

The Impact of Professional Development About Weight-Related Issues for Pre-Service Teachers: A Pilot Study

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Many teachers do not have a working knowledge of body image or weight issues. This pilot project examined body image satisfaction and eating/weight-related behaviours before and after a professional in-service with physical education pre-service teachers (N = 16). At the three-month follow-up, measures were repeated and qualitative data (critical incidents and a focus group) about the impact on teaching practice was collected. Results showed no significant changes, however pre-service teachers indicated (a) attempting to lose weight or gain muscle (despite many being in a healthy weight range), and (b) having a biased approach to weight-related issues. Pre-service teachers, particularly those specializing in physical education, are not immune to cultural messages that perpetuate the thin ideal. Future evaluation with a larger sample that formally measures implicit and explicit weight-bias is needed. Providing professional development for pre-service teachers may promote more positive practice about body image, weight-bias, and weight/eating-related concerns in schools.

Plusieurs enseignants n'ont pas une connaissance pratique de l'image du corps ou des problèmes de poids. Ce projet pilote a porté sur la satisfaction quant à l'image corporelle et sur les comportements relatifs à l'alimentation et au poids avant et après une intervention professionnelle en cours de formation auprès de stagiaires en éducation physique (N = 16). Lors du suivi trois mois plus tard, on a répété des mesures et collecté des données qualitatives (incidents critiques et groupe de discussion) quant à l'impact sur la pratique pédagogique. Si les résultats n'indiquent aucun changement significatif, les stagiaires ont tout de même indiqué qu'ils (a) essayaient de maigrir ou d'augmenter leur masse musculaire, et (b) qu'ils avaient une approche biaisée par rapport aux questions liées au poids corporel. Les stagiaires, notamment ceux en éducation physique, ne sont pas insensibles aux messages culturels qui diffusent un idéal de minceur. Il faudra une autre évaluation avec un plus grand échantillon et des mesures formelles des préjugés implicites et explicites relatifs à la minceur. Offrir aux stagiaires des occasions de développement professionnel pourrait encourager une pratique plus positive quant à l'image du corps, aux préjugés relatifs au poids et aux préoccupations en matière de poids et d'alimentation dans les écoles.

Background

Disordered eating behaviours and body dissatisfaction are common (Grabe & Hyde, 2006), particularly in university-aged young adults (Neighbors & Sobal, 2007). In fact, body dissatisfaction is so ubiquitous in Western societies that, despite substantive increases in its prevalence, Striegel-Moore, Silberstein, and Rodin (1986) had already recognized it as “normative discontent” as early as the mid-1980s. During a similar time period, the prevalence of obesity in Canada has risen from approximately 13.8% in 1978/1979 to 23.1% in 2004 (Public Health Agency of Canada, 2009). In a study exploring eating attitudes among a representative sample of Canadian women aged 15 and older, Park and Beaudet (2007) identified 18.5% as “weight concerned.” Not only are weight-related concerns common, they are also associated with serious health consequences, including anorexia nervosa, diabetes, certain cancers, and low self-esteem (Fairburn, Cooper, Doll, Norman, & O’Connor, 2000; Lau et al., 2007; Park & Beaudet, 2007; Sullivan, 1995). Given the increasing prevalence and serious nature of weight-related disorders, prevention of both eating disorders and obesity is important. Recent literature suggests combining prevention efforts to address common risk factors of both eating disorders and obesity may be an efficient use of time and may eliminate the mixed messages that can result from attempts to intervene with each in isolation (Neumark-Sztainer, 2005a, 2005b; Neumark-Sztainer, Story, Hannan, Perry, & Irving, 2002).

Obesity and Eating Disorder Prevention Programs

Many studies have focused on the school’s role in health promotion and the prevention of eating disorders and obesity, but there is large variability in implementation as well as outcome (McVey, Tweed, & Blackmore, 2007; Piran, 1999, 2004; Smolak & Levine, 2001; Yager & O’Dea, 2005). In a meta-analytic review, Stice, Shaw, and Marti (2007) reported that multisession eating disorder prevention efforts were more successful at addressing weight-related issues than single session programs. Similarly, many several-session eating disorder prevention efforts showed initial successes, but at one year follow-up, gains were not maintained (Brown, Winzelberg, Abascal, & Taylor, 2004). A systematic review on eating disorder prevention by Pratt and Woolfenden (2002) reported on 12 randomised controlled studies involving general population or high risk samples. Nine of the 12 studies were school-based, and all had follow-up intervals of three months or greater. Strategies included (a) promotion of healthy eating attitudes and behaviours, (b) development of coping skills to deal with sociocultural pressures to be thin, and (c) awareness of media literacy. Overall, the review authors concluded that “there is insufficient support for the effectiveness of any specific type of eating disorder prevention program for children and adolescents” (p. 11).

A Cochrane review by Summerbell et al. (2005) on interventions to prevent obesity in children and youth included 22 recent controlled studies of at least 12 weeks duration. Studies were varied in design and outcome, but the overall conclusion was that “interventions employed to date have, largely, not impacted on weight status of children to any significant degree” (p. 16), and authors suggest that “the obesogenic environment in many countries, in which driving physiological goals to be sedentary and well fed are overwhelmingly supported by an increasingly complex socio-political environment, is likely to reduce the effectiveness of interventions aimed at individuals” (p. 17). Together, these results suggest the need for more comprehensive programs that require investment from those who will have the greatest ability

to affect change in the lives of children and youth (Neumark-Sztainer, Paxton, Hannan, Haines, & Story, 2006).

