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Why do women engage in fat talk? Examining fat talk using Self-Determination Theory as an explanatory framework

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ABSTRACT

This study used Self-Determination Theory to examine the motivational processes involved in individuals' engagement in fat talk and its association with unhealthy eating behaviors. Female undergraduate students ($N = 453$) completed an online questionnaire, which assessed general and contextual motivation, importance placed on goals, fat talk, and unhealthy eating behaviors. Structural equation modeling revealed that being generally non-self-determined and placing more importance on extrinsic goals, such as thinness, was associated with fat talk. Fat talk was further associated with non-self-determined motivation for eating regulation, which in turn was associated with unhealthy eating. General self-determination and placing more importance on intrinsic goals, such as health, were not associated with fat talk, but instead, were associated with more adaptive forms of eating regulation and diet quality. Findings further current knowledge on the respective roles of motivation and goals on the engagement in fat talk, and its consequences on eating regulation and behavior.

Introduction

With the growing prevalence of eating-related problems in Western societies, information on nutrition and weight management has become extremely pervasive in mainstream media (Willis & Knobloch-Westerwick, 2014). There is an abundance of information on nutrition and weight management that is accessible to the public; yet, increasing rates of body image related problems and eating pathology has become a major health concern (Verstuyf, Vansteenkiste, Soenens, Boones, & Mouratidis, 2013). For instance, approximately 57% of adolescent girls engage in unhealthy weight-control behaviors such as skipping meals and fasting (Neumark-Sztainer et al., 2002), and around 24% of women are dieting to lose weight (Fairburn & Brownell, 2005). The vast amount of resources to help individuals eat more healthily illustrates one of the ways to combat the epidemic of disordered eating, and also emphasizes the complexity and difficulty of regulating one's behaviors.

In order to reduce and prevent body image related issues, researchers have investigated various risk factors associated with body dissatisfaction and dysfunctional eating. The sociocultural model of eating pathology, one of the most validated models of disordered eating (Thompson, Coovert, & Stormer, 1999; Thompson & Stice, 2011), is based on the assumption that perceived social pressure to adhere to the thin ideal – which is perpetuated by the media, parents, and peers and cultural standards of feminine beauty – lead to dysfunctional beliefs and attitudes about body weight and eating behaviors through the internalization of these cultural standards (Fingeret & Gleaves, 2004; Halliwell & Harvey, 2006). Although this model has had a crucial impact on our current understanding of how some women may develop eating disorders, scholars have recently been interested in exploring how women, themselves, actively perpetuate the thin ideal by engaging in self-degrading conversations about one's own and/or others' bodies in a social context. These conversations have been termed *fat talk* (Nichter & Vuckovic, 1994).

Fat Talk

Fat talk has been defined as everyday conversations between individuals that are characterized by negative and disparaging comments regarding food dysregulation (e.g., "I ate way too much"), weight (e.g., "She is so thin!"), and/or body shape (e.g., "I hate my thighs"). Both women and men are known to engage in fat talk (Engeln-Maddox, Sladek, & Waldron, 2013); however, these conversations have been shown to predominantly occur among women of average weight across all ages (Arroyo & Harwood,

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2012) and in women of all body types (Martz, Petroff, Curtin, & Bazzini, 2009; Stice, Maxwell, & Wells, 2003). Given the pervasiveness of fat talk, these conversations have been shown to function as a social and injunctive norm (Britton, Martz, Bazzini, Curtin, & LeaShomb, 2006; Tompkins, Martz, Rocheleau, & Bazzini, 2009): approximately 93% of college women engage in fat talk (Salk & Engeln-Maddox, 2011), feel the need to self-objectify, and speak negatively about their bodies in order to feel accepted and to affirm group solidarity (Engeln-Maddox & Salk, 2014).

Although some women report that engaging in fat talk has a cathartic effect and temporarily increases body satisfaction (Salk & Engeln-Maddox, 2011), fat talk has been associated with a myriad of maladaptive consequences. For instance, verbalizing discontent with one's body has been shown to be significantly associated with body dissatisfaction and mental health issues, such as depression, low self-esteem, appearance investment, body-related cognitive distortion, drive for thinness, and dysfunctional eating (Arroyo & Harwood, 2012; Arroyo, Segrin, & Harwood, 2014; Rudiger & Winstead, 2013; Shannon & Mills, 2015). Most importantly, fat talk is a contagious phenomenon that is reciprocal in nature: women who overhear others engage in fat talk are more likely to fat talk themselves and to experience heightened body dissatisfaction and guilt (Corning, Bucchianeri, & Pick, 2014; Engeln-Maddox & Salk, 2014; Gapinski, Brownell, & LaFrance, 2003; Jones, Crowther, & Ciesla, 2014; Salk & Engeln-Maddox, 2011).

Over the past decade, correlates, causes, and consequences of fat talk have been increasingly investigated, particularly because of fat talk's rather strong association with risk factors related to the development of eating pathology (Shannon & Mills, 2015; Wade & Tiggemann, 2013). Accumulated evidence suggests that engagement in fat talk serves a guilt relief function, where individuals engage in these types of conversations to absolve themselves from shame for overeating and eating high-calorie foods or for not embodying the thin ideal (Shannon & Mills, 2015). Women engage in fat talk to receive validation, or re-affirmation, that their bodies are appealing and to seek social support and/or cohesion (for a review see Shannon & Mills, 2015). Although some of the causes and consequences of fat talk have been identified, no research has specifically examined individual differences in motives and goals associated with an individuals' propensity to engage in fat talk, and the processes through which engagement or disengagement in fat talk impact women's eating regulatory styles and eating behaviors. Using Self-Determination Theory (SDT) as a theoretical framework, this study aims to examine these issues.

