t(299) = -2.80, p < .05$, and sociocultural pressures, $t(299) = 5.76, p < .01$. However the interaction was not significant, $t(299) = -0.62, p < .05$. In other words, the relationship between sociocultural pressures and endorsements of society's beliefs was not affected by the level of self-determination but rather GSD represented a significant predictor of both variables.

TABLE 2. Goodness-of-Fit Statistics Showing the Contribution of Global Self-Determination (GSD) to Sociocultural Pressures about Body Image, to Endorsement of Society's Beliefs and to Bulimic Symptomatology

Models	df	χ^2	Δdf	$\Delta\chi^2$	RMSEA	CFI	IFI	PCFI	GFI
First Model									
Model without links between GSD and...									
sociocultural pressures	116	347.08			.08	.93	.93	.79	.90
endorsement of society's beliefs									
bulimic symptomatology									
Second Model									
Model with links between GSD and...									
sociocultural pressures	113	277.15	3	69.93**	.07	.95	.95	.95	.91
endorsement of society's beliefs									
bulimic symptomatology									
Significant contribution of GSD...									
to sociocultural pressures	115	315.64	1	31.44**	.08	.94	.94	.79	.91
to endorsement of society's beliefs	115	314.35	1	32.73**	.08	.94	.94	.79	.91
to bulimic symptomatology	115	341.32	1	5.76*	.08	.93	.93	.79	.91

Note. $\Delta df = 1$, $\Delta\chi^2 = 31.44$, $p < .025$; ** $p < .001$; $\Delta\chi^2 = 5.76$;

DISCUSSION

In the present study, two models were examined. The first model was designed to test an adapted version of Stice's Sociocultural Model of Eating Pathology. In this model, it was hypothesized that sociocultural pressures about body image would be positively associated with endorsement of society's beliefs related to thinness and obesity, which would be positively associated with body dissatisfaction. Body dissatisfaction in turn, was hypothesized to be positively associated with bulimic symptomatology. The second model was designed to expand upon the existing literature on the risk factors of eating pathology by examining the role of GSD. More specifically, this model was aimed at examining how GSD could contribute to the understanding of why some women, although exposed to sociocultural pressures about body image, may be less influenced by these pressures and be at lesser risk of experiencing an eating disturbance characterized by bulimic symptoms. The model tested the same sequence of variables that was examined in the first model with the addition of relationships between GSD and some variables of the sociocultural model of bulimia. More specifically, it was hypothesized that GSD would be directly and negatively related to sociocultural pressures about body image, to endorsement of society's beliefs related to thinness and obesity, and to bulimic symptomatology.

Analyses of the first model suggested that the more women perceived sociocultural pressures about body image, the more they endorsed society's beliefs related to thinness and obesity, which was associated with greater body dissatisfaction. Body dissatisfaction in turn, was associated with more bulimic symptomatology. These findings are in line with recent models of the sociocultural approach of eating pathology (see Stice and Agras, 1998; Stice et al., 1998; Twamley & Davis, 1999) and thus, provide additional empirical support for the role of sociocultural factors in the development of eating pathology.

More central to the present hypothesis, analysis of the second model revealed that the addition of structural links between Global Self-Determination (GSD) and sociocultural pressures, between GSD and internalization of society's beliefs, and between GSD and bulimic symptomatology contributed to a better understanding of why some women, although exposed to sociocultural pressures about the thin-ideal, may be less influenced by these pressures and be at lesser risk of experiencing bulimic symptoms. Three important findings were derived from the addition of these structural links. GSD was found to be directly and negatively associated with sociocultural pressures about body image, with endorsement of society's beliefs related to thinness

and obesity, and with bulimic symptomatology. A discussion of each finding follows.

ASSOCIATION BETWEEN GSD AND SOCIOCULTURAL PRESSURES ABOUT BODY IMAGE

In agreement with Self-Determination Theory, support was found for the idea that the more self-determined women are in their lives, the less they perceive sociocultural pressures about body image. If we assume that almost every woman is to some extent exposed to the thin-ideal portrayed in society, these findings suggest that GSD could possibly act as a buffer against pressures about body image. In other words, women who are globally self-determined may not perceive to the same extent sociocultural messages about body image as a source of pressure. For these women, messages about body image could represent information that they evaluate in light of their own values and their previous integrated experiences. When inconsistent with their values, this information would be disregarded.

