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Can more people be “Happy Being Me”? Testing the delivery of a universal body satisfaction program by clinicians and school staff

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ABSTRACT

The research presented here evaluates the delivery of Happy Being Me (HBM; Dunstan, Paxton & McLean, 2017) with boys and girls in their first year of secondary school in the UK (Year 7 and after comparisons aged 11–12). HBM is a manualised universal prevention programme which aims to improve body dissatisfaction and associated risk factors. Risk factors studied here were internalization of the thin ideal, physical appearance comparisons, appearance conversations. Secondary outcomes measured were self-esteem and eating disorder symptoms

Study 1 tested the effectiveness of HBM (n = 172) compared to a control group (n = 197) who received curriculum as usual. HBM resulted in significantly improved body satisfaction post-intervention which was maintained at follow up. There were no significant changes in risk factors.

Study 2 compared clinician (n = 172) and teacher (n = 174) delivery. Students who received clinician-led, but not teacher-led, HBM had improved body satisfaction and this was maintained at follow up. Internalization of the thin ideal and self-esteem, improved in both clinician and teacher-led groups with small to medium sized effects. HBM can be delivered by clinicians independent of programme developers in a heterogeneous sample with positive effects on body satisfaction. Issues arising for wider delivery are discussed

Clinical implications

- Happy Being Me improves Body Satisfaction
- Happy Being Me leads to changes in associated risk factors
- Recommendation of its delivery by school staff must be with caution

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Introduction

Body dissatisfaction is a major public health concern, contributing to a range of problems in adolescence, including disordered eating, obesity, depression, low self-esteem and risk-taking behaviours (Jacobi & Fittig, 2010; M. P. Levine & Smolak, 2005; Stice, 2002; Stice et al., 2017; Wu & Berry, 2018). While body dissatisfaction tends to manifest most commonly in adolescence (M.P. Levine & Smolak, 2002) body image concerns can begin in childhood (Smolak, 2011). Early intervention may help prevent its onset and be protective against its development in the long term (Ciao et al., 2014; Holt & Ricciardelli, 2008).

Happy Being Me

The research presented here evaluates the delivery of Happy Being Me (HBM; Dunstan et al., 2017) with a group of boys and girls in their first year of secondary school in the UK (Year 7, aged 11–12). HBM is a manualized programme which was developed in Australia and utilises a peer-based, interactive approach and comprises dissonance-inducing activities, empowerment and active challenging of culturally reinforced norms. HBM was originally a three session programme for 12 year old girls (Richardson & Paxton, 2010) which was later developed into a six session programme delivered to both boys and girls (Dunstan et al., 2017). Dunstan et al. (2017) added sessions which took into account the tendency for males to have concerns about muscular appearance as opposed to girls' weight related concerns (McCabe & Ricciardelli, 2003). These additional sessions addressed appearance related teasing, perceived pressure to adhere to both weight and muscular ideals and a review session. This six session programme is the one used in the current research (see Figure 1 for an overview of the programme).

HBM has also been amended for delivery to both boys and girls in the three session format by Bird and colleagues (Bird et al., 2013) and a fourth version of HBM was extended to 8 sessions, to include components on eating concerns and was renamed the Helping, Encouraging, Listening and Protecting Peers (HELPP) initiative (Wilksch et al., 2015).

HBM employs an etiologic approach to reducing body dissatisfaction, based on the premise that reducing the causal risk factors for a problem is likely to lessen the frequency and severity of its clinical manifestation (Jacobi et al., 2004; Richardson & Paxton, 2010).

Risk factors targeted by HBM

HBM targets psychological risk factors for body dissatisfaction; internalization of the thin media body ideal, body comparisons and self-esteem. HBM

Session	Aims	Activities
<i>Session 1: Body Image Buddies</i>	Understand the concept of appearance ideals. Identify the negative consequences of attempting to meet appearance ideals. Identify sources of pressure to meet appearance ideals. Consider ways to reduce pressure on friends to fit appearance ideals.	Class activity and discussion Pair-work, worksheets and class discussion Class activity and discussion Individual work/homework
<i>Session 2: Pals opposed to Pressure and Prejudice</i>	Understand appearance teasing as a form of prejudice. Consider the negative impact of appearance teasing. Develop strategies to respond to appearance teasing. Enhance self-worth and recognise values other than appearance.	Didactic presentation, small group activity and worksheets, class discussion Class activity and discussion. Individual work and class discussion
<i>Session 3: Friends against appearance talk</i>	Understand appearance talk and its consequences. Understand the function of appearance talk. Develop skills and strategies to manage situations where appearance talk occurs.	Didactic presentation, pair work worksheets and class discussion Didactic presentation Group worksheets and role plays
<i>Session 4: Friends fighting appearance talk and learning how to become comparison comrades</i>	Understand body comparisons, be able to identify them, recognise the 'comparison trap' and consider the consequences of upward comparisons. Develop skills to avoid upward comparisons and the comparison trap.	Slide show presentation, pair work and class discussion. Small group activity.
<i>Session 5: Comparison comrades and media mates</i>	Recognise the impact of media images on internalisation of the thin ideal. To reduce internalisation of the thin ideal. Increase media literacy through recognition of image manipulation techniques. Develop skills to manage socio-cultural pressure from media ideals. Highlight positive qualities not associated with appearance.	Slide show presentation and class activity. Film clip presentation and class discussion Group work Individual work/ homework
<i>Session 6: Spreading the word!</i>	Reappraise the benefits of pursuing appearance ideals to reduce the extent these are held as personal standards. Reinforce the development of a positive peer environment.	Class activity Small group activity

Figure 1. Outline of the session aims and activities involved in Happy Being Me (Dunstan et al., 2017).

also targets peer environment risk factors of appearance conversations and weight related teasing (Richardson & Paxton, 2010).

There is a clear theoretical rationale for the inclusion of each of the targeted risk factors in the version used here (Dunstan et al., 2017; for a full description of the programme see also Richardson & Paxton, 2010). Body dissatisfaction and thin ideal internalization were identified by Wilksch and Wade (2009) as two of the four endophenotypes associated with development of clinically significant shape and weight concerns in a sample of younger adolescents (aged 12–15). Internalization of the thin ideal through a process of comparison of media images and cultural expectation with self-perceived body shape heightens awareness of the discrepancy between the perceived ideal and the self-perceived body (Blowers et al., 2003; Jones, 2004; Durkin et al., 2007). This discrepancy leads to body dissatisfaction. In addition, factors within the peer environment including weight related teasing and appearance based conversations increase socio-cultural pressure (for a review of relevant theoretical models see McLean & Paxton, 2019). In an examination of the trajectories of body dissatisfaction and dietary restraint over 14 months in 12 year old girls, Rodgers et al. (2015) demonstrated that weight related teasing, thin-ideal internalization and appearance comparisons were predictive of high body dissatisfaction.

Effective manipulation of risk factors

The specific targets of HBM have been effectively manipulated in previous studies and maintained at follow-up (Richardson & Paxton, 2010). There has been some variation in effects reported in subsequent studies with improvements in body satisfaction not maintained at follow up (Dunstan et al., 2017). Bird et al. (2013) did not report effective manipulation of internalization of the thin ideal with 10–11 year olds, and manipulation of other psychological and environmental risk factors was not maintained at follow up. The longer (6 session) programme did effectively manipulate most of these, but was not successful in reducing appearance conversations between peers (Dunstan et al., 2017).