Self-Determination Theory

SDT is a theory of motivation that postulates that humans are naturally self-motivated and have natural propensities for growth, integration, and well-being (Deci & Ryan, 1985, 2000). To understand and predict behavior, SDT attempts to explain the "why" and the "what" that underlie people's actions. The "why" of behavior is concerned with the different motives that move people to act, whereas the "what" of behavior is concerned with the content of individuals' goals. Although both constructs interact and influence each other, SDT acknowledges the importance of differentiating between motivation and goals to thoroughly understand why individuals engage in health promoting or health diminishing behaviors, since these constructs have been shown to have independent effects on well-being outcomes, such as positive and negative affect and life satisfaction (Deci & Ryan, 2000; Sheldon, Ryan, Deci, & Kasser, 2004).

The "why" of behavior. According to SDT, it is crucial to distinguish whether the origin of a behavior emanates from the self or whether it is external from the self. If the source of the regulation emanates from the self, the individual has identified with the behavior and has integrated it into his/her life. If the behavior is external from the self, the behavior has only been partially internalized or has not been internalized at all. SDT differentiates between three broad types of motivation (i.e., amotivation, extrinsic, and intrinsic) that can be divided into six behavioral regulations that vary in the extent to which they are autonomous and internalized. These behavioral regulations fall along a continuum from non-self-determined forms of regulation (amotivation, external, and introjected) to self-determined forms of regulation (identified, integrated, and intrinsic). At the non-self-determined end of the continuum, individuals feel more controlled in the regulation of their behaviors and engage in activities to obtain rewards; to avoid punishment, shame or guilt; and/or to maintain self-worth (Deci & Ryan, 2000). As individuals move toward more self-determined forms of regulation, they feel more autonomous and engage in activities that are congruent with their life goals and values.

Research in SDT provides extensive evidence that self-determined forms of motivation are associated with positive outcomes, whereas non-self-determined forms of motivation are associated with negative outcomes. In the domains of eating regulation, self-determined motivation has been shown to be positively associated with healthy eating and negatively associated with bulimic symptoms, whereas non-self-determined motivation has been shown to be negatively associated with healthy eating, and positively associated with bulimic symptoms in female university students (Pelletier, Dion, Slovinec-D'Angelo, & Reid, 2004). In the same study, self-determined motivation was associated with more concerns over the *quality* of food consumed, whereas non-self-determined motivation was associated with more concerns over the *quantity* of food consumed. In another sample of female university students, Otis and Pelletier (2008) also demonstrated that self-determined motivation was positively associated with an approach orientation toward food planning, which was associated with healthy eating behaviors, whereas non-self-determined motivation was positively associated with an avoidance orientation toward food planning, which was negatively associated with healthy eating behaviors.

General self-determination has also been shown to function as a protective factor for body image and disordered eating. In a motivational model of the sociocultural model of disordered eating, Pelletier, Dion, and Lévesque (2004) demonstrated that general self-determination was negatively associated with perceptions of sociocultural pressures of thinness, sociocultural beliefs about thinness and obesity, and bulimic symptoms. General self-determination was also shown to buffer the relationship between sociocultural pressures and endorsement of society's beliefs about thinness and obesity, and between body dissatisfaction and bulimic symptomology in female undergraduate students. Pelletier and Dion (2007) further developed the motivational model of disordered eating with a sample of university women. In this model, general self-determined motivation was negatively associated with sociocultural pressures to be thin and the endorsement of society's beliefs about thinness and obesity. Consistent with previous literature, sociocultural pressures to be thin was positively associated with the endorsement of thinness and obesity, which in turn was positively associated with body dissatisfaction. Body dissatisfaction was then positively associated with contextual non-self-determined motivation for eating, and to a lesser extent, self-determined motivation for eating. These two forms of contextual motivation were then associated with distinct eating behaviors: self-determined motivation was positively associated with healthy eating, which was defined by the Canadian Food Guide, and negatively associated with bulimic symptoms, whereas non-self-determined motivation was positively associated with bulimic symptoms and negatively associated with healthy eating.

This model further expands on our current knowledge of disordered eating and how body dissatisfaction is connected to daily eating regulation (Pelletier & Dion, 2007).

Although there is good support for the proposition that self-determined motivation is associated with more positive outcomes, there is also support for fluctuations in quality of motivation across different contexts and situations. According to the hierarchical model of intrinsic and extrinsic motivation, motivation at a higher level of generality (i.e., global motivation) should influence motivation at the next proximal level (i.e., contextual motivation) (Vallerand, 1997). For instance, if an individual typically engages in activities for self-determined reasons, the individual is more likely to experience self-determined motivation in other life domains (e.g., eating regulation), whereas an individual who typically engages in activities for non-self-determined reasons will most likely experience non-self-determined motivation in other contexts. In summary, contextual motivation should be influenced by motivation at the global level, as well as various biopsychosocial factors specific to the context.

