Pre-service teachers' gendered attitudes towards role modelling in health and physical education

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Abstract

Background: Health and Physical Education (HPE) teachers are in a unique position to act as role models to their students.

Purpose: To explore the expectations, beliefs and attitudes towards role modelling of health behaviours by pre-service teachers who were specialising in HPE, and those who were not.

Study Design: Cross-sectional, Survey Design

Method: N=637 pre-service teachers (who were in the first three weeks of their undergraduate Bachelor of Education course at three universities in Australia) completed self-report questionnaires asking about attitudes and beliefs toward role modelling of health behaviours. Comparison of attitudes and beliefs between those studying Health and Physical Education (HPE) and those studying other curriculum areas (classified as Bachelor of Education or non-HPE) were made.

Results: We found both gender and degree-based differences in attitudes towards role modelling. Men were found to believe more so than women that HPE teachers should maintain a slim, athletic build which makes them appear as though they are fit and healthy. Male teacher education students who were not specialising in HPE were more likely than male HPE students to believe that Health and Physical Educators should maintain a 'slim, athletic appearance' and engage in regular physical activity.

Conclusion: Pressure for HPE teachers to meet appearance and role modelling expectations may be coming more from men, and more from generalist teachers, as opposed to coming from within the profession. This research contributes to the debate regarding the fitness expectations of HPE teachers and has implications for physical education teacher education programs.

Key Words: health, teacher, role modelling, gender, Health and Physical Education (HPE)

Introduction

Engaging young people in physical activity and healthy lifestyles is an important public health goal that results in multiple positive physical and mental health outcomes as well as increased academic performance (Watson et al. 2017). Health and Physical Education [HPE] teachers contribute significantly to this goal through the provision of practical and theoretical classes promoting the behaviours associated with, and benefits of healthy and active lifestyles. HPE teachers are often suggested to be crucial role models, along with families, peers, and the media, that contribute to young people's healthy behaviour (Olivares et al. 2015). In the USA, the National Association of Sport and Physical Education [NASPE] outlines one of the standards for Physical Education Teacher Education is for pre-service teachers to "achieve and maintain a health-enhancing level of fitness throughout the program" (NASPE, 2009). However, there is some debate regarding the extent to which HPE teachers should engage in healthy behaviours, or attain physiques aligned to gender-related appearance ideals that are stereotypically thought to reflect engagement in healthy behaviours, in order to be appropriate role models in the school setting.

Role models are typically considered to be people that inspire others (Young et al. 2015). The theoretical framework underpinning the influence of role modelling is drawn from Bandura's Social Learning Theory (1986). Bandura recognised the significant opportunity for individuals to learn behaviour by observing role models such as teachers, parents, caregivers, and significant others, and suggests that learning can occur vicariously through the observation of others' behaviour, and the outcomes of those behaviours (Bandura 1986). According to this theory, the level of influence is affected by the perceived credibility and relevance of the model. Teachers and sports coaches have been cited as the most influential non-family adult role

models for health behaviours (Gilmer et al. 1996, Webb and Quennerstedt 2010). Although teachers cannot choose when, and whether their students see them as role models for healthy lifestyles, it is possible that they are a source of positive or negative role modelling through direct instruction, or indirect comments, and observation of attitudes and behaviour.

There is some debate as to whether HPE teachers are appropriate role models of healthy lifestyles, and whether they should be required to act as role models. Opinion pieces and editorials in professional journals are overwhelmingly negative, suggesting that HPE teachers are not adequate role models, as they do not engage in sufficient levels of physical activity to depict the behaviours indicated in the HPE curriculum (Baghurst et al. 2015). In his editorial, Heidorn (2013) reflects on the fact that many HPE teachers push their students towards achieving physical fitness, but 'put forth very little effort (if any at all) to effectively model fitness development' (p.6) (Heidorn 2013). Research provides mixed support for this perception. College students studying physical education were found to meet minimum levels of physical activity, however, they were not found to be more active than their counterparts in non-exercise related disciplines (Baghurst et al. 2018, Baghurst, Ghafari, and Anthony 2019). Others suggest that physical educators 'practice the philosophy of '*do as I say, not as I do*' (p.4) (Baumgarten 2004). In a 'Personal Perspective' piece, another author discussed the response from health educators to a university job announcement for a health educator that included the requirement that applicants 'follow a wellness lifestyle' (p.60) and suggests that it is a 'common (unadvertised) expectation that health educators "*walk the talk"'* (p.61) (Davis 1999). A classic study found that HPE teachers with a high body mass index (BMI) were less likely to be hired even if they had better grades than those who 'looked the part' (Melville and Cardinal 1997). Strong attitudes about HPE teachers' appearance and engagement in health behaviours have therefore existed within the profession for some time.

