

Targeting Fat Talk Frequency:
Changes Associated with Participation in the Body Project

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Abstract

The Body Project is an evidence-based eating disorder prevention program. The program targets fat talk, the self-deprecating communication about one's dissatisfaction with one's weight and shape. Fat talk, family fat talk, and concern about one's weight are all correlated with body image disturbances and contribute to eating disorder development, especially in adolescent girls. Despite this, there is a gap in the research that evaluates the extent to which the Body Project intervention impacts fat talk frequency. In the current study, we predicted that fat talk frequency, family fat talk frequency, and weight concern would all significantly decrease from baseline to post-intervention among high school-aged girls who participated in the peer-led Body Project. Results were consistent with the hypotheses, demonstrating that the Body Project is associated with decreases in fat talk and weight concern among participants, and in participant perceptions of their families. This suggests the possible evidence of social diffusion among this intervention, as the decrease in fat talk frequency reached beyond the participants of the Body Project. Future studies should aim to investigate which aspects of the Body Project are most effective at decreasing fat talk frequency, the extent to which changes in fat talk mediate improvements in disordered eating risk, and the extent to which decreases extend in school communication beyond participants involved in the Body Project (i.e. other members of student body).

Keywords: fat talk, family fat talk, weight concern, Body Project

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Introduction

Envision yourself as an adolescent woman in modern day. You get ready for school, spending an hour picking out the most flattering outfit and putting on enough makeup for other students to compliment your beauty. You go to your first period where your friend greets you by saying, “I look so fat in my outfit today.” “No, *I’m* the one that looks fat today, just look at my stomach roll!” you say back. When first period ends and you walk with your friends to your next class, they begin the conversation by commenting on how large a friend looked in her Instagram post over the weekend, and you overhear another conversation made by someone else commenting negatively on their own appearance. By lunch time, you feel very hyper-aware of the way you look while you are eating, as there have been countless incidents throughout the day in which someone is judging the way you look and what you are eating. While this may seem like an exaggeration of one’s experience, it unfortunately may not be far from the reality of what actually occurs in many high schools, and even middle schools (Fredrickson & Roberts, 1997; Murnen, Smolak, Mills, & Good, 2003).

Throughout history, the media has created an overwhelming, unattainable box in which women are pressured to fit. Through advertisements of flawlessly sculpted women with airbrushed skin, to Victoria Secret models being role models for appearance, to fitness gurus on Instagram exhibiting how to obtain the perfect body, there is a standard for how women should behave and look, and these standards have served as a way that women are valued in society. As a determinant of worth, these standards have naturally impacted the way women perceive themselves, relate to other women, and talk about themselves with others. These ideals are not only apparent for adults, but also for children and adolescents, and they consequently have strong negative effects on mental health. The repercussions of these sociocultural messages about the

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standards of beauty are reflected in many variations of body image disturbances such as body dissatisfaction, pathological eating, weight concern and also the way in which we communicate with others about our bodies (Smolack & Levine, 2001; Arroyo & Harwood, 2012). The aim of the current study is to investigate this negative communication about one's body with others, assessing its relationship with a widely researched eating disorder prevention program.

What is fat talk and why does it matter?

Definition and Purpose Fat Talk. Fat talk was originally introduced by Nichter and Vuckovic in 1994 through an investigation of body image disturbances in adolescent girls (Nichter & Vuckovic, 1994). The term "fat talk" was defined as a form of self-degradation in the framework of comments made back and forth, typically among women, that revolved around speaking negatively about one's body and weight (Sharpe et al., 2013; Nichter and Vuckovic, 1994). A study examining how undergraduates communicate about food, body weight, shape, and appearance identified five topics that were most common with fat talk: (1) self-comparison to ideal eating and exercise habits; (2) fears of becoming overweight; (3) how eating and exercise habits compare to others; (4) evaluations of others' appearances; (5) meal replacements and muscle-building strategies (Ousley et al., 2008).

