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Comics as a body image intervention among adolescents in Indian Hindi medium schools: insights from an acceptability study

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Abstract

Background. Indian adolescents experience body dissatisfaction. However, empirically supported interventions are lacking, particularly in lower socio-economic regions of India. This paper describes the acceptability testing of a six-session teacher-led comics-based intervention, aiming to improve body image and related outcomes among adolescents in Indian Hindi medium schools.

Methods. Thirty-five students (50% girls; $M_{age,\ girls}$ = 12.3 years; $M_{age,\ boys}$ = 13 years) and nine teachers (11% women) from Hindi medium schools in Rajasthan, India, completed a quantitative acceptability questionnaire regarding comics that target body dissatisfaction and associated risk factors. They also participated in online or telephone semi-structured interviews to share in-depth feedback, with teachers providing additional feedback on an accompanying teacher guide. The quantitative data were analysed descriptively, with the interviews analysed using qualitative codebook thematic analysis.

Results. Quantitative analyses revealed that 73% of students felt the comics made them feel good about themselves. Qualitative analyses revealed four themes: (1) body dissatisfaction is a concern; (2) the comics are powerful; (3) increasing ease of understanding; (4) a teacher guide to aid delivery.

Conclusion. This study demonstrates acceptability of a novel teacher-led comics-based body image intervention for adolescents in Indian Hindi medium schools from lower socio-economic settings. These findings are currently informing intervention optimizations, which will be evaluated in a randomized controlled effectiveness trial. If found to be effective, this intervention will be disseminated across eight Indian states by UNICEF. **Trial registration.** This trial has been registered with ClinicalTrials.gov; a database of privately and publicly funded studies conducted around the world. Registration date: 2nd May 2020; Registration ID: (NCT04317755). https://clinicaltrials.gov/ct2/show/NCT04317755?term=NCT04317755&draw=2&rank=1.

Background

Body dissatisfaction is a global mental health concern among adolescents (United Nations Department of Economic and Social Affairs, 2019). Indian adolescents experience concerns similar to those in high-income countries, such as desires to be thinner and taller (Johnson *et al.*, 2015). However, they also face culturally specific concerns, including dissatisfaction with skin shade and body hair (Phadke, 2017). This is alarming, as body dissatisfaction has adverse physical and mental health implications (Bucchianeri and Neumark-Sztainer, 2014; Griffiths *et al.*, 2017). While longitudinal evidence is currently limited in India, studies indicate similar outcomes, including depression and disordered eating (Singh Mannat *et al.*, 2016; Ganesan *et al.*, 2018). Further, the increased use of skin lightening products in response to skin colour dissatisfaction perpetuates social inequalities (Choma and Prusaczyk, 2018; Craddock, Dlova & Diedrichs, 2018). Collectively, this highlights body dissatisfaction as having significant physical, psychological and social implications among Indian adolescents, emphasizing the importance of developing an evidence-based body image intervention for this cultural context.

In response to India having one of the world's highest youth suicide rates (Patel *et al.*, 2016), there have been calls to bolster adolescent mental wellbeing (Parikh *et al.*, 2019). Government, teachers, parents and students have argued for school-delivered mental health support (Strategy Handbook, 2014; Parikh *et al.*, 2019), as schools provide an ideal environment for cost-effective and large-scale intervention delivery (Yager *et al.*, 2013; Chua *et al.*, 2020). In response to this, an evidence-based mixed-gender body image intervention, *Confident Me*, was culturally adapted and found to be effective in Indian private schools (Garbett *et al.*, 2021; Lewis-Smith *et al.*, Under review). However, whilst offering promise to higher socio-economic regions of India, *Confident Me's* acceptability and implementation

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in lower socio-economic areas may be limited. First, the teachers lack training in technology. Relatedly, the schools lack digital tools (e.g. smart-boards, internet) required to deliver *Confident Me* (Shreesha and Tyagi, 2018; Naik *et al.*, 2020). Finally, this intervention was delivered by mental health professionals, which limits its scalability, as the Indian government's mental health budget is limited to 1% (Patel *et al.*, 2016). Consequently, this stresses the need for a body image intervention requiring minimal infrastructure, that could be disseminated across lower socio-economic areas of India by community members.

Teacher-delivered story-telling interventions show effectiveness in improving body image-related outcomes (e.g. improved body image, increased knowledge about appearance-related pressures) in high-income countries (Dohnt and Tiggemann, 2008; Mills and Osborne, 2013). Studies also indicate comics as a promising intervention modality with hard-to-reach populations (e.g. children from lower socio-economic contexts; Biran *et al.*, 2014). There are several reasons to believe that this approach might be appropriate for adolescents in lower socio-economic areas of India. First, comics are likely to be deemed more 'fun' than traditional text-heavy intervention modalities (Matsuzono *et al.*, 2015). They are also particularly popular in India, as children learn about their culture through Indian epics (e.g. Ramayana and Mahabharata) via comics (McLain, 2009). Lastly, comics may be effective in targeting lower socio-economic areas where literacy rates are lower, as images provide visual cues to the written content which facilitates learning (Dalacosta *et al.*, 2009; Cohn, 2014). Collectively, this underscores the promise of storytelling via comics-based interventions for targeting body dissatisfaction among Indian adolescents.