There appears to be an assumption that HPE teachers who are lean, and look fit have high levels of fitness. However, studies that have investigated the actual health and fitness level of HPE teachers have had mixed findings. Some early research of HPE teachers' fitness levels found that they are more active and more physically fit than the average population (Cardinal 2001, Clark, Blair, and Culan 1988). For example, in the USA, 83% of HPE professionals or pre-professionals were physically active and 52.6% had a BMI under 25, compared to 21.8% and 22.8%, respectively, of the general population in the study location (Cardinal 2001). However, a study of HPE teachers attending a national US HPE conference a decade later reported that even 'physical and health educators who are dedicated to the profession… are still not achieving wellness across the board' (p.14) on a measure of physical, intellectual, emotional, and spiritual health (Esslinger et al. 2014). More recent US studies tend to report that fitness levels are poor, and label pre-service teachers as 'unfit to teach' (Hunt et al. 2017) despite around 70-80% of participants in Physical Education Teacher Education [PETE] programs passing individual components of fitness (Blackshear, Barton, and Moxley 2018). Some universities have also adopted physical fitness requirements for their physical education graduates, with electronic fitness report cards, but few are yet to prevent students from graduating if they do not meet these standards (Blackshear, Barton, and Moxley 2018).

In contrast to reports of poor levels of physical fitness in HPE teachers, other evidence suggests that teacher education students and practicing teachers, and in particular, health and physical education teachers, are over-exercising, and may experience elevated levels of body dissatisfaction and eating disorders (Yager and O'Dea 2009b, Yager et al. 2017, O'Brien and

Hunter 2006, O'Dea and Abraham 2001). Our earlier research found that HPE teacher education students were more likely to be using disordered eating behaviours such as vomiting, fasting, and laxative use, and 41% of HPE men and 32% of HPE women could be classified as having an exercise disorder and scored significantly higher on measures of excessive exercise than non-HPE university students (Yager and O'Dea 2008). More recent investigations among first-year HPE and non-HPE students indicated that male HPE teacher education students, in particular, were significantly more likely to be dieting and using anabolic steroids, and they had significantly higher scores for obligatory exercise, indicating a possible exercise disorder, than non-HPE teacher education students (Yager and O'Dea 2009a). If these HPE teacher education students are exhibiting extreme diet and disordered eating and exercise behaviours, there could also be the potential that they pass on these attitudes and behaviours and model them to their students.

Very little research has investigated the impact of teacher role modelling on student learning and health behaviours. One classic study found that students who were shown a video about the importance of physical activity featuring a presenter who was made to look like he was in a larger body by wearing a ‘fat suit’, resulted in student’s scoring lower grades on a knowledge test than those viewing a video featuring the same male presenter without the suit (Melville and Maddalozzo 1988). Similarly, a more recent study found that, when more active female preschool teachers led a physical activity class, children were likely to be more active in the class than when it was taught by a teacher who was less active in her personal life (Cheung 2019).

Very little prior research has investigated physical education majors’ or teachers’ attitudes towards role modelling health behaviours. In a study comparing students’ and

teachers' perceptions of teachers' role modelling of behaviour, 90% of health educators saw themselves as exercise role models, but a slightly lower proportion (77.8%) of students thought that their teachers were role models (Drummond, McGuire, and Bennett 2002). When giving their reasons why their teacher was not a good role model, one in 10 (9.3%) students indicated that it was because their teacher did not look physically fit (Drummond, McGuire, and Bennett 2002). Other reports of teachers' beliefs about their own role modelling have found that those who had lower BMI and higher levels of activity were more likely to have stronger beliefs about the importance of physical educators role modelling of physical activity and healthy lifestyles (Cardinal 2001). More recent research has found that health educators' personal beliefs about the importance of health and health behaviours determined the extent to which teachers endorsed their role as promoting health in students (Brunette 2017).