The definition of fat talk that is most used in the literature, and one that is used in this study, is negative comments made to others about one's own body and weight (Shannon & Mills, 2015; Nichter & Vuckovic, 1994). Examples of fat talk statements include but are not limited to: "I look so fat today" or, "My thighs look so large in these pants." The exchange of fat talk has become normalized, as those on the receiving end of the exchange often respond with a negative comment about themselves (e.g., "No, *I'm* so fat!") (MacDonald, Dimitropoulos, Royal, Polanco, & Dionne, 2015; Nichter, 2000). Fat talk appears to serve both positive and negative functions in

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modern society. While the negative consequences of fat talk are more abundant and significant than the positive consequences, it is important to examine both as a framework for the development and maintenance of this behavior.

Fat Talk and Objectification Theory. Objectification Theory (Fredrickson & Roberts, 1997) emphasizes how society's prescription of the thin-ideal and sexualization of women lead to negative body and appearance evaluation, body dissatisfaction, and lowered body esteem (Mills & Fuller-Tyszkiewicz, 2016). Objectification theory involves a series of consequences beginning with a cultural practice of objectification. The objectification experienced may be either sexual or appearance-based, translating into the societal pressure to be thin (Tylka & Hill, 2004). Both sexual and appearance-based objectification may lead to the consequences such as body dissatisfaction, fat talk, and eating disorders (Fredrickson & Roberts, 1997; Tylka & Hill, 2004). Sexual objectification may be seen through violence, harassment, sexualizing comments, and inappropriate gazing, while appearance-based objectification may be seen through societal pressure to conform to the thin-ideal. These forms of objectification lead to self-surveillance, which is also considered habitual body monitoring. Those who experience self-surveillance are hyper-aware of how their body may appear to others. The psychological consequences of this pattern follow, including body shame, appearance anxiety, interoceptive deficits, and more. Fat talk is incorporated in this stage, acting as a mechanism of body shame. Lastly, mental health is at stake, and disorders such as depression and eating disorders may develop as a consequence of culture and self-objectification (Fredrickson & Roberts, 1997). The comparison of one's body to the thin-ideal along with body monitoring behaviors surface the vulnerability to these negative consequences.

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Social Context of Fat Talk. Fat talk serves many functions in the social context, one being co-rumination among children and adolescents. Co-rumination refers to discussing and reviewing problems with friends in an extensive way, speculating about problems with friends, and focusing on negative feelings (Rose, 2002). Fat talk is used as a tool in co-rumination and is positively related to friendship adjustment, yet troublesome emotional adjustment (Rose, 2002). It was also found that this co-rumination behavior was more common in girls than boys. In a follow-up study done by Rose et al. (2007) examining connections between co-rumination and adjustment, girls' co-rumination behavior predicted an increase of feelings of closeness and friendship quality, yet also predicting an increase in depressive and anxiety symptoms over a 6-month period (Rudiger & Winstead, 2013; Rose, 2007). These results were replicated by Starr and Davila (2009) when they examined co-rumination among adolescents, showing again that it is related to both depressive symptoms and positive aspects of friendship, specifically friendship security and communication (Rudiger & Winstead, 2013; Starr and Davila, 2009). This research suggests that while fat talk is harmful for individuals' relationship with themselves, the bonds with others are strengthened, making it very difficult to curb this self-degrading behavior.

Another aspect of fat talk's purpose in the social context is the norm that surrounds the engagement in fat talk. Occurring across media platforms since the 1900's (Fouts & Burggraf, 1999), fat talk has been present in society and across media platforms for over decades. The use of fat talk in the media may have contributed to the normalization of fat talk among women. Women of varying body sizes, ethnicities, ages, and BMIs engage in fat talk (Engeln & Salk, 2014), and many studies suggest that significant differences between these variables do not exist in relation to the amount of engagement in fat talk. Results from a study done by Becker et al. (2013) which included participants from the US, UK, and Australia indicated that participants

