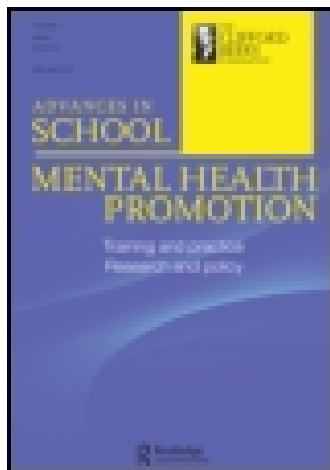


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## Advances in School Mental Health Promotion

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rasm20>

### Pilot testing a professional development model for preservice teachers in the area of health and weight: feasibility, utility, and efficacy

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Published online: 08 May 2015.

To cite this article: Shelly Russell-Mayhew, Sarah Nutter, Alana Ireland, Tina Gabriele, Angela Bardick, Jackie Crooks & Gavin Peat (2015): Pilot testing a professional development model for preservice teachers in the area of health and weight: feasibility, utility, and efficacy, *Advances in School Mental Health Promotion*, DOI: [10.1080/1754730X.2015.1040040](https://doi.org/10.1080/1754730X.2015.1040040)

To link to this article: <http://dx.doi.org/10.1080/1754730X.2015.1040040>

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## Pilot testing a professional development model for preservice teachers in the area of health and weight: feasibility, utility, and efficacy

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(Received 27 July 2014; accepted 19 March 2015)

Studies indicate that both preservice and in-service teachers find it difficult to connect to their role as health promoters within a school context. There is also evidence that those teachers most often responsible for delivering health education (i.e., physical education teachers) are at an increased risk for body dissatisfaction, dieting, and disordered eating. A pre–post pilot study assessed the feasibility and utility of an interactive professional development workshop on preservice teachers' attitudes concerning body image, size acceptance, eating, and physical activity, as well as the impact of the workshop on perceived self-efficacy to address weight-related issues. The professional development had a positive effect on antifat attitudes, body image, implicit weight bias, and efficacy to address weight issues. While the workshop was useful in terms of significant changes in preservice teachers' attitudes and efficacy, lessons around feasibility will inform the development of this pilot study to full-scale workshop with preservice teachers.

**Keywords:** health education; teacher; weight-bias; obesity; professional development

### Introduction

Due to the complexity of health issues facing children today, recent literature has focused on comprehensive approaches to health promotion (Allensworth & Kolbe, 1987). School-based obesity and eating disorder prevention programs are an important part of overall health promotion efforts, (Fairclough et al., 2013; Favaro, Zanetti, Huon, & Santonastaso, 2005; Thomas, Ciliska, Micucci, Wilson-Abra, & Dobbins, 2004; Yager, 2010). The school environment is an important setting for prevention or health promotion given that (1) schools are one of the first major organized settings where children are exposed to societal values; (2) children can be efficiently accessed due to the amount of time spent at school; and (3) adult role models such as teachers play a significant role in children's development of attitudes regarding food, weight, and shape (Piran, 2004; Smolak & Levine, 2001).

### Teachers as health promoting role models

Several authors have noted the critical role teachers play in health promotion and prevention (Piran, 2004; Smolak & Levine, 2001; Yager, 2010). Piran (2004) suggested that teachers, through their everyday classroom experiences with students, can be

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powerful preventive influences by providing students with corrective and constructive messages about body weight and shape. Piran asserted that teachers must take a critical stance toward weight-related misconceptions and bias. However, most teachers' awareness of the impact they have as role models is unclear, or limited to healthy eating and exercise, with little or no consideration of attitudes about weight, shape, or body image (Piran, 2004; Yager & O'Dea, 2005). However, teacher awareness is likely impacted by the lack of adequate training in nutrition, physical education, and body image leaving teachers unprepared for a role in the prevention of weight concerns (Yager, 2010).

Previous researchers have suggested that the weight-related knowledge, beliefs, and attitudes of teachers have the potential to influence the weight and shape concerns or weight control behaviors of students (O'Dea & Abraham, 2001; Yager & O'Dea, 2005). McCabe et al. (2007) explored messages preschool children receive from teachers and parents about their body, appearance, and exercise and eating habits. Teachers reported that they did not believe they relayed strong messages about children's bodies, eating or exercise; however, they did report dissatisfaction with their own bodies, which may have an indirect influence on students in the classroom (McCabe et al., 2007). Other classroom influences that can have negative consequences on students' body image and weight concerns include (1) weight, shape, or appearance-based teasing from peers (Eisenberg, Neumark-Sztainer, & Story, 2003); (2) internalization of appearance ideals through appearance conversations with peers (Clark & Tiggemann, 2006); and (3) peer modeling of negative attitudes and behaviors related to body weight and shape (Kichler & Crowther, 2009). Given the potential for teachers to directly and/or indirectly influence students' body image, it is important for teachers to have and model positive weight-related beliefs, attitudes, and knowledge (Yager & O'Dea, 2005).