The "what" of behavior. As mentioned above, the "what" of behavior refers to the specific contents of individuals' goals. According to SDT, individuals can pursue two different types of goals: intrinsic goals (e.g., health, affiliation, personal growth) and extrinsic goals (e.g., popularity, physical attractiveness, conformity; Kasser & Ryan, 1996; Vansteenkiste, Lens, & Deci, 2006). On the one hand, intrinsic goals are typically valued because they emerge from people's natural growth tendencies and their desires to connect with others (Sheldon & Kasser, 2001). They reflect an "inward" orientation because they tend to focus on the actualization of one's interests, values, and full potential, and their pursuit is thought to be inherently related to satisfaction of the three basic psychological needs (e.g., autonomy, competence, and relatedness) (Deci & Ryan, 2008). On the other hand, extrinsic goals are representative of consumer culture, which suggests that popularity, attractiveness, and wealth are indicators of happiness and success (Vansteenkiste, Soenens, & Duriez, 2008). They reflect an "outward" orientation because their focus is on obtaining praise, social status, and recognition (Williams, Cox, Hedberg, & Deci, 2000), and the pursuit of extrinsic goals is thought to thwart basic psychological needs through engagement in health diminishing behaviors (Deci & Ryan, 2000). The predominance of extrinsic over intrinsic goals is thought to represent an attempt to gain a sense of self-worth through externally visible achievements (e.g., good looks) because of an individuals' underlying lack of an inner sense of self-worth (Ryan, Sheldon, Kasser, & Deci, 1996). Since intrinsic goals are more oriented toward enhancing self-development and growth, they have been associated with greater health and well-being (Deci & Ryan, 2008). Conversely, extrinsic goals have been associated with lower life satisfaction and self-esteem, higher depression and anxiety, stringent dieting and exercise regimes, and poor weight management (Vansteenkiste et al., 2008).

Given the distinct consequences that emerge from pursuing intrinsic and extrinsic goals, researchers have examined the consequences related to the pursuit of these goals on body image and eating regulation. In both domains, the principal contrast between intrinsic and extrinsic goals is that between goals of wanting to be healthy and fit (i.e., intrinsic) and to look good or appealing to others (i.e., extrinsic; Ryan, Williams, Patrick, & Deci, 2009). In the body image domain, the vast amount of literature has focused on the impacts of the thin ideal on health diminishing behaviors. The lack of need satisfaction that is associated with extrinsic goals can often lead to the adoption of external indicators of self-worth to improve an individual's standing in relation to others as a way to prove the individual's sense of self-worth (Vansteenkiste et al., 2008). As a consequence, a woman who focuses on extrinsic goals may feel insecure about her body because she weighs more than her peers; therefore, she will over-exercise or diet to show her friends that she can live up to cultural ideals. Women who are more extrinsically oriented also tend to adopt a self-objectifying stance toward their bodies, which decreases their sense of competence to control their body weight, and is associated with body shaming and dissatisfaction (Vansteenkiste et al., 2008).

In relation to the regulation of eating, Putterman and Linden (2004) demonstrated that dieting for appearance (vs. health) reasons was positively associated with more drastic dieting strategies, disinhibited eating, and lapses in restraint. Furthermore, a study conducted by Thogerson-Ntoumani, Ntoumanis, and Nikitas (2010) demonstrated that health goals were positively associated with basic psychological need satisfaction of autonomy, competence, and relatedness, whereas image goals were not, and that psychological need satisfaction was negatively associated with body image concerns which were, in turn, positively associated with unhealthy weight-control behaviors, such as skipping meals and fasting. Schelling, Munsch, Meyer, and Margraf (2011) also found that health and appearance (in relation to others and oneself) reasons for dieting were positively associated with more dieting behaviors in overweight participants in a weight loss intervention, but only dieting for appearance reasons in relation to oneself was positively associated with binge eating episodes.

In summary, research in SDT suggests that it is important to consider individuals' motivation and goals when examining body image related constructs and eating regulation, as they can help elucidate the health promoting or health diminishing activities that individuals engage in. In agreement with SDT, the evidence demonstrates that self-determined motivation and the pursuit of intrinsic goals are associated with adaptive outcomes, whereas non-self-determined motivation and the pursuit of extrinsic goals are associated with maladaptive outcomes. Investigating the motivational propensities that underlie individuals' behaviors may help explain why women engage in fat talk and how different types of motivation and goals, through fat talk, are associated with eating regulation. Since no study has yet examined the association between motivation and goals on fat talk, and fat talk on eating regulation, the present study aims to address this omission.

Objectives and Hypotheses

This study had two objectives. The first objective was to examine the relationship between self-determined and non-self-determined motivation and intrinsic and extrinsic goals on the engagement in fat talk. The second objective was to examine the mediating role of fat talk between general motivation and goals and contextual motivation for the regulation of eating, which, in turn, should be associated with the consumption of unhealthy foods.

Past research (Pelletier & Dion, 2007) has reported that women who were more generally self-determined in their lives were less likely to perceive sociocultural pressures to be thin and the endorsement of society's beliefs about thinness and obesity, and the relationship between general self-determination and eating regulation style was mediated by body dissatisfaction. Thus, it was expected that fat talk, a behavioral manifestation of anxiety regarding the thin ideal (Shannon & Mills, 2015), would mediate the relationship between general motivation and intrinsic and extrinsic goals, and contextual motivation for the regulation of eating.