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were equally likely to engage in fat talk regardless of their country of origin (Shannon & Mills, 2015). A study by Engeln and Salk (2014) concluded that not only are there no differences in frequency of fat talk between women of differing weight, but also for women of differing ethnicities. This data suggests that fat talk frequency remains consistent across weight, ethnicity, and is not limited to the United States. Not only have these variables been investigated, but the social relationship of fat talk has also been studied. Britton et al. (2006) conducted studies with undergraduate students (men and women) and found that it is expected for women to reciprocate fat talk in order to achieve the liking of other women, factoring into both the initiation and reciprocation of fat talk among women (Shannon & Mills, 2015).

Fat Talk and Body Dissatisfaction. Both engaging in fat talk and being exposed to fat talk have been linked to correlational and causal implications of constructs that are risk factors for eating disorders (Shannon & Mills, 2015). Salk and Engeln-Maddox (2011) found that fat talk frequency is positively correlated with an increase in body dissatisfaction with a medium strength correlation. This correlation was replicated in another study of undergraduates, and further information was found that undergraduate women are more likely to engage in fat talk and suffer the consequences of it during times of stress such as exams and tests (Warren, Holland, Billings, & Parker, 2012). These results have been replicated across multiple studies in the literature (Rudiger & Winstead, 2013; Arroyo & Harwood, 2012), and not only has fat talk been positively correlated with body dissatisfaction, but other risk factors of eating disorders such as social comparison (Corning & Gondoli, 2012) and eating disorders themselves (Ousley et al., 2008).

Effects of fat talk on body dissatisfaction have been investigated experimentally in order to explore a possible relationship. One of the major studies which demonstrated this relationship

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was done by Stice, Maxfield, and Wells (2003) where they discovered that hearing a confederate fat talk for as little as three to five minutes significantly increased body dissatisfaction compared to a condition which consisted of neutral conversation. A more recent study by Salf and Engeln-Maddox (2012) involved exposing undergraduate women to fat talk from peers. Their aim was to explore whether or not being exposed to fat talk from peers has an impact on one's own likelihood of engaging in fat talk, body dissatisfaction, and guilt (Shannon & Mills, 2015). The fat talk condition of the study consisted of an advertisement with a model that fit the thin-ideal, followed by confederates engaging in fat talk from a script. The fat talk statements were "Ugh, look at her thighs. Makes me feel so fat," and "Yeah me too. Makes me wish my stomach was anywhere near flat like that" (Salf & Engeln-Maddox, 2012). After the confederates engaged in the fat talk, participants then responded to the advertisement. The results of this investigation found that hearing fat talk increased the likelihood of engaging in fat talk and increased their body dissatisfaction compared to those exposed to challenging fat talk and not hearing it at all. The summation of this research demonstrates fat talk's role in producing negative psychological consequences.

Family Fat Talk and its Consequences. Families infuse values, morals, attitudes, and behaviors in their children, and it is on this basis that most research encompassing body image disturbance in families, revolves around Albert Bandura's social learning theory. Bandura's social learning theory states that people behave in ways that are influenced by the observing and modeling others' behavior along with their consequences (Bandura, 1977). In addition, family systems theory suggests that families obtain information from outside sources such as media messages, and these messages affect the communication climate within the family (Arroyo & Anderson, 2016; Cox & Paley, 1997). Research of fat talk and body image disturbances within