HELPP was evaluated with older participants, and found to have less positive outcomes. Indeed, an increase in concerns around eating were noted at 6 month follow up with the interpretation that including material related to eating concerns in a universal group was less helpful than in high risk samples (Wilksch et al., 2015).

Finally, McLean et al. (2019) have reported a dismantling trial of HBM in comparison to a healthy eating behaviour control condition to evaluate the relative impacts of the appearance comparison components of HBM and the media literacy components. Results of this RCT indicate that the appearance comparison components led to improvements in the key psychological and environmental risk factors, though changes in appearance related conversations were not maintained at follow-up. In comparison the media literacy components resulted in changes in general critical thinking but not in thin-ideal internalization.

The current study

The research presented here includes a replication of the original HBM studies. It is vital that intervention studies are replicated in different samples and independent of treatment developers so that the generalisability of effect can be examined (Tackett et al., 2017). There are three areas in which the current study varies from some previous work with HBM. These are age, inclusion of males, and delivery in mixed as well as single sex settings. Moreover, the current research extends previous work to provide an examination of the naturalistic implementation of the programme with teachers.

Age

In this study HBM was delivered to young people in their first year of secondary school (aged 11–12 years). This is one year older than the previous UK study (Bird et al., 2013, 10–11 years) and one year younger than the

Australian studies (Richardson & Paxton, 2010; Dunstan et al., 2017, 12–13 years).

The first year of secondary school was considered to be particularly appropriate for the programme given the universal approach to influencing environmental risk factors as well as individual psychological risk factors at a time when friendship groups were forming. It is recognized that, particularly for girls in single-sex schools, the influence of the peer group on attitudes towards dieting and body satisfaction is strong (Carey et al., 2014; Paxton et al., 1999). Carey et al. described a moderating impact of attitude towards the media whereby a shared peer group perception of the media as an external pressure removed the relationship between perceived media pressure and increased body dissatisfaction. Thus, providing an intervention that can facilitate this early in secondary school has the potential to support young people to create an environment in which they have more resilience collectively to manage the pressures that surround them.

Although Stice et al.'s (2007) meta-analytic review found evidence suggesting that prevention programmes are more successful when delivered to individuals over the age of 15, there is more recent evidence, including using the HBM programme, that such programmes can have an impact when delivered earlier. HBM was originally designed to be used with younger adolescents because there was an identified need for improvement of programmes for the younger age range and as body dissatisfaction is evident and emerging but less well-established, there is still the potential for primary prevention (Holt & Ricciardelli, 2008; Richardson & Paxton, 2010). Indeed, a more recent review (Ciao et al., 2014) notes that universal, rather than selective, programmes have tended to be targeted towards a younger age group, and highlights the importance of continuing to pursue universal prevention for boys and girls across the age range, including with younger individuals.

Body dissatisfaction is being seen to emerge earlier in childhood, with around 40–50% of 6–12 year olds reporting unhappiness with their appearance (Smolak, 2011) and over 50% of boys and girls reporting dissatisfaction with their bodies (Dion et al., 2016). Examination of trajectories of body dissatisfaction in adolescence suggests that it emerges before the age of 12 and is relatively stable during adolescence (Rodgers et al., 2016; Rohde et al., 2014). Moreover, results from studies using a twin modelling method have shown that the non-shared environment has an early and persisting influence on disordered eating, with additional sources of non-shared environmental influence emerging over time (Fairweather-Schmidt & Wade, 2015).

Delivery to boys

While there has been a focus on girls in the development of school based programmes, versions of HBM have been delivered to boys (Bird et al., 2013;

Dunstan et al., 2017; Wilksch et al., 2015). However, Bird et al. (2013) reported that improvements in body satisfaction were not evident in boys. Wilksch et al. (2015) reported improvements for older boys on media internalization but not body satisfaction. Dunstan et al. (2017) did not report on the efficacy of the programme with boys, as the purpose of their work was to investigate whether the programme was as effective for girls in mixed as in single-sex settings.

In addition to the pragmatic need to provide programmes that schools can deliver without finding alternative classes for the boys, there are clear clinical reasons to address body satisfaction concerns amongst boys. Males as well as females develop eating disorders and there is a need for the field to include them in prevention and body satisfaction work with programmes that can address *appearance* ideals not just the *thin ideal* (Strother et al., 2012).

Body dissatisfaction at age 9–12 has been demonstrated to predict later symptoms of depression in boys, and to have an increasing influence on disordered eating in both boys and girls as adolescence proceeds (Ferreiro, Seoane & Senra, 2012). Haines et al. (2006) described the impact that weight related teasing has on boys as well as girls, predicting dieting in girls and binge eating and unhealthy weight control in boys at five year follow up.

Indeed, there is evidence that girls and boys aged 8–10 do not differ in the relationships between self-esteem and self-concepts of physical ability and physical attractiveness (Arens & Hasselhorn, 2014). Instead the self-esteem of both boys and girls was strongly influenced by self-concepts of physical appearance and peer relations, and it is argued that this is strongly established by age 8.

Delivery to mixed gender groups

In this study HBM was delivered to classes in schools which were both single-sex and co-educational. Although there have previously been concerns about delivering programmes related to body satisfaction to mixed gender groups (Phelps et al., 1999), more recent evidence suggests that both outcomes and acceptability are better in mixed gender groups than when girls receive interventions alone (Agam-Bitton et al., 2018).

Task shifting

In addition to developing programmes that have a positive impact on body satisfaction in pre-adolescence there is also a need for the evaluation of wider dissemination of interventions. There are particular issues in the dissemination of universal rather than targeted programmes with a need to ‘task-shift’ the delivery of body satisfaction programmes away from ‘expert’ psychologists and researchers to facilitate wider dissemination. However, there is conflicting evidence as to whether these interventions can be delivered effectively by school based staff, including teachers. There is some evidence that eating disorder

prevention programmes generally produce the best results when led by external, mental health clinicians (Stice et al., 2007; Yager et al., 2013), although some more recent studies have shown small benefits of teacher delivered programmes (e.g., Sharpe et al., 2013). However, HBM was originally designed to be delivered by a range of professionals and the manual is written to prevent the need for training in order to enhance disseminability and may therefore fare better than previous programmes when delivered by non-mental health professionals. Indeed, a recent study of *Dove Confident Me: Single Session* derived from HBM, found significant improvements in body image, dietary restraint, and eating disorder symptoms when conducted by teachers, although these effects were not maintained at follow up (Diedrichs et al., 2015). Despite the potential role of teachers to disseminate these programmes widely and cost-effectively, there has not been any published research to date to investigate the effectiveness of HBM when delivered by teachers.

Two studies are presented here. Study 1 is a controlled trial assessing the effectiveness of HBM in a mixed-sex cohort in the UK; a replication of the previous trials of HBM using the same version as Dunstan et al. (2017) and including males in the analysis. In line with recommendations (Yager et al., 2013), this is the second replication study by a team separate from the treatment developers, this time in the first year of secondary school (ages 11–12 years) where HBM fits well as new groups and relationships are forming. Study 2 is a controlled non-inferiority trial of teacher and clinician-led delivery of the programme. HBM and accompanying materials were designed to be delivered by a range of professionals but the efficacy of this has yet to be tested. This will have important practical implications, since the future implementation of the programme in schools by ‘non-expert’ providers (e.g., school staff) may result in more sustainable dissemination in the long term.

