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Examining fat talk and self-compassion as distinct motivational processes in women's eating regulation: A self-determination theory perspective

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Abstract

This study examined whether pursuing intrinsic versus extrinsic goals was associated with distinct motivational processes in eating regulation and with healthy versus unhealthy eating. Path analysis demonstrated that appearance goals were associated with fat talk, whereas health goals were associated with self-compassion. Fat talk was positively associated with non-self-determined motivation and unhealthy eating, whereas self-compassion was positively associated with self-determined motivation and healthy eating, and negatively associated with unhealthy eating. Findings emphasize the negative effects of pursuing appearance goals and engaging in fat talk and the benefits of pursuing health goals and being self-compassionate.

Keywords

eating, fat talk, goals, motivation, self-compassion

Failure to adhere to recommended dietary guidelines can contribute to health issues, such as overweight and obesity and consequently, to increased risk of cardiovascular disease and type 2 diabetes (Freedman et al., 2007; Li et al., 2009). Reversely, a healthy diet is critical for successful weight management and reduces the likelihood of becoming ill (Hooper et al., 2001). Unfortunately, it has been well documented that undergraduate students do not eat sufficient amounts of fruits and vegetables (Silliman et al., 2004), consume a high amount of deep-fried foods (Racette et al., 2010) and a low amount of poly and monounsaturated fats, folate, vitamin E, and fiber (Crombie et al., 2009), and engage in binge drinking (Nies et al., 2011). Since poor dietary habits often transfer into adulthood (Crombie et al., 2009), it is important to gain insight into the motivational processes that are associated with the adoption of healthy and unhealthy eating behaviors in young individuals in hopes of developing effective interventions to promote and improve healthy eating behaviors.

With the growing prevalence of problematic eating behaviors in Western societies, several models, such as the thin-ideal internalization model and self-objectification theory, have been

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developed to advance knowledge on the factors that contribute to the adoption and maintenance of healthy versus unhealthy eating behaviors over time. Although most of these models address important determinants of eating pathology, such as body dissatisfaction, other theories suggest considering more global motivational processes that explain the myriad behaviors involved in eating regulation. In Self-Determination Theory (SDT; Ryan and Deci, 2017), (un)successful eating regulation is generally explained by personal factors, such as individuals' goals and motivation. Building on related research examined under this framework, this study investigated whether differences in women's weight management goals were associated with adaptive or maladaptive coping strategies, which in turn, were associated with distinct motivation styles for eating regulation and eating behaviors.

SDT is a motivation theory that has contributed to knowledge on the types of goals that people can pursue when they are trying to regulate their eating behaviors and why individuals regulate their eating behaviors. SDT postulates that "not all goals are created equal," such that extrinsic goals yield unfavorable outcomes because they are more taxing on our basic psychological needs, whereas intrinsic goals lead to favorable outcomes because their pursuit inherently satisfies basic psychological needs (Sheldon et al., 2004; Vansteenkiste et al., 2008). According to Kasser and Ryan (1996), pursuing extrinsic goals, such as appearance goals, is detrimental to well-being, since determining progress of achievement toward these goals is contingent upon meeting external standards or receiving social affirmation. In contrast, pursuing intrinsic goals, such as health goals, are inherently satisfying to pursue because of their ability to lead to self-actualized states, directing behavior toward need satisfaction and health-promotion (Vansteenkiste et al., 2008).

A few studies have examined the positive and negative consequences associated with the pursuit of intrinsic and extrinsic goals within the weight management and eating regulation domains. For example, in female dieters, Putterman and Linden (2004) found that pursuing appearance (vs health) goals displayed more pathological eating patterns (restricting calories and excluding food groups), failure in eating inhibition, and dietary restraint. In addition, (Schelling et al., 2011) demonstrated that individuals pursuing health and appearance goals engaged in dieting activities but only appearance goals were associated with binge eating episodes. Among adolescent girls, Thøgersen-Ntoumani et al. (2010) also found that health goals were positively associated with the satisfaction of basic psychological needs, which was negatively associated with body image concerns. On the contrary, appearance goals were directly associated with body image concerns, which were associated with unhealthy weight control behaviors.

Although goals represent the direction of individuals' personal strivings, SDT postulates that activities to achieve these goals need to be ongoingly regulated in order to be pursued and in some cases, achieved (Ryan and Deci, 2017; Vansteenkiste et al., 2014). According to SDT, once individuals set goals for themselves, they regulate their behaviors in ways that could reflect different motivational orientations. Behavior could be regulated by self-determined (intrinsic, integrated, or identified regulations) or non-self-determined (introjected, extrinsic, and amotivation) motivation, where self-determined motivation is generally associated with more favorable outcomes (e.g. healthy eating) and non-self-determined motivation is generally associated with less favorable outcomes, for example, bulimic symptoms (Otis and Pelletier, 2008; Pelletier and Dion, 2007; Pelletier et al., 2004). Along with this reasoning, in Guertin et al.'s (2017) study, it was demonstrated that women who put more emphasis on appearance goals were more likely to engage in fat talk (i.e. negative conversations about one's or other women's bodies and/or weight), which, in turn, was positively associated with contextual non-self-determined motivation for eating and unhealthy eating behaviors. On the contrary, women who placed more importance on health goals were less likely to engage in fat

talk, and instead, health goals were positively associated with contextual self-determined motivation for eating and negatively associated with unhealthy eating behaviors.