Until recently, eating disorder and obesity prevention have been seen as working at cross-purposes. Efforts to prevent obesity are seen as dangerous in promoting precursors to eating disorders (O'Dea, 2005) and efforts to prevent eating disorders are seen as encouraging complacency about healthy weight (Neumark-Sztainer, 2005a). Teachers are beginning to recognize this problem based on anecdotal reports of confusion, among youth and adults alike, about mixed messages (i.e., "self-acceptance" versus "lose weight"). Russell-Mayhew, Arthur, and Ewashen (2008) found that teachers are also having a difficult time reconciling the mixed messages around weight and health. "How do you push the active living thing and at the same time do the body image thing? It's okay to be who you are, you know? How do you get around that? I have no answer." (Elementary teacher; p. 233) Body weight and youths' feelings and perceptions about their bodies are both important to well-being and development. Although efforts have been made at both eating disorder and obesity prevention in schools, few studies have focused on sensitizing teachers to health promotion messages that span a range of disordered eating behaviours.

The influence teachers may have on the success of prevention programs is largely under-explored (Yager & O'Dea, 2005). A recent exception is the *Healthy Schools-Healthy Kids* intervention where teachers' beliefs, behaviours, and assessment of the school environment were explored within an ecological approach to prevention in schools (McVey, Tweed, & Blackmore, 2007). While there were no significant change scores, the authors offer that the data show consistently positive trends which suggests the need to further explore the effects of training and engaging teachers in prevention efforts. In a study designed to determine the beliefs and needs of teachers responsible for health education, Vamos and Zhou (2009) stated that both pre-service and in-service teachers reported barriers to teaching and discomfort with health-related education. The researchers emphasized the need for collaboration between universities, professional institutions, and communities in order to improve knowledge and development. Similarly, Greenberg et al. (2003) noted a lack of training for teachers regarding prevention and a need for greater professional development. This is further supported by Smith, Potts-Datema, and Nolte (2005) who note several challenges to preparing teachers for health education and promotion, including a lack of quality and quantity in university pre-service training. In addition, Jourdan, Samdal, Diagne, and Carvalho (2008) note that health promotion in schools is often of low priority, however, those teachers who do receive training tend to be more involved, and have a more comprehensive approach to health promotion in schools.

Teachers as Prevention Agents

Adult role models play an important and influential role in the development of children's food, weight, and shape attitudes (Smolak, Levine, & Schermer, 1999), and teachers have a unique opportunity to act as positive influences on that development. Moreover, the need to coach teachers on ways to help children learn to rely on internal cues of self-regulation is important to prevent disordered eating and to promote optimal weight for healthy growth (Satter, 2005). One way to help children is to surround them with role models (such as teachers) who are aware that external factors can be detrimental to their eating or physical activity practices. "Even the best prevention efforts will fail unless adults are simultaneously educated, impassioned, and

empowered to join students in resisting and challenging a cultural environment that creates body image problems, unhealthy weight concerns, and disordered eating” (Kater, Rohwer, & Londre, 2002, p. 204). Classroom instruction that concentrates on students’ weight can intensify consciousness of weight and shape in the context of cultural standards, thus spurring on weight-based teasing among groups of children, leading some to engage in unhealthy weight-control practices (McVey et al., 2005; McVey, Davis, Tweed, & Shaw, 2004). Other external influences that can have negative consequences include (a) teasing children about their weight, shape, or appearance, (b) making negative comments about the way other people look, and (c) rewarding or punishing children with food. Surprisingly, most teachers’ awareness of the impact they have as role models is limited to healthy eating and exercise, with little or no consideration of attitudes about weight or shape (Raymen & Piran, as cited in McVey, Gusella, Tweed, & Ferrari, 2009), or body image. Experts such as Piran (2004) recommend that school boards invest time in offering teachers "sensitivity training" (professional development) to learn how their own values concerning food, weight, and shape influence their teaching practices. She underscores that the role of teachers as key socialization agents cannot be overemphasized. In order to target attitude and behaviour change in teachers, professional development needs to be interactive, experiential, and designed to encourage self-reflection in a way that targets an emotional connection to the material presented (Russell-Mayhew et al., 2008).

Although numerous researchers have noted the impact of adult role models on the formation of children’s own eating attitudes, (Andrews, Silk, Eneli, 2010; McCabe et al., 2007; Smolak & Levine, 2001; Yanez, Peix, Atserias, Arnau, & Brug, 2007), little research has focused on sensitizing teachers to their own attitudes, beliefs, and behaviours regarding weight-related issues. Piran (2004) emphasized a need to increase awareness amongst teachers about how their own experiences and beliefs impact children’s experiences, stating “the prejudice of weightism is a pervasive social prejudice about people of heavier weight and about body fat . . . teachers’ ability to establish non-weightist norms in the classroom depends a great deal on their own prejudicial attitude” (Piran, 2004, p. 4). McCabe et al. (2007) were the first to explore the role teachers play in shaping the body image and eating/exercise behaviours of preschool children through the messages they convey. The researchers noted that although many teachers reported not imparting formidable messages regarding weight, diet, or exercise, many demonstrated an internalization of stereotypes about weight and shape. Teachers reported that their appearance was very important to how they felt, and many were critical of their own physical appearance. Yager and O’Dea (2005) identified that teachers are in a position to inadvertently impart or model negative attitudes or beliefs about weight control and body image. Furthermore, teachers have the potential to negatively affect students’ satisfaction with their bodies not only through their personal beliefs, but also through negative teaching practices that they may be unaware of or may be practicing with positive intentions (O’Dea & Abraham, 2001).

Russell-Mayhew et al. (2008) reported that following a wellness-based intervention, teachers described confusion surrounding how to reconcile perceived incongruence between obesity prevention messages that encourage a weight focus and eating disorder prevention messages that encourage self-acceptance regardless of body size. It is important to determine how prepared teachers feel following intervention efforts aimed at addressing weight-related issues. Similarly, a study investigating the impact of training teachers as health promoters found that teachers “find it difficult to make the fundamental connections between health and education and therefore the importance of this in their future role as health promoters” (Speller

et al., 2010, p. 504). In addition, there is some evidence that teachers who are most often responsible for delivering health education (i.e., physical education teachers, health teachers) are at an increased risk for body dissatisfaction, dieting, and disordered eating (Yager & O'Dea, 2009). The authors underlined a need for pre-service teachers to assess their own eating beliefs and practices as well as a need for university training programs to address the personal preparation of trainees. Furthermore, O'Brien, Hunter, and Banks (2007) reported physical education teachers exhibit harmful prejudice toward obese individuals that seem to be supported by an exaggerated investment in physical attributes and greater implicit anti-fat biases. Results of a study investigating anti-fat bias in university students studying for careers in health indicated that information provided about obesity can serve to lessen or aggravate anti-fat prejudice (O'Brien, Puhl, Latner, Mir, & Hunter, 2010) which supports the need to address weightism or weight bias amongst educators (Greenleaf & Weiller, 2005).