Study 1

This is a quasi-experimental case controlled comparison trial to evaluate the effects of an intervention, relative to a control group, across three time points (pre-intervention, post-intervention, 3 month follow up).

Hypotheses

It is hypothesized that students who receive the HBM programme will show improvements over the intervention period compared to the control group on psychological outcomes including body satisfaction (primary outcome), self-esteem, and eating disorder symptoms, as well as in risk factors (internalization of thin ideal, appearance conversations, physical comparisons), and knowledge of the topics covered in HBM, and that these changes will

be maintained 3 months after programme completion. The study was not designed or powered to include specific hypotheses about the differential impact of HBM on boys and girls. The effects of including boys were examined through secondary analysis of the data split by gender to assess whether the direction of change was the same for both boys and girls and whether inclusion of boys in the analysis attenuated the effects.

Method

Ethical approval was granted by the King's College London PNM Research Ethics Subcommittee for both studies (HR15/162557 and RESCMR-16/17-2557).

Procedure

Schools were recruited in south east London. In both studies HBM was delivered to whole classes with parents providing informed consent and students providing assent for participation in the research evaluation. Within each school, teachers allocated classes to the HBM or the control group. Students from both groups completed the questionnaires simultaneously and the researchers were blind to group allocation. A member of the research team administered the questionnaires to the class at school prior to HBM, following HBM and at three month follow-up.

Participants

Participants were Year 7 (aged 11–12 years) students recruited from 8 schools in the south London area in the UK. The schools serve a diverse population of sociodemographic, ethnic and cultural backgrounds. Six of the schools were girls only; one was mixed and one was boys only. This reflects the provision of schools in the local area where secondary schools are more often single-sex. Four schools were fee paying and four were state schools. Since each school allocated one class to the HBM group and another to the control group, the distribution of fee paying status was equivalent across groups. 45% of the local population served by these schools includes people of Black, Asian and Minority Ethnic ethnicities (Office for National Statistics; National Records of Scotland; Northern Ireland Statistics and Research Agency, 2017).

Intervention delivery

HBM is a universal programme delivered to whole classes. Each of the 6 sessions is designed to equate roughly to a 50 minute school lesson. HBM was delivered weekly within Personal, Social and Health Education lessons and the control class continued to receive their usual class. Four clinicians (3 clinical psychologists, 1 occupational therapist) each specializing in the treatment of eating

disorders and child and adolescent mental health, delivered the intervention. As per guidance from the programme developers, each clinician familiarized themselves with the HBM manual prior to delivery. The manual is prescriptive and was designed to provide enough session-by-session detail to prevent the need for formal training, thereby enhancing dissemination and adoptability. For example, the wording for introducing exercises is given, the timing of each exercise is indicated, responses to frequent questions and potential challenges are suggested, and each session has a prescribed homework exercise. In the present study, clinicians observed each other's delivery and provided peer supervision for the project.

Measures

Primary outcome

Body satisfaction. This was measured using an extended version of the Body Satisfaction Visual Analogue Scale (BSVA; Durkin & Paxton, 2002), as previously reported by Richardson and Paxton (2010). This is a 5-item scale asking participants to respond to statements asking how they feel right now, e.g., 'feel satisfied with your weight', on a 100-mm marked horizontal line anchored by '0—not at all' and '100—very much so'. Numerical scores are summed from all items to create the total score. Previous studies have reported good psychometric properties for this scale (Durkin et al., 2007; Richardson & Paxton, 2010). The scale showed excellent internal consistency across groups and time points in this study ($\alpha = 0.92\text{--}0.95$).

Risk factors

Body comparison. Physical body comparisons were measured using the 5-item Physical Appearance Comparison Scale (PACS; Thompson et al., 1991). Items are rated on a 5-point Likert scale ranging from (1) 'never' to (5) 'always'. This scale has been found to produce reliable and valid scores (e.g., Durkin & Paxton, 2002) and has been used in previous research with both girls and boys aged 11–16 (Bird et al., 2013; Smolak et al., 2005; Thompson, Heinberg, Altabe & Tantleff-Dunn, 1999). In this study Item 4 (i.e. 'Comparing your looks to the looks of others is a bad way to determine if you are attractive or unattractive') was found to have a low item total correlation with other items in the questionnaire, similar to that found by Richardson and Paxton (2010). This item was subsequently removed and internal consistency of the 4-item measure was improved ($\alpha = 0.79\text{--}0.85$). The sum of the 4-item measure is used in analyses.

Internalization of the thin ideal. This was measured using a subscale of the Sociocultural Attitudes Towards Appearance Questionnaire (SCATA), Internalization from media subscale (Heinberg et al., 1995). Six items were rated on a 5-point Likert scale ranging from (1) 'strongly agree' to (5) 'strongly disagree' where high scores indicate less internalization of the thin ideal. This scale has shown good reliability and validity in adolescent (e.g.,

Jones, 2004; Richardson & Paxton, 2010) and pre-adolescent samples aged 11–13 years (Smolak et al., 2001) and has previously been used with 10–11 year olds (Bird et al., 2013). It had excellent internal consistency across groups and time points in this study ($\alpha = 0.91\text{--}0.93$).

Appearance Conversations. Frequency of appearance based conversations was measured using the Appearance Conversation Scale (ACS; Jones et al., 2004). Five items are rated on a 5-point Likert scale ranging from (1) ‘never’ to (5) ‘very often’. The scale has good psychometric properties reported in previous studies with 12–16 year olds (Jones et al., 2004; Richardson & Paxton, 2010) and has previously been used with 10–11 years olds (Bird et al., 2013). Good internal consistency was found across groups and time points in this study ($\alpha = 0.81\text{--}0.89$).

Secondary outcomes

Self-esteem. This was measured using the Single-Item Self-Esteem Scale (SE; Robins et al., 2001). The single item “I have high self-esteem” has convergent validity and is a recommended alternative to the longer Rosenberg Self-Esteem Scale (Robins et al., 2001; Rosenberg, 1965).

Eating disorder behaviours. This was measured using the Children’s version of the Eating Attitudes Test (Ch-EAT; Maloney et al., 1988). This is a 26-item measure of children’s eating and dieting behaviour, rated on a 6-point Likert scale (1) ‘never’ and (6) ‘always’ which are then re-coded as per the author instructions. Good psychometric properties have been reported for this measure (Maloney et al., 1988; Smolak & Levine, 1994) and it had good internal consistency across groups and time points in the current study ($\alpha = 0.73\text{--}0.84$).

Manipulation check

Intervention topic knowledge. In order to measure whether participants understood the key messages from the HBM programme, knowledge of the topics covered in the intervention was measured using a short questionnaire designed by the intervention developers. It has been shown to have adequate psychometric properties (TKQ; Richardson & Paxton, 2010). Five items are rated on a 5-point Likert scale ranging from (1) ‘strongly disagree’ to (5) ‘strongly agree’ (‘Models in fashion magazines ... are made to look glamorous and successful using fashionable clothes, lighting and make-up,’ ‘Many fashion magazine images of female models have been changed using computer techniques,’ ‘The ideal body shape differs between cultures,’ ‘The ideal body shape has changed throughout history,’ and ‘The comparison trap is where people pick out things that they don’t like about their appearance and compare those things with other people that they consider better on those things’). This scale had acceptable to good internal consistency in this study ($\alpha = 0.66\text{--}0.82$ across groups and time points).

