Knowledge, Beliefs, Attitudes, and Behaviors Related to Weight Control, Eating Disorders, and Body Image in Australian Trainee Home Economics and Physical Education Teachers

Jennifer A. O’Dea and Suzanne Abraham

School of Professional Studies, Faculty of Education, University of Sydney, Sydney, NSW 2006, Australia; Department of Obstetrics and Gynaecology, University of Sydney, Royal North Shore Hospital, Sydney, NSW 2065, Australia

ABSTRACT

Objective: To examine the knowledge, beliefs, and attitudes about weight control and eating disorders among trainee home economics and physical education teachers and to assess their body image and weight control practices. The association between actual body weight and body image was also examined.

Design: Survey research was undertaken using a self-report questionnaire. Height and weight were measured.

Subjects/Settings: Trainee home economics and physical education teachers (N = 216, 96% participation rate) in their last month of training at three major state teacher training universities completed a questionnaire during their regular class times.

Main Outcome Measures: Advice teachers give to overweight adolescents knowledge and beliefs about eating disorders, body image, desired weight, food habits, dieting, body appearance ratings, weight control practices, and diagnosed and self-reported eating disorders.

Statistical Analysis Performed: Descriptive statistics, chi square, and analyses of variance compare gender and Body Mass Index differences.

Results: Males (85%) and females (87%) advised young overweight adolescents to diet to lose weight. Twenty percent of females and 13% of males regularly skipped breakfast. The advice given showed a lack of specific nutrition education about weight control, adolescent nutritional needs, and fad diets. Participants held misconceptions about eating disorders, and a range of 14% to 72% answered these questions incorrectly. Fourteen percent of females self-reported that they currently had an eating disorder, but only 6% had received treatment. Some females used potentially dangerous methods of weight loss, including 19% who abused laxatives and 10% who induced vomiting.

Implications: Trainee home economics and physical education teachers need specific nutrition information and training about eating disorders, weight control, and suitable advice for overweight students. The female trainee teachers in our study had a poor body image and disordered eating similar to other young women in Western countries, and this should be taken into account by teacher training institutions.

KEY WORDS: eating disorders, teachers, weight control, nutrition education, dieting, body image, nutrition knowledge

INTRODUCTION

Educators, nutritionists, and health professionals are aware of the importance of promoting healthy eating and the prevention of disordered eating in young people, and there have been several suggestions for eating disorder prevention strate-
about weight control techniques; glamorization and nor-
malization of eating disorders; transference of poor body
image, food beliefs, and attitudes from teachers to students;
presentation of negative food messages; and construction of
gender-based body image stereotypes.

The results of a recent study suggest that school-based
interventions to prevent eating problems in adolescents may
be most effective and safe if they avoid direction instruction
about eating disorders and employ self-esteem development.
The recent study was aimed at improving adolescents’ gen-
eral self-esteem, and the results showed that the intervention
improved body satisfaction, body image, and physical self-
esteeve and reduced dieting for weight loss in adolescents.
This new self-esteem approach for the prevention of body
image problems and disordered eating was proven to be both
effective and safe as it did not promote any dangerous behav-
or or attitudes associated with the eating disorders.

This new self-esteem approach may be a suitable way of addressing
body image education issues in schools.

Although home economics and physical education teach-
ers are in a unique position to provide accurate nutrition
information to students; act as positive role models; mediate
children’s food, nutrition, and weight concerns; promote
self-esteem; and be able to discuss the messages given by the
media about body image, health, and nutrition, little is known
about the body image and eating attitudes and behaviors of
these teachers in particular. Similarly, whereas the importance
of staff training for school-based programs to prevent obe-
sity has been documented, the professional and personal
needs of teachers who are expected to address dieting, weight
control, eating disorders, and body image issues in the class-
room have been largely ignored. Teachers are being increas-
ingly encouraged to intervene to promote health among ado-
lescents and to help prevent health problems such as obesity
and eating disorders, yet we have little understanding of
whether teachers are appropriate role models in these areas.