In a study exploring the professional development of teachers and health practitioners, McVey et al. (2009) found that a program designed to sensitize teachers to weight-related issues significantly affected their knowledge regarding various areas of concern but not their self-efficacy to combat weight bias. Because this may have been a result of the delivery method (web-based), rather than the program content, the authors proposed that in order to increase self-efficacy, programs need to include interactive, face-to-face learning. Nonetheless, the program was largely successful and provides support for programs that aim to not only increase knowledge but also sensitize teachers to their own beliefs, attitudes, and behaviours concerning weight-related issues.

Purpose

Given the current state of literature on the professional development needs of teachers about weight-related issues, the current pilot study aimed to answer two main questions:

1. How does professional development training about body image affect pre-service teachers' personal body image (as measured by eating attitudes and behaviours, body satisfaction, size acceptance, and weight change behaviours)?
2. In what ways does professional development training in body image prepare pre-service teachers to address a range of weight-related issues in schools?

Because little is known about addressing weight-related concerns in teacher training programs, a pilot study allowed us to assess the research design, the intervention itself, as well as feasibility of implementation.

Methods

Research Design

A pre-post mixed methods design was used to assess the influence of the interactive professional development training: (a) on pre-service teachers' values concerning body image, size acceptance, and eating attitudes and behaviours (*teachers as being*), and (b) on their self-efficacy to address weight-related issues in their teaching practices (*teachers as doing*). Critical incident questionnaires were collected after the training and before the focus group. A focus

group was held with pre-service teachers 3 months following the training to assess (a) what they learned from the training, (b) if they applied what they learned to their teaching practices, and (c) whether they perceived the training to have changed their values concerning food, weight, and shape.

Participants

This pilot project took place with pre-service teachers in the final year of a two-year degree. Students were given the 3-hour professional development training during class time. A convenience sample of physical education pre-service teachers was chosen because physical education teachers are often charged with delivering the health curriculum in schools and this specialization was seen to be most aligned with the content of the intervention and aims of the study. All secondary pre-service teachers specializing in physical education received the training ($N = 16$, 6 men, 10 women), but only 14 pre-service teachers completed both qualitative and quantitative portions of the study. Self-reported Body Mass Indexes (BMIs) of female participants ranged from 18.79 to 28.34 ($M = 24.17$), whereas the BMIs of male participants ranged from 21.78 to 33.90 ($M = 29.37$).

Intervention

A 3-hour interactive training workshop was facilitated by a registered psychologist and expert in weight-related issues (first author). The content of the workshop was grounded in the literature on body image and weight-related issues in schools. The focus of the workshop was shared risk factors that have been shown to impact the development of both eating disorders and obesity. Specifically, body image, weight-bias, self-esteem, media, and dieting were discussed in the context of school-based health promotion and disease prevention literature. The psychosocial and mental health factors related to weight were emphasized because of the expertise that pre-service physical education teachers may already have in nutrition and activity. In addition to some didactic learning, the interactive hands-on activities were designed to foster active learning, and encourage self-reflection, discussion, and debate. At the end of the training, students were given a chance to investigate a body image resource; Alberta Education approved Body Image Kits that were designed for use with students from Grades 7-12. The Body Image Kits contain lesson plans and activities about weight-related issues (i.e., influences on body image, effects of media, weight-based teasing and bullying, etc.) that can be used by teachers in schools and represent the type of approved resources typically available for educators in schools.

Data Collection

Survey measures. Participating pre-service teachers filled out the following package of materials before the professional development training, in the week following the professional development training, and at the 3-month follow-up.

Body Satisfaction Scale (BSS). The BSS is a summative rating scale in which respondents rate their satisfaction with aspects of their body on a 7-point Likert scale (very satisfied to very unsatisfied) with higher ratings indicating greater dissatisfaction with one's body (Slade, Dewey, Newton, Brodie, & Kiemle, 1990). The full version of the scale has demonstrated good reliability and validity (Slade et al., 1990). Consistent with the work of

McVey et al. (2007) the current study employed a modified version of the BSS assessing satisfaction with height, weight, body shape, thighs, stomach, and face. McVey et al. (2007) demonstrated good reliability for this abbreviated version, reporting an alpha coefficient of .88.

Eating Attitudes Test (EAT). EAT (Garner & Garfinkel, 1979) is one of the most widely used screening tools for eating disturbances. It is a 26-item rating scale on a 6-point Likert scale ranging from always to never (Garner, Olmstead, Bohr, & Garfinkel, 1982). The EAT was developed as a tool to screen for anorexia nervosa in large populations (Garfinkel & Newman, 2001). As a research tool, its utility is in comparing groups and in monitoring changes in eating attitudes over time (Lynch & Eppers-Reynolds, 2005). In the original validation sample Cronbach's alphas of .90 and .83 were reported for participants with eating disorders and a group of normal controls, respectively (Garner & Garfinkel, 1979).

Sociocultural Attitude Toward Appearance Scale (SATAQ-O). The SATAQ (Heinberg, Thompson, & Stormer, 1995) is a 14-item summative rating scale that assesses the individual's awareness and internalization of sociocultural standards of appearance using two subscales (SATAQ-A, SATAQ-I). An adapted 4-item subscale from this larger scale was used to assess acceptance of bodies of different shapes.