These results demonstrate how the pursuit of appearance goals lead women to engage in health diminishing behaviors, such as self-objectification, to gain self-worth, which ultimately leads to more controlled forms of motivation for eating regulation. Fat talk is commonly described as a form of self-derogation that occurs among groups of women, which involves negative commentary about one's physical appearance (e.g. "I wish I had abs"), eating behaviors (e.g. "I ate too much"), and/or exercise habits (e.g. "I need to go to the gym"; Engeln-Maddox et al., 2013). Although these types of conversations have become normative (Engeln-Maddox et al., 2012), fat talk is generally engaged in when an individual experiences guilt after overeating, eating high-calorie foods, or for not embodying the thin ideal (Shannon and Mills, 2015). When experiencing negative feelings about one's body and/or eating behaviors, individuals engage in fat talk in order to receive external validation or re-affirmation that their bodies are appealing (Shannon and Mills, 2015). In this study, our objective was to build upon the model proposed by Guertin et al. (2017) by examining a more positive pathway to eating regulation. Since their study exclusively focused on examining why women engaged in a negative coping strategy (i.e. fat talk) when experiencing guilt about one's body and/or weight, our objective was to investigate whether women who placed more importance on health goals were more likely to resort to adaptive strategies, such as self-compassion, when experiencing negative events, which would be associated with a more adaptive form of self-regulation and healthy eating behaviors.

Self-compassion has gained popularity over the past decade with the growing interest in identifying protective personality features that render individuals resilient to distressful situations, such as being dissatisfied with one's body (Tylka and Kroon Van Diest, 2013). Self-compassion can be viewed as an "emotional-approach coping strategy," since it requires mindful awareness of one's emotions (Bennett-Goleman, 2001; Kabat-Zinn, 1994; Kornfield, 1993; Neff, 2003; Salzberg, 1997). Rather than ruminating on one's pain and distress, self-compassionate individuals approach their experiences with kindness, understanding, and a sense of shared humanity (Neff, 2003). According to Neff (2003), self-compassion typically includes three components that reflect the use of positive over negative self-relations: (1) self-kindness (vs self-judgment), treating oneself with kindness and understanding rather than with harsh judgment and criticism; (2) common humanity (vs isolation), acknowledging that imperfection is part of the human experience rather than feeling alone or disconnected when one makes mistakes; and (3) mindfulness (vs over-identification), being aware of one's painful thoughts and feelings and acknowledging that they will soon pass rather than over-identifying with them.

In comparison to fat talk, which has been continuously associated with detrimental behaviors, the literature suggests that self-compassion has a positive impact on individuals' self-perceptions and behaviors. For instance, in a non-clinical sample of women, Ferreira et al. (2013) found that external shame predicted drive for thinness through low self-compassion, whereas in female eating disordered patients, increased shame and body dissatisfaction predicted drive for thinness through decreased self-compassion. Liss and Erchull (2015) also found that levels of body surveillance, shame, depression, and negative attitudes were lower in individuals who were more self-compassionate.

Several indicators support the assumption that individuals pursuing intrinsic goals may be more likely to engage in self-compassion (rather than fat talk) and that these individuals may be more likely to self-regulate their eating behaviors for self-determined reasons. Ryan and Deci (2017) recently suggested that mindfulness increases focus on intrinsic aspirations and decreases focus on extrinsic aspirations. Although mindfulness only represents a part of self-compassion as a whole, mindfulness contributes to the other two components of

self-compassion by lessening self-criticism and increasing self-understanding, and by countering feelings of egocentrism and increasing feelings of interconnectedness (Neff, 2003). Ryan and Deci (2017) also suggest that "cultivating mindfulness, and more generally open and interested awareness, can help individuals make more informed and integrated choices, which in turn contributes to flourishing." (p. 292) Since self-compassionate individuals generally act in accordance with their authentic core self, their behaviors should also reflect authenticity through self-determined motivation (Neff, 2003). This notion is supported by a study conducted by Magnus et al. (2010), where self-compassion was positively associated with intrinsic motivation and negatively associated with external and introjected motivation for physical activity. Furthermore, self-compassion is also implicated in maintaining need satisfaction in undergraduate students, which should in turn lead to optimal motivation for self-regulation in a specific context (Gunnell et al., 2017).

Objectives and hypotheses

The goal of this study was to build upon the results of Guertin et al. (2017) by examining a negative and a positive pathway to eating regulation. In the Guertin et al. (2017) study, it was demonstrated that extrinsic goals were positively associated with fat talk which, in turn, were positively associated with contextual non-self-determined motivation for eating and unhealthy eating behaviors. In opposition, intrinsic goals were non-significantly associated with fat talk, but instead, were positively associated with contextual self-determined motivation for eating, which was negatively associated with unhealthy eating behaviors.