At present, there are no evidence-based comics-based interventions that utilize fictional characters and stories to promote body confidence among adolescents. Therefore, a partnership between the authors, UNICEF, BBC Media Action and the Dove Self-Esteem Project (DSEP; a social purpose industry initiative for Unilever brand Dove) was established in 2019 to co-create a comics-based intervention for adolescents in lower socio-economic parts of India. The intervention is based on *AdhaFULL*, a television series following three teenagers who solve cases related to prominent issues in India (e.g. gender stereotyping; Pasricha *et al.*, 2018) and that has demonstrated effectiveness in improving self-efficacy and helped adolescents realize the importance of rejecting traditional gender norms (BBC Media Action, 2019). Given that storytelling is a promising strategy for improving body image (Dohnt and Tiggemann, 2008), this suggests that *AdhaFULL* comics targeting body dissatisfaction may constitute an acceptable and effective intervention among adolescents in lower socio-economic parts of India. This task-shifting of intervention delivery to teachers in schools will promote cost-effectiveness, scalability and sustainability of this intervention in lower socio-economic regions of India (Sharpe *et al.*, 2013; Garbett *et al.*, 2021).

The planned intervention consists of six paper-based comics, to be delivered by secondary school teachers in the classroom at a rate of one comic per session. The comics content was designed to target established risk factors for body dissatisfaction (e.g. gender stereotypes, internalization of appearance ideals, media pressure regarding appearance). In addition to an illustrated story, each comic includes two class activities. While the students will read the comics out loud in class, teachers will facilitate this by appointing students to read specific pages and support discussions on the class activities/key learnings. There is also a teacher guide providing stepwise guidance on effective intervention delivery, including information on how to facilitate discussions on key learnings and class activities. It also includes expected responses from students, in order to help orient discussions. The intervention materials (stories, activities and teacher guide) are written in Hindi, to increase accessibility and more closely reflect the language spoken by participants/target audience. The materials also include some basic English vocabulary (e.g. 'stars'), which is common in comics due to their colloquial nature. Table 1 includes further information about the intervention.

Prior to evaluating the efficacy of any intervention, its acceptability should be established among the target group (Diepeveen *et al.*, 2013; Stok *et al.*, 2015), including both recipients and facilitators. This key stage is often overlooked during intervention development, but is critical to ensuring intervention efficacy (Sekhon *et al.*, 2017). Whilst quantitative methods reveal the extent of intervention acceptability, qualitative methods facilitate a more in-depth understanding (Braun and Clarke, 2021) facilitating intervention optimizations prior to a full-scale randomized controlled trial (Onwuegbuzie and Teddlie, 2003; Bulsara, 2015). Therefore, the present study aimed to quantitatively and qualitatively explore the acceptability of the comics-based body image intervention among adolescents (in classes 6–8) and their teachers, from lower socio-economic areas of India.

Methods

Participants

With permission of the Department of Education, teachers and students across classes 6–8 were recruited from a Hindi medium government school in Rajasthan, India. Additionally, an independent sample of students across different schools was recruited from a relatively higher socio-economic area of Rajasthan. Thus, 35 students (51% girls, $M_{age} = 12.3$; 49% boys, $M_{age} = 13.0$), who were equally divided across age groups and reading/writing proficiency, were invited to participate. This ensured that the final comics were acceptable across different socio-economic groups. Student eligibility criteria included being enrolled in classes 6–8 in a co-educational and Hindi medium government school.

Nine teachers (men = 89%) were interviewed for their feedback on the comics and teacher guide. Teacher inclusion criteria included teaching classes 6–8 in a co-educational Hindi medium government school.

Data collection

Ethical approval was granted by the authors' university research ethics committee. Due to COVID-19 travel restrictions, a research agency, trained by the authors, assisted in scheduling and conducting the study. Once participants were identified, study information was provided, and consent (from parents and teachers) and student assent were sought. Next, all participants were sent the six comics to read at home, with teachers also receiving the teacher guide. This methodology was opted as the schools were closed due to the COVID-19 pandemic. However, the planned larger trial will involve teachers delivering the comics in class as intended for the intervention's implementation, on the basis that schools have resumed.