As depicted in Fig. 1 and consistent with SDT, it was expected that (a) general non-self-determined motivation and extrinsic goals would be positively associated with engagement in fat talk, whereas general self-determined motivation and intrinsic goals would be negatively associated with engagement in fat talk. Furthermore, it was hypothesized that (b) general non-self-determined motivation and extrinsic goals would be positively

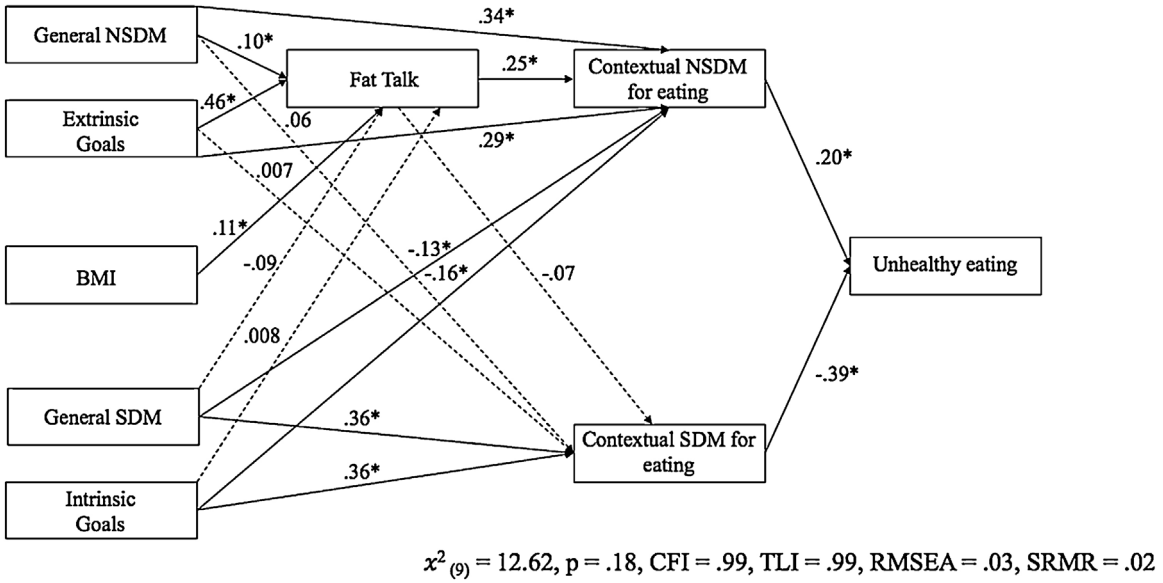

Fig. 1. $N = 453$. The final structural model with standardized path coefficients. NSDM = non-self-determined motivation; SDM = self-determined motivation. Solid lines indicate significant relationships at $^*p < .05$ and dotted lines indicate non-significant relationships.

associated with contextual non-self-determined motivation for the regulation of eating and negatively associated with contextual self-determined motivation for the regulation of eating. General self-determined motivation and intrinsic goals, on the contrary, should be positively associated with contextual self-determined motivation for the regulation of eating and negatively associated with non-self-determined motivation for the regulation of eating. Consistent with previous research (e.g., Pelletier & Dion, 2007), (c) fat talk should partially mediate the relationships between general non-self-determined motivation and extrinsic goals, and contextual non-self-determined motivation for the regulation of eating, exclusively. Finally, (d) contextual non-self-determined motivation for the regulation of eating should be positively associated with unhealthy eating behaviors, whereas contextual self-determined motivation for the regulation of eating should be negatively associated with unhealthy eating behaviors. Since body mass index (BMI) has been shown to be a significant predictor of fat talk in previous studies (e.g., Engeln-Maddox & Salk, 2014), BMI was included in the model as a potential covariate.

Method

Participants and Procedure

The sample included 453 female undergraduate students from the University of Ottawa (Canada), who were between the ages of 17–50 years old ($M = 20.44$, $SD = 2.93$). The average BMI of the participants was 27.51 ($SD = 19.12$). The majority identified as non-Hispanic, White, or European-American (60%); whereas some identified as Middle Eastern or Arab American (8.6%); Black, Afro-Caribbean, or African American (8.4%); East Asian or Asian American (8.2%); South Asian or Indian American (4.6%); or other (10.2%). According to the Centers for Disease Control and Prevention guidelines for BMI categories, 11.1% of the participants were classified as underweight (≤18.49 BMI), 69% were classified in the normal range (18.50–24.99), 14.2% were classified as overweight (25–29.99), and 5.7% were classified as obese (≥30).

Participants were recruited through the Integrated System of Participation in Research, in which each student received partial course credit for completing the online questionnaire. Participants were recruited during the winter semester (January–April 2016). The questionnaire included the measures below, in the following order, and informed consent was obtained electronically prior to participation. The study was approved by the university's institutional review board.

Measures

Body mass index. Self-reported weight and height were used to compute an estimate of BMI (BMI = kg/m^2).

Global motivation. The Global Motivation Scale (GMS; Pelletier & Dion, 2007; Pelletier, Dion, & Lévesque, 2004) was administered to assess individuals' general inclination toward engaging in activities for self-determined or non-self-determined reasons. The GMS is an 18-item questionnaire that includes six subscales (three items each) measuring the behavioral regulations proposed by SDT (Deci & Ryan, 1985). Participants were asked to indicate on a scale ranging from 1 (*Does not correspond at all*) to 7 (*Corresponds exactly*) the extent to which each statement corresponded to their personal reasons for engaging in activities (e.g., "...because they represent who I am"). To create the global self-determined and non-self-determined motivation observed variables, mean scores were calculated using the respective subscales for each variable (intrinsic, integrated, and identified subscales were used to create the self-determined motivation variable; and introjected, external, and amotivation subscales were used to create the non-self-determined motivation variable). The internal consistency was .90 for global self-determined motivation, and .81 for global non-self-determined motivation. Previous research has provided evidence for the reliability and validity of GMS scores in samples of undergraduate women GMS scores in samples of undergraduate women (Kopp & Zimmer-Gembeck, 2011; Otis & Pelletier, 2008; Pelletier & Dion, 2007; Pelletier, Dion, & Lévesque, 2004).