There are mixed opinions regarding the appearance and personal health behaviours of HPE teachers, as they are in positions where they can act as role models for young people. However, very little research has investigated the attitudes of HPE teacher education students towards being a role model in the school setting, and gendered differences have been largely overlooked in the research. Knowing more about the attitudes and behaviours about role modelling from HPE and other education students will provide teacher educators with an understanding of the key information that might need to be included in teacher education programs. This study therefore aims to compare the attitudes and beliefs towards role modelling between men and women, and between HPE and non-HPE teacher education students (those enrolled in initial teacher education courses at university) regarding expectations of role modelling of health-related behaviours and of appearance. In light of findings that higher body dissatisfaction and internalisation of appearance ideals were apparent in more women than men (Fiske et al. 2014), and among teacher education students studying

HPE than non-HPE courses (Yager et al. 2017, Yager 2007), it was hypothesised that women and HPE teacher education students would more strongly endorse expectations about role modelling than men and non-HPE teacher education students, respectively. We also set out to explore the predictors of attitudes towards role modelling of health behaviour in terms of BMI, body dissatisfaction, drive for thinness, drive for muscularity, and obligatory exercise behaviour.

Method

Participants

Participants (N = 637, n=544 met criteria for analyses) in this study consisted of teacher education students in the first three weeks of their undergraduate Bachelor of Education courses, recruited from three universities, in two states of Australia. Students were invited to participate in the research during their regular class time. Participation was voluntary and students did not receive course credit for participation. Data collection took place with two successive year cohorts of students from Western Sydney University (n = 133, 20.9%), La Trobe University (n = 266, 41.8%) and Victoria University (n = 231, 36.3%). Seven participants (n = 1.1%) did not state the university that they were studying at.

Procedure

This study was part of a larger, longitudinal study of HPE teachers' food and exercise related attitudes and behaviours. Analyses for this study are from the first data collection point which was conducted during the first three weeks of class, in the first year of study, in order to capture students' attitudes and behaviours at the point of initiating their degree. To do this, arrangements were made with the coordinators of large first-year units of study to enable data collection or recruitment to occur through their classes. Researchers attended lectures in order

to provide information about the study, invite survey participation, and conduct hard-copy data collection during class time, supervised by the researchers, for the first cohort at all universities. The second Western Sydney University cohort was also recruited and conducted in this manner but the questionnaires were completed online. For the second La Trobe University and Victoria University cohorts, researchers visited lectures to introduce and provide information about the study, and then emailed the students the link to the survey. For these cohorts, survey completion was conducted online, was not supervised, and resulted in much lower participant numbers. Exact numbers of students present in class or emailed were not recorded, so response rates are not calculated. All participants provided written informed consent to participate either online through Qualtrics or by signing a consent form. This study received human ethics approval from La Trobe University and mirror approval at the other universities.

Measures

The measures used in the current study assessed exercise attitudes and behaviours, body dissatisfaction, drive for thinness, and drive for muscularity, and role modelling. All exercise attitudes and body image-related measures were established scales and were scored as per original author recommendations unless otherwise specified (see Table 1). Six items were generated for the purposes of this study to assess attitudes towards, and perceived importance of role modelling of health. Specifically, items assessed whether Health and Physical Education Teachers / All teachers should be role models by maintaining a slim, athletic build that makes them appear as though they are fit and healthy / engaging in regular physical activity / consuming a healthy balanced diet. Participants responded on a five-point scale from 1 (Strongly Agree), to 5 (Strongly Disagree). Responses were reverse scored so that higher scores indicated greater agreement. Responses to each item were analysed separately.