Since self-compassion has been shown to act as a protective factor against negative body image and most importantly, fat talk (e.g. Daye et al., 2014; Homan and Tylka, 2015; Tylka et al., 2015), self-compassion was examined as a more adaptive approach to eating regulation when compared to fat talk. As shown in Figure 1, it was hypothesized that (1) extrinsic goals would be positively associated with fat talk and negatively associated with self-compassion, whereas intrinsic goals would be positively associated with self-compassion and negatively associated with fat talk. It was also expected that (2) fat talk would be positively associated with contextual non-self-determined motivation and negatively associated with contextual self-determined motivation, whereas self-compassion would be positively associated with contextual self-determined motivation and negatively associated with non-self-determined motivation for eating. In agreement with SDT, direct links were also expected between (c) extrinsic goals and contextual non-self-determined motivation and intrinsic goals and contextual self-determined motivation for eating, suggesting partial mediation through fat talk and self-compassion. Finally, (4) extrinsic goals were hypothesized to be negatively related to contextual self-determined motivation, while the same was hypothesized for the association between intrinsic goals and contextual non-self-determined motivation for eating. In line with previous research (e.g. Pelletier and Dion, 2007; Pelletier et al., 2004), it was predicted that (5) contextual non-self-determined motivation would be positively related to unhealthy eating and negatively related to healthy eating, whereas contextual self-determined motivation would be positively related to healthy eating and negatively related to unhealthy eating behaviors. Finally, since body mass index (BMI) has been previously associated with fat talk and self-compassion (e.g. Engeln-Maddox and Salk, 2014; Guertin et al., 2017; Taylor et al., 2015), it was expected that BMI would be positively associated with fat talk and negatively associated with self-compassion.

Methods

Participants and procedure

The sample included 485 female undergraduate students who were recruited from a Canadian university participation pool in return for course credit. Participants were between the ages of 16 and 48 (M=19.63; standard deviation (SD)=3.42)

and most of them identified as non-Hispanic white or European-American (53.6%). Others identified as black, Afro-Caribbean, or Afro-American (10.8%); East-Asian or Asian-American (8.3%); Middle-Eastern or Arab-American (7.9%); South-Asian or Indian-American (6.6%); or other (12.8%). In accordance with the Centers for Disease Control and Prevention's guidelines for BMI (2001), 7.4% of the sample were considered underweight (⩽18.49), 67.9% in the normal range (18.50–24.99), 16.2% overweight (25–29.99), and 8.5% obese (⩾30). Prior to conducting the study, the study was approved by the university's institutional review board and the participants completed the measures below in the following order after providing electronic informed consent.

Measures

Body mass index. BMI (kg/m^2) was calculated by the researchers using the participants' self-reported height and weight.

Extrinsic and intrinsic goals. A modified version of the Aspiration Index (AI; Guertin et al., 2017; Kasser and Ryan, 1996) was used to measure how important appearance and health goals were to the participants in reference to weight management. This scale includes 14 items, eight representing extrinsic goals (e.g. "to be beautiful") and six representing intrinsic goals (e.g. "to be physically healthy"). The participants were asked to rate how much each life goal were important to them using a scale going from 1 (not at all important) to 7 (very important). In the model, the observed variables for extrinsic and intrinsic goals were created by calculating the means of the corresponding items. The Cronbach's alpha was .87 for extrinsic goals and .85 for intrinsic goals.

Contextual non-self-determined and self-determined motivation for eating. The Regulation of Eating Behaviors Scale (REBS; Pelletier et al., 2004) was used to assess the participants' motivation for regulating their eating behaviors. The REBS includes 24 items in total, with six subscales that measure the behavioral regulations defined by SDT. Using a scale going from 1 (does not correspond at all) to 7 (corresponds exactly), the participants were asked to indicate to what extent each item corresponded to their reasons for regulating their eating behaviors (e.g. "…for the satisfaction of eating healthy"). The observed variables for contextual motivation were created by calculating the mean scores of each of the behavioral regulations and by combining them into one single mean score for both variables (introjected and external regulations and amotivation were used to represent non-self-determined motivation for eating; and intrinsic motivation and integrated and identified regulations were used to represent self-determined motivation for eating). In this study, the internal consistency was .85 for contextual non-self-determined and .91 for contextual self-determined motivation for eating.

Fat talk. The Negative Body Talk (NBT) scale (Engeln-Maddox et al., 2012) was administered to the participants to measure their tendencies for engaging in fat talk with their friends. The scale includes 13 items and examines two different aspects of fat talk: personal body concerns ($\alpha = .86$; e.g. "I need to go on a diet") and body comparison ($\alpha = .91$; e.g. "She has a perfect stomach"). In this scale, participants were asked to indicate how often they engaged in these types of conversations with their friends using a scale ranging from 1 (never) to 7 (always). Following Engeln-Maddox et al. (2012) recommendations, the observed variable representing fat talk was created by calculating a mean score using all of the items from the scale. The internal reliability for this measure was .94.

Self-compassion. The Self-Compassion Scale (SCS; Neff, 2003) was used to measure how compassionate the participants were on the six different aspects of self-compassion: self-judgment ($\alpha = .86$; e.g. "I'm disapproving and judgmental about my own flaws and inadequacies"), over-identification ($\alpha = .83$; e.g. "When I'm feeling down I tend to obsess and fixate on everything that's wrong"), isolation ($\alpha = .80$; e.g.

"When I'm really struggling, I tend to feel like other people must be having an easier time of it"), self-kindness ($\alpha = .81$; e.g. "I'm kind to myself when I'm experiencing suffering"), mindfulness ($\alpha = .77$; e.g. "When something upsets me I try to keep my emotions in balance"), and common humanity ($\alpha = .79$; e.g. "I try to see my failings as part of the human condition"). The scale includes 26 items, in which the participants indicated how often they behave in a certain manner, using a scale that ranged from 1 (almost never) to 7 (almost always). The self-compassion observed variable was created by calculating the mean scores for each of the subscales and combining them into a single variable. The Cronbach's alpha for this measure was .92.