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the family context is an important facet of this overall analysis, as parents set the precedent of communication and behavior for their children as they form their own way of communicating and interacting with the world (Arroyo & Anderson, 2016; Ledbetter, 2009). Parents of the same sex as their child have the most influence on the development of their child's social modeling behavior (Palazzolo, Roberto, & Bablin, 2010), and specifically among mother-daughter dyads, research suggests that a daughter's attitude towards her body image and the way a body should look are reinforced through her mother's own beliefs and attitudes (Arroyo & Anderson, 2016; Ricciardelli, McCabe, & Banfield, 2000). Body image and eating behaviors have been explored within these mother-daughter dyads, showing strong relationships with one another (Cooley et al., 2008). For example, there is evidence from a study done by Neumark-Sztainer et al. (2010) that states that mothers' weight-related communication is associated with body dissatisfaction and disordered eating in adolescent girls. One of the only studies actually examining fat talk specifically among mothers and daughters found that not only are mothers' and daughters' fat talk significantly related to each other, but mothers' fat talk was positively related to daughters' bulimic tendencies. The frequency of family fat talk and child sex differences in outcomes was assessed at the Yale School of Medicine, indicating that 76% of 581 parents of adolescents reported regular fat talk in front of their children and 44% reported fat talk directed towards the child with the strongest association of eating disorder symptomatology happening among adolescent girls (Lydecker et al., 2018). This suggests that family fat talk is not a foreign concept in many households, and it is damaging not only for the person engaging in the fat talk, but also those who are exposed to it.

What is weight concern and why does it matter?

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Definition and Correlates of Weight Concern. Among adolescent girls, it is very common to have concerns with one's weight and dieting in order to lose weight (Field, Camargo, Taylor, Berkey, Roberts, & Colditz, 2001). Weight concern is defined as a worry about one's current weight status and exists among individuals, regardless of BMI. It is considered an important factor to be assessed when aiming to identify behaviors that may lead to eating disorder development (Silva, Santana, Maroco, Maloa, & Campos, 2017). In a sample of high school aged girls, weight concern was identified as a risk factor for the development of eating disorders, and from that study has been defined as an intervention target for eating disorder prevention programs (Killen et al., 1996). Weight concern continues to be a significant contributing factor in the development of eating disorders, and the idea of thin-ideal internalization seems to be a cause of this weight concern experienced, especially by adolescents. Substantial research on the topic has been explored, indicating that both body dissatisfaction and weight concern predict disordered weight control behaviors and eating disorders (Calzo, Sonnevile, Haines, Blood, Field, & Austin, 2012).

Weight concern and fat talk both have strong relationships with media messages and their effects on women. In a study done regarding peer, parent, and media influences on the development of weight concern, results suggested that parental influences are highly predictive of their child's weight concern (Field et al., 2001). In terms of media's contribution to this issue, when children had a goal to look like same-sex media figures who embodied the thin ideal, it was predictive of developing weight concern (Field et al., 2001).

What interventions have aimed to reduce fat talk frequency?

Although fat talk has been identified as an important factor to consider in the development of eating disorder interventions (Shannon & Mills, 2015; Allison, Warren, &

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Bastiampillai, 2014), very few interventions have sought to target fat talk specifically.

Additionally, no eating disorder prevention program has aimed to address fat talk as a specific aim within the program. The only interventions which address fat talk specifically have been used in a broad setting of non-clinical populations due the prevalence of negative consequences of fat talk that reach beyond the scope of clinical populations. Both Fat Talk Free Week, an extension of the Reflections: Body Image Program (Becker & Stice, 2012) and the Body Project are analyzed because they are the only interventions cited in the literature that aim to decrease fat talk frequency.

Fat Talk Free Week. Fat Talk Free Week is an anti-fat talk initiative taking place over a week, which aims to encourage people to not engage in fat talk. Social media is the main tool used in this initiative, increasing awareness of the negative consequences of fat talk and encouraging people not to engage in the behavior. A study done by Garnett et al. (2014) investigated whether Fat Talk Free Week could decrease fat talk in undergraduate women. They measured fat talk frequency two weeks before and after the intervention, and there was a significant decrease in fat talk frequency post intervention (34%) compared to baseline (more than 50%). Interestingly, there was a decrease in fat talk not only for those who engaged in this intervention, but also for those who did not, illustrating that there was a diffusion in the positive results from the initiative.