However, it is important to recognize that in this study, participants were asked to indicate the extent to which they perceived sociocultural pressures about body image. Exposure to messages about the thin-ideal was not directly assessed but, rather, inferred. To objectively assess sociocultural pressures and their effects on the individual, it would be important in future studies to manipulate the source of sociocultural pressure. Then, the hypothesized buffering effect of GSD as an individual difference could be assessed. For example, body image-related messages could be presented to women who have high or low GSD scores, in laboratory sessions. Then their levels of satisfaction with their bodies, their perceptions of ideal and feared body shapes, and their intention to regulate their eating behaviors could be assessed.

ASSOCIATION BETWEEN GSD AND ENDORSEMENT OF SOCIETY'S BELIEFS

GSD was also found to be negatively associated with endorsement of society's beliefs related to thinness and obesity. This suggests that the more women perceive their actions as personally caused, and the more they experience choice toward the different activities of their lives, the less they endorse society's beliefs related to thinness and obesity. Conversely, the more they feel compelled to act in a certain way, or that they perceive that their actions originate from external sources, the more they endorse society's beliefs about thinness and obesity. These results suggest that although most women are to some extent exposed to

sociocultural factors about body image, not all of them may equally endorse society's beliefs related to thinness and obesity. This is also in line with Ryan, Sheldon, Kasser, and Deci's (1996) idea that people are more likely to adopt extrinsic values (e.g., financial success and physical attractiveness) than intrinsic values (e.g., personal growth and meaningful relationships) if they have an underlying insecurity, a fragile sense of self that must be continually bolstered by outward indicators of worth. According to these authors, individuals who lack the solid foundation of a well-integrated self (i.e., nonself-determined people) should be more vulnerable to internalize sociocultural beliefs about thinness because they rely heavily on them for their self-worth. Conversely, people with a well-integrated self (i.e., self-determined people), are more likely to internalize values that are in line with their intrinsic nature, that is, values that are in harmony with their innate psychological needs (i.e., competence, autonomy, and relatedness).

ASSOCIATION BETWEEN GSD AND BULIMIC SYMPTOMATOLOGY

Finally, GSD was found to be negatively linked to bulimic symptomatology. This suggests that women who are globally self-determined for the different activities of their lives may be at lesser risk of displaying bulimic symptomatology. Indeed, because women who are more self-determined have a more integrated sense of self, they may not feel compelled to use strategies that are unhealthy or self-destructive (e.g., severe dietary restraint) even though these strategies may be highly promoted by society. The negative association between GSD and bulimic symptomatology found in this study is consistent with recent findings from Twamley and Davis (1999) who suggested that body dissatisfaction may not always be a necessary prerequisite for the development of eating pathology. In fact, these authors explained that some women may perceive direct pressure to control their weight regardless of their body size and the feelings they experience toward it.

Another explanation for the negative association between GSD and bulimic symptomatology may be explained by the way women regulate their eating behaviors. According to Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation, if a person displays a global self-determined motivational profile in life, one would expect that this person would also be self-determined toward specific life domains (e.g., eating behaviors). A study by Williams, Grow, Freedman, Ryan, and Deci (1996) empirically tested this assumption by examining the effect of global motivation of severely obese people on their contextual motivation toward engaging in and following guidelines of a medical program.

Results suggested that the more patients were self-determined in their lives, the more self-determined was their motivation toward the treatment program. Based on this finding, it could be possible that women who display a self-determined profile also adopt a self-determined regulatory style toward eating behaviors. Conversely, women who display a nonself-determined profile would be inclined to adopt a nonself-determined regulatory style toward their eating behaviors, and then, we would expect that these women would be at greater risk of experiencing bulimic symptoms. For example, if a woman regulates her eating behaviors through fear of being abandoned by her partner who pressures her to lose weight, it is possible that she would resort to extreme unhealthy weight control methods such as self-induced vomiting, laxative abuse, or diuretics. Conversely, if a woman personally chooses to regulate her eating behavior because she highly values being in good health, it is unlikely that she would resort to unhealthy behaviors as an attempt to regulate her eating.