Unhealthy and healthy eating behaviors. Eating behaviors were measured using a revised version of the Healthy Eating Habits Scale (Guertin et al., 2017; Otis and Pelletier, 2008; Pelletier et al., 2004). Six new items were added to the original scale, which contained eight items in total. In the revised version, seven of the items corresponded to different types of foods that should be consumed in moderation (e.g. "I eat fast-foods"), and the other seven items corresponded to foods that are considered to be healthy (e.g. "I eat vegetables") according to *Canada's Food Guide*. Using a scale from 1 (never) to 7 (always), participants were asked to indicate the extent to which they generally consume the items on the scale. Since the revised version of the scale has not yet been validated, a confirmatory factor analysis was conducted using Mplus, version 6.0 (Muthén and Muthén, 2010, Los Angeles, CA; this software was used for all analyses) to examine the structure of the scale. The factorial model had a good fit (Satorra–Bentler (SB) scaled $\chi^2_{(76)} = 114.77$, $p < .001$, Comparative Fit Index (CFI) = .94, Tucker–Lewis Index (TLI) = .93, root mean square error of approximation (RMSEA) = .04 (90% confidence interval (CI) = .03–.05), Standardized root mean square residual (SRMR) = .05). Mean scores of the corresponding items were calculated to represent the two observed variables in the model. A Cronbach's alpha of .77 was achieved for both healthy and unhealthy eating behaviors.

Results

Preliminary analyses

Before testing the hypothesized model, the data were cleaned and screened for univariate and multivariate outliers following Tabachnick and Fidell's (2007) recommendations. Next, means scores, SDs, ranges, and correlations were examined between the model variables. As noted in Table 1, most of the participants reported average scores on extrinsic goals and low scores on contextual non-self-determined motivation and high scores on both intrinsic goals and contextual self-determined motivation for eating. Average scores were reported on fat talk and self-compassion. Most participants were in the normal range for BMI and individuals reported average scores for unhealthy eating and high scores for healthy eating behaviors.

As for the correlations, extrinsic goals were positively correlated with fat talk and negatively correlated with self-compassion, whereas intrinsic goals were positively correlated with self-compassion but non-significantly correlated with fat talk. Extrinsic goals were also positively correlated with both contextual self-determined and non-self-determined motivation for eating, whereas intrinsic goals were positively and negatively correlated with contextual self-determined and non-self-determined motivation for eating, respectively. Fat talk was positively correlated with contextual non-self-determined motivation and was non-significantly positively correlated with contextual self-determined motivation and was negatively correlated with contextual non-self-determined motivation for eating. Finally, contextual non-self-determined motivation was positively correlated with unhealthy eating behaviors and negatively correlated with healthy eating behaviors, whereas the reverse was true for contextual self-determined motivation for eating. As expected, BMI was associated with

Table 1. Means, standard deviations, range, and correlations between the variables included in the path analysis ($N = 485$).

Variables	*M*	*SD*	Range	1	2	3	4	5	6	7	8	9
1. BMI	23.18	4.32	15.91–41.11	–	.01	−.06	.11*	.11*	.14**	−.11*	.11*	−.01
2. Extrinsic goals	4.32	1.23	1.87–6.81		–	.17**	.52**	.12**	.55**	−.36**	.03	−.09*
3. Intrinsic goals	5.85	0.87	4.05–7.00			–	−.12**	.62**	−.04	.20**	−.19**	.31**
4. NSDM for eating	2.93	1.00	1.00–4.96				–	−.10*	.45**	−.41**	.13**	−.10*
5. SDM for eating	4.80	1.10	2.52–7.00					–	−.06	.23**	−.30**	.41**
6. Fat talk	3.86	1.54	1.00–6.92						–	−.44**	.06	−.10*
7. Self-compassion	3.84	0.88	2.01–5.67							–	−.04	.12**
8. Unhealthy eating	3.17	1.27	1.00–7.00								–	−.06
9. Healthy eating	4.42	1.26	1.00–7.00									–

BMI: body mass index; NSDM: non-self-determined motivation; SDM: self-determined motivation.
**$p < .001$; *$p < .05$.

several of the model variables and was thus used as a covariate in the model.

Testing the hypothesized model

The hypothesized model was tested using the maximum likelihood robust (MLR) estimator, which corrects for non-normality (Muthén and Muthén, 2010). This function was used since two of the variables did not have a normal distribution: intrinsic goals (skewness: –.461; kurtosis: –.790) and BMI (skewness: 1.52; kurtosis: 3.414). The following fit indices were used as an indication of model fit: the scaled chi-square ($SB\chi^2$) and its p value, the CFI, the TLI, the RMSEA, and its CI, and the SRMR (Kline, 1998). As general guidelines, values above .90 for the CFI and the TLI represent good fit and values below .08 for the RMSEA and the SRMR indicate adequate fit (Hooper et al., 2007).