The Body Project. The Body Project intervention, developed by Dr. Eric Stice, is a cognitive dissonance-based eating disorder prevention program which aims to prevent the onset of eating disorders by conquering the thin-ideal and promoting body acceptance for adolescent and college-aged women (Stice et al., 2009). It is one of the most widely researched and supported programs that is designed to address sociocultural maladaptive norms, like fat talk and

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body dissatisfaction (Stice & Presnell, 2007). The Body Project was developed as a two-part program which is designed to critique thin-ideals through discussion, role-playing, and written exercises that help participants learn skills that increase body satisfaction and decrease unhealthy weight control behaviors. The second part helps participants make the lifestyle changes necessary to achieve a healthy body weight such as educating participants on how to make healthy food choices, eat for energy, and more (Stice & Presnell, 2007). An efficacy trial which tested the Body Project in real-world conditions had school staff recruit and deliver the intervention to students, and the results showed the dissonance-based intervention significantly reducing adolescent girls' thin-ideal internalization, body dissatisfaction, and eating disorder symptoms compared to the psycho-educational control condition (Stice et al., 2009). This change in negative body outcomes has also been tested for sustained change, and results of these studies have shown significant decreases in body dissatisfaction at a 2-year follow-up along with eating disorder symptoms at a 3-year follow-up (Stice et al., 2011). Both clinician and peer-led Body Projects have proven to significantly decrease these body image outcomes, proving efficacy for both modalities of implementation (Stice et al., 2017).

Specific activities that aim to challenge fat talk reside within the Body Project curriculum, one being the mirror exercise which is a take home activity done after the first session. The activity addresses fat talk and ways to challenge it by requiring participants to stand in front of a mirror and write 10 positive qualities about themselves including physical, emotional, intellectual, and social qualities. In doing this, participants must confront the initial negative comments they may make about themselves and focus on the positive aspects of their being. Another activity which aims to challenge fat talk is a take home activity after the second session where participants are to make a list of 10 things that girls can do to combat the

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appearance ideal. One of the examples used in the session manual is to make a fat talk jar, and every time someone in the home says something that endorses the appearance ideal, they have to put money into the jar, making participants and their families aware of the frequency in which they engage in fat talk. Lastly, a take-home exercise at the end of the third session requires the participant to write a letter to her younger self, advising her how to avoid the development of body image concerns given what the participant had learned so far in the Body Project. This gives the participant the opportunity to reflect on what they learned thus far and how those skills (i.e. challenge fat talk with positive body talk) would have changed their body image development.

While the Body Project's efficacy has been proven through numerous studies and there are specific activities within the Body Project that challenge fat talk, there is no literature investigating the specific relationship between engaging in the Body Project and changes in fat talk frequency, family fat talk frequency, and weight concern. Prior research has shown that these factors are significantly related to eating disorder pathology and risk factors for their development, yet there is a lack of research revolving around the Body Project and its relationship to these key factors.

Current Investigation

This study used data from an open trial peer-led Body Project investigation to examine the relationship between engagement in the Body Project and fat talk frequency, family fat talk frequency, and weight concern. These measures were assessed at baseline, before the participants engaged in the Body Project, and following the completion of the intervention. The primary prediction in this study was that there would be a significant decrease in fat talk frequency from

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baseline to post Body Project completion. Additionally, it was hypothesized that both family fat talk frequency and weight concern would significantly decrease from baseline to follow up.

Methods

Participants

Participants consisted of high school women in grades 10-12 at a public high school in Boulder, CO. To be eligible for participation in the Body Project, students had to identify as female and be in 10th, 11th, or 12th grade. There were no exclusion criteria.

Recruitment. Participants were recruited through flyers throughout the high school and sent through email. No teachers were used in recruitment to eliminate the possibility of coercion.

Procedure

Enrollment. Students who were interested in participating in the study filled out a form that included both student and parent contact information along with students' availability. After students received an email with more detailed information about the study and wished to continue, links were sent via REDCap to the parent to provide consent. Once parents provided consent, students were emailed links via REDCap to complete the baseline assessment measures.