Weight change behaviors. Forced choice questions: (a) Are you currently doing anything to lose weight? (b) Are you currently doing anything to gain muscle?

Critical incidents form. Brookfield's (1995) use of critical incidents tracks meaningful learning; questions probe behaviour, affect, and cognition to gain a more detailed understanding of pre-service teacher's experiences with weight-related issues.

Focus group. Focus groups are semi-structured, facilitated group discussions on a specific and defined area of interest (Carey & Smith, 1994) that take place in a setting, usually informal, conducive to honest discussion and disclosure. Focus groups are especially useful to explore new research areas, to examine complex clinical issues, or when a particular group's perspective is important (Cote-Arsenault & Morrison-Beedy, 1999). One focus group with 15 participants (6 males, 9 females) took place 3 months following the professional development training. While larger than the recommended maximum of 12 participants for a focus group, the participants chose to discuss their experiences as one large group for learning purposes and due to time and scheduling constraints. The 3-month period of time between the professional development training and the focus group allowed time for reflection and application of the training but was within the same semester. The focus group was facilitated by a trained research assistant (second author).

Data Analysis

Given this was a pilot study with a small sample size, the decision to use nonparametric analyses was largely due to constraints such as a non-normally distributed sample. Scores on the dependent measures were analyzed with nonparametric K-related samples tests. Critical incident forms were analysed using thematic content analysis as described by Braun and Clarke (2006). Focus group analysis included attention to group dynamics, repeating themes, and disparate views (Carey & Smith, 1994; Kennedy, Kools, Krueger, 2001; Peterson-Sweeney, 2005). Seven factors were considered in the analysis process, namely: (a) the words, (b) the context, (c) the internal consistency, (d) the frequency and extensiveness of comments, (e) the intensity of topics, (f) the specificity of responses, and finally, (g) the big ideas (Krueger & Casey, 2000).

Table 1

Mean Scores on Standard Questionnaires for All Participants at Three Time Intervals: Baseline, 1-Week Follow-Up, and 3-Month Follow-Up

Measure	Time Interval		
	Baseline Mean, <i>SD</i>	1 Week Follow-Up Mean, <i>SD</i>	3-Month Follow-Up Mean, <i>SD</i>
BSS ^a	22.36 (3.61)	23.57 (3.20)	22.64 (3.23)
SATAQ-O ^b	17.14 (1.51)	17.79 (1.76)	17.79 (2.04)
EAT ^c	5.50 (4.43)	3.64 (3.20)	4.21 (4.35)

Note. ^a Body Satisfaction Scale, ^b Sociocultural Attitude Toward Appearance Scale, ^c Eating Attitudes Test.

Results

Quantitative Data

Results did not indicate significant differences in quantitative scores (see Table 1).

Body satisfaction and acceptance of body shapes. Friedman chi square, $X^2(2) = 3.30, p = .193$, n.s., revealed no significant difference on the BSS across times. Scores on the SATAQ-O also revealed no significant differences, $X^2(2) = 2.74, p = .254$, n.s. (see Figure 1).

Disordered eating. Friedman test revealed a significant relationship for time on scores for disordered eating, $X^2(2) = 8.39, p = .015$. Post-hoc analyses (Siegel & Castellan, 1988; see Figure 2) did not indicate any significant results between time points. Given the cut-off of .9 for statistical significance provided by the formula, the difference between EAT scores from time one (1-week follow-up) and time two (3-month follow-up) of .89 was borderline significant in the direction of less disordered eating.

Closed questions. In response to whether they were currently trying to lose weight, 11 participants (3 men, 8 women) indicated “yes.” Nine participants (3 men, 6 women) reported trying to gain muscle. Two participants (1 man, 1 woman) responded “no” to both questions.

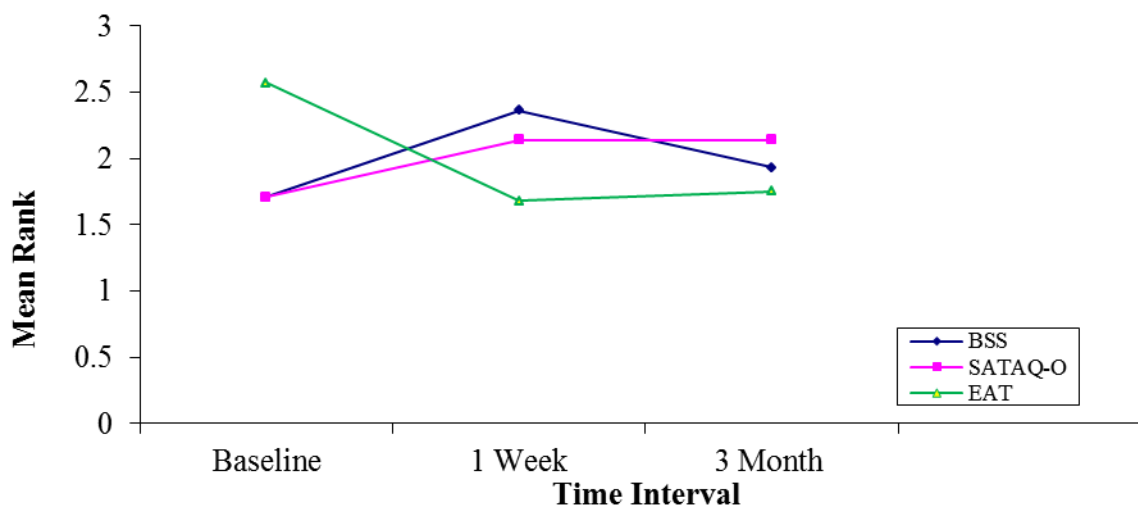


Figure 1. Mean Ranks on Standard Questionnaires for All Participants at Three Time Intervals: Baseline, 1-Week Follow-Up, and 3-Month Follow-Up

$$|\bar{R}_u - \bar{R}_v| \geq z_{\alpha/k(k-1)} \sqrt{\frac{k(k+1)}{6N}}$$

Figure 2. Formula Used for Post Hoc Analysis⁵⁶

From "The Case of k Related Samples" by S. Siegel and N. J. Castellan, Jr., 1988, *Nonparametric Statistics for the Behavioral Sciences*, p. 180. Copyright 1988 by McGraw-Hill.