One week later, online or telephone interviews were conducted by two interviewers from an ISO (International Organisation for Standardisation) certified research agency. The agency is well

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Table 1. Outline of comics-based body image intervention

Topic/theme	Storyline	Activities	Main takeaways
Gender stereotypes	**Khajaane Ka Naksha:** In this story, Team AadhaFULL and Seema go on a treasure hunt, and Seema realizes that girls can do everything that boys can, and the difference is just in their way of thinking.	The first activity asks participants to identify from a list of activities, whether they are usually done by a man, a woman or both in their home. The second activity asks the students to draw a list of professions (e.g. doctor, nurse), and then discuss if they drew a male or female figure and why.	1. Appearance and behaviours reflect gender stereotypes. 2. Stereotypes harm both girls and boys and have been passed down in society.
Appearance ideals	**Badlipur ke Cheetay:** This story is about two siblings, who do not want to take part in a sports competition because they are more worried about appearance ideals. AadhaFULL then help them understand that it is more important to appreciate people for their qualities than their appearance, and how much they would miss out on in the form of education, money and friendships, if they spent their time focusing on their appearance.	The first activity asks students to select from a list, the costs associated with trying to match appearance ideals. The second activity asks them to think about a personal quality they admire in an individual.	1. Understand appearance ideals for boys and girls, and the pressure to achieve them. 2. Recognize where appearance ideals come from and the harm caused by trying to match them. 3. Reflect on the impact this has on everyday lives, including perpetuating of harmful gender norms.
Media messages	**Filmstar ka Apharan**: This story is about Ranu, who has lost interest in everything around her and has become sad, because she wants to look like the film actress, Sameera Kapoor. Sameera and AadhaFULL then help her realize that celebrities look the way they do in media because the images are manipulated, and that it is not fair to compare oneself to images in media.	The first activity asks students to look at 2 columns to determine the steps an individual would need to take to get ready for the camera. The second activity asks students to think about whether they value the people in their lives for their looks or their qualities and think of 5 qualities they admire the most in an individual.	1. Critically review and understand how media messages are manipulations of the truth (real-life images). 2. Recognize that it is pointless to compare ourselves to images in the media because the images are unrealistic and perpetuate stereotypes. 3. Reflect on the reasons individuals in the media manipulate their images.
Dealing with comparisons	**Haathi ki Talaash:** In this story, Vivek constantly compares himself to Khoobilal, the elephant keeper. AadhaFULL help Vivek to realize that he should stop comparing himself to others, as it will only trouble him and make him feel bad about himself. They also help him understand that he should not worry about looking like anyone else, because everyone is unique and good just as they are.	The first activity gives students examples of social comparisons and asks them to think of ways in which they would change the discussion away from the topic. The second activity asks students to complete 4 statements related to costs associated with comparing oneself to others.	1. Understand that comparing our appearance to those around us and to ideals in media is part of human nature. 2. Recognize the negative consequences that comparisons have for us and those around us.
Addressing harmful body talk	**Baandh Mein Daraar**: This story is about Adrak and Khoobilal and the negative impact of body talk. Both Adrak and Khoobilal realize that commenting on looks (either in a positive or negative manner) has a negative impact and pressurizes individuals to meet appearance ideals and focus on their appearance.	The first activity gives students examples of body talk and asks them to think of the best way to respond (by completing sentences) to change the topic. The second activity asks them to choose a quality from a given list and give their peers a compliment related to that quality (and not related to their appearance).	1. Understand how often we comment on appearance (body talk) and how this can be harmful when it links to appearance ideals. 2. Recognize the problems talking about appearance (body talk) can cause and develop strategies to challenge the same.
Be the change	**Bolti Chattan**: In this story, AadhaFULL plan a scheme to help everyone in the village remember what they have learnt about challenging appearance pressures. This comic summarizes all the topics we have covered in the stories, and what we have learnt about appearance pressures from each of them.	The first activity asks the students to complete statements to indicate key learnings from each of the comics. The second activity asks students to think of different ways in which they would share what they have learnt from the 6 stories with their peers.	1. Understand the concept of appearance ideals and where the pressure to achieve them comes from. 2. Develop a plan to champion body confidence in their community.

recognized for their experience in conducting mental health research in India. The interviewers were a woman and man in their mid-30s, and both were born and raised in India. They were entirely external from the research team and were not involved in developing the comics, thus minimizing social desirability bias. The interviews were conducted in Hindi (see Table 2 for English schedule) and addressed the following topics: participants' understanding of body image, its relevance,

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Table 2. Interview schedule – students and teachers

Theme	Student schedule	Teacher schedule
Prior learning about body confidence	• Have you heard lessons or discussion about body image or body confidence (i.e. feelings about the way you look) before reading these comics?	• Have you received any training in body image or body confidence (i.e. the way we think, feel and behave in relation to our appearance)/have prior knowledge of this area? If so, what/when?
Relevance of body image issues for the students	*Asked later on in the interview*	• Do you think body confidence is an issue among your students? • How important do you feel it is for young people to learn about body confidence?
Comics 1