Intrinsic and extrinsic goals. An adapted version of the Aspiration Index (AI; Kasser & Ryan, 1996) was administered to assess individuals' focus on extrinsic and intrinsic goals. Since we were interested in examining why women engage in fat talk and its effects on eating behaviors, the goals that were used in this scale focused exclusively on image and being healthy. The scale included 14 items, which comprised of six intrinsic goals (e.g., "be physically

healthy," "feel good about my body") and eight extrinsic goals (e.g., "be beautiful," "be admired by many people"). Participants were asked to indicate how important these goals were to them on a scale ranging from 1 (*Not all important*) to 7 (*Very important*). Mean scores were calculated from the items to create the intrinsic and extrinsic goals observed variables in the model. The Cronbach alpha for the intrinsic and extrinsic subscales were .85 and .88, respectively. Scores from a sample of 1800 college students from 15 nations provided evidence of validity for the use of the AI, and factor analyses supported an 11-factor structure, in which image and health goals represented two of the factors (Grouzet et al., 2005).

Fat talk. To assess engagement in fat talk, the Negative Body Talk Scale (NBT; Engeln-Maddox, Salk, & Miller, 2012) was administered. This scale comprised of 13 items, in which participants were asked to indicate, on a scale ranging from 1 (*Never*) to 7 (*Always*), how often they engaged in negative commentary about their own or others' weight and shape, eating behaviors, or exercise habits with others. The NBT includes two different subscales: the first is focused exclusively on vocalizing worries over the size or shape of one's own body (e.g., "I think I'm getting fat"), and the second is focused exclusively on upward social comparison between one's own body and the bodies of others (e.g., "She's in such good shape"). Previous research supported the existence of two separate subscales; however, fat talk as a single construct also fits (Engeln-Maddox et al., 2012). In this study, a mean score was calculated using all of the items from the scale to represent the fat talk observed variable in the model. The Cronbach's alpha coefficient for this measure was .95. Test-retest reliability has been reported in samples from the initial scale development, and convergent, discriminant, and incremental validity has been demonstrated using the scores of various samples of U.S. college women (Engeln-Maddox et al., 2012).

Contextual motivation for healthy eating. The participants completed the Regulation of Eating Behaviors Scale (REBS; Pelletier, Dion, Slovinec-D'Angelo, et al., 2004) to measure the different reasons why they might try to regulate their eating behaviors. This scale comprised of 24 items (six subscales with four items each) that measured the six different regulation styles proposed by SDT (Deci & Ryan, 2000). On a scale ranging from 1 (*Does not correspond at all*) to 7 (*Corresponds exactly*), participants were asked to indicate the extent to which each item corresponded to their reasons for regulating their eating behaviors (e.g., ". . .for the satisfaction of eating healthy"). To create the contextual self-determined and non-self-determined motivation for eating regulation observed variables in the model, mean scores using the respective subscales were calculated for both variables (intrinsic motivation, integrated, and identified regulations for self-determined motivation; and introjected, external regulations, and amotivation for non-self-determined motivation). Cronbach's coefficient alphas were .92 for contextual self-determined motivation and .86 for contextual non-self-determined motivation. The factorial structure and validity of the REBS has been reported in samples from the original scale development (Pelletier, Dion, Slovinec-D'Angelo et al., 2004), and an acceptable level of internal consistency for the two subscales has been demonstrated in previous studies, which examined the scores of undergraduate women (Mask & Blanchard, 2011; Otis & Pelletier, 2008).

Unhealthy eating. To measure the participants' quality of eating behaviors, the Healthy Eating Habits Scale (HEHS; Otis & Pelletier, 2008; Pelletier, Dion, Slovinec-D'Angelo, et al., 2004) was administered. The scale assessed participants' diet adherence according to *Canada's Food Guide* recommendations. The unhealthy eating variable was created by calculating the mean scores of seven items, four of which measured the consumption of foods that should be eaten in moderation ("I use white sugar;" "I use salt;" "I eat foods such as chips, chocolate and candy;" and "I eat fried foods"), and three of which measured the consumption of healthier foods ("I eat vegetables, fruits, and grain products [e.g., pasta, cereals and grain mixtures];" "I eat foods that are low in fat, saturated fat, and cholesterol;" and "I eat a variety of foods from each of the four groups recommended by *Canada's Food Guide* [cereals, fruits and vegetables, milk products and meats and substitutes]") that were reverse-scored. On a scale ranging from 1 (*Never*) to 7 (*Always*), participants rated the extent to which they consumed items on the scale. Cronbach's alpha was .70. Scores derived from a sample of undergraduate women provided evidence of validity and reliability of the HEHS (Pelletier, Dion, Slovinec-D'Angelo, et al., 2004).