Table 1. Descriptive data for Study 1 clinician delivery of ‘Happy Being Me’ and the no intervention control group on measures of body satisfaction, risk factors and secondary outcomes.

Variable	Pre		Post		Follow-up		Scale range
	Control	HBM	Control	HBM	Control	HBM	
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	
BSVA	355.7 (105.8)	345.4 (118.9)	355.6 (105.7)	372.3 (111.6)	348.8 (104.1)	358.9 (120.6)	0–500
PACS*	7.9 (3.3)	8.3 (3.6)	7.9 (3.2)	7.8 (3.4)	8.0 (3.2)	8.0 (3.2)	0–16
TKQ	17.9 (4.1)	19.1 (3.8)	19.2 (4.1)	21.9 (3.1)	19.4 (4.1)	21.9 (3.6)	5–25
SES	2.9 (0.6)	3.0 (0.6)	2.9 (0.7)	3.1 (0.6)	3.0 (0.6)	3.1 (0.7)	1–4
	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	
ACS	8.0 (6)	9.0 (5)	8.0 (5)	9.0 (5)	9.0 (6)	9.0 (6)	5–25
SCATA	25.0 (8)	26.4 (8)	26.0 (7)	28.0 (7)	26.0 (8)	28.0 (7)	5–30
Ch-EAT	6.0 (8)	6.0 (7)	5.3 (7.3)	4.0 (6)	6.0 (8)	6.0 (6.9)	0–78

Note. BSVA—Body Satisfaction Visual Analogue Scale, ACS—Appearance Conversation Scale, PACS—Physical Appearance Comparison Scale, SCATA—Sociocultural Attitudes Towards Appearance Questionnaire, TKQ—Topic Knowledge Questionnaire, SES—Self Esteem Scale, Ch-EAT—Children’s version of the Eating Attitudes Test.

Analysis plan

The distributions of the data were checked. ACS, Ch-EAT and SCATA were skewed, however analyses run on transformed data did not change the pattern of results and so analyses performed on untransformed data are presented here. Means and standard deviations for normally distributed data and medians and interquartile ranges are presented for non-normally distributed data are presented in Table 1.

A series of 2 (group; control, HBM) x 3 (time; pre, post, follow up) repeated measures ANOVAs was performed with post-hoc comparisons between group (HBM vs control) and time (pre, post and follow up) effects as appropriate. Partial eta squared effect sizes are presented where $\eta^2_p = .01$ represents a small effect size, .06 represents a medium effect, and .14 represents a large effect size. Partial eta squared effects were also converted into Cohen’s *d* effect sizes (DeCoster, 2012).

Statistical significance was set at .05. Mauchly’s test indicated that the assumption of sphericity had been violated for the main effects of time therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity for BSVA, SCATA, PACS, SE, Ch-EAT. Missing item-level data points were replaced with the mean of the remaining items for that participant when at least 80% of a questionnaire was completed. A small

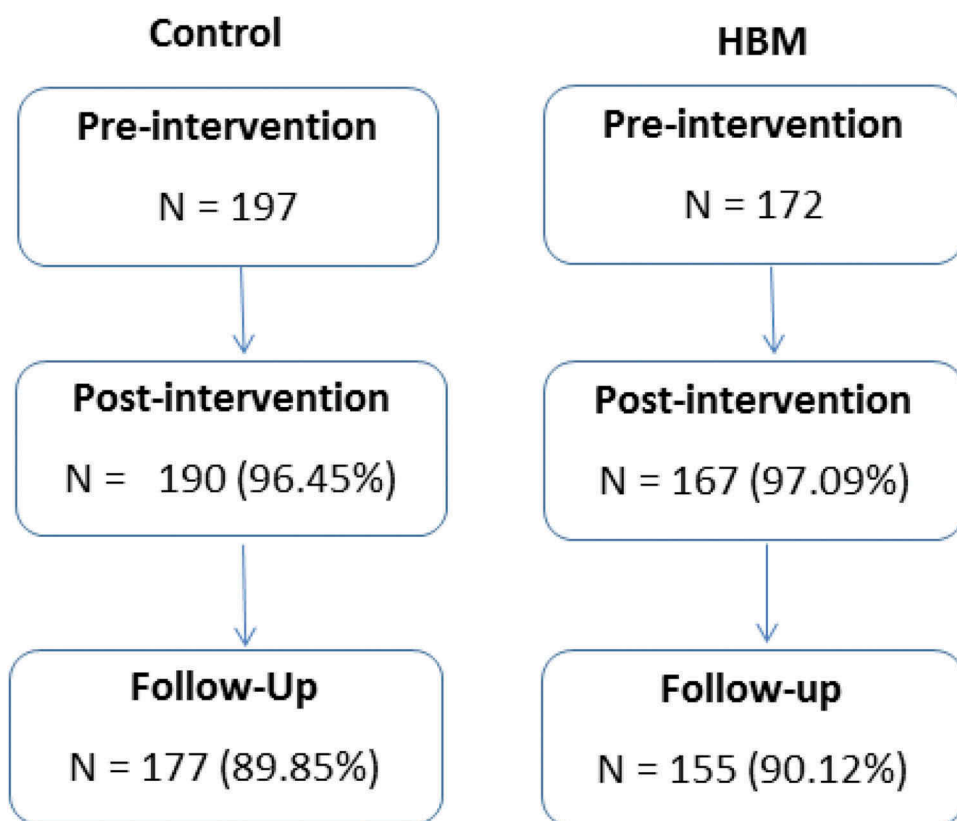


Figure 2. Participant flow for clinician delivery of ‘Happy Being Me’ compared to control group.

amount of individual questionnaire data were excluded where more than 20% of the items were missing (0–1.6%, depending on questionnaire).

Results

The final sample consisted of 369 Year 7 students ($M = 11.7$ years, $SD = 0.33$). There were no gender differences between groups (HBM group: female $N = 154$, 89.5%; Control group: female $N = 178$, 90.4%, $p = .80$). Groups were equivalent at the baseline time point across outcomes, except for Topic Knowledge where the clinician-led group had a significantly higher level of knowledge than the control group ($F(1, 355) = 7.18$, $p = .008$). See [Figure 2](#) for a description of participant flow. Attrition was due to absenteeism from school, or other school commitments coinciding with questionnaire completion, e.g. music classes. There were no active drop outs that the study team were made aware of, in that no participants requested to not attend the classes or complete the questionnaires. Due to attrition rates being relatively low, analyses were conducted with those with complete data sets.

Primary outcome

Body satisfaction. Analysis of the BSVA data revealed significant effects of time ($F(1.7, 566.4) = 4.24, p = .020, \eta^2_p = .013, d = 0.23$) and a non-significant effect of group ($F(1, 328) = 0.18, p = .680, \eta^2_p = .001, d = 0.06$). However these were qualified by a significant interaction between group and time ($F(1.7, 566.4) = 4.74, p = .013, \eta^2_p = .014, d = 0.24$). Post hoc analysis revealed a significant, medium sized effect of time in the HBM group ($F(1.7, 257.9) = 6.66, p = .003, \eta^2_p = .04, d = 0.41$) but not in the control group ($F(1.8, 311.9) = 0.02, p = .98, \eta^2_p < .001, d = 0.06$). Repeated contrast analyses of the HBM group data revealed a significant, small-medium difference between the pre- and post-intervention measures ($F(1, 153) = 17.4, p < .001, \eta^2_p = .10, d = .28$) reflecting an increase in body satisfaction which was maintained at follow up ($F(1, 153) = 2.36, p = .12, \eta^2_p = .02, d = .12$).