The original model that was tested did not provide a satisfactory fit to the data: $SB\chi^2_{(14)} = 64.63$, $p < .001$, CFI = .94, TLI = .87, RMSEA = .09 [90% CI = 0.07–0.11], SRMR = .04. Modification indices were thus examined and a correlation between fat talk and self-compassion was added to the model. This was deemed acceptable because fat talk and self-compassion are two distinct processes proposed in the model. Figure 1 presents the final path analysis model, which produced good fit indices: $SB\chi^2_{(13)} = 27.79$, $p < .01$, CFI = .98, TLI = .96, RMSEA = .05 [90% CI = 0.03–0.08], SRMR = .03. Within this model, two distinct paths emerged. Extrinsic goals were positively associated with engagement in fat talk and were negatively associated with self-compassion, whereas intrinsic goals were positively associated with self-compassion and were negatively associated with fat talk. Fat talk was positively associated with contextual non-self-determined motivation along with extrinsic goals and was non-significantly associated with contextual non-self-determined motivation for eating. In contrast, self-compassion was positively associated with contextual self-determined motivation as were intrinsic goals and was negatively associated with contextual non-self-determined motivation for eating. Finally, contextual non-self-determined motivation was positively associated with unhealthy eating behaviors and was non-significantly associated with healthy eating behaviors, whereas contextual self-determined motivation was negatively associated with unhealthy eating behaviors and was positively associated with healthy eating. In line with previous research (e.g. Engeln-Maddox and Salk, 2014; Guertin et al., 2017; Taylor et al., 2015), BMI was also positively related to fat talk and negatively related to self-compassion. Fat talk and self-compassion were also negatively correlated with each other, meaning

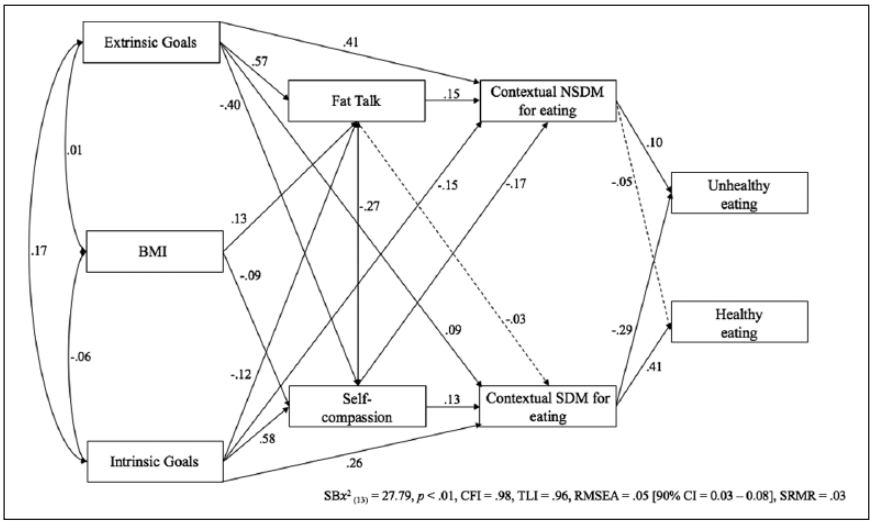

Figure 1. $N = 485$. Modeling the final hypothesized process by which weight management goals lead to two distinct motivational processes for healthy and unhealthy eating behaviors. NSDM: non-self-determined motivation; SDM: self-determined motivation. Solid lines indicate significant relationships at $^{*}p < 0.05$, whereas dotted lines indicate non-significant relationships at $p < 0.05$.

that the more individuals engaged in fat talk, the less self-compassionate they were toward themselves.

Discussion

The main objective of this study was to examine whether pursuing different goals for weight management was associated with distinct motivational processes involved in eating regulation. Our goal was to investigate whether women pursuing health goals were more likely to engage in an adaptive strategy that render them resilient to fat talk, which in turn would be associated with the development of healthier motivational patterns and eating behaviors. The results were in line with most of our hypotheses and provided evidence for two distinct pathways during eating regulation, one negative and the other positive. In the negative pathway, extrinsic goals were positively associated with fat talk, whereas intrinsic goals were negatively associated with fat talk, suggesting that the more importance women placed on health goals, the less they engaged in fat talk. This result was also demonstrated in Guertin et al.'s model (2017); however, the novel findings of this study lie in the positive pathway. In the positive pathway, intrinsic goals were positively associated with self-compassion, which was positively associated with contextual self-determined motivation for eating. Contextual self-determined motivation for eating was then positively associated with healthy eating behaviors and was negatively associated with unhealthy eating behaviors.

Self-compassion is a fairly new concept within SDT and this study is the first to examine whether self-compassion might mediate the relationship between goals and motivation in eating regulation. When considering the distinction between extrinsic and intrinsic goals within the SDT framework and Neff's (2003) definition of self-compassion, it is not surprising that both types of goals are related to self-compassion, yet in opposite directions. Within SDT, intrinsic goals are inherently satisfying as they are likely to fulfill basic psychological needs for autonomy, competence, and relatedness (Ryan and Deci, 2017). The pursuit of intrinsic goals is authentic in nature such that it represents the pursuit of what is intrinsically meaningful and worthwhile. In contrast, extrinsic goals do not

contribute to one's development and may actually be antithetic to it (Ryan and Deci, 2017), since their pursuit heavily relies on receiving external indicators of worth.

Although individuals who pursue health goals may also be inclined to self-evaluate, the process through which they rectify feelings of inadequacy may differ from individuals who pursue appearance goals. That is, it is likely that these individuals engage in self-compassion, which involves utilizing self-care instead of self-criticism to motivate behavior change (Neff, 2003). Unlike fat talk, which is typically engaged into receive external affirmation that one's appearance is appealing, self-compassion cultivates self-worth by engaging in self-acceptance (Neff, 2004). While individuals who pursue appearance goals may be more likely to look outward for approval, our results suggest that individuals pursuing health goals are more likely to be kind and accepting of their flaws and to draw their attention inward as a way to grow and develop.