In addition, we know little about whether it is appropriate
to expect young teachers to be able to deal effectively with
weight issues in schools when they are likely to be influenced
by the same sociocultural factors that are known to promote
body image concerns in young adults. In the current study,
we hypothesized that despite having received nutrition
education, young home economics and physical education
teachers, particularly females, would be likely to exhibit sim-
ilar eating attitudes and behaviors and body image concerns
to those of other young women in Western cultures. The aims
of the current study were to gain a better understanding of
how teachers deal with personal nutrition issues such as
weight control, eating disorders, and body image by exam-
ing the body weight, body image, desired weight, food
habits, and weight control practices of trainee home eco-
nomics and physical education teachers. A second aim of the
study was to gain an insight into how the trainee teachers
deal with nutrition issues in their professional setting by
assessing the trainee teachers’ knowledge, beliefs, and attitudes
about eating disorders and the weight control advice that
they would give to overweight adolescents. The association
between actual body weight and the trainee teachers’ body
image and physical self-esteem was also examined.

METHODS

Participants. Trainee home economics (n = 112) and
physical education (n = 104) teachers from three large
national teacher training universities in Australia volunteered
to participate. The trainee teachers were all in their final
month of training in a 4-year Bachelor of Education under-
graduate degree program. Common nutrition education
content in all of the training programs included basic nutri-
tion education about the food groups, Australian Healthy
Eating Pyramid, dietary guidelines, factors affecting food
habits, nutrients, digestion, metabolism, and major nutrient-
deficiency diseases. All programs included information about
the Body Mass Index (BMI) for adults, definitions of adult
overweight and obesity, diet- and lifestyle-related diseases
such as coronary heart disease, and a basic description of the
eating disorders. Discussion between the first author and pro-
gram directors from each of the three participating univer-
sities found that home economics trainees received more
nutrition education than physical education teachers, but the
amount was not measured in the current study. Female
trainee teachers (n = 169) who participated in the study had
a mean age of 22 years (SD = 5). Their mean BMI was 22
(SD = 3). Thirty-eight (23%) of these women were under-
weight (BMI <20), 112 (66%) were of normal weight (BMI
20–24.9), and 19 (11%) were overweight or obese (BMI
≥ 25). The mean age of male teachers (n = 47) was 22 years
(SD = 6), with a mean BMI of 25 (SD = 3). Most males were
of normal weight (n = 29, 62%) or overweight and obese
(n = 16, 34%), and (4%) were underweight.

Questionnaire. A questionnaire previously used among
adolescents was administered to participants as a self-report
survey by the first author during regular university class
times. A description of the questionnaire, its development,
and methods of validation are presented in Table 1. The ques-
tionnaire was used to collect data on demographic details;
food habits; weight control practices; body image; knowledge,
beliefs, and attitudes about weight control and eating disor-
ders; personal history of eating disorders; physical self-esteem;
and anthropometric details. The question about weight con-
tral practices listed 20 common weight control methods and
asked participants to indicate whether they had employed any of these methods in the past 12 months. The first author clarified the definition of excessive exercise with participants. Excessive exercise was defined as more than 2
hours of vigorous aerobic exercise per day that was not related to a professional career or training. Participants’ knowledge, beliefs, and attitudes about appropriate dietary
and weight control advice to give to young overweight ado-
lescents in grades 7 and 8 (11–14 year olds) were assessed
### Table 1. Description of the questionnaire and its development and validation