Table 1: Standardised measures included in the questionnaire

Scale and authors	Description
Obligatory Exercise Questionnaire [OEQ] (Pasman and Thompson 1988)	This 20 item questionnaire measures attitudes towards exercise and provides clinical cutoffs for exercise disorders. The measure requires individuals to report on a 4-point Likert scale (*Never-Always*) according to how often they experience each exercise-related situation, for example: "Sometimes I feel the need to exercise twice in one day even though I may feel a little tired". Cronbach's alpha indicated good internal consistency reliability (α = .88) in the current sample.
Drive For Muscularity Scale [DMS] (McCreary and Sasse 2000)	The DMS is a 15-item questionnaire that measures the desire for increased muscularity. Participants respond to each item on a 6-point likert scale (*Always - Never).* An example item is: "I think I would feel more confident if I had more muscle mass". The Cronbach's alpha indicated the measure had good internal consistency (α = .93) in the current sample.
Eating Disorder Inventory [EDI] (Garner, Olmstead, and Polivy 1983)	Body Dissatisfaction and Drive for Thinness subscales of the EDI were used to determine body dissatisfaction, and drive for thinness. This 15-item measure is a widely-used scale and participants respond to items such as "I am preoccupied with the desire to be thinner" (Drive for thinness) or "I think that my stomach is too big" (body dissatisfaction) on a 6-point likert scale (*Always - Never*). Cronbach's alpha indicated good internal consistency reliability for Body Dissatisfaction (alpha=.865) and Drive for Thinness (alpha.906) subscales in the current sample.

Data Analysis

A total of 634 teachers provided some data for the study. Participants who did not identify as male or female, or did not respond to the question asking about gender, were excluded from analyses (n=11), as were participants who were not engaged in either a Health and Physical Education course or Education only course (n=7). Participants with extensive missing data on the role modelling items were also excluded from analyses (n=70). Correspondingly, the resultant final sample size for analyses was 544.

All data was analysed via SPSS version 25. The analysis comprised of three stages and involved the development of a series of generalised linear models for each item of modelling behaviour. All models were conducted using a logit function and based on a multinomial distribution in order to accommodate for the data structure (non-normal, ordinal responses). The first stage of analysis investigated the differences in the likelihood of endorsement of modelling health behaviour between males and females. The second series of models assessed the interaction between degree type (HPE versus education) and gender on modelling behaviour, while controlling for age. In the final stage of analysis, models were developed based on a selection of key variables, informed by previous research, in order to identify predictors of modelling behaviour.

Odds ratios were obtained to assess the size of differences in endorsement of role modelling and an alpha of .017 was set (p value divided by 3) in order to adjust for the three-tiered analyses.

Results

Demographics

Participants included 544 first-year teacher education students; 218 (40.1%) identified as male, and 326 identified as female (59.9%). More than half of the sample (n = 319 (58.6%) indicated that they were enrolled in teaching degrees not related to HPE, while 225 students (41.4%) were enrolled in HPE degrees or specialising in Health and Physical Education. Age ranged from 17 to 58 years (M_{age} = 19 years, SD = 5.04). Independent samples t-tests found that there was a significant difference in the mean age of participants in HPE (M = 19.76, SD= 1.98) and non-HPE (M = 21.77, SD=6.78) groups, t (1.349) =3.10, p=0.002, with non-HPE participants being on average older than HPE participants.

Participants were asked to report their cultural background by selecting one of a set of pre-defined categories. The majority were Anglo Saxon/European 79.6% (433), with smaller proportions of participants reporting their background as Middle Eastern (6.1%, *n*=33), Asian (2.8%, *n*=15), Aboriginal and Torres Strait Islander (0.7%, *n*=4), Pacific Islander (1.1%, *n*=6), African (0.6%, n=3), and 'Other' (4.1%, *n*=23). Participants who selected 'Other' were asked to indicate their background in an open-response format. These participants generally reported having multiple cultural backgrounds.

Attitudes towards Role Modelling

The mean scores and standard deviations for responses to each item assessing modelling health behaviour are presented in Table 2.