These results are in line with Breines and Chen (2012), who showed that self-compassion serves as a source of motivation for self-improvement. What still remain unclear, however, are the instances during which individuals who pursue health goals rely on self-compassion to rectify negative feelings. The literature on self-compassion suggests that individuals practice self-compassion during instances of pain or failure (Neff, 2004), negative life events (Leary et al., 2007), hardship, or perceived inadequacy (Neff et al., 2007). While research has shown that fat talk typically occurs from guilt for overeating, eating high-calorie foods, or being dissatisfied with one's body (Shannon and Mills, 2015), research has yet to examine when self-compassion is utilized during eating regulation. Examining whether individuals with extrinsic or intrinsic goals are similar in terms of their experiences with body dissatisfaction and eating regulation failure but distinctive in their ways to cope with their experiences could be a fruitful avenue for research.

The relationship between self-compassion and contextual motivation is consistent with previous research in the exercise domain, where self-compassion was positively associated with self-determined motivation and negatively associated with non-self-determined motivation. Magnus et al. (2010) found that self-compassion was associated with greater intrinsic motivation and with lower levels of external and introjected exercise motivation. As argued by Neff (2003), since individuals with high self-compassion generally have higher "true self-esteem," they are more likely to engage in behavior for intrinsic reasons and to engage in proactive behaviors that are beneficial for their health, such as being physically active or following a healthy diet. This notion is consistent with our findings, which demonstrated that self-compassion was positively associated with contextual self-determined motivation, since regulating one's eating behavior because of external pressure or self-inflicted guilt (non self-determined reasons) is health-thwarting.

Although these results are solely correlational, the processes that are proposed in our model should generally develop throughout time and may represent different strategies that individuals come to utilize as they progress from pursuing different types of goals. The fact that self-compassion partially mediated the relationship between intrinsic goals and contextual self-determined motivation for eating suggest that some individuals regulate their goals for self-determined reasons through self-compassion, whereas others do not. Although this study did not examine this proposition specifically, it is possible that as individuals begin to place more importance on intrinsic goals and less importance on extrinsic goals, they are more likely to engage in self-compassion and to regulate their eating behaviors for more intrinsic reasons. In Magnus et al. (2010) study, external and introjected regulations were negatively correlated with self-compassion, whereas identified and integrated regulations were non-significantly correlated with self-compassion. Intrinsic motivation was positively correlated with self-compassion. In line with these results, it is possible that individuals who do not yet engage in

self-compassion regulate their health goals through identified or integrated regulations, whereas those that do engage in self-compassion regulate their eating behaviors for intrinsic motives.

Although intrinsic goals were negatively correlated with contextual non-self-determined motivation for eating in this study, it is also possible that individuals who pursue health goals regulate their eating behaviors for non-self-determined motivation (e.g. an individual who strives to eat healthier because his or her partner pressures him or her to do so). In this case, an individual may be less inclined to resort to healthy coping strategies, such as self-compassion, and may be less inclined to resort to more dysfunctional coping strategies, such as fat talk (or a mixture of both). It would be interesting for future research to examine this possibility by investigating how individuals with different motivational profiles utilize these strategies in different situations.

Finally, although several studies have examined the relationship between motivation and various eating patterns (see Verstuyf et al., 2012 for a review), this study is the first to provide evidence that self-determined motivation is not only positively associated with healthy eating behaviors, but is also negatively associated with the consumption of unhealthy foods. This finding is important, since public health recommendations suggest that in order to meet nutrient needs and reduce risks of chronic illnesses, individuals should not only consume a variety of foods from the four different food groups (i.e. vegetables and fruit, grain products, milk and alternatives, and meat and alternatives) but also should limit their intake of foods high in saturated and trans fats, sugar, and salt (Health Canada, 2011). Whereas, previous studies have shown that self-determined motivation is positively associated with healthy eating (e.g. Otis and Pelletier, 2008; Pelletier and Dion, 2007; Pelletier et al., 2004), these results add to the literature by showing that self-determined motivation is also associated with avoiding behaviors that are detrimental to one's health.

Limitations and future directions

Although the findings of this study add to the current literature on the processes and mechanisms involved in eating regulation, this study has limitations, and the results should be interpreted with caution. First, given the correlational design of this study and causality between the variables cannot be inferred. In order to establish cause and effect, future research should examine the relationships between the variables across various time points. Using a longitudinal design could not only be useful in establishing the direction of the relationships between the variables but could also help determine whether fat talk and self-compassion truly partially mediate the relationships between goals and motivation. Second, all of the variables included in the model were measured using self-reports. Considering the explicit negative and positive measures that were examined in this study, participants might have responded in ways that are socially desirable. Scholars conducting research in this domain may wish to include a measure of social desirability to control for potentially biased responses. Third, the sample was limited such that it only included young female undergraduate students. Future research should strive to replicate this model using a more diverse sample (e.g. males, other ethnic groups, and older women). Finally, although the model is theoretically sound, other related theoretical constructs could be examined within the model. For instance, previous research has shown that having a sense of self-compassion can enhance basic psychological need satisfaction by leading individuals to engage in behaviors that are enjoyable (Neff and Dahm, 2015); to view negative experiences that challenge one's perceived competence as part of a larger human experience (Neff, 2003); and to connect with others by being empathetic toward their needs (Yarnell and Neff, 2013). Future studies could also examine whether interventions aimed at increasing self-compassion in individuals who pursue extrinsic goals could enhance feelings of autonomy, competence, and relatedness and lead these individuals to develop more adaptive motivational patterns and healthy eating behaviors.