<table>
<thead>
<tr>
<th>Variable Measured</th>
<th>Example of Questions</th>
<th>Category of Possible Responses</th>
<th>Process for Development of Questions and Validation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic details (3 questions) Age, gender, category of trainee teacher</td>
<td>Are you male or female?</td>
<td>Male/female</td>
<td>Questions were pilot tested for face and content validity in a pilot test with 10 undergraduates. Wording of some questions was changed after pilot test.</td>
</tr>
<tr>
<td>Food habits (8 questions) Frequency of meals and snacks Dieting to lose or gain weight</td>
<td>On weekdays do you usually eat breakfast?</td>
<td>Yes/no</td>
<td>Questions were pilot tested for face and content validity in a pilot test with 10 undergraduates. Wording of some questions was changed after pilot test.</td>
</tr>
<tr>
<td></td>
<td>Do you diet to lose weight?</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are you currently trying to lose weight?</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td>Weight control practices (20 questions) 20 common weight control practices</td>
<td>Have you used any of these methods in the past 12 months?</td>
<td></td>
<td>Questions were pilot tested for face and content validity in a pilot test with 10 undergraduates. Wording of some questions was changed after pilot test.</td>
</tr>
<tr>
<td></td>
<td>Not eating between meals</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Your own diet</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selecting only low-calorie foods</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Starvation</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td>Body image (2 questions) Current body image Desired weight</td>
<td>Do you think you are...</td>
<td>Too thin/about right/too fat</td>
<td>Questions were pilot tested for face and content validity in a pilot test with 10 undergraduates. Wording of some questions was changed after pilot test.</td>
</tr>
<tr>
<td></td>
<td>Would you like your body weight to be...</td>
<td>A lot heavier/a little heavier/present weight/a lot lighter</td>
<td></td>
</tr>
<tr>
<td>Knowledge, beliefs and attitudes [about suitable weight control advice for overweight adolescents (20 questions)]</td>
<td>Which of the following information would you give to your overweight students in grades 7–8?</td>
<td></td>
<td>Questions were constructed by the authors and then given to an expert panel of dietitians, pediatricians, and eating disorder specialists. Each panel expert examined the questions to determine face validity, content validity, and clinical correctness. Expert panel reports for each question were tallied to reach agreement about the correct answer. Recommendations from experts about the wording of questions were incorporated into the review of questions. Expert panel made a final review of questions for face and content validity and clinical accuracy.</td>
</tr>
<tr>
<td></td>
<td>Go on a strict weight-reducing diet</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Become vegetarian</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Aim to lose 1–2 kg per week</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reduce daily intake to 1200 calories</td>
<td>Yes/no</td>
<td></td>
</tr>
<tr>
<td>Beliefs, attitudes, and knowledge about weight control and eating disorders (20 questions)</td>
<td>Do you think the following statements are true or false?</td>
<td>True/false</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Once someone has an eating disorder, they never really get over it. People with anorexia nervosa do not lose their appetite. Bulimia nervosa does not occur in people younger than 18 years.</td>
<td>True/false</td>
<td></td>
</tr>
</tbody>
</table>
using 20 yes/no questions. The questions were written by the two authors and reviewed by an expert panel consisting of two dietitians from the Royal Prince Alfred Hospital, two pediatricians from the Camperdown Children’s Hospital, and two eating disorder specialists (one psychologist and one psychiatrist) from the Royal North Shore Hospital. Each panel expert was asked to decide the correct answer to each of the questions and to examine the questions for face validity, content validity, and clinical correctness. The answers from the experts were tallied, expert comments and suggestions about the wording of each question were incorporated into the questions, and agreement about the correct answers was reached. The panel was then asked to review the questions again for face validity and clinical accuracy. A series of 20 individual true/false questions was used to assess participants’ beliefs, attitudes, and knowledge about weight control and eating disorders using the same expert panel and procedure described above to develop the questions. Participants were also asked to self-report any past or current eating disorder diagnoses, hospitalizations, or treatment.