Analysis of the data split by gender revealed significant interaction between group and time in the data of both boys ($F(2, 64) = 4.65, p = .013, \eta^2_p = .13$) and girls ($F(2, 507.7) = 3.53, p = .036, \eta^2_p = .01$) reflecting an improvement in body satisfaction in the HBM group for both genders.

Risk factors

Internalization of the Thin Body Ideal. Analysis of the SCATA data revealed significant effects of time ($F(2.0, 642.8) = 5.36, p = .005, \eta^2_p = .02, d = 0.28$), and group ($F(1, 131) = 4.08, p = .04, \eta^2_p = .01, d = 0.20$), where the HBM group had higher scores than the control group with a small to medium effect size, and a non-significant interaction between these ($F(2.0, 642.83) = 0.41, p = .66, \eta^2_p = .001, d = 0.06$) reflecting a lack of impact of the intervention on change in these scores over time.

Physical comparison to others. Analysis of the PACS data revealed non-significant effects of time ($F(2.0, 6.7) = 1.33, p = .27, \eta^2_p = .004, d = 0.13$), and group ($F(1, 333) = 0.20, p = .89, \eta^2_p < .001, d = 0.0$) and a non-significant interaction between these ($F(1.96, 652.66) = 1.45, p = .32, \eta^2_p = .003, d = 0.11$). These findings reflect a lack of impact of the intervention on the PACS over time.

Appearance conversations. Analysis of the ACS data revealed non-significant effects of time ($F(1.8, 607.5) = 1.21, p = .30, \eta^2_p = .004, d = 0.13$), and group ($F(1, 331) = 0.23, p = .629, \eta^2_p < .001, d = 0.0$) and a non-significant interaction between these ($F(1.8, 607.5) = .025, p = .969, \eta^2_p < .001, d = 0.0$). These findings reflect a lack of impact of the intervention on the ACS over time.

Analysis of the data for each of the risk factors split by gender did not change the pattern of results reported above, suggesting that inclusion of the boys in this analysis did not attenuate the results.

Secondary outcomes

Self-esteem. Analysis of the SE data revealed a significant effect of group ($F(1, 300) = 5.03, p = .026, \eta^2_p = .016, d = 0.25$) reflecting higher self-esteem in the clinician-led group with a small effect. Effects of time ($F(2, 586.8) = 1.20, p = .30, \eta^2_p = .004, d = 0.13$) and the interaction between group and time ($F(2, 586.8) = 2.34, p = .10, \eta^2_p = .01, d = 0.20$) were non-significant. Although these findings suggest that, compared to the control group, the HBM group had higher SE scores overall, the absence of significant effects of time or interaction between group and time indicates that this is not attributable to HBM.

Analysis of the SE data split by gender did not change the pattern suggesting that inclusion of the boys in this analysis did not attenuate the results.

Eating disorders symptoms. Analysis of the Ch-EAT data revealed a significant effect of time ($F(1.8, 595.3) = 4.20, p = .02, \eta^2_p = .01, d = 0.20$). This reflects a decrease in Ch-EAT scores between pre- and post-intervention ($F(1, 327) = 8.26, p = .004, \eta^2_p = .03, d = 0.35$) which then increased between post-intervention and follow-up ($F(1, 327) = 6.66, p = .01, \eta^2_p = .02, d = 0.28$) with small to medium effects. The analysis revealed a non-significant effect of group ($F(1, 327) = 1.34, p = .25, \eta^2_p = .004, d = 0.12$) and interaction between time and group ($F(1.82, 595.3) = 1.29, p = .28, \eta^2_p = .004, d = 0.12$), reflecting a lack of change that can be attributed to the intervention over time. Analysis of the Ch-EAT data split by gender revealed that the pattern of results was the same for girls, that is, a significant effect of time ($F(1.8, 517.8) = 3.2, p = .048, \eta^2_p = .01, d = 0.2$) where scores reduced pre to post-intervention ($F(1, 292) = 5.85, p = .016, \eta^2_p = .020, d = 0.28$) and then increased again over the follow-up period ($F(1, 292) = 5.81, p = .017, \eta^2_p = .019, d = 0.28$), but the interaction term was not significant. There were no significant changes in the data of the boys (all $p > .09$).

Topic Knowledge. Analysis of the TKQ data revealed significant effects of group ($F(1, 308) = 37.1, p < .001, \eta^2_p = .107, d = 0.69$) and time ($F(2.0, 600.9) = 61.94, p < .001, \eta^2_p = .17, d = 0.90$) which were qualified by a significant group by time interaction ($F(2.0, 600.8) = 7.93, p < .001, \eta^2_p = .025, d = 0.32$). Given the significant difference between the two groups at pre-intervention, this interaction was explored via two between group ANCOVAs of topic knowledge controlling for pre-intervention scores at post intervention ($F(1, 307) = 39.0, p < .001, \eta^2_p = .11, d = 0.70$) and follow

up ($F(1, 307) = 24.0, p < .001, \eta^2_p = .07, d = 0.55$). These revealed significantly higher scores for the HBM group with medium to large effect sizes at both time points compared to the control group, reflecting a significant impact of the intervention on Topic Knowledge scores. The pattern of results was the same when the data were split by gender, where HBM led to improvements in topic knowledge for both boys (post-intervention $F(1, 29) = 5.4, p = .027, \eta^2_p = .16, d = 0.87$; follow-up $F(1, 29) = 4.2, p = .051, \eta^2_p = .13, d = 0.77$) and girls (post-intervention $F(1, 275) = 33.8, p < .001, \eta^2_p = .11, d = 0.70$; follow-up $F(1, 275) = 20.7, p < .001, \eta^2_p = .07, d = 0.54$).

Discussion

This study examined the effectiveness of HBM with 11–12 year olds in 8 UK schools relative to a control group. The primary hypothesis was supported; body satisfaction significantly improved over the intervention period for those who received HBM compared to those in the control group and this effect was maintained at follow up. This effect was seen in the data of both boys and girls. Less support was found for secondary hypotheses. Students who received the programme showed significantly greater acquisition of topic knowledge relative to controls, but there were no significant changes in the putative risk factors, or clear benefit of HBM on secondary outcomes.

The results of this study show that HBM can be delivered by clinicians outside of the programme development team, in the UK, with good effect on the primary outcome. This is consistent with Bird et al. (2013) who also found that improvements in body satisfaction were maintained at 3 month follow up in 10–11 year olds in the UK.

However, the current study differs from other studies that have reported improvements in psychological risk factors such as internalization of the thin ideal (Richardson & Paxton, 2010) which have been sustained over a 6 month follow up period (Dunstan et al., 2017). Both the current paper and Bird et al. (2013) compared control and intervention groups from within the same schools to control for unintended systematic differences between groups, however this may have diluted the effect of the intervention through communication between young people in the two arms of the study. However, it is positive that there was a sustained effect on the primary outcome despite this as it represents the pragmatic approach to programme delivery that would need to be adopted were mental health services going to increase their provision of prevention programmes to schools.