Measurement Time Points. Participants were asked to complete surveys assessing fat talk frequency, family fat talk frequency, and weight concern through the measures listed below via REDCap at baseline and post-intervention. After completion of surveys at each time point, participants were given a \$25 Amazon gift card.

The Body Project. The Body Project consisted of four sessions, each one week apart. The first session focused on a general overview of the Body Project and aimed to explain what the rules and expectations for the sessions were. It was largely discussion based with the main topic being where appearance ideals originate and the consequences of its pursuit. Participants

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were given at-home activities to be completed following the session. The second session involved discussion of the at-home exercises, serving as a time to debrief and talk about what participants learned and felt about engaging in the activities. A role-play also was incorporated in this session to discourage participants from engaging in the appearance ideal by helping them come up with responses to challenge every day talk surrounding these ideals. In the third session, goals were to continue emphasizing the importance of rejecting appearance ideals, cultivate skills on how to challenge concerns about one's body, and how to address future influences to conform to the ideals. Role plays were used similarly to the second session in that participants come up with statements to counter the appearance ideal. The fourth session included at-home activity debriefing along with discussion about how conversations in everyday life about our bodies may actually endorse the appearance ideal.

Measures

Demographic Information. Demographic information was assessed at baseline using REDCap surveys administered to participants. Information included race/ethnicity, age, class status (i.e., sophomore, junior, etc.), living situation, athletic status, and international student status.

Fat Talk. Fat talk was measured using the Fat Talk Questionnaire (Royal et al., 2013) to assess the self-disparaging comments said out loud about one's body, eating behaviors and pressure to be thin. This 14-question scale includes a variety of questions including "When I'm with one or several close female friend(s), I complain that I've gained weight", "When I'm with one or several close female friend(s), I complain that I need to stop eating so much", "When I'm with one or several close female friend(s), I complain that my arms are too flabby", and "When I'm with one or several close female friend(s), I complain that I feel pressure to be thin". Each

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question received a score of 1-5 (i.e. 1 is never, 5 is always), and the score for each participant reflected a summation of the questions with a maximum score of 70. In an analysis of the development and validation of this measure (Royal et al, 2013), the Fat Talk Questionnaire was shown to have high reliability through test-retest reliability ($r=.90$) and high internal consistency ($\alpha=.93$).

Family Fat Talk. The Family Fat Talk Questionnaire (MacDonald et al., 2015) is an adaption from the Fat Talk Questionnaire (Royal et al., 2013) that can be applied to the family context. This 16-question measure assessed the the amount of fat talk the participant communicated to their family and the amount of fat talk in which family members engaged. Questions such as “When I’m with my family, I complain that I feel pressured to be thin”, “When I’m with my family members, I complain that I’m not in shape”, and “When I’m with my family, I complain that I am fat” assess the participants’ fat talk, whereas questions like “When I’m with my family members, I hear them complain that their arms are too flabby”, “When I’m with my family members, I hear them complaining that they should not be eating fattening foods”, and “When I’m with my family, I hear them pressure each other to be thin” assesses fat talk that family members participate in. The scoring of this measure is the same as the Fat Talk Questionnaire explained above. In an evaluation of the development of Family Fat Talk Questionnaire (MacDonald et al., 2015), there was high reported test-retest reliability ($r=.76$) and internal consistency ($\alpha=.90$).

Weight Concern. The Weight Concerns Scale (Killen et al., 1994) was used to assess participants’ body weight and shape worry, fear of gaining weight, dieting behavior, and perceived fatness. The scale consisted of five questions: (1) How much more or less do you feel you worry about your weight and body shape than other students your age? (2) How afraid are

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you of gaining three pounds? (3) When was the last time you went on a diet? (4) Compared to other things in your life, how important is your weight to you? (5) Do you ever feel fat? Scoring for this scale consisted of the summation of each question, with a maximum score of 26. This measure has good stability ($r=.71$ for 7-month interval) and good sensitivity (Killen et al., 1996; Killen et al., 1994).