Physical self-esteem was measured using the Body Appearance Rating, which is a validated scale\textsuperscript{22} used to assess participant’s perceptions of their body appearance. The Body Appearance Scale is a reliable and validated measure of physical self-esteem that has been previously validated against two standardized eating disorder questionnaires, the Eating Disorders Inventory\textsuperscript{23} and the Eating and Exercise Examination.\textsuperscript{21} In the current study, analyses for internal reliability on this scale resulted in a Cronbach’s alpha of 0.87. The questionnaire was pilot tested for face and content validity among 10 undergraduates who were of the same age as the trainee teachers. Height and weight were measured by the first author using calibrated digital scales and a portable stadiometer.

Procedure. The study was conducted in 1998. All of the five state university teacher training programs specializing in home economics and physical education were approached and asked to participate in a survey of final-year trainee teachers. These trainee teachers were selected because they were homogeneous in age and training. Three of the five teacher training programs agreed to participate, with two refusing to participate due to time commitments. The two teacher training programs that did not participate were similar to the participat-
ing programs in the type of university (all state universities), type of program they offered (all 4-year undergraduate degrees), and mix of students (all coeducational, mainly young trainees of both genders). No data were collected from non-participating programs, so a comparison of participants and nonparticipants cannot be presented. All trainee teachers in their final month of training (n = 226) were invited to participate, with only two trainee teachers refusing (<1% refusal rate). A final participation rate of 96% (n = 216/226) was achieved after several follow-up visits to each of the three participating universities to survey participants who had been absent on the first visit. Participants completed the survey during their regular lecture times in the presence of the first author after providing written consent. Completion of the questionnaire and measurement of height and weight took 20 minutes. The study design and protocol were approved by the University of Sydney Human Ethics Committee.

Data analysis. Data from questionnaires were entered into an SPSS database (SPSS version 9, Cary, NY) and analyzed using mainly descriptive statistics. Chi-square analyses were used to compare gender differences and analysis of variance was used to compare group BMI data. A p value of .05 was taken as the measure of statistical significance.

RESULTS

Dietary advice trainee teachers give to their overweight students. The appropriate and inappropriate nutrition advice that the male and female trainee teachers would give to overweight adolescent school students aged 11 to 14 years is given in Table 2. Advice given to adolescent students by less than 30% of the teachers is not shown in the table, but it is given below. The majority of participants reported giving overweight adolescent students nutrition advice that was deemed appropriate based on the criteria for this study. However, up to 87% of participants reported giving advice that was not considered appropriate for this study, such as recommending strict dieting, cutting out all snacks, and choosing only low-calorie foods. In addition to the data presented in Table 2, fewer participants cited other inappropriate nutrition advice such as avoiding combining foods such as protein and fruit (12%), cleansing the body of toxins using a weekly fluid fast (7%), taking vitamin and mineral supplements (10%), and eating only two meals a day (3%). Approximately 20% of teachers stated that they would inform students that as they grew in height, it would help them to “grow out of being overweight.”

The teachers were aware that girls commence their growth spurt before boys (96%), that it is normal for teenage girls to put on fat around their thighs and hips (94%), and that underweight teenagers can delay their growth (82%). Other advice was given to adolescents by less than 3% of participants, and this included “use a high-fiber, low-fat diet such as the F-Plan”; “go to commercial weight loss centers such as Jenny Craig”; “cut out all snacks”; and “count all calories throughout the day.”

Knowledge and beliefs about eating disorders. The trainee teachers had some misconceptions about eating disorders, and the characteristics of sufferers with few significant gender differences (Table 3). Incorrect answers were given to the eating disorder questions by a range of 14% to 72% of participants.

Weight control behaviors and practices. Female participants reported using potentially harmful weight control practices in the 12 months prior to the study. These behaviors included excessive exercise (29%), starvation (19%), trying to induce vomiting (22%), laxatives (19%), inducing vomiting (10%), slimming tablets (8%), and smoking for weight control (7%). Males were less likely than females to use most weight control methods, with 22% using excessive exercise, 9% using starvation, and 6% smoking specifically for weight control.