Table 2: Mean scores on modelling behaviour items for men and women and the total sample

	Men (N=218)	Women (N=326)	Total
	M(SD)	M(SD)	M (SD)
Role modelling fit and healthy appearance			
Perceptions about HPE teachers	3.46 (1.22)	3.21 (1.06)	3.31 (1.14)
Perceptions about all teachers	3.41 (1.19)	3.44 (1.11)	3.42 (1.14)
Role modelling by engaging in regular physical activity			
Perceptions about HPE teachers	3.60 (1.32)	3.47 (1.23)	3.52 (1.27)

Perceptions about all teachers	3.36 (1.19)	3.42 (1.11)	3.40 (1.14)
Role modelling by consuming a healthy balanced diet			
Perceptions about HPE teachers	3.44 (1.26)	3.41 (1.15)	3.42 (1.20)
Perceptions about all teachers	3.23(1.15)	3.11 (1.00)	3.16 (1.06)

The difference in participants' likelihood of endorsement of attitudes toward modelling behaviour between gender and degree type are presented in Table 3. The results indicated that male teacher education students were significantly more likely than female teacher education students to agree that HPE teachers should be role models by maintaining a slim, athletic build (*Wald* X^2=9.011, p=.003, OR=1.62). Similarly, when controlling for age, male teachers who engaged in a non-HPE degree were twice as likely to agree that HPE teachers should be role models by maintaining a slim athletic build (*Wald* X^2=13.54, p=.004, OR=2.42) and engaging in regular physical activity (*Wald* X^2*=14.63*, p<.002. OR=2.44) as males engaged in an HPE degree and female teachers generally. No other significant gender differences were observed across attitudes towards modelling behaviours (p>.017).

Table 3: Differences in attitudes towards modelling behaviour according to participant gender and degree

	Gender	Gender and Degree (interaction)

	Wald X^2	p	*Wald* X^2	p
Health and Physical Education teachers should be role models by maintaining a slim, athletic build that makes them appear as though they are fit and healthy	5.96	.015*	5.334	.021
Health and Physical Education teachers should be role models by engaging in regular physical activity	0.96	.328	13.340	<.001*
Health and Physical Education teachers should be role models by consuming a healthy balanced diet	0.21	.646	6.243	.012*
All teachers should be role models by engaging in regular physical activity	0.03	.857	5.168	.023
All teachers should be role models by consuming a healthy balanced diet	2.66	.103	1.938	.164
All teachers should be role models by maintaining a slim, athletic build that makes them appear as though they are fit and healthy	0.97	.324	.011	.915

*Significant at p=.017

Table 4 presents the summary of analysis of predictors of attitudes towards modelling health behaviour. (see end of document). The strongest predictor of modelling behaviour was drive for thinness, with higher drive for scores on the sub-scale associated with an increased likelihood of endorsing five of the six modelling behaviours (OR=1.078 to OR=1.121, p<.001). In particular, drive for thinness was associated with a 12% higher likelihood of endorsement of 'HPE teachers should be role models by engaging in regular physical activity' (OR=1.121, p<.001) and a 9% higher likelihood of endorsement of 'HPE teachers should be should be role models by consuming a healthy balanced diet' (OR=1.09, p<.001).

No other body image or exercise variables were identified as significant predictors of role modelling behaviour.

Table 4: Predictors of attitudes towards modelling behaviour

	BMI	Drive for Muscularity [DFM]	Body Dissatisfaction subscale of the EDI	Drive for Thinness subscale of the EDI	Obligatory Exercise Questionnaire [OEQ]
	Wald X^2 (p)	Wald X^2 (p)	Wald X^2 (p)	Wald X^2 (p)	Wald X^2 (p)
Health and Physical Education teachers should be role models by maintaining a slim, athletic build that makes them appear as though they are fit and healthy	.280 (.597)	.086 (.769)	.022 (.882)	11.542 (.001)	1.073 (.300)
Health and Physical Education teachers should be role models by engaging in regular physical activity	.022 (.882)	.147 (.701)	2.380 (.123)	23.441 (<.001)	.282 (.595)
Health and Physical Education teachers should be role models by consuming a healthy balanced diet	.330 (.566)	.120 (.729)	.335 (.562)	16.248 (<.001)	.245 (.621)
All teachers should be role models by engaging in regular physical activity	.027 (.869)	.045 (.832)	.309 (.578)	14.970 (<.001)	.598 (.440)
All teachers should be role models by consuming a	.056 (.812)	.001 (.972)	.683 (.409)	14.563 (<.001)	.168 (.682)

healthy balanced diet					
All teachers should be role models by maintaining a slim, athletic build that makes them appear as though they are fit and healthy	.112 (.738)	.117 (.732)	.477 (.490)	2.158 (.142)	.456 (.499)