Qualitative Data

Of the potential participants ($N = 16$), 14 completed critical incident forms and 15 (6 men, 9 women) took part in the focus group. Seven main themes emerged.

1. Logistics of implementing body image in schools. Pre-service teachers expressed concerns regarding how to incorporate body image into physical education classes given practical concerns such as classroom availability and time constraints. "... I feel like this information is valuable but I don't feel like I used any of it just because of like timing basically" (Focus Group participant). Several expressed beliefs that weight-related issues fit best within the health curriculum, and health should be a completely separate subject that should not take away from activity time where students "should be up and moving" (Focus Group participant).

2. Appropriate student age for body image awareness. Another common concern was the age at which body image awareness would be most effective. Participants felt that given the prevalence of older students who already possess body image concerns, prevention efforts would best be directed towards younger, elementary-aged children. This is due, in part, to a belief that it is easier to instill health behaviours at a younger age rather than in youth with ingrained beliefs about weight and shape. As one focus group participant stated, "I'm not really sure if that would really resonate with them (older students). I think they would more so take it as a joke. Or they would have some fun with it, but they wouldn't really realize what it's about."

3. Perceived personal expertise in body image and weight-related issues. Participants viewed themselves as an atypical data source given their knowledge and expertise in the areas of health, fitness, and nutrition.

I think our sample is a little skewed because we do all have a physiological background and a prior degree in the field so I mean all these issues . . . I've done a bunch of courses on nutrition so all of a sudden hearing that you know this food has this much, this food has this much, yeah okay, yeah I know. So I felt like a lot of it was stuff I'd already heard. (Focus Group participant)

All of the pre-service teachers possessed a prior degree in a health related field (physiology or kinesiology), and many felt that the information provided during the professional development session was not new due to this expertise.

4. Perceptions on how to effectively influence student health. Although there was some discrepancy amongst participants as to how to best promote student health, many focused on the importance of caloric intake, physical exercise, and disclosure of personal weight loss and fitness goals. One focus group participant explained, "I mean with calorie counting that's not necessarily sitting there being like okay that jelly bean was 5 calories . . . but it is calories in and

calories out. That is a fact and I think that you need to be aware of that.” This same participant went on to explain that some people are overweight for one reason: “It is simply because you are not burning off what you are taking in.”

5. Personal experiences of being effective role models for students. Many participants, in both the focus group and the critical incident forms, acknowledged the impact they may have on students as role models, and many ideas as to how that may be effectively enacted emerged. Some felt that leading by example and displaying confidence was important, “. . . I would never sit in front of a student body and say I’m uncomfortable with the way my thighs look because I think they are all going to sit there and tell me like you are an idiot,” (Focus Group participant) while others suggested the importance of showing vulnerability. The importance of encouragement was highlighted with an example of advice given to one overweight student to “continue to work hard and you will begin to see improvements” (Focus Group participant).

The relevance of BMI was of significant debate during the focus group. Some participants felt that all students should know their BMI to help them define their overall health; the notion being that physical education emphasizes body measurement, not body image. One focus group participant, when challenged about reinforcing weight-related issues for students who do not fall within the normal range of BMI categories, replied, “Well, they are unhealthy.” While others expressed concern that knowledge of BMI would further harm already precarious body image.

6. Experiences of male versus female body image. The participants expressed notions about the differences or similarities in male and female body image. Males indicated they are less likely to voice insecurities, and all participants noted the impact of external sources such as the media on self-perception and comparison. These pre-service teachers agreed that external appearance was important not only to their evaluations of self but also to how others perceived them. Finally, it is important to note that in the focus group body image was often directly equated with weight, such that those who weighed less were believed to possess more positive body image. Although they acknowledged that body shape or body type could potentially influence body image, they recognized these as variables which a person does not have control over; it was more useful to focus on aspects of themselves that they could change, such as weight. In one focus group exchange, controversy over fitness versus weight emerged when one participant exclaimed, “. . . I’m saying if kids are looking up to you and they are seeing you as this idol and you are doing all this work to maintain a certain weight or goal, why not?”

7. Increased awareness of students’ weight-related issues. Participants expressed increased awareness of body image and weight-related issues as a result of professional development. This increased personal awareness lead to increased sensitivity to student cognitions, affect, and behaviours. For example, one focus group participant responded, “as teachers we need to be very cognizant of our attitudes and language.” In other critical incident responses, participants explained that they wanted to encourage girls, in particular, to “not be as preoccupied with body image” and “become more comfortable in their own skins.” However, despite some accounts of increased awareness, concerns were raised about teachers in general lacking the required knowledge to have a positive impact on students’ body image. Another participant explained in the focus group, “most teachers are uncomfortable doing it so if they are not told they have to do this; they are not going to go out of their way to do it. If something is set in the curriculum to do it, they will have to do it . . . it will have an effect.”

Discussion

This pilot project aimed to determine if providing professional development training about body image would affect pre-service teachers' personal body image. Quantitative results suggested that professional development did not have a significant impact on pre-service teachers' eating attitudes and behaviours, body satisfaction, size acceptance, and weight change behaviours, although all scores showed trends in a positive direction. Qualitative data supported previous findings that physical education teachers have limited knowledge of body image and weight-related issues despite specialized training in diet and exercise (Yager & O'Dea, 2005). Although participants in the study indicated perceived expertise and an understanding of their impact as role models (McCabe et al., 2007), their reports supported literature suggesting students may be receiving strict and unsuitable advice (O'Dea & Abraham, 2007). Pre-service teachers in the current study conveyed oversimplified beliefs about weight, caloric intake, dieting, and weight-loss which may perpetuate negative attitudes and weightism, as well as promote poor body image (Bardick et al., 2004). This suggests that pre-service teachers, particularly those specializing in physical education, are not immune to cultural messages that perpetuate the thin ideal (O'Brien, Hunter, & Banks, 2007; O'Dea & Abraham, 2001).