Of the female teachers, a total of 125 (74% response rate) completed questions about whether they had ever had or currently had an eating disorder, its diagnosis, and treatment. This response rate was lower than the overall response rate for participation in the study, which was 96%. Eighteen (14%) of the females and no males self-reported that they believed that they

Table 2. Inappropriate and appropriate nutrition advice trainee home economics and physical education teachers would give to overweight school students of 11 to 14 years of age.

<table>
<thead>
<tr>
<th>Inappropriate nutrition advice</th>
<th>Female Teachers (n = 169)</th>
<th>Male Teachers (n = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Talk to your pharmacist about diet products</td>
<td>5</td>
<td>31***</td>
</tr>
<tr>
<td>Weigh yourself every day</td>
<td>29</td>
<td>14**</td>
</tr>
<tr>
<td>Choose only low-calorie food</td>
<td>44</td>
<td>53</td>
</tr>
<tr>
<td>Aim to lose 1–2 kg/wk</td>
<td>55</td>
<td>30**</td>
</tr>
<tr>
<td>Reduce intake to only 1500 cal/d</td>
<td>53</td>
<td>47</td>
</tr>
<tr>
<td>to only 1200 cal/d</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>Drink water before each meal</td>
<td>41</td>
<td>22*</td>
</tr>
<tr>
<td>Cut out all between-meal snacks</td>
<td>67</td>
<td>67</td>
</tr>
<tr>
<td>Go on a strict weight-reducing diet</td>
<td>85</td>
<td>87</td>
</tr>
<tr>
<td>Appropriate nutrition advice</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoid eating when bored, lonely, or sad</td>
<td>85</td>
<td>73</td>
</tr>
<tr>
<td>Avoid eating certain foods such as candy, fries, chocolate, pies,</td>
<td>93</td>
<td>98</td>
</tr>
<tr>
<td>fried foods</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eat a variety of foods</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Increase daily exercise</td>
<td>100</td>
<td>100</td>
</tr>
</tbody>
</table>

Chi square tests gender differences.
In descending order in Table 1: *** chi square 26.2, p < .001; ** chi square 5.9, p < .05; * chi square 8.2, p < .005; df = 2; ** chi square 6.1, p < 0.01, df = 1.
currently had an eating disorder, but only eight females (6%) reported current or past professional diagnosis and treatment for anorexia nervosa (n = 1), bulimia nervosa (n = 2), and eating disorders otherwise not specified (n = 5). One male had been previously treated for anorexia nervosa.

Body image, desired weight, food habits, and dieting. The body image, desired body weight, food habits, and dieting behavior of participants by BMI weight grouping are shown in Table 4. Females in all weight categories reported being “too fat,” and they desired weight loss. Forty-seven per-

Table 3. Trainee home economics and physical education teachers’ knowledge and beliefs about eating disorders

<table>
<thead>
<tr>
<th></th>
<th>Female (n = 169)</th>
<th>Males (n = 47)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>True/False</td>
<td>Incorrect (%)</td>
</tr>
<tr>
<td>Bulimia nervosa usually results from poor parenting</td>
<td>F</td>
<td>14</td>
</tr>
<tr>
<td>Bulimia does not occur in people less than 18 years</td>
<td>F</td>
<td>17</td>
</tr>
<tr>
<td>Once someone has an eating disorder, they seldom get over it</td>
<td>F</td>
<td>40</td>
</tr>
<tr>
<td>People with anorexia nervosa do not lose their appetite</td>
<td>T</td>
<td>55</td>
</tr>
<tr>
<td>Eating disorders such as anorexia nervosa and bulimia nervosa occur mostly in upper- and middle-class families</td>
<td>F</td>
<td>41</td>
</tr>
<tr>
<td>People with anorexia nervosa need psychiatric treatment throughout life</td>
<td>F</td>
<td>48</td>
</tr>
<tr>
<td>People with bulimia nervosa always induce vomiting</td>
<td>F</td>
<td>67</td>
</tr>
<tr>
<td>Women who have restored their weight after anorexia nervosa have difficulty becoming pregnant</td>
<td>F</td>
<td>71</td>
</tr>
<tr>
<td>One in 15 people with eating disorder are male</td>
<td>T</td>
<td>25</td>
</tr>
<tr>
<td>People with bulimia nervosa can be underweight, overweight, or obese</td>
<td>T</td>
<td>11</td>
</tr>
</tbody>
</table>