There is also evidence that those teachers most often responsible for delivering health education (i.e., physical education and home economics teachers) display: (1) inadequate knowledge and inappropriate attitudes regarding nutrition and weight control; (2) inappropriate dietary behaviors; and (3) increased risk for body dissatisfaction, dieting, and disordered eating (O'Dea & Abraham, 2001; Yager & O'Dea, 2009). In an examination of preservice physical education students, O'Brien, Hunter, and Banks (2007) found that compared to a matched sample of psychology students, physical education students displayed significantly higher implicit weight bias, with the anti-fat attitudes of third-year students being significantly higher than all other student groups. Additional research has found that physical education teachers expected overweight students to have 'inferior physical capabilities', and for overweight female students to also have inferior 'reasoning, cooperation, and social skills' (Peterson, Puhl, & Luedicke, 2012, p. 436). In a randomized control trial designed to reduce implicit and explicit weight bias in preservice health teachers, O'Brien, Puhl, Latner, Mir, and Hunter (2010) reported that students who learned about the genetic and environmental factors of obesity showed significant decreases in implicit weight bias, while those who learned about the influence of diet and exercise showed significant increases in implicit weight bias. The researchers concluded that health education must incorporate accurate and credible information on the genetic, social, and environmental causes of obesity together with traditional information regarding diet and exercise.

### ***Barriers to teachers becoming health promoters***

In a study designed to determine the beliefs and needs of teachers responsible for health education, Vamos and Zhou (2009) determined that both preservice and in-service

teachers experienced barriers to teaching and discomfort with health-related education. 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). Further, the effectiveness and long-term commitment to health promotion efforts in schools may be reduced due to inadequate coordination and evaluation on behalf of school administrators (Greenberg et al., 2003). Smith, Potts-Datema, and Nolte (2005) recognized that a considerable challenge is the lack of an established curriculum and qualified professionals who can adequately prepare preservice teachers for their role in health promotion in university education programs.

### *Gaps in teacher preparation literature*

The above studies underline a need for teachers to recognize the importance of their role in health promotion, and in the prevention of weight-related issues (Yager, 2010). Although researchers have recognized the potential of schools as sites for prevention (Yager, 2010; Yager & O'Dea, 2005), concern has been raised about teachers' preparation as role models (O'Dea & Abraham, 2001; Yager & O'Dea, 2005), as well as their ability to deliver health messages in the absence of adequate training (Speller et al., 2010). Despite this concern, there remains a paucity of research exploring the impact of weight-related professional development on preservice teachers' own attitudes and beliefs. Experts such as Piran (2004) recommend that school boards invest time in offering teachers professional development to learn how their own values concerning food, weight, and shape influence their teaching practices. Providing teachers with professional development opportunities would allow them to assess their own beliefs about weight-related issues and practices, as well as understand the impact of teacher attitudes and behaviors on the attitudes, beliefs, and behaviors of children (O'Dea & Abraham, 2001; Yager, 2010).

### *Purpose*

The aim of the current study was to assess the impact of a 3-h professional development workshop delivered to preservice teachers who will be responsible for teaching health education (i.e., elementary specialists). The following questions guided this research (1) how does professional development training about weight-related issues affect preservice teachers' personal attitudes and behaviors about weight? and (2) in what ways does professional development training prepare preservice teachers to address a range of weight-related issues in schools? Because little is currently known about addressing health- and weight-related concerns in teacher training programs, this pilot study assessed the research design and survey package, the intervention itself, as well as feasibility of implementation into the education curricula of preservice teachers. This study received university research ethics board approval.