Combining qualitative and quantitative results also revealed interesting information. While pre-service teachers perceived themselves at a healthy weight and purported having a healthy body image, the majority also reported currently trying to change their weight (11 of 14 participants) or body composition (9 of 14 participants), despite most being within a healthy weight range according to their self reported height and weight (i.e., average BMI of females trying to lose weight was 24.89). We must also point out that this sample self-identified as "athletes," and the BMI is limited in terms of being able to distinguish muscle mass from fat mass, though none of the participants appeared over-fat. These results in combination with some of the simplistic views about calories in/calories out indicate that physical education pre-service teachers have an expertise that might be limited to the physiological influences and exclude the biopsychosocial complexities of weight-related issues and concerns.

Although the present study provided meaningful information about the impact and experience of professional development, there were several limitations. Measures used to assess change in pre-service teachers' body image were not sensitive to variability in health or wellness related behaviours. For example, the EAT is designed to detect disordered eating and thus, scores did not reflect the range of behaviours likely present (i.e., trying to lose weight). In addition, consistent with all self-report measures, response bias may have potentially affected how pre-service teachers completed questionnaires, and BMI scores may lack reliability (Fonseca et al., 2010). Also, given the pilot nature of the study, this was a small homogeneous sample which has implications for extending results to teachers as a community.

However, despite limitations in generalizability of results, there is a strong need to address body image and weight-related issues for pre-service physical education teachers (Yager & O'Dea, 2009). This need is underscored given that physical education teachers are often also responsible for delivering health curriculum content. Given the results of the current study, future studies should include quantitative measures for both implicit and explicit weight bias to empirically test what was found in the focus group results.

Translation into Practice

This study adds to the emerging literature which suggests that professional development in the area of body image, weight-bias, and weight/eating-related concerns is an area of need for pre-service teachers (and other professionals). Development for pre-service teachers in health education has the potential to translate into teaching practices and school environments that promote greater health and well-being in children and youth. Despite this potential, there remain challenges to providing effective professional development to pre-service teachers. We would make several recommendations for train-the-trainer models of health education for teachers.

1. First, to increase buy-in, body image, weight-bias, and other weight-related issues need to be integrated in age appropriate ways into existing (a) K-12 curriculum (i.e., healthy eating, positive mental health, active living), and (b) school policy (i.e., weight-related bullying policies). Pre-service teachers in our study reported that while the information was valuable, they would likely not be able to address these issues due to time constraints and other demands. Previous research supports the idea that prevention materials are more likely to be utilized in teaching practice if incorporated into existing curriculum (Neumark-Sztainer, Story, & Collier, 1999).

2. Second, efforts need to focus on increasing pre-service teacher's awareness of the limitations in their existing knowledge; otherwise there is a risk that the future professionals who need this content specific training the most will self-select to not receive the additional content and self-reflective knowledge.

3. Third, professional development training in health education needs to become a priority in post-secondary education curriculum since universities have the potential to graduate teachers who are invested in the relationship between student health and wellness, and success in academics. Despite its limitations, this study supports the notion that further research is essential to determine the best ways to prepare pre-service teachers to learn how their own attitudes, values, behaviours and interpretations of weight, chronic disease, body image, mental and physical health influence their day-to-day practices.

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References

- Andrews, K., Silk, K. S., & Eneli, I. (2010). Parents as health promoters: A theory of planned behavior perspective on the prevention of childhood obesity. *Journal of Health Communication, 15*(1), 95-107. doi:10.1080/10810730903460567
- Bardick, A., Bernes, K., McCulloch, A., Witko, K., Spriddle, J., & Roest, A. (2004). Eating disorder intervention, prevention, and treatment: Recommendations for school counsellors. *Professional School Counseling, 8*(2), 168-175.

- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101. doi:10.1191/1478088706qp0630a
- Brookfield, S. (1995). *Becoming a critically reflective practitioner*. Thousand Oaks, CA: Sage Publications.
- Brown, J., Winzelberg, A., Abascal, L., & Taylor, C. (2004). An evaluation of an Internet-delivered eating disorder prevention program for adolescents and their parents. *Journal of Adolescent Health, 35*(4), 290-296.
- Carey, M. A., & Smith, M. W. (1994). Capturing the group effect in focus groups: A special concern in analysis. *Qualitative Health Research, 4*(1), 123-127. doi:10.1177/104973239400400108
- Cote-Arsenault, D., & Morrison-Beedy, D. (1999). Practical advice for planning and conducting focus groups. *Nursing Research, 48*(5), 280-283. doi:10.1097/00006199-199909000-00009
- Fairburn, C. G., Cooper, Z., Doll, H. A., Norman, P. A., & O'Connor, M. E. (2000). The natural course of bulimia nervosa and binge eating disorder in young women. *Archives of General Psychiatry, 57*(7), 659-665. doi:10.1001/archpsyc.57.7.659
- Fonseca, H., Silva, A. M., Matos, M. G., Esteves, I., Costa, P., Guerra, A., & Gomes-Pedro, J. (2010). Validity of BMI based on self-reported weight and height in adolescents. *Acta Paediatrica, 99*(1), 83-88. doi:10.1111/j.1651-2227.2009.01518.x
- Garner, D. M., & Garfinkel, P. E. (1979). The Eating Attitudes Test: An index of the symptoms of anorexia nervosa. *Psychological Medicine, 9*(2), 273-279. doi:10.1017/S0033291700030762
- Garner, D. M., Olmstead, M. P., Bohr, Y., & Garfinkel, P. E. (1982). The Eating Attitudes Test: Psychometric features and clinical correlates. *Psychological Medicine, 12*(4), 871-878. doi:10.1017/S0033291700049163
- Garfinkel, P. E., & Newman, A. (2001). The Eating Attitudes Test: Twenty-five years later. *Eating and Weight Disorders, 6*(1), 1-24.
- Grabe, S., & Hyde, J. S. (2006). Ethnicity and body dissatisfaction among women in the United States: A meta-analysis. *Psychological Bulletin, 132*(4), 622-640. doi:10.1037/0033-2909.132.4.622
- Greenberg, M. T., Weissberg, R. P., O'Brien, M. U., Zins, J. E., Fredericks, L., Resnik, H., & Elias, M. J. (2003). Enhancing school-based prevention and youth development through coordinated social, emotional, and academic learning. *American Psychologist, 58*(6/7), 466-474. doi:10.1037/0003-066X.58.6-7.466
- Greenleaf, C., & Weiller, K. (2005). Perceptions of youth obesity among physical educators. *Social Psychology of Education, 8*(4), 407-423. doi:10.1007/s11218-005-0662-9
- Heinberg, L. J., Thompson, K. J., & Stormer, S. (1995). Development and validation of the sociocultural attitudes toward appearance questionnaire. *International Journal of Eating Disorders, 17*(1), 81-89. doi:10.1002/1098-108X(199501)17:1<81::AID-EAT2260170111>3.0.CO;2-Y
- Jourdan, D., Samdal, O., Diagne, F., & Carvalho, G. S. (2008). The future of health promotion in schools goes through the strengthening of teacher training at a global level. *Promotion & Education, 15*(3), 36-38. doi:10.1177/1025382308095657
- Kater, K. J., Rohwer, J., & Londre, K. (2002). Evaluation of an upper elementary school program to prevent body image, eating, and weight concerns. *Journal of School Health, 72*(5), 199-204. doi:10.1111/j.1746-1561.2002.tb06546.x
- Kennedy, C., Kools, S., & Krueger, R. (2001). Methodological considerations in children's focus groups. *Nursing Research, 50*(3), 184-187. doi:10.1097/00006199-200105000-00010
- Krueger, R. A., & Casey, M. A. (2000). *Focus groups: A practical guide for applied research* (3rd ed.). Thousand Oaks, CA: Sage Publications.
- Lau, D. C. W., Douketis, J. D., Morrison, K., Hramiak, I. M., Sharma, A. M., & Ur, E. (2007). 2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children [summary]. *Canadian Medical Association Journal, 176*(Suppl. 8), 1-13. doi:10.1503/cmaj.061409

- Lynch, W. C., & Eppers-Reynolds, K. (2005). Children's Eating Attitudes Test: Revised factor structure for adolescent girls. *Eating and Weight Disorders, 10*(4), 222-235.
- McCabe, M. P., Ricciardelli, L.A., Stanford, J., Holt, K., Keegan, S., & Miller, L. (2007). Where is all the pressure coming from? Messages from mothers and teachers about preschool children's appearance, diet and exercise. *European Eating Disorders Review, 15*(3), 221-230. doi:10.1002/erv.717
- McVey, G. L., Davis, R., Kaplan, A., Katzman, D. K., Pinhas, L., Geist, R., Heinmaa, M., & Forsyth, G. (2005). A community-based training program for eating disorders and its contribution to a provincial network of services [Special issue]. *International Journal of Eating Disorders, 37*(S1), 35-40. doi:10.1002/eat.20114
- McVey, G. L., Davis, R., Tweed, S., & Shaw, B. F. (2004). Evaluation of a school-based program designed to improve body image satisfaction, global self-esteem, and eating attitudes and behaviors: A replication study. *International Journal of Eating Disorders, 36*(1), 1-11. doi:10.1002/eat.20006
- McVey, G., Gusella, J., Tweed, S., & Ferrari, M. (2009). A controlled evaluation of web-based training for teachers and public health practitioners on the prevention of eating disorders. *Eating Disorders: The Journal of Treatment & Prevention, 17*(1), 1-26. doi:10.1080/10640260802570064
- McVey, G. L., Tweed, S., & Blackmore, E. (2007). Healthy Schools-Healthy Kids: A controlled evaluation of a comprehensive eating disorder prevention program. *Body Image, 4*, 115-136. doi:10.1016/j.bodyim.2007.01.004
- Neighbors, L. A., & Sobal, J. (2007). Prevalence and magnitude of body weight and shape dissatisfaction among university students. *Eating Behaviors, 8*(4), 429-439. doi:10.1016/j.eatbeh.2007.03.003
- Neumark-Sztainer, D. (2005a). Can we simultaneously work toward that prevention of obesity and eating disorders in children and adolescents? *International Journal of Eating Disorders, 38*(3), 220-227. doi:10.1002/eat.20181
- Neumark-Sztainer, D. (2005b). Preventing the broad spectrum of weight-related problems: Working with parents to help teens achieve a healthy weight and a positive body image. *Journal of Nutrition Education and Behavior, 37*(Suppl. 2), 133-139.
- Neumark-Sztainer, D., Paxton, S. J., Hannan, P. J., Haines, J., & Story, M. (2006). Does body satisfaction matter? Five-year longitudinal associations between body satisfaction and health behaviors in adolescent females and males. *Journal of Adolescent Health, 39*(2), 244-251. doi:10.1016/j.jadohealth.2005.12.001
- Neumark-Sztainer, D., Story, M., & Collier, T. (1999). Perception of secondary school staff towards the implementation of school-based activities to prevent weight-related disorders: A needs assessment. *American Journal of Health Promotion, 13*(3), 153-156. doi:10.4278/0890-1171-13.3.153
- Neumark-Sztainer, D., Story, M., Hannan, P. J., Perry, C. L., & Irving, L. M. (2002). Weight-related concerns and behaviors among overweight and non-overweight adolescents: Implications for preventing weight-related disorders. *Archives of Pediatrics and Adolescent Medicine, 156*(2), 171-178. Retrieved from <http://archpedi.jamanetwork.com/article.aspx?articleid=191518>
- O'Brien, K. S., Hunter, J. A., & Banks, M. (2007). Implicit anti-fat bias in physical educators: Physical attributes, ideology and socialization. *International Journal of Obesity, 31*(2), 308-314. doi:10.1038/sj.ijo.0803398
- O'Brien, K. S., Puhl, R. M., Latner, J. D., Mir, A. S., & Hunter, J. A. (2010). Reducing anti-fat prejudice in preservice health students: A randomized trial. *Obesity: A Research Journal, 18*(11), 2138-2144. doi:10.1038/oby.2010.79
- O'Dea, J. A. (2005). Prevention of child obesity: 'First, do no harm.' *Health Education Research, 20*(2), 259-265. doi:10.1093/her/cyg116
- O'Dea, J. A., & Abraham, S. (2001). Knowledge, beliefs, attitudes, and behaviors related to weight control, eating disorders, and body image in Australian trainee home economics and physical education teachers. *Journal of Nutrition Education, 33*(6), 332-340. doi:10.1016/S1499-4046(06)60355-2