Chi square tests gender differences.
In descending order in table 2: *chi square = 4.9, p < .05; chi square = 10.4, p < .005; **chi square = 6.9, p < .01, df = 1.

Table 4. Body image, desired weight, food habits of trainee home economics and physical education teachers according to their Body Mass Index grouping

<table>
<thead>
<tr>
<th></th>
<th>Males (n = 45)</th>
<th>Females (n = 169)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Weight (BMI = 20–24.9)</td>
<td>Overweight (BMI ≥ 25)</td>
</tr>
<tr>
<td></td>
<td>% n</td>
<td>% n</td>
</tr>
<tr>
<td>Body image</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Too thin</td>
<td>23 7</td>
<td>13 2</td>
</tr>
<tr>
<td>About right</td>
<td>73 22</td>
<td>75 12</td>
</tr>
<tr>
<td>Too fat</td>
<td>3 1</td>
<td>13 2</td>
</tr>
<tr>
<td></td>
<td>94 17</td>
<td></td>
</tr>
<tr>
<td>Desired weight</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A lot heavier</td>
<td>3 1</td>
<td>13 2</td>
</tr>
<tr>
<td>A little heavier</td>
<td>53 16</td>
<td>38 6</td>
</tr>
<tr>
<td>Present weight</td>
<td>33 10</td>
<td>19 3</td>
</tr>
<tr>
<td>A little lighter</td>
<td>10 3</td>
<td>19 3</td>
</tr>
<tr>
<td>A lot lighter</td>
<td>0 0</td>
<td>13 2</td>
</tr>
<tr>
<td></td>
<td>53 10</td>
<td></td>
</tr>
<tr>
<td>Food habits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skip breakfast</td>
<td>13 4</td>
<td>13 2</td>
</tr>
<tr>
<td>Skip am snack</td>
<td>10 3</td>
<td>6 1</td>
</tr>
<tr>
<td>Skip lunch</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td></td>
<td>0 0</td>
<td></td>
</tr>
<tr>
<td>Current dieting behavior</td>
<td></td>
<td></td>
</tr>
<tr>
<td>To lose weight</td>
<td>10 3</td>
<td>25 4</td>
</tr>
<tr>
<td>To gain weighta</td>
<td>31 9</td>
<td>27 4</td>
</tr>
</tbody>
</table>

Underweight male teachers not shown due to low cell numbers (n = 2).

*a bulk up,* develop muscles.
cent of the females and 15.5% of the males were currently dieting to lose weight. Twenty percent of the females reported regularly missing breakfast, and 47% were currently dieting to lose weight, including 42% of the females classified as clinically underweight. Twenty-nine percent of the males desired weight gain to “bulk up” and build muscles, and 13% regularly missed breakfast.

**Body appearance ratings.** The ratings of body appearance that teachers give themselves and the ratings that they believe other people, their best friend, and the opposite sex would give them are shown in Table 5. Males rated their own body appearance more highly than females (F = 25.2, df = 1, 214, p < .001). Actual body weight had a significant effect on how females consider other people would rate their appearance, particularly members of the opposite sex. Post hoc tests using a Tukey HSD test showed that overweight females had significantly lower scores than normal or underweight females on the other people rating (p < .05), the best friend rating (p < .05), and the opposite sex rating (p < .01).