## **Method**

### *Participants*

A self-selected sample of 30 preservice teachers (25 females, 5 males) received the free professional development workshop. Of the 30 participants, 19 were self-identified as Caucasian, 2 as Hispanic, 2 as Canadian, 2 as European, 2 as Vietnamese, 1 as Indian, 1 as Middle Eastern, and 1 as Korean. Participants ranged in age from 22 to 53 years, with a mean age of 32. Preservice teachers were in the second year of a BEd undergraduate

program specializing in elementary education. The timing of the professional development workshop coincided with students' semester of field placement and therefore acted to complement participants' personal field experience. Participants' self-reported BMI was available for 29 out of 30 participants. Of these students, 25 had a BMI < 25 (normal or underweight) and 4 had BMI ≥ 25 (overweight). Of those 25 preservice teachers whose BMI would classify them as normal or underweight, 9 (36%) were trying to lose weight and 12 (48%) were trying to gain muscle. No one in this sample was considered to be at risk for an eating disorder based on scores from the Eating Attitudes Test (EAT) scale.

### *Intervention*

The 3-h professional development workshop was included within a full-day training program for teachers in the area of health and physical education. The workshop was facilitated by a registered psychologist and a trained graduate student. Content focused on the 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 within the context of school-based health promotion and disease prevention. Psychosocial and mental health factors related to weight were also emphasized. Content was delivered through the use of a lecture-based PowerPoint, interactive large group activities, small group discussion, and a focus on school-based resources for teachers. The workshop has been previously piloted with public health professionals, practicing teachers, and physical education preservice teachers (McVey et al., 2013, Russell-Mayhew, Ireland, & Peat, 2012).

### *Materials*

#### *Implicit attitudes*

The Implicit Attitudes Test (IAT) aims to measure unconscious automatic evaluations in order to determine implicit attitudes (Greenwald, McGhee, & Schwartz, 1998). Although psychometrics are not available for the weight bias IAT, it is commonly used in weight bias literature (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003; Teachman & Brownell, 2001), and the general IAT has strong predictive and criterion validity (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). The IAT operates under the assumption that individuals find it easier to categorize two compatible concepts, rather than two incompatible concepts (Greenwald et al., 1998). It will also allow for the measurement of weight bias in participants who may have responded in a socially desirable way on explicit measures (Brochu & Morrison, 2007; Rudman, Greenwald, Mellott, & Schwartz, 1999).

In order to measure implicit weight bias, we used a paper and pencil version of the IAT, a commonly used alternative to the computer-administrated IAT (i.e., Teachman & Brownell, 2001). The top of each IAT page listed the target and attribute categories. Consistent with the methodology used by Teachman and Brownell (2001), participants were given a few moments to familiarize themselves with the target and attribute pairings and were then given 20 s to categorize as many words as possible on each page. Participants completed this task for pairings that were compatible as well as incompatible. Scores are identified by calculating the difference in correctly categorized pairings under both the compatible and incompatible conditions.

#### *Body satisfaction*

Body satisfaction was measured using the Body Satisfaction Scale (BSS; Slade, Dewey, Newton, Brodie, & Kiemle, 1990). The BSS is a summative rating scale in which

respondents rate their satisfaction with aspects of their body on a 5-point Likert scale (ranging from 'completely happy' to 'completely unhappy') with higher ratings indicating greater satisfaction with one's body. Internal consistency for an undergraduate sample was reported as .87 (Slade et al., 1990).

### *Antifat attitudes*

The Antifat Attitudes questionnaire (AFA; Crandall, 1994) is commonly used to test explicit weight bias (e.g., O'Brien et al., 2010). This 13-item measure is comprised of three subscales: Dislike ( $\alpha = .84$ ), Fear of Fat ( $\alpha = .79$ ), and Willpower ( $\alpha = .66$ ). Items are rated on a 9-point Likert scale with higher scores indicating higher antifat attitudes.

### *Eating attitudes*

The EAT (Garner & Garfinkel, 1979) is one of the most widely used screening tools for eating disturbances (Lynch & Eppers-Reynolds, 2005). The EAT is a 26-item scale, rated on a 6-point Likert scale ranging from always to never. Internal consistency for the EAT was reported as .94 for a pooled group of participants with and without anorexia nervosa (Garner & Garfinkel, 1979). As a research tool, its utility is in comparing groups and in monitoring changes in eating attitudes over time (Lynch & Eppers-Reynolds, 2005).

### *Efficacy to address weight issues in schools*

Bandura's Teacher Self-Efficacy Scale (Bandura, 2006) was modified to address teachers' efficacy in dealing with weight-related issues. For example, 'influence the decisions that are made in the school' was changed to 'influence the decisions that are made in the school regarding weight-related issues'. Items represent six distinct realms of functioning such as efficacy to influence decision making, instructional self-efficacy, and disciplinary self-efficacy. Items are rated on a scale from 0 to 100 ('cannot do at all' to 'highly certain can do'); where higher scores indicate higher self efficacy. Although Bandura's scale was created with the intention to be modified by researchers, given this is a modified scale, there are no reliability statistics.