Study 2

The second study was a non-inferiority trial of clinician vs teacher-led HBM groups to test the equivalence of the two modes of delivery. As discussed

above, HBM is designed to be delivered by professionals from a range of backgrounds and no specific training is required to deliver it. There are, however, no studies demonstrating that equivalent outcomes can be achieved regardless of professional background of those delivering the programme.

Hypotheses

It is hypothesized that all students who receive the HBM programme will show improvements over the intervention period on body satisfaction, risk factors, self-esteem, symptoms of eating disorders and topic knowledge and that these will be maintained 3 months after programme completion. It is hypothesized that there will be no difference between teacher- and clinician-led groups.

Method

Procedure

Schools who had participated in Study 1 were invited to participate in this subsequent study. Within each participating school, teachers allocated a third class to receive teacher delivered HBM. A member of the research team administered the questionnaires to the class at school prior to HBM, following HBM and at three-month follow-up. Because the new participants in this study received HBM delivered by teachers, the researcher was not blind to group allocation.

Participants. The HBM group from Study 1 was used as the clinician led group in Study 2. Five of the schools who had received HBM delivered by a clinician participated in Study 2 and allocated a teacher to be trained in the programme. Four schools (5 girls only, 1 mixed) declined to participate for various reasons, e.g., school refurbishments, teacher availability, wanting to pursue peer-led model. Teachers allocated one class in the year (who had not previously been in an intervention or control group) to receive the teacher-led intervention. Therefore, as in Study 1, participants ($N = 174$ teacher-led group, $N = 172$ clinician-led group) were Year 7 students ($M = 11.7$, $SD = 0.38$) and the schools served a diverse population of sociodemographic, ethnic and cultural backgrounds. Four schools were girls only and 1 was a mixed school. Consequently, both groups were largely female (clinician-led $N = 154$; 89.5%; teacher-led $N = 164$, 95.3%) and not significantly different ($p = .108$).

See [Figure 3](#) for participant flow. As in Study 1, there were no active drop outs that the study team were made aware of, in that no participants requested to not attend the classes nor complete the questionnaires. Due to

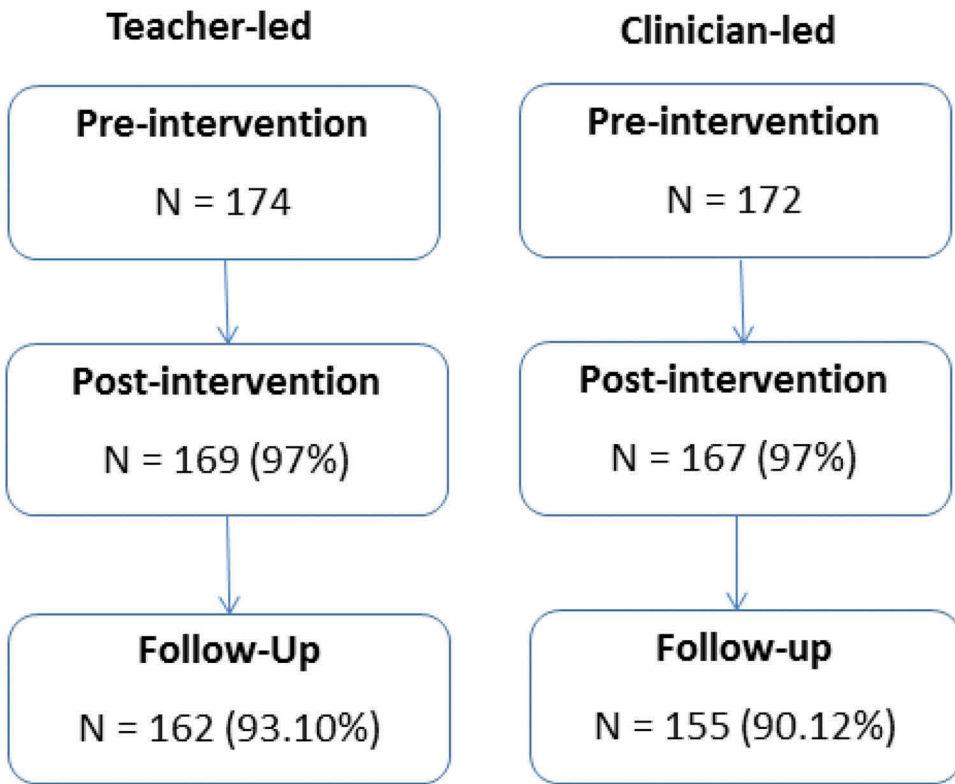


Figure 3. Participant flow for clinician and teacher delivery of ‘Happy Being Me’.

attrition rates being relatively low, analyses were conducted with those with complete data sets.

Intervention delivery and teacher training. HBM was delivered as described for Study 1. Teachers in the teacher-led condition observed a clinician delivering the whole programme, reviewed and discussed the manual with a clinician and were offered supervision and consultation. Six teachers delivered the teacher-led intervention.

Measures. Measures were the same as reported in Study 1. Reliability analyses were conducted on measures completed by the teacher-led group (reported above for the clinician-led group). All had acceptable to excellent reliability across time points (BVAS $\alpha = 0.91$ – 0.94 ; ACWF $\alpha = 0.81$ – 0.85 ; SCATA $\alpha = 0.93$; Ch-EAT $\alpha = 0.68$ – 0.85 ; TKQ $\alpha = 0.73$ – 0.76). As in study 1, item 4 was removed from the PACS and the 4 item measure was used ($\alpha = 0.79$ – 0.82).

Analysis plan. The study is appropriately powered as a non-inferiority trial with a cut point of 25 points difference on BSVA between teacher and clinician delivery as an indication that neither delivery mode is inferior,

Table 2. Descriptive data for Study 2 clinician and teacher delivery of ‘Happy Being Me’ on measures of body satisfaction, risk factors and secondary outcomes.

Variable	Pre		Post		Follow-up		Scale range
	Teacher	Clinician	Teacher	Clinician	Teacher	Clinician	
	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	M (SD)	
BSVA	346.0 (113.9)	345.4 (118.9)	346.7 (124.0)	372.3 (111.6)	346.3 (116.3)	358.9 (120.6)	100–500
PACS	8.1 (3.5)	8.3 (3.6)	8.1 (3.3)	7.8 (3.4)	8.5 (4.0)	8.0 (3.2)	4–20
TKQ	18.4 (4.6)	19.1 (3.8)	20.9 (4.0)	21.9 (3.2)	21.0 (3.9)	21.9 (3.6)	5–25
Self Esteem	3.0 (0.7)	3.0 (0.6)	3.0 (0.8)	3.1 (0.6)	2.9 (0.7)	3.1 (0.7)	1–4
Variable	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Median (IQR)	Scale range
ACS	9.0 (6.0)	9.0 (5.0)	9.0 (5.0)	9.0 (5.0)	8.0 (6.0)	9.0 (6.0)	5–25
SCATA	26.0 (8.0)	26.4 (8.0)	27.0 (7.3)	28.0 (7.0)	28.0 (6.0)	28 (7.0)	6–30
CHEAT	6.0 (6.9)	6.0 (7.0)	5 (6.6)	4 (8.0)	5 (5.0)	6 (6.9)	0–78

Note. BSVA—Body Satisfaction Visual Analogue Scale, ACS—Appearance Conversation Scale, PACS—Physical Appearance Comparison Scale, SCATA—Sociocultural Attitudes Towards Appearance Questionnaire, TKQ—Topic Knowledge Questionnaire, SES—Self Esteem Scale, Ch-EAT—Children’s version of the Eating Attitudes Test.

and predicts that outcomes will be within 25 points of each other (i.e. that there will not be inferiority between groups). With a pre-post correlation of .79 (S. Paxton, personal communication, 23.8.2016) on this measure, 108 young people in each group gives 80% power to detect a difference of this magnitude. Final recruitment led to larger groups and therefore greater power to detect this difference.