Discussion

This study aimed to examine attitudes towards role modelling of health behaviours in teacher education students. The results provide evidence that university students who are in the first few weeks of studying to become teachers generally have strong expectations of HPE teachers to engage in diet and physical activity behaviours, and to maintain a slim and fit appearance. Contrary to our hypotheses, men were more likely than women to believe that HPE teachers should 'look the part' by appearing fit and 'maintaining a slim, athletic appearance'. In further contrast to our hypotheses, male education students who were not specialising in HPE were two times more likely than HPE specialists to endorse the importance of HPE teachers having a 'slim athletic appearance' and engaging in physical activity, in order to be a good role model to their students.

The gender differences revealed in the current study were inconsistent with our expectations. We were surprised to find that males had stronger attitudes around role modelling, and were more likely to agree that HPE educators should be role models by maintaining a slim, athletic build. We had assumed that women would express stronger attitudes given that in general community samples, females have greater levels of body dissatisfaction (Fiske et al. 2014), and were initially thought to have stronger internalisation of, and adherence to societal appearance ideals (Thompson and Stice 2001) in regard to their

own appearance. We therefore expected that women's attitudes towards themselves would also transfer to their attitudes towards role modelling.

However, our recent research has revealed that male HPE teacher education students were significantly more likely to be engaging in behaviours to achieve an athletic build than were non-HPE teacher education students (Yager et al. 2017). Others have also reported very few differences in internalisation of societal appearance ideas between College men and women in recent studies (Manago et al. 2015, Strubel and Petrie 2017). It is possible that expectations around role modelling may lead male HPE students to extreme measures to meet these expectations. It is important to note, however, that we did not assess gender-specific attitudes towards role modelling. It would be interesting for future research to examine whether attitudes of men and women towards role modelling healthy behaviours and physiques hold only for one's gender, or if cross-gender expectations emerge. A further limitation in relation to the role modelling measure that we used was that, it is possible that men interpret and respond to the question about 'maintaining a slim athletic build' differently, because men are often driven to achieve leanness rather than slimness.

Our findings are the first to demonstrate that the pressure to appear and behave 'fit and healthy' comes from within the teaching profession, but more so from non-HPE teacher education students than from HPE teacher education students themselves. Other teachers seemed to have stronger opinions about the importance of HPE teachers 'practicing what they preach' in order to be a more influential role model to their students (Cardinal 2001). Bandura (1986) might also suggest that the vicarious learning that might have taken place for the non-HPE males during their secondary schooling might have confirmed their thoughts and beliefs about what HPE teachers should role model. It is also possible that, non-HPE teachers very in this stage of their career have chosen not to go into the HPE area, perhaps

because they do not see themselves fitting into that mould, and modelling those behaviours. Other work has indicated that HPE teachers have added expectations for their bodies to be 'healthy bodies', bodies which are 'appropriate', physical, fit, healthy and skilful 'role models'(Kirk and Tinning 1994, Macdonald and Kirk 1999, Drummond, McGuire, and Bennett 2002, Wrench and Garrett 2015, Vander Schee 2009). Our work adds to these prior findings to indicate additional pressure from fellow teachers to maintain this aesthetic. Examining the extent to which HPE teachers are aware of this pressure and whether it leads to unhealthy behaviours to achieve the 'fit ideal' appearance will be an important focus of future research.