Results

Participants

A total of 112 female high school students completed baseline assessments and participated in the Body Project intervention, and a total of 100 participants completed the post-intervention assessment measures. Participants were in their sophomore, junior, or senior year of high school. All demographic information can be found in Table 1.

Pre to Post Findings

Before engaging in data analysis, examination of the outcome measures showed significant divergence from normality using the Shapiro-Wilk test of normality. Box-Cox transformations indicated a need for square root transformation for both the fat talk and family fat talk measures to correct the positive skew. All analyses in this study therefore used the transformed values of outcomes for both measures.

Descriptive statistics, including mean, standard deviation, and range of baseline and follow-up measures are presented in Table 2.

A within-subjects analysis of variance was conducted to compare the effect of time on the overall change in fat talk frequency, family fat talk frequency, and weight concern at baseline and post Body Project completion. Results from the analysis indicated a significant effect of time on fat talk frequency [$F(1,104)=15.659, p<0.001, d=0.55$], family fat talk frequency

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[$F(1,104)=6.044$, $p<0.02$, $d=0.34$], and weight concern [$F(1,104)=41.79$, $p<0.001$, $d=0.89$]. On average from baseline to follow-up, participants reported a decrease in fat talk frequency of 0.326 units ($SE=0.08$), a decrease in family fat talk frequency of 0.191 units ($SE=0.08$), and a decrease in weight concern of 1.686 units ($SE=0.26$).

Discussion

The present study was conducted to examine the relationship between engaging in the Body Project intervention and changes in fat talk frequency, family fat talk frequency, and weight concern. We predicted that from baseline to post-intervention, fat talk frequency, family fat talk frequency and weight concern would significantly decrease from baseline to post-intervention. Results provided support for the study hypotheses. As hypothesized, there was a significant reduction in fat talk frequency, family fat talk frequency, and weight concern after engaging in the Body Project. Weight concern was the most robust decrease with a large effect size ($d=0.89$), followed by fat talk frequency which decreased with a medium effect size ($d=0.55$). Family fat talk decreased with a small-medium effect size ($d=0.34$).

An interesting explanation of the results of this study are consistent with the framework of the cognitive dissonance theory of the Body Project (Stice et al., 2007). Dissonance occurs when individuals behave in a way which is incongruent with their self-concept (Shannon & Mills, 2015), and an individual may change their self-concept in order to alleviate dissonance and reduce discomfort. On this basis, those who engage in fat talk through active comments or reciprocated comments, may not actually feel bad about their body, but the fat talk creates dissonance, leading to a change in the way one views their body (Shannon & Mills, 2015). In other words, their self-concept may begin to align with their behavior of fat talk. The Body Project incorporates multiple activities which aim to conquer the thin-ideal, increase body

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acceptance, and reflect on how participants may have developed a negative view of their body (Stice et al., 2008), which in turn, may serve to create dissonance, helping participants alter their self-concept in a positive way.

Another intervention, the Fat Talk Free Week campaign, showed similar results in that not only can fat talk frequency decrease when engaging in an intervention, but those not participating may also report a decrease in fat talk frequency (Shannon & Mills, 2015). In the context of this study, family fat talk also showed a significant decrease, illustrating the idea that social diffusion may have occurred. This is defined as messages spreading from one social group to another in the process of creating change (Goldberg & Stein, 2018). This is a profound result because it suggests that the Body Project may have the capacity to create large scales of change not limited to those engaging in the intervention.

Although this finding is intriguing, the report of family fat talk frequency is based on participant report, and there are many possible explanations for the reduction in participant reported fat talk. It is possible that participants share what they learned in the Body Project with their families, and their families begin to adopt new ways of talking about their bodies. The psycho-educational component of this intervention may be effective for families of participants who may be new to the phenomena of thin-ideals and fat talk. Another possible explanation is that students are focusing their attention on implementing positive body communication, and their attention has deviated from negative body talk, possibly making them less aware of their family's fat talk.