Results

Preliminary Analyses

Following Tabachnick and Fidell's (2007) recommendations, data were cleaned and screened for missing and out-of-range values, response sets, univariate and multivariate outliers, and normality. When dealing with missing data, Little's MCAR test was conducted to determine if data were missing at random. The value for Little's MCAR test was significant ($X^2 = 22{,}518.39$, $df = 22027$, $p < .001$), meaning that the missing individual item values were not missing completely at random. Given that less than 5% of individual items were missing, the missing values were replaced using the multiple imputation method. Univariate outliers were detected by standardizing all variables of interest, and data with z-scores that were above or below ± 3.29 were considered outliers. The univariate and bivariate outliers were recoded to the most extreme value, but still within the normal range. Mahalanobis distance was computed to detect multivariate outliers. This analysis identified two cases, which were eliminated from the subsequent analyses. Once the data were cleaned, standardized skewness and kurtosis ratios were examined, and the results indicated that most of the variables did not follow a normal distribution (skewness range: −0.940 to 4.84; kurtosis range: −8.60 to 23.73). Since most of the variables were non-normal, the model was examined using the maximum likelihood robust estimation in Mplus (Version 6.0), which has been reported to be robust to non-normality (Muthén & Muthén, 2010).

Mean scores, standard deviations, ranges, and correlations among the variables included in the model were also examined. As presented in Table 1, the mean scores demonstrated that most of the undergraduate students were of average BMI. Women in the sample scored higher on general and contextual self-determined motivation (versus non-self-determined motivation) and placed more importance on intrinsic than extrinsic goals. Mean scores were in the mid-range for fat talk, meaning that most of the women reported that they sometimes engaged in fat talk. The undergraduate women also scored in the mid-range for unhealthy eating.

Regarding the correlations, as expected, general and contextual non-self-determined motivation and extrinsic goals were significantly positively correlated with fat talk, whereas general and contextual self-determined motivation and intrinsic goals were non-significantly correlated with fat talk. As hypothesized, fat talk was significantly positively correlated with contextual non-self-determined motivation and non-significantly correlated with contextual self-determined motivation for the regulation of eating, and was significantly positively correlated with unhealthy eating. Furthermore, in agreement with the hypotheses, contextual non-self-determined motivation for the regulation of eating was significantly positively correlated with unhealthy eating, whereas contextual self-determined motivation for the regulation of eat-

Table 1
Correlations between the variables included in the Hypothesized Model.

Variables	*M*	*SD*	Range	1	2	3	4	5	6	7	8	9
1. NSDM	4.00	0.97	1.00–7.00	–	.41**	−.009	.18*	.008	.27**	.50**	.12*	.11*
2. Extrinsic goals	4.38	1.27	1.00–7.00		–	−.03	.14**	.17**	.49**	.51**	.11*	.14**
3. BMI	24.89	13.59	17.10–41.67			–	−.05	.03	.07	.003	.01	.08
4. SDM	6.03	0.86	3.50–7.00				–	.54**	−.006	−.11*	.57**	−.16**
5. Intrinsic goals	3.95	1.51	1.00–7.00					–	.03	−.17**	.56**	−.24**
6. Fat talk	2.94	1.04	1.00–6.00						–	.48**	−.04	.16**
7. NSDM—eating	5.00	1.15	1.25–7.00							–	−.10*	.24**
8. SDM—eating	4.02	1.29	2.75−–7.00								–	−.42**
9. Unhealthy eating	5.46	0.88	1.00–7.00									–

Note: $N = 453$. NSDM = non-self-determined motivation SDM = self-determined motivation.
* $p < .05$.
** $p < .001$.

ing was significantly negatively correlated with unhealthy eating. Although it was expected that BMI would be significantly positively correlated with fat talk, BMI was non-significantly correlated with any of the variables in the model.

Testing the Hypothesized Model

As mentioned above, the path analysis was conducted through Mplus (Version 6.0) to examine the proposed direction of the relationships between global non-self-determined and self-determined motivation, and extrinsic and intrinsic goals, on fat talk, contextual non-self-determined and self-determined motivation for eating, and unhealthy eating behaviors. In the model, exogenous variables included global non-self-determined and self-determined motivation, extrinsic and intrinsic goals, and BMI as a covariate. The endogenous variables included fat talk, contextual non-self-determined and self-determined motivation for eating, and unhealthy eating behaviors. To determine the fit of the model, the following fit indices proposed by Kline (1998) were used as guidelines: the *p*-value for the Chi-square (X^2) test, the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), and the Standardized Root Mean Square Residual (SRMR).

The final path analysis is presented in Fig. 1. The fit indices indicated that the model was a good fit: $\chi^2(9) = 12.62$, $p = .18$, CFI = .99, TLI = .99, *RMSEA* = .03, *SRMR* = .02. As hypothesized, the model demonstrates two dichotomous mechanisms that differentially affect engagement in fat talk, motivation for eating regulation, and eating behaviors: non-self-determined motivation and extrinsic goals were positively associated with engagement in fat talk, whereas self-determined motivation and intrinsic goals were not. Engagement in fat talk, in turn, was positively associated with contextual non-self-determined motivation for eating and, consequently, unhealthy eating behaviors. General non-self-determined motivation and extrinsic goals were also positively associated with contextual non-self-determined motivation for eating, suggesting that both direct and indirect effects are plausible. Self-determined motivation and intrinsic goals were directly associated in a positive direction with contextual self-determined motivation for eating, which was then negatively associated with unhealthy eating behaviors. It should also be noted that general non-self-determined motivation and extrinsic goals were not associated with contextual self-determined motivation for eating, and that general self-determined motivation and intrinsic goals were significantly negatively associated with contextual non-self-determined motivation for eating. Furthermore, although fat talk was significantly associated with contextual non-self-determined motivation for eating, fat talk was not associated with contextual self-determined motivation for eating. Consistent with previous research (Engeln-Maddox & Salk, 2014), BMI was a significant predictor of engagement in fat talk.