Drive for thinness emerged as being particularly important in predicting attitudes about role modelling of HPE teachers, specifically in relation to engaging in physical activity and consuming a healthy diet. This means that those who most desired, valued, and strived for a thin body were more likely to suggest that role modelling of both health-related behaviours and an appearance consistent with a fit and healthy body ideal was important. Drive for thinness was the only significant predictor, whereas drive for muscularity and body dissatisfaction were not significantly associated with role modelling. This might indicate that those who have higher levels of fear of fat, and weight bias, might also hold stronger attitudes about role modelling. Interestingly, we had included a measure of weight bias in earlier versions of the survey, but removed it as the data from this scale was unreliable. Other research has revealed that HPE teachers and teacher education students have strong anti-fat biases (Fontana et al. 2017, Fontana et al. 2013, O'Brien, Hunter, and Banks 2007, Garrett and Wrench 2012), and another study comparing HPE and other non-specialist teacher education students found them to have relatively similar levels of weight bias, with HPE teachers having a stronger endorsement of some biased statements (Lynagh, Cliff, and

Morgan 2015). Further research should investigate the weight bias of all teacher education students in relation to their own role modelling.

It is important to note that our study reports on the expectations that teacher education students hold on entering the degree, before they have done any study in the area, and before they have done a placement in schools. This questionnaire was conducted within the first three weeks of beginning a teacher education degree, and therefore represents inexperienced views of future teachers. As the majority of Bachelor of Education students are recent school leavers, it is likely that these views come from their own schooling experiences, and from their assessment of the role modelling of their own teachers when they were at school. Further work therefore, needs to investigate the role modelling beliefs of current HPE and other teachers in order to reveal the expectations around role modelling that exist in the current school environment, given that the current knowledge indicates that HPE teachers have a strong desire to 'embody health' (Webb and Quennerstedt 2010).

Conclusion

Given the crucial influence that male HPE teachers hold over their students (Bandura, 1986), particularly when teaching about nutrition and weight control, male HPE teachers in particular may be capable of role modelling both positive and negative health attitudes and behaviour to students. It is therefore crucial for these educators to hold and display sensible and balanced eating and exercise knowledge, attitudes and behaviour. Teacher education must therefore focus on improving the body image, body dissatisfaction, dieting, and disordered eating and exercise behaviour among their potential graduates, in addition to

amplifying their knowledge in regard to nutrition and weight control (O'Dea & Abraham, 2001; Yager & O'Dea, 2010) in order to ensure that they will role model positive health behaviour to their future students. Further, it is important to have discussions and activities to try to reduce weight bias, and dispel the myth that a slim, athletic build translates to, and reflects a fit, healthy body among teacher education students (O'Brien and LeBow 2007). It would also be appropriate to have discussions about role modelling within these university degrees in order to clarify the role of physical educators and how appearance, and actual fitness levels might contribute to role modelling healthy lifestyles.

Our research offers further exploration and insight toward the attitudes and beliefs that educators have toward role modelling good health. However, there were limitations of this work. As there are no existing standardised measures of role modelling beliefs, we had to create our own items, which do not have established validity and reliability, and may not have been as relevant for men due to the reference to 'slim'. The study was also limited to only first-year teacher education students studying a Bachelor of Education in two states of Australia, and is therefore not generalisable to those undergoing a post-graduate pathway to teaching, those who are more advanced in their undergraduate degree, practicing teachers, or any of these cohorts around the world. It is recommended that future research captures the role modelling, and personal eating and exercise attitudes and behaviours of undergraduate and postgraduate cohorts of teacher education students and current practicing teachers in order to contribute to the evidence base in this area. Research indicating the impact of role modelling beliefs and health behaviours on teacher effectiveness is also needed.

The implications for this study are significant as it provides further evidence on the differences in attitudes and beliefs toward health and role modelling health of HPE and non-HPE educators. HPE educators and teachers from different curriculum areas of teaching may utilise this research in further developing their own understandings on health and conceptualisations of how role modelling of health is valued within the educational setting. Having a source of localised research within Australia can allow the teaching community to identify how HPE and non-HPE educators (who are close to them geographically) are viewing the importance of displaying good health behaviours to students through positive, inclusive, and holistic health attitudes and behaviours. Furthermore, the study can potentially act as a motivator as well as a foundation for further research that may assess the relationship between role modelling health and educators. As health and wellbeing is so important in our day-to-day lives, such a study should be significant to all those working in the teaching profession.

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Disclosure Statement

The authors declare that no conflicts of interest exist for this work.

Data Availability Statement

Data from this study are available by contacting the corresponding author.

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