The distributions of the data were checked. ACS, Ch-EAT and SCATA were skewed, however analyses run on transformed data did not change the pattern of results and so analyses performed on untransformed data are presented here. Means and standard deviations for normally distributed data and medians and interquartile ranges are presented for non-normally distributed data are presented in Table 2.

A series of repeated measures ANOVAs was performed with post-hoc comparisons between group (teacher-led vs clinician-led) and time (pre, post and follow up) effects as appropriate. The low number of boys in the teacher led group precludes any further analysis of gender in study 2.

Partial eta squared effect sizes are presented where $\eta^2_p = .01$ represents a small effect size, .06 represents a medium effect, and .14 represents a large effect size. Partial eta squared effects were also converted into Cohen’s *d* effect sizes (DeCoster, 2012). Item-level missing data points which were replaced using the mean of the completed items for the individual if at least

80% of the measure had been completed, otherwise they were excluded from analysis. Statistical significance was set at .05. Mauchly's test indicated that the assumption of sphericity had been violated for the main effects of time therefore degrees of freedom were corrected using Greenhouse-Geisser estimates of sphericity for BSVA, SCATA and Ch-EAT data.

Results

Primary outcome

Body satisfaction. Analysis of BSVA data revealed a significant effect of time ($F(1.9, 587.6) = 4.03, p = .02, \eta^2_p = .013, d = 0.23$) and non-significant effect of group ($F(1, 314) = 0.93, p = .34, \eta^2_p = .003, d = 0.11$). These were qualified by a significant interaction between time and group ($F(1.9, 587.6) = 3.97, p = .02, \eta^2_p = .012, d = 0.22$). Post hoc analysis of this interaction revealed a non-significant effect of time in the teacher-led group ($F(1.9, 307.4) = 0.01, p = .98, \eta^2_p < .001, d = 0.0$) and a significant effect of time in the clinician-led group ($F(1.67, 257.9) = 6.66, p = .003, \eta^2_p = .04, d = 0.41$). This reflected a significant, medium sized increase in body satisfaction between pre- and post-intervention measures in the clinician-led group ($F(1, 153) = 17.4, p < .001, \eta^2_p = .10, d = 0.67$) which was maintained at follow up ($F(1, 153) = 2.36, p = .13, \eta^2_p = .02, d = 0.28$). The same effect was not observed in the teacher-led group.

Risk factors

Internalization of the Thin Body Ideal. Analysis of the SCATA data revealed a significant effect of time ($F(1.9, 611.3) = 8.50, p < .001, \eta^2_p = .03, d = 0.35$), reflecting improvements between pre and post-intervention ($F(1, 316) = 7.06, p = .008, \eta^2_p = .022, d = 0.30$) that were maintained at follow up ($F(1, 316) = 1.69, p = .195, \eta^2_p = .01, d = 0.20$). There was a non-significant effect of both group ($F(1, 316) = 0.15, p = .70, \eta^2_p < .001, d = 0.06$) and interaction between group and time ($F(1.93, 611.29) = 1.31, p = .27, \eta^2_p = .004, d = 0.13$) which indicates a decrease in internalization of the thin ideal across both intervention groups with a small to medium effect size.

Physical comparison to others. Analysis of the PACS data revealed non-significant effects of time ($F(1.9, 587) = 2.11, p = .126, \eta^2_p = .007, d = 0.17$), and group ($F(1, 316) = 1.12, p = .291, \eta^2_p = .004, d = 0.13$) and a non-significant interaction between these ($F(1.86, 587) = 2.72, p = .071, \eta^2_p = .01, d = 0.20$). These findings indicate a lack of impact of HBM on the PACS over time.

Appearance conversations. Analysis of the ACS data revealed non-significant effects of time ($F(1.9, 596.3) = 1.03, p = .355, \eta^2_p = .003, d = 0.11$), and group ($F(1, 315) = 0.42, p = .519, \eta^2_p = .001, d = 0.06$) and

a non-significant interaction between these ($F(1.9, 596.3) = 0.07, p = .929, \eta^2_p < .001, d = 0.0$). These findings indicate a lack of impact of HBM on the ACS over time.

Secondary outcomes

Self-esteem. Analysis of the SE data revealed a significant effect of Time ($F(2, 592) = 3.10, p = .046, \eta^2_p = .01, d = 0.20$). This reflects an improvement in self-esteem between pre- and post-intervention measures ($F(1, 296) = 3.86, p = .05, \eta^2_p = .01, d = 0.20$) which was maintained at follow up ($F(1, 296) = 0.27, p = .61, \eta^2_p = .001, d = 0.06$). The analysis revealed a non-significant effect of group ($F(1, 296) = 0.83, p = .10, \eta^2_p = .01, d = 0.20$) and non-significant interaction between group and time ($F(2, 592) = 2.09, p = .13, \eta^2_p = .01, d = 0.20$). Together these reflect improvements in both clinician and teacher-led groups with small effect sizes.

Eating disorder symptoms. Analysis of the Ch-EAT data revealed a significant effect of time ($F(1.9, 565.1) = 3.83, p = .026, \eta^2_p = .012, d = 0.22$) reflecting a decrease in scores between pre- and post-intervention ($F(1, 314) = 7.17, p = .008, \eta^2_p = .02, d = 0.28$) which was maintained at follow up ($F(1, 314) = 1.83, p = .178, \eta^2_p = .006, d = 0.15$). The analysis revealed a non-significant effect of group ($F(1, 314) = .04, p = .852, \eta^2_p = .001, d = 0.06$). Together these reflect improvements in both clinician and teacher-led groups with small effect sizes.

Topic Knowledge. There was a significant effect of time for TKQ ($F(1.9, 576.5) = 84.5, p < .001, \eta^2_p = .22, d = 1.06$) reflecting an increase between the pre- and post-intervention measures with a large effect size ($F(1, 298) = 119.0, p < .001, \eta^2_p = .29, d = 1.30$) which was maintained at follow up ($F(1, 298) = 0.49, p = .49, \eta^2_p = .002, d = 0.09$). There was a significant effect of group ($F(1, 298) = 7.75, p = .006, \eta^2_p = .03, d = 0.35$) reflecting lower scores in the teacher-led group with a medium sized effect, and a non-significant interaction between time and group ($F(1.9) = 0.64, p = .64, \eta^2_p = .001, d = 0.06$). These reflect increases in topic knowledge in both clinician and teacher-led groups.