Discussion

Although fat talk has become a growing health concern because of its association with risk factors for eating disorders, no study has yet examined the motivational processes that are involved in the tendency to engage in fat talk and its association with eating regulation and eating behavior. Currently, the literature exploring why some women engage in fat talk is limited to, and has primarily focused on ways, in which BMI, body image disturbance, and self-objectification has led women to engage in these types of conversations (Shannon & Mills, 2015). Since SDT has been used to study how health related behaviors are initiated and maintained, and how certain types of goals thwart or facilitate integration of behavior regulation, it posed as a promising framework to examine the motivational processes involved in the engagement in fat talk and its effects on eating regulation, and in turn, eating behaviors (Ryan & Deci 2000; Sheldon et al., 2004).

Based on SDT (Deci & Ryan, 1985, 2000), our model proposes two plausible pathways in which fat talk is linked to eating regulation and eating behaviors. The first path suggested that women who were generally non-self-determined in their lives and who placed more importance on extrinsic goals were more likely to engage in fat talk, which, in turn, was positively associated with contextual non-self-determined motivation for the regulation of eating and unhealthy eating behaviors. Conversely, the second path suggested that women who were generally self-determined in their lives and who placed more importance on intrinsic goals did not significantly engage in fat talk. Instead, general self-determined motivation and intrinsic goals were positively associated with contextual self-determined motivation for the regulation of eating, which was negatively associated with unhealthy eating behaviors.

The findings of this study are in line with the SDT literature pertaining to motivation and goals in the domains of body image and eating regulation. In regard to the association between motivation and fat talk, the results are consistent with previous research (Mask & Blanchard, 2011; Pelletier & Dion, 2007; Pelletier, Dion, & Lévesque, 2004), which demonstrated that general self-determined motivation may protect against internalization of the thin ideal when faced with sociocultural pressures to be thin. Although the present study did not examine the buffering effect of general self-determination on fat talk specifically, our results demonstrated instead that when general self-determined motivation was distinguished from general non-self-determined motivation, general self-determined motivation was not associated with fat talk, but was rather associated with a more adaptive form of motivation for eating.

Since self-determined individuals are self-integrated and act in accordance with their own values, it is possible that when self-determined women hear others engage in fat talk, they do not experience social pressure to reciprocate body disparagement, but instead, refrain from participating in this behavior because

it is incongruent with their sense of self (Pelletier & Dion, 2007; Pelletier, Dion, & Lévesque, 2004). Self-determined women have been shown to dismiss self-incongruent information about body image; thus, these women may be less inclined to participate or reciprocate negative appearance-related comments about their own and/or other women's bodies (Mask & Blanchard, 2011; Pelletier & Dion, 2007). Conversely, individuals who are non-self-determined act in accordance with external social pressures, expectations, and obligations propagated by external forces in their environments, rendering them more vulnerable to messages related to body image and eating behaviors. Women with differing degrees of general self-determination may also be likely to seek individuals who match their motivational orientation. In other words, non-self-determined women might engage in more fat talk because they may interact with other women who are also generally non-self-determined, whereas self-determined women might not engage in these types of conversations because they may seek interactions with peers who are also self-determined. Although these propositions are merely speculations, current research on fat talk supports the latter: some women prefer conversing with other women who speak more positively about their bodies compared to women who tend to self-degrade about their bodies (Shannon & Mills, 2015).

Findings support the differential effects of intrinsic and extrinsic goals on health related behaviors and extends our current understanding of how goals propel individuals to engage in activities that are health promoting or health thwarting. As hypothesized, placing more importance on extrinsic goals was associated with higher engagement in fat talk, a health diminishing behavior, whereas placing more importance on intrinsic goals was not significantly associated with engagement in fat talk. In line with SDT, individuals who pursue extrinsic, as opposed to intrinsic, goals tend to be more concerned with external indicators of self-worth, such as trying to obtain the "perfect body," which has been shown to hinder psychological need satisfaction, and, in turn, psychological adjustment (Thogerson-Ntoumani et al., 2010; Vansteenkiste et al., 2008; Verstuyf, Patrick, Vansteenkiste, & Teixeira, 2012). Since cultural ideals of feminine beauty are externally defined, striving for the "perfect body" is often associated with intrapersonal pressures, which controls one's actions and choices (i.e., autonomy thwarting); engagement in social comparisons, which results in less meaningful interpersonal interactions (i.e., relatedness thwarting); and feelings of incompetence to attain one's goals (i.e., competence thwarting; Thogerson-Ntoumani et al., 2010; Verstuyf et al., 2012). Considering the negative consequences that are associated with fat talk, future research could elucidate the extent to which individuals feel their basic needs (of relatedness and perhaps autonomy and competence) to be satisfied versus thwarted following exposure to fat talk. Frequent engagement in fat talk may also be a means of exchanging the importance of the thin ideal with others. Consistent with this propagation, research conducted by Duriez, Giletta, Kuppens, & Vansteenkiste (2013) found that individuals tend to seek out peers who pursue similar goals, and are capable of actively influencing each other's valuation of goals during social interactions. The latter supports how engagement in fat talk can lead to a negative vicious cycle, in which the maintenance of fat talk is sustained by a reciprocal interaction among peers who are continuously exchanging the importance of extrinsic goals. Longitudinal research could investigate this cyclical pattern.