Another explanation for the relationship between GSD and bulimic symptomatology could be related to the way globally self-determined women in comparison to nonself-determined ones, define their self-worth. For instance, for women who are globally self-determined, physical appearance is unlikely to be the only determinant of their self-worth because women's global sense of self-determination may affect several aspects of their lives (interpersonal relationships, work, and leisure). Conversely, women who have a low self-determined profile may possibly attribute much more importance to physical appearance because they do not behave agentically from their own perspective. Rather, they highly value what is emphasized by their external environment. Because positive attributes are strongly associated with physical appearance, failure to meet society's standard about body image could possibly negatively affect their feelings of self-worth.

LIMITATIONS OF THE STUDY

Although our findings are congruent with the literature on the risk factors of eating pathology, some limitations of the study invite us to be careful when interpreting the results. First, this study relied exclusively on self-report measures. Although the use of anonymous and confidential self-report measures is likely to encourage honest responses, multiple methods of assessment such as a combination of self-reported measures (e.g., peer, partner, parents) could be included in future studies. Second, as with the vast majority of studies in the area of eating pathology, the present study focused on a sample that was mainly composed of Caucasian undergraduate university women. Although,

this group has been found to be at risk for bulimic symptomatology, replication with women randomly selected from different communities and from various socioeconomic backgrounds could increase the generalization of our findings. In addition to cultural and gender issues, it is important to note that a sample of university students attending classes may over-represent self-determined or well-functioning women. It is possible that different factors may be involved in the development of bulimic symptomatology for men. Therefore, generalization of findings to men should be investigated in future studies.

Third, even though sophisticated statistical procedures were used to evaluate the proposed models, the data remain cross-sectional and should be interpreted with caution. It is still possible that those participants with bulimic tendencies may process all the information about body image through a negative body image schema (Cash, 1997; Thompson et al., 1999). The use of a longitudinal design would allow us to test the causal sequence proposed, as well as examine behavior change over time. Laboratory studies could allow us to examine more closely the causal relationships between women's levels of GSD, the exposition to different messages about body image, and their reactions to these messages.

Fourth, because this study assessed bulimic symptomatology rather than bulimia nervosa, these results may not generalize to women with the syndrome of bulimia. Fifth, in this study, bulimic symptomatology was studied in the context of sociocultural and motivational factors. However, because eating pathology is believed to result from multiple sources of influences including family dynamics, biological changes, and psychological factors, future research should examine a larger model that would integrate elements from these other different approaches.

Finally, it is important to underline, that it is difficult to know if a woman with a self-determined style interprets fewer messages as pressure, seeks out fewer sources of pressure (media), is able to resist them, although she receives the same amount of pressure or she has indicated to people around her social life that she is not to be pressured about body image. Future research could try to examine more specifically why the association between GSD and the components of the sociocultural model exists.

IMPLICATIONS FOR THE PREVENTION OF BULIMIC SYMPTOMS

Despite these limitations, the present study represents a first attempt to investigate how self-determined motivation can possibly protect against sociocultural influences about body image and reduce women's risk for

bulimic symptomatology. Our findings suggest that it may be helpful to encourage the development of a self-determined profile early in life so that young girls would reach adolescence with greater feelings of autonomy and self-determination. These feelings could enhance their confidence in making choices that are based on their own values at a time when they are more prone to seek outside information to form their self-identities. Increasing their level of GSD could possibly help them become more critical about society's beliefs related to thinness and obesity and reduce their perceptions of pressures about body image. This strategy could be combined with the strategy that consists of reducing the actual sources of pressure related to ultra-slender images portrayed in the media.

Research conducted in different domains such as education (e.g., Vallerand, Fortier, & Guay, 1997), and health context (e.g., Williams & Deci, 1996) has shown that interpersonal behaviors that are perceived to foster autonomy, competence, and relatedness facilitate self-determination. Thus, socialization agents such as parents, who represent one of the main sources of influence during one's development, could facilitate self-determination by adopting a supportive interpersonal style. For example, among other things, they could provide their children with structured information on eating habits and their relation to eating disorders. However, this information should be presented in a nonthreatening way, that is, with respect of the child's opinion and with acknowledgment of the child's perspective and feelings. Also, parents could provide informational feedback that promotes feelings of competence with regard to the child's eating behaviors and other behaviors in general. Finally, devoting time and resources to the child, as well as providing warmth and caring, could contribute to the enhancement of GSD.

Although we recognize that the present findings are preliminary in nature, it is our hope that they have aroused the interest of other researchers to further explore how self-determined motivation can help protect against sociocultural influences about body image and bulimic symptomatology.

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