Discussion

Contrary to the hypothesis, there was a significant difference between teacher-led and clinician-led groups in change on the primary outcome measure of body satisfaction. Unlike those in the teacher-led group, young people in the clinician-led group reported improvement in body satisfaction following the intervention, which was maintained at three month

follow up. Both groups reported increases in Topic Knowledge, despite high baseline levels.

Consistent with findings in Study 1 there was no measurable change on appearance conversations with friends or physical comparison to others. However, in Study 2 there was a significant decrease across both groups in the internalization of the thin ideal and in eating disorder behaviours alongside improvements in self-esteem. These are likely to reflect a change in power to detect very small effects through two groups receiving the intervention, as across both studies baseline measures of all risk factors reflected very low reports of the relevant processes.

General discussion

This study evaluated the impact of HBM in a mixed gender group across a range of schools in South East London with a cohort of 11–12 year old children. This controlled study replicated and extended the work of the programme developers (Dunstan et al., 2017; Richardson & Paxton, 2010) and one previous UK based study with younger children (Bird et al., 2013) and extended the evidence to include a non-inferiority comparison of the intervention when it was teacher or clinician-led.

Analyses of the controlled study (Study 1) with the intervention delivered by clinicians revealed improvements in body satisfaction, which were maintained at follow up, in the absence of change in risk factors. Analysis of the non-inferiority comparison of teacher and clinician-led intervention (Study 2) revealed, contrary to the hypothesis, that only the clinician-led group reported improvements in body satisfaction.

In Study 2 there were also significant improvements across both groups in the internalization of the thin body ideal. However, these are most likely to reflect an increased power to detect very small effects with increased number of young people receiving the intervention. This provides some evidence that delivery of the programme by teachers does have positive effects, albeit without the changes on the key primary outcome. However, these must be interpreted with caution given the lack of change in risk factors in Study 1 and the very small effect sizes in Study 2. Together these findings suggest that the change may be of limited practical significance, and indeed may have been further attenuated by the use of non-intervention control group in Study 2.

Receipt of HBM did not result in the hypothesized reduction in appearance conversations with friends or physical comparisons in this sample, in contrast with previous reports (Bird et al., 2013; Richardson & Paxton, 2010). Review of our data indicates that young people reported very few of these experiences, tending not to endorse them on the questionnaires with data distribution indicative of floor effects. Our experience in the classrooms indicated that

the concepts were relevant to them in their daily lives, and as such this may be a measurement issue. The combination of data from both clinician-led and teacher-led intervention groups revealed a significant reduction in the internalization of the thin ideal, albeit with a small effect size. Impact of the programme on eating disordered behaviours were seen for both the girls in Study 1 and across both teacher and clinician groups in Study 2. However, it should be noted that these universal programmes are not delivered to high risk group where there may be a need to reduce experiences that are already clinically concerning, and that the impact of a change with a small effect size at a population level can be meaningful (Rose, 1985).

The maintenance of improvements in body satisfaction in the clinical group at follow up in the controlled study (Study 1) is consistent with the programme developers (Dunstan et al., 2017; Richardson & Paxton, 2010) and with the previously conducted trial of 3 session HBM in the UK (Bird et al., 2013), and indicates that the six week programme can be effectively disseminated beyond the development team. The findings from Study 2 that body satisfaction was improved in the clinician but not teacher-led group are broadly in line with Stice et al. (2007)'s meta-analytic finding that prevention programmes tend to have larger effects if delivered by external mental health professionals (Stice et al., 2007). However, this is not consistent with change in body esteem reported by Diedrichs et al. (2015) in their trial of a single session programme or with results from the trial of Me, You and Us (6 session, teacher delivery) where small effects on body satisfaction were observed (Sharpe et al., 2013).

While we do not have formal fidelity measures we did collect feedback from teachers following the delivery of the programme which revealed that they had found some of the material repetitive and had edited it when pushed for time, and that at least one school had set sessions for the young people to complete as homework. Diedrichs et al. report reasonable fidelity, although even with a single session some sessions were not completed because of time constraints. Sharpe et al. (2013) found between-school variations and suggest that active supervision may improve fidelity and outcomes. Although all teachers were offered supervision in the present study, none accepted the offer once their delivery of the programme had commenced.

The difference between these studies may highlight an important issue in the effort to task-shift the delivery of these programmes from 'expert' (psychologist/clinician/researcher) to school based providers/teachers. There is a tension between delivering a lasting effect and providing a programme that can be effectively delivered by school based staff given the constraints of school time-tabling and other curriculum pressures. Our experience has been of enthusiasm from schools and willingness to engage with the research process. However, teachers have been keen to amend the programme and to include their own ideas about materials, activities and pacing. Teachers are expected to make the material

they teach relevant to and appropriate for their classes and to draw on their own expertise to do so. However, in the context of programmes such as HBM this may lead to a dilution of effect on key outcomes. While we provided 1:1 training for each teacher and each had also observed a clinician deliver the programme, it may have been beneficial to provide more formal training as described by Sharpe et al. (2013) with groups of teachers which could include adherence to the manual and explicit discussion of the tensions involved in doing so. Further development of school based programmes might also benefit from collaboration with teachers and identification of curriculum links in the programme to support teachers' confidence in allocating time to the intervention in the context of significant curriculum pressure. Finally, dismantling studies such as McLean et al. (2019) may support the development of programmes that can deliver the key material in a time frame which is more acceptable in schools.

Limitations

First, while recruitment was open to both boys and girls, the low number of boys in the final samples preclude analysis of the effects of gender on outcome and thus conclusions cannot be drawn about the efficacy of the programme for boys. Previous work (Bird et al., 2013) has indicated that the effects of universal programmes may be attenuated for boys. This is an area that requires further attention.

Second, classes were allocated to intervention or control by the schools. This may have introduced bias to the intervention sample. No school made the research team aware that they felt that a particular class was in need of the intervention, allocation tended to reflect individual teacher interest or timetabling requirements, however, the present studies would have been strengthened by randomization.

Third, fidelity measures were not included in either study. This limits the strength of conclusions that can be drawn regarding the difference between teacher and clinician delivery being due to reductions in fidelity in the teacher-led group.

Fourth, the conclusions that can be drawn regarding the impact of the programme on the psychological and environmental risk factors are limited by potential measurement issues. Both the Appearance Conversation Scale and Sociocultural Attitudes Towards Appearance Questionnaire were negatively skewed, indicating possible floor effects. Given the engagement of young people with the material and positive feedback from both teachers and pupils, this indicates a need for development of questionnaire based measures that can more adequately capture these subtle effects in the younger population and which are more nuanced towards the specific body

image concerns of boys. Missing items from the CHEAT were not completely at random, which may reflect a procedural issue as it was last in the questionnaire pack, or a measurement issue in using a lengthy eating disorder symptom questionnaire in a young general population group. Whilst the data presented here suggest that HBM did not impact on eating disorder behaviours, this should be interpreted with caution as change in this area may not have been captured.

Conclusions

HBM has an impact on body satisfaction, internalization of the thin ideal, self-esteem, and eating disorder symptoms when delivered to a heterogeneous, mixed-gender cohort of young people in the UK. However, recommendation of its delivery by school staff must be with caution as the results presented here do not indicate significant improvements in the key outcome—body satisfaction. This may reflect reduced adherence to the programme manual in comparison to clinicians, researchers and teachers being assessed for fidelity. As such this provides a pragmatic, ‘real world’ assessment of the likely impact of these programmes should dissemination be wider.

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