Findings also suggested that non-self-determined motivation and extrinsic goals may be directly associated with contextual non-self-determined motivation for the regulation of eating, or indirectly associated with this regulatory style through the engagement in fat talk. These results are similar to the findings of Pelletier and Dion (2007), who demonstrated that body dissatisfaction, resulting from sociocultural pressures for a thin body, and the endorsement of the thin ideal, is more closely associated with a controlled form of eating regulation. Although body dissatisfaction was not assessed in the present study, future research could expand on the present model by examining whether body dissatisfaction mediates the relationship between fat talk and the two eating regulation styles. As hypothesized, fat talk was positively associated with contextual non-self-determined motivation for the regulation of eating, which, in turn, was positively associated with unhealthy eating.

Regarding the direct relationship between general and contextual motivation, the model further supports the top-down effect of Vallerand's (1997) hierarchical model of intrinsic and extrinsic motivation, whereby motivation at a general level influences motivation at a contextual level. For example, in our model, general self-determined motivation and intrinsic goals were not significantly associated with fat talk, but instead, were directly associated with contextual self-determined motivation for the regulation of eating, which, in turn, was negatively associated with unhealthy eating behavior. This model also provides further support for the relationship between contextual non-self-determined motivation for the regulation of eating and unhealthy eating behaviors (Kopp & Zimmer-Gembeck, 2011; Otis & Pelletier, 2008; Pelletier & Dion, 2007; Pelletier, Dion, Slovinec-D'Angelo, et al., 2004).

Limitations

Although this study contributes to the current literature on body image and eating behaviors, some limitations warrant discussion. First, because this study followed a cross-sectional design, only associations can be established. To gain a more profound understanding of the direction of the relationships between the variables of interest, future research should replicate the proposed model using a longitudinal or experimental design to examine alternative explanations, and even cyclical interactions, for the variables examined in this study. Mediational relationships have been shown to be highly misleading in correlational designs (Maxwell & Cole, 2007); thus, it is difficult to know exactly whether the direct and indirect relationships between the variables are plausible. Second, the findings of this study relied on self-reported measures; therefore, it is possible that participants did not respond in an honest or self-aware manner and that the results were partially influenced by socially desirable response tendencies. Previous research has demonstrated that self-report assessments of height and weight are often biased (Gorber, Tremblay, Moher, & Gorber, 2007); thus, it would be important for future research to objectively measure participants' height and weight to calculate BMI. To objectively measure the occurrence of fat talk and examine its effects on eating behaviors, future research could experimentally manipulate appearance-related conversations using confederates (Salk & Engeln-Maddox, 2011). Third, considering that unhealthy eating was measured based on the recommendations of *Canada's Food Guide*, future studies may want to use more effective measures (e.g., food frequency questionnaires, additional self-reported measures of eating behaviors) to assess healthy and/or unhealthy eating behaviors. Fourth, the sample was rather demographically limited (i.e., young adult Caucasian undergraduate women), restricting the generalizability of the results. Future research should examine the proposed variables in a larger and more diverse sample comprised of older women, men, and patients with eating disorders. Fifth, there was a lack of validity questions embedded in the survey, therefore, there is no certainty that participants were carefully reading and responding to each item truthfully. Finally, measures were not counterbalanced to control for order of effects.

Researchers may want to use this method in order to produce a more powerful design in future studies.

Future Directions

The findings of this study contribute to the SDT literature by attesting the generalization of the effects of different types of motivation and goals on a behavior (i.e., fat talk) that has not been, as of yet, examined under the SDT framework. Although fat talk has been examined using other theoretical frameworks, this study offers another potential framework, in which fat talk could be investigated. Furthermore, this study expands the current literature on the outcomes associated with fat talk, since the majority of the literature has focused on its consequences on well-being and eating pathology. Considering that our model supports that specific types of motivation and goals render women susceptible for internalizing cultural ideals, engaging in social comparisons, and acting in accordance with social pressures, prevention programs should aim to enhance individuals' motivation quality and promote the pursuit of intrinsic goals.

According to SDT, motivation is dependent on context, and the environment plays a crucial role in social and psychological development, and motivational change. An individual's motivation and goal orientation are continually influenced by need satisfaction or dissatisfaction in her or his immediate social context and her or his developmental environments (Ryan & Deci, 2000). One approach that could be useful in promoting healthier behaviors and less dysfunctional behaviors would be to design theory-based information campaigns. Since persuasive messages have been shown to be an important step in initiating behavior change, messages in the media should promote intrinsic (i.e., health), as opposed to extrinsic (i.e., attractiveness), goals in messages regarding nutrition and weight management (Pelletier, Guertin, Pope, & Rocchi, 2016). To enhance quality of motivation and promote the pursuit of intrinsic goals in a clinical setting, health professionals working with patients with eating disorders should also support individuals' basic psychological needs for autonomy, competence, and relatedness during intervention programs (Deci & Ryan, 2008). For example, clinicians could help decrease engagement in fat talk by giving women information about more adaptive forms of appearance-related communication, which they can use to vocalize their feelings of distress in a more problem-focused and self-compassionate manner. Clinicians could also give women tools and access to information about nutrition, which would allow them to feel more competent in regulating their eating and exercise habits; and encourage them to engage in positive body talk with other women who also are self-derogatory and self-critical, which would allow women to feel more connected and supported by one another.

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