Although SDT is often used to understand the adoption and execution of healthy behaviors, there are many other relevant elements that should be taken into consideration that is not presented in the model. For example, according to Social Cognitive Theory (Bandura, 1997), there are many important cognitive antecedents, such as self-efficacy, that are predictive of health behaviors. In a study conducted by Sirois (2015), it was demonstrated that health self-efficacy, perceived control in changing one's health outcomes, and positive affect mediated the relationship between self-compassion and intentions to engage in health-promoting behaviors, such as healthy eating, physical activity, and stress management. Annesi and Gorjala (2010) also demonstrated that training in self-regulation for exercise and nutrition increased levels of self-efficacy for physical activity and controlled eating, which in turn predicted weight-loss outcomes over a 6-month period. Although SDT can provide some explanation as to why individuals engage in (un)healthy eating, there exists other variables that are implicated in eating regulation. A more comprehensive understanding of how women regulate their eating behaviors could be obtained by examining how motivational constructs as proposed by SDT, in conjunction with other cognitive constructs such as self-efficacy, can predict engagement in healthy and unhealthy eating behaviors.

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References

Annesi JJ and Gorjala R (2010) Relations of self-regulation and self-efficacy for exercise and eating and BMI change: A field investigation. *Biopsychosocial Medicine* 4(4): 10.

Bandura A (1997) *Self-Efficacy: The Exercise of Control*. New York: W.H. Freeman.

Bennett-Goleman T (2001) *Emotional Alchemy: How the Mind Can Heal the Heart*. New York: Three Rivers Press.

Breines JG and Chen S (2012) Self-compassion increases self-improvement motivation. *Personality and Social Psychology Bulletin* 38: 1133–1143.

Centers for Disease Control and Prevention (2001) How is BMI calculated and interpreted? Available at: https://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html

Crombie AP, Ilich JZ, Dutton GR, et al. (2009) The freshman weight gain phenomenon revisited. *Nutrition Reviews* 67: 83–94.

Daye CA, Webb JB and Jafari N (2014) Exploring self-compassion as a refuge against recalling the body-related shaming of caregiver eating messages on dimensions of objectified body consciousness in college women. *Body Image* 11: 547–556.

Engeln-Maddox R and Salk R (2014) The demographics of fat talk in adult women: Age, body size, and ethnicity. *Journal of Health Psychology* 21: 1655–1664.

Engeln-Maddox R, Salk R and Miller S (2012) Assessing women's negative commentary on their own bodies: A psychometric investigation of the Negative Body Talk Scale. *Psychology of Women Quarterly* 36: 162–178.

Engeln-Maddox R, Sladek R and Waldron H (2013) Body talk among college men: Content, correlates and effects. *Body Image* 10: 300–308.

Ferreira C, Pinto-Gouveia J and Duarte C (2013) Self-compassion in the face of shame and body image dissatisfaction: Implications for eating disorders. *Eating Behaviors* 14: 207–210.

Freedman DS, Mei Z, Srinivasan SR, et al. (2007) Cardiovascular risk factors and excess adiposity among overweight children and adolescents: The Bogalusa Heart Study. *Journal of Pediatrics* 150: 12–17.

Guertin G, Barbeau K, Pelletier L, et al. (2017) Why do women engage in fat talk? Examining fat talk using self-determination theory as

an explanatory framework. *Body Image* 20: 7–15.

Gunnell KE, Mosewich AD, McEwen CE, et al. (2017) Don't be so hard on yourself! Changes in self-compassion during the first year of university are associated with changes in well-being. *Personality and Individual Differences* 107: 43–48.

Health Canada (2011) Eating well with Canada's food guide: A resource for educators and communicators. Available at: https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/fn-an/alt_formats/hpfb-dgpsa/pdf/pubs/res-educat-eng.pdf

Homan KJ and Tylka TL (2015) Self-compassion moderates body comparison and appearance self-worth's inverse relationships with body appreciation. *Body Image* 15: 1–7.

Hooper D, Coughlan J and Mullen MR (2007) Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods* 6: 53–60.

Hooper L, Summerbell CD, Higgins JPT, et al. (2001) Dietary fat intake and prevention of cardiovascular disease: Systematic review. *British Medical Journal* 322: 757–763.

Kabat-Zinn J (1994) *Wherever You Go There You Are*. New York: Hachette Books.

Kasser T and Ryan R (1996) Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin* 22: 280–287.

Kline R (1998) *Principles and Practice of Structural Equation Modeling*. New York: Guilford Press.

Kornfield J (1993) *A Path with Heart*. New York: Bantam Books.

Leary MR, Tate EB, Adams CE, et al. (2007) Self-compassion and reactions to unpleasant self-relevant events: The implications of treating oneself kindly. *Journal of Personality and Social Psychology* 92: 887–904.

Li C, Ford ES, Zhao G, et al. (2009) Prevalence of pre-diabetes and its association with clustering of cardiometabolic risk factors and hyperinsulinemia among U.S. adolescents. *Diabetes Care* 32: 342–347.