### **Procedure**

Approximately 200 participants in the second year of the BEd program were invited to participate in the professional development and health education workshop. The package of surveys was collected at the start of the professional development workshop and again immediately after (same day). Participants completed all questionnaires anonymously and independently of one another after providing written consent. Workshop leaders and assistants were available to provide instructions regarding the completion of scales and the IAT, as well as to aid participants in the completion of these tasks. All participants completed the timed-task IAT at the same time. Students who did not consent to the research portion of the professional development could participate in the workshop without completing the pre- and post-test measures. Forty participants completed the workshop and baseline data, but only 30 participants completed post data following the workshop.

### Data preparation

A comparison of baseline data from the 30 participants who completed post-data and the 10 who did not, revealed no significant differences between those who chose to continue with the study and those who opted out. This suggests there was no selection bias on the basis of the constructs measured in the current study. Due to the small number of men who participated in the study ( $n = 5$ ), separate analysis based on gender was not meaningful. Additionally, when the male participants were excluded from analyses, there are no meaningful differences in the results. Consequently, male and female data were combined for analysis. Finally, tests of normality and histograms revealed that the data were normally distributed and met the assumptions of our statistical analysis.

### Data analysis

In addition to descriptive statistics, the data were analyzed using paired-samples  $t$ -tests. Data are presented as means, standard deviations, and effect sizes (Table 1). All analyses were conducted using SPSS software (Chicago, IL, USA).

### Results

$T$ -tests indicated significant results on all measures except the EAT. Results from the EAT indicated that there was no significant change in eating attitudes from pre-test ( $M = 7.65$ ,  $SD = 3.88$ ) to post-test ( $M = 7.17$ ,  $SD = 3.17$ ,  $t(28) = .97$ ).

### Implicit and explicit weight bias

Implicit weight bias (IAT) ( $M = 6.28$ ,  $SD = 3.70$ ) and anti-fat attitudes (AFA) ( $M = 37.23$ ,  $SD = 13.77$ ) at pretest indicated the presence of both implicit and explicit weight bias attitudes. At post-test,  $t$ -tests for the IAT ( $M = 4.56$ ,  $SD = 3.36$ ,  $t(29) = 2.88$ ,  $p = .007$ ) and AFA ( $M = 28.33$ ,  $SD = 15.21$ ,  $t(29) = 4.01$ ,  $p < .001$ ) both revealed a

Table 1. Descriptive statistics and  $t$ -test results

Variable	Mean (SD)	$p$ (two-tailed)	Effect size ( $\eta^2$ )
Body satisfaction		.027	.158
Time 1	20.60 (5.65)		
Time 2	21.30 (5.64)		
Eating attitudes		.34	.028
Time 1	7.65 (3.88)		
Time 2	7.17 (3.17)		
Antifat attitudes		.001	.357
Time 1	37.23 (13.77)		
Time 2	28.33 (15.21)		
Self-efficacy		.001	.361
Time 1	63.50 (14.36)		
Time 2	69.80 (16.14)		
Implicit weight bias		.007	.222
Time 1	6.28 (3.70)		
Time 2	4.56 (3.36)		

Note: Cohen (1988, pp. 284–287) proposed the following guidelines for interpreting the value for effect size: .01, small effect; .06, moderate effect; .14, large effect.



significant decrease in weight bias, indicating that, after taking part in the professional development workshop, participants weight bias attitudes decreased.

### ***Efficacy to address weight-related issues in schools***

There was also a significant increase in the efficacy to address weight related issues in schools from pre-test ( $M = 63.50$ ,  $SD = 14.36$ ) to post-test ( $M = 69.80$ ,  $SD = 16.14$ ,  $t(29) = .97$ ,  $p < .001$ ). This indicates that preservice teachers felt more positive about their ability to address weight-related issues in the school after participation in the workshop.

### ***Body satisfaction***

Participants also experienced an increase in body satisfaction from pre-test ( $M = 20.60$ ,  $SD = 5.65$ ) to post-test ( $M = 21.30$ ,  $SD = 5.64$ ,  $t(29) = 2.33$ ,  $p = .027$ ), according to scores on the BSS. This indicates that the workshop had a positive effect on participants' own body image.