**DISCUSSION**

The results of our study indicate that some trainee home economics and physical education teachers have inadequate levels of knowledge and inappropriate beliefs and attitudes about nutrition, weight control, and weight issues and that they display inappropriate dietary behaviors. Around 47% of the females in our study were dieting to lose weight, despite some being underweight or of normal weight, and they were employing dangerous weight control practices such as vomiting, laxative abuse, and cigarette smoking. Up to one-fifth of the trainee teachers regularly skip breakfast. These results are similar to other studies of young adults in the United States26–29 and the United States30–32 and are likely to be similar in other Western countries. For example, in their study of young adults in the United States, Horn and Anderson26 reported that 41% of women and 23% of men were currently trying to lose weight, a finding similar to the Australian study of Crawford and Worsley,24 which found that 38% of women were trying to lose weight. In the current study, 47% of females and 16% of males were trying to lose weight. Other similar comparisons between studies in the United States and Australia support the suggestion that weight loss behaviors in the trainee teachers in the current study are similar to those of young adults in Australia and the United States. For example, the use of diet pills for weight loss has been reported to be between 4% to 7% in American college women,20,21 between 3% and 10% in young Australian women,24,25 and 8% in the women in the current study. The use of fasting for weight loss has been reported at around 23% in American college women and 6% in American college men,27,28 15% in Australian women,24 and 19% in women and 9% in men in the current study. The results support our original hypothesis that despite having significant training in nutrition education, the home economics and physical education trainees still reported significant eating and body image concerns similar to previous studies.30–32 These results suggest that the training of these young teachers may be failing to adequately address their body image and weight issues, and it is also possible that their concerns may actually arise during their training. These issues should be further explored in future research studies in order to clarify whether teacher training can be designed to reduce weight dissatisfaction and unhealthy weight control practices such as fasting, laxative abuse, vomiting, and cigarette smoking in the teachers who are supposed to be undertaking such preventive activities among schoolchildren. It is important that these teachers do not directly or inadvertently transfer12 their own poor knowledge of appropriate weight control methods, beliefs, attitudes, and behaviors related to weight control and body image to their students.

Of particular concern in our study is the group of underweight females who skip meals, diet to lose weight, and consider themselves as too fat and those normal-weight women who use dangerous methods of weight loss such as self-induced vomiting and smoking. The underweight women believe that others would give them a higher rating for their body appearance than did the normal- or overweight women, hence perpetuating the cultural stereotype that

<table>
<thead>
<tr>
<th>Body Appearance Ratings</th>
<th>Males (n = 45)</th>
<th>Females (n = 169)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normal Weight (BMI 20–24.9)</td>
<td>Overweight (BMI ≥25)</td>
</tr>
<tr>
<td>Self</td>
<td>Mean</td>
<td>SD</td>
</tr>
<tr>
<td>Other people</td>
<td>7.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Best friend</td>
<td>7.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Opposite sex</td>
<td>7.2</td>
<td>1.1</td>
</tr>
</tbody>
</table>

F values compare body appearance ratings by weight categories.
*p < .05; **p < .001.
being thin is ideal. These clinically underweight women are clearly showing features that are characteristic of disordered eating, anorexia nervosa, and bulimia nervosa.

These young women may openly or inadvertently transfer some of their inappropriate beliefs, attitudes, and behaviors to the young students in their care. The teachers may also act as inappropriate role models who inadvertently promote the slim female ideal.

Our data do not suggest that the disordered eating of the young women teachers in our study was worse than other women, but it is argued that as role models for students, it may be appropriate for home economics and physical education teachers to be better able to cope with body image and weight concerns than other women in the community. To achieve this, teacher training institutions will need to address the apparent deficits in training and potential body image and eating problems identified as being inadequate in the results of this study. Appropriate referral services for trainee teachers with eating and body image problems should also be available in teacher training institutions.