Liss M and Erchull MJ (2015) Not hating what you see: Self-compassion may protect against negative mental health variables connected to self-objectification in college women. *Body Image* 14: 5–12.

Magnus CM, Kowalski KC and McHugh T-LF (2010) The role of self-compassion in women's self-determined motives to exercise and exercise-related outcomes. *Self and Identity* 9: 363–383.

Muthén L and Muthén B (2010) *Mplus User's Guide* (6th edn). Los Angeles, CA: Muthén & Muthén.

Neff KD (2003) The development and validation of a scale to measure self-compassion. *Self and Identity* 2: 223–250.

Neff KD (2004) Self-compassion and psychological well-being. *Constructivism in the Human Sciences* 9: 27–37.

Neff KD and Dahm KA (2015) Self-compassion: What is it, what it does, and how it relates to mindfulness. In: Ostafin B, Robinson M and Meier B (eds) *Handbook of Mindfulness and Self-Regulation*. New York: Springer, pp. 121–137.

Neff KD, Kirkpatrick K and Rude SS (2007) Self-compassion and adaptive psychological functioning. *Journal of Research in Personality* 41: 139–154.

Nies MA, Sun L, Kazemi D, et al. (2011) Relationship of body mass index to alcohol consumption in college freshmen. *Scientific World Journal* 2012: 849018.

Otis N and Pelletier LG (2008) Women's regulation styles for eating behaviors and outcomes: The mediating role of approach and avoidance food planning. *Motivation and Emotion* 32: 55–67.

Pelletier L and Dion S (2007) An examination of general and specific motivational mechanisms and the relations between body dissatisfaction and eating behaviors. *Journal of Social and Clinical Psychology* 26: 303–333.

Pelletier L, Dion S, Slovinec-D'Angelo M, et al. (2004) Why do you regulate what you eat? Relationships between forms of regulation, eating behaviors, sustained dietary behavior change, and psychological adjustment. *Motivation and Emotion* 28: 245–277.

Putterman E and Linden W (2004) Appearance versus health: Does the reason for dieting affect dieting behavior? *Journal of Behavioral Medicine* 72: 185–204.

Racette SB, Deusinger SS, Strube MJ, et al. (2010) Weight changes, exercise, and dietary patterns during freshman and sophomore years of college. *Journal of American College Health* 53: 245–251.

Ryan RM and Deci EL (2017) *Self-determination Theory: Basic Psychological Needs in Motivation,*

Development, and Wellness. New York: Guilford Press.

Salzberg S (1997) *Loving Kindness: The Revolutionary Art of Happiness*. Boston, MA: Shambala Publications.

Schelling S, Munsch S, Meyer AH, et al. (2011) Relationship between motivation eating regulation success and failure for weight loss and dieting and binge eating in a representative population survey. *International Journal of Eating Disorders* 44: 39–43.

Shannon A and Mills J (2015) Correlates, causes, and consequences of fat talk: A review. *Body Image* 15: 158–172.

Sheldon K, Ryan R, Deci E, et al. (2004) The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin* 30: 475–486.

Silliman K, Rodas -Fortier LK and Neyman M (2004) A survey of dietary and exercise habits and perceived barriers to following a healthy lifestyle in a college population. *Californian Journal of Health Promotion* 2: 10–19.

Sirois MF (2015) A self-regulation resource model of self-compassion and healthy behavior intentions in emerging adults. *Preventive Medicine Reports* 2: 218–222.

Tabachnick B and Fidell L (2007) *Using Multivariate Statistics* (5th edn). Boston, MA: Pearson Education, Inc.

Taylor MB, Daiss S and Krietsch K (2015) Associations among self-compassion, mindful eating, eating disorder symptomatology, and body mass index in college students. *Translational Issues in Psychological Science* 1: 229–238.

Thøgersen-Ntoumani C, Ntoumanis N and Nikitaras N (2010) Unhealthy weight control behaviors in adolescent girls: A process model based on self-determination theory. *Psychology & Health* 25: 535–550.

Tylka TL and Kroon Van Diest AM (2013) The intuitive eating scale-2: Item refinement and psychometric evaluation with college women and men. *Journal of Counseling Psychology* 60: 137–153.

Tylka TL, Russell HL and Neal AA (2015) Self-compassion as a moderator of thinness-related pressures' associations with thin-ideal internalization and disordered eating. *Eating Behaviors* 17: 23–26.

Vansteenkiste M, Lens W, Elliot A, et al. (2014) Moving the achievement goal approach one step forward: Toward a systematic examination of the autonomous and controlled reasons underlying achievement goals. *Educational Psychologist* 49: 153–174.

Vansteenkiste M, Soenens B and Duriez B (2008) Presenting a positive alternative to striving for material success and the thin ideal: Understanding the effects of extrinsic relative to intrinsic goal pursuits. In: Lopez SJ (ed.) *Positive Psychology: Exploring the Best in People*. Westport, CT: Praeger, pp. 57–86.

Verstuyf J, Patrick H, Vansteenkiste M, et al. (2012) Motivational dynamics of eating regulation: A self-determination theory perspective. *International Journal of Behavioral Nutrition and Physical Activity* 9: 21.

Yarnell LM and Neff KD (2013) Self-compassion, interpersonal conflict resolution and well-being. *Self and Identity* 12: 146–159.