- Park, J., & Beaudet, M. P. (2007). Eating attitudes and their correlates among Canadian women concerned about their weight. *European Eating Disorders Review*, 15(4), 311–320. doi:10.1002/erv.741
- Peterson-Sweeney, K. (2005). The use of focus groups in pediatric and adolescent research. *Journal of Pediatric Health Care*, 19(2), 104-110. doi:10.1016/j.pedhc.2004.08.006
- Piran, N. (1999). Eating disorders: A trial of prevention in a high risk school setting. *The Journal of Primary Prevention*, 20(1), 75-90. doi:10.1023/A:1021358519832
- Piran, N. (2004). Teachers: On "being" (rather than "doing") prevention. *Eating Disorders*, 12(1), 1-9. doi:10.1080/10640260490267724
- Pratt, B. M., & Woolfenden, S. (2002). Interventions for preventing eating disorders in children and adolescents. *Cochrane Database of Systematic Reviews*, 2, 1-39. doi:10.1002/14651858.CD002891
- Public Health Agency of Canada. (2009). *Obesity in Canada – Snapshot*. Retrieved from <http://www.phac-aspc.gc.ca>
- Russell-Mayhew, S., Arthur, N., & Ewashen, C. (2008). Community capacity building in schools: Parents' and teachers' reflections from an eating disorder prevention program. *Alberta Journal of Educational Research*, 54(2), 227-241. Retrieved from www.ajer.ca
- Satter, E. M. (2005). *Your child's weight: Helping without harming*. Madison, WI: Kelcy Press.
- Siegel, S., & Castellan, N. J., Jr. (1988). *Nonparametric statistics for the behavioral sciences* (2nd ed.). New York, NY: McGraw-Hill.
- Slade, P. D., Dewey, M. E., Newton, T., Brodie, D., & Kiemle, G. (1990). Development and preliminary validation of the body satisfaction scale (BSS). *Psychology & Health*, 4(3), 213-220. doi:10.1080/08870449008400391
- Smith, B. J., Potts-Datema, W., & Nolte, A. E. (2005). Challenges in teacher preparation for school health education and promotion *Promotion and Education*, 12(3-4), 162-164. doi:10.1177/10253823050120030116
- Smolak, L., & Levine, M. P. (2001). A two-year follow-up of a primary prevention program for negative body image and unhealthy weight regulation. *Eating Disorders*, 9(4), 313–325. doi:10.1080/106402601753454886
- Smolak, L., Levine, M. P., & Schermer, F. (1999). Parental input and weight concerns among elementary school children. *International Journal of Eating Disorders*, 25(3), 263–271. doi:10.1002/(SICI)1098-108X(199904)25:3<263::AID-EAT3>3.0.CO;2-V
- Speller, V., Byrne, J., Dewhirst, S., Almond, P., Mohebati, L., Norman, M., Polack, S., Memon, A., Grace, M., Margetts, B., & Roderick, P. (2010). Developing trainee school teachers' expertise as health promoters. *Health Education*, 110(6), 490-507. doi:10.1108/09654281011087288
- Stice, E., Shaw, H., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology*, 3, 207-231. doi:10.1146/annurev.clinpsy.3.022806.091447
- Striegel-Moore, R. H., Silberstein, L. R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. *American Psychologist*, 41(3), 246-263. doi:10.1037/0003-066X.41.3.246
- Sullivan, P. F. (1995). Mortality in anorexia nervosa. *American Journal of Psychiatry*, 152(7), 1073-1075.
- Summerbell, C. D., Waters, E., Edmunds, L., Kelly, S. A. M., Brown, T., & Campbell, K. J. (2005). Interventions for preventing obesity in children. *Cochrane Database of Systematic Reviews*, 3, 1-80. doi:10.1002/14651858.CD001871.pub2
- Vamos, S., & Zhou, M. (2009). Using focus group research to assess health education needs of pre-service and in-service teachers. *American Journal of Health Education*, 40(4), 196-206. (ERIC Document Reproduction Service No. EJ871112). Retrieved from the Education Resources Information Center (ERIC) Web site: <http://www.eric.ed.gov/ERICWebPortal/detail?accno=EJ871112>

- Yager, Z., & O'Dea, J. A. (2005). The role of teachers and other educators in the prevention of eating disorders and child obesity: What are the issues? *Eating Disorders, 13*(3), 261-278.
doi:10.1080/10640260590932878
- Yager, Z., & O'Dea, J. A. (2009). Body image, dieting and disordered eating and activity practices among teacher trainees: Implications for school-based health education and obesity prevention programs. *Health Education Research, 24*(3), 472-482. doi:10.1093/her/cyn044
- Yanez A. M., Peix, M. A., Atserias N., Arnau, A., & Brug, J. (2007). Association of eating attitudes between teenage girls and their parents. *International Journal of Social Psychiatry, 53*(6), 507-513.
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