Trainee home economics and physical education teachers and other teachers may benefit from knowledge and awareness of their own eating behaviors and body image as well as an understanding of the food and weight concerns of adolescents. Schoolteachers need to provide reliable, sensible, and safe information to students about food, nutrition, eating, and weight control and teachers need to be specifically trained to be able to do so.

A finding of concern in our study was the number of females (6%) who reported that they believed that they currently had an eating disorder but had not received any treatment for their problems. A possible explanation for this may be the stigma attached to eating disorders. It is also possible that these eating problems have become normalized in Western culture and that extremes in weight control behavior were considered normal and acceptable among the young women in our study. Future research studies should investigate this phenomenon.

The findings of the current study have relevance for the use of Social Cognitive Theory, which states that health behaviors may be explained by the interactions between behavioral, personal, and environmental factors. The behavioral characteristics of the young trainee teachers in our study may be influenced by socioenvironmental factors such as community body image ideals and the social stigma attached to obesity in Western societies. Similarly, personal factors such as body image or body weight requirements for competitive sports may interact with teachers’ behavioral factors. Environmental influences such as marketing and advertising images and influential community role models may influence teachers’ beliefs, attitudes, and behaviors toward body image and weight control. Using on-campus environmental strategies such as providing trainee teachers with education about sensible methods of weight control, social support, and counselling services and developing an ethos and on-campus atmosphere that promotes healthful body image norms are ways in which body image and dieting problems in trainee teachers may be reduced. The effectiveness of interventions to improve the body image and eating behaviors of teachers in order for them to be effective educators and role models for schoolchildren will depend on successfully addressing the complex interactions between relevant behavioral, personal, and environmental factors involved in determining health behaviors. Schoolteachers and, in particular, home economics and physical education teachers, are increasingly being expected to address body image and weight control issues in school settings yet this is only one method of tackling these health education issues. Interventions focusing on the many personal, behavioral, and broad-ranging environmental influences outlined above are required in order to effectively deal with these problems.

Our study has a number of limitations that make the generalizability of our results restricted. First, our study was limited to trainee teachers; therefore, our findings will need to be replicated among a larger number and a more diverse sample of trainee and practicing teachers in order to make generalizations. The results of the current study do concur with findings of other studies in the United States and Australia, and, as such, they suggest that the weight concerns of the young teachers studied are similar to the weight concerns of other young adults in Western countries. Another limitation of the current study is the participation of only three of the five major teacher training universities in the state. A very high percentage (96%) of trainees from the three participating universities completed the study, and because all of the training programs are similar state university programs, we expect the results of our sample to be representative of the trainee teachers enrolled at all of the state training programs at the time of the study. Because our sample was limited in overall numbers, particularly after classification into subgroups of BMI, we did not study differences between subgroups of home economics and physical education teachers; future research should address this issue. In addition, we did not study in any detail the content of nutrition training courses for the trainee teachers involved in our study, and this factor may be an important one to include in future research in this area.

IMPLICATIONS

Teachers who are required to teach about weight control, eating disorders, and other body image issues need an accurate knowledge of eating disorders and weight issues from both a personal and a professional perspective. In order to teach about weight, body image, or eating disorder issues in the classroom, teachers need information and training to enable them to develop a good knowledge of food and nutrition as well as appropriate beliefs, attitudes, and behaviors related to body image, weight control, and eating disorders. The results of the current study did not directly prove that the beliefs and attitudes of trainee teachers directly impacted...
their later teaching performance, but there is some evidence that certain issues, such as poor knowledge of appropriate weight control advice for adolescents, may potentially be transferred from teachers to students. Nutrition education among home economics and physical education teachers should focus on safe and sensible methods of weight control so that teachers can help to foster the same in their students. Administrators of teacher training institutions need to be aware that their home economics and physical education trainees may be at risk for eating and weight problems, despite the teachers having received nutrition education courses. Teacher training institutions should include information for their trainees about referral services by dietitians, nutritionists, and other health professionals who are appropriately trained to deal with eating and body image problems.

REFERENCES