## **Discussion**

The results of this study indicate that the workshop delivered to preservice teachers had a positive effect on several important factors in effective school-based health promotion and eating disorder/obesity prevention programs including: anti-fat attitudes, body satisfaction, implicit weight bias, and efficacy to address weight issues. Baseline data indicate that antifat attitudes and implicit weight bias are common among preservice teachers. As well, there is a need to improve body satisfaction and self-efficacy for addressing weight-related issues with this sample.

The results add support to research recommendations about incorporating weight and health education into both preservice curriculum and in-service professional development. In order for teachers to act as a preventive influence on students' weight and shape concerns and weight-based teasing, they need adequate preparation (Piran, 2004; Yager, 2010). Our study provides additional evidence that workshops targeting eating/weight control attitudes and behaviors contribute to improving the knowledge and attitudes of in-service and preservice professionals (Diedrichs & Barlow, 2011; McVey et al., 2013).

Results from this pilot study suggest that professional development workshops that focus on preservice teachers' attitudes concerning body image, size acceptance, eating, and physical activity, hold promise for improving teachers' attitudes related to weight and health. Through professional development that addresses misconceptions and attitudes, preservice teachers can gain the skills they need to critically examine the appearance and weight-related messages students encounter. Teachers can also gain the skills they need to 'be' or 'embody' prevention by providing constructive and corrective experiences for their students (Piran, 2004). Our preliminary results also suggest that professional development about weight bias should become a mandatory part of the curriculum for preservice teachers, given the potential to significantly decrease both implicit and explicit weight bias. Jourdan, Samdal, Diagne, and Carvalho (2008) posited that teacher training is one important factor in the successful development and implementation of health promotion in schools. Yager (2010) proposed that future prevention efforts will only be successful when teachers gain adequate knowledge of weight-related issues, and when weight-related attitudes and behaviors of teachers are concurrently targeted.

### ***Limitations***

Given the small sample size in this study, it is clear that additional research with larger and more diverse samples needs to be conducted to assess the impact of this workshop. Further research also needs to be conducted to better understand how to engage and recruit preservice and in-service teachers for health education. We believe the low participation rate in this pilot study was due to (1) poor timing in the student program, (2) poor advertising, and (3) lack of student and faculty recognition of the significance of such a professional development opportunity. The literature is clear that health education for preservice teachers is an area of need, but there is little guidance on how to best engage/recruit school personnel for such opportunities. Given that the sample of preservice teachers was self-selected from approximately 200 invitees, it may be possible that those students who chose to partake in the professional development workshop were more interested in health-related topics before engaging in the workshop. Thus, they may have had lower levels of bias at pretest than students who chose not to attend the workshop. If this is the case, the current results more strongly highlight the need for future research and for changes to existing curricula. A further limitation of this study is the use of the EAT in measuring eating attitudes, as it has been previously suggested that the EAT lacks sensitivity in determining variability of unhealthy behaviors in healthy individuals (Russell-Mayhew et al., 2012). Finally, this study focused the outcome measures on weight-related issues. Future studies need to expand the health education measures used in order to assess more broadly the role of teachers as health promoters.

### ***Conclusions***

Given the current emphasis on weight in our culture and the lack of training teachers have regarding weight-related issues, it is not surprising that teachers express confusion about how to address weight-related issues in schools (Russell-Mayhew, Arthur, & Ewashen, 2008; Yager, 2010). Developing preservice teachers' awareness, willingness, and ability to address weight-related issues in a proactive and appropriate manner is one step toward curbing the rising rates of obesity and disordered eating. Through professional development, preservice teachers may come to appreciate the importance of healthy behaviors for children of all sizes and shapes. Offering professional development to preservice teachers is a novel, proactive, and potentially far-reaching approach to the prevention of weight-related issues. Development for preservice 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. Professional development in health education needs to become a priority in post-secondary education curriculum, as universities have the potential to graduate teachers who are invested in the relationship between student health and success in academics. More testing of this particular professional development model needs to be done to determine the specific aspects of the workshop that are the active ingredients for change. Further research is also essential to determine the best ways to for preservice teachers to understand the importance of how their own attitudes, behaviors, and interpretations of various aspects of mental and physical health influence their day-to-day practices and impact their students.

### **Disclosure statement**

The authors declared no conflict of interest.

## Funding

This work was supported by the Alberta Centre for Child, Family and Community Research (ACCFRC) [Grant 1025497].

## Notes

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