Strengths

This is the first study to our knowledge that examined change in fat talk frequency among participants in the Body Project. Given the clinical implications of fat talk in the development of

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risk factors for eating disorders and eating disorder symptomatology (Shannon & Mills, 2015), there is a need for this information as eating disorder prevention programs continue to develop.

Strengths of this study include the use of widely used, valid measures to assess the outcome variables. The present study also provided an in depth analysis of prior research involving fat talk and weight concern and their effects on eating disorder risk factors and symptomatology.

Another strength of this study is the low attrition rate from baseline to post-intervention assessment.

Limitations and Future Directions

One of the most significant limitations of this investigation is the study design. There was no control or other treatment group to serve as a basis of comparison for these results, and because of this, causal conclusions cannot be drawn. Future research should consider a randomized control trial, comparing the Body Project with another efficacious intervention or with a control group so that causality may be inferred. Another important future direction is to test if the changes in fat talk frequency, family fat talk frequency, or changes in weight concern may mediate other outcomes such as body dissatisfaction, depressive symptomatology, and disordered eating.

Because there are already specific activities which aim to address fat talk, it would be interesting to analyze which activities have the strongest effect on fat talk frequency and if there is a stronger effect on fat talk with engagement in individual activities (i.e. fat talk challenging statements) or with the broader context of the Body Project curriculum. Isolating this information would provide the opportunity to implement these activities within the classroom and have repetition along participants' high school career, possibly illustrating more profound results within a larger demographic. Modalities of delivery should also be considered, specifically

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whether there are differing effects based on peer-led, clinician-led, or internet delivered activities.

Another limitation to address is that covariates were not explored as a possibility for explanation of the results. For example, 61% of participants were athletes, and based on the inconsistency of research findings and limited studies regarding athletes and body image disturbance, it is a limitation that this was not explored further in the current study. Future investigations should control for athlete status and analyze whether this variable has an impact on the outcome measures of the Body Project, specifically fat talk and weight concern.

Because this intervention is delivered to non-clinical populations, the homogeneity of demographic information among participants is a limitation. With regard to race/ethnicity, 81% of participants identified as Caucasian/White. Further research may aim to implement the Body Project in a more racially diverse school, providing more generalizable results to the non-clinical adolescent population.

Demand characteristics such as reactivity and social desirability may also serve as a limitation in this study. It is possible that the participants provided information which deviated from their norm because they knew they were in a research study, either dampening the severity of their feelings and actions or communicating them in a heightened way. Along the same lines, the use of self-report data may be seen as a limitation in that participants may not have completely remembered their frequency of fat talk or their family's in an accurate way.

Conclusion

This is the first study which analyzed the Body Project's specific relationship to fat talk and family fat talk. While there are specific activities within this intervention that challenge these damaging norms of communication, there has been no data regarding its effectiveness until now.

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Although causal conclusions cannot be derived from this trial, it does suggest that the peer-led Body project is associated with reductions in fat talk among adolescent girls, paving a clear path for future research which encourages girls to challenge each other's fat talk, lift each other with positive body talk, and learn to see the beauty in all bodies.

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Tables

Table 1

Demographics of Study Sample

Factor	Total Sample
Age	
n	112
% 15	16.1
% 16	30.4
% 17	38.4
% 18	15.2
Race/Ethnicity	
n	112
% Caucasian/White	83
% Asian/Asian American	19.6
% Hispanic/Latino	6.3
% African-American/Black	4.5
% Other	2.7
Athlete	
n	112
% Athlete	61.6
International Student	
n	112
% International	3.6

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Table 2

Descriptive Information of Study Measures at Baseline and Post-Intervention

Variables	Baseline				Post-Intervention			
	n	Mean	SD	Range	n	Mean	SD	Range
1. Fat Talk	112	5.02	0.96	4.44	100	4.69	0.77	2.89
2. Family Fat Talk	112	5.20	0.95	4.31	100	5.04	0.90	3.14
3. Weight Concern	112	13.11	4.86	20.00	100	11.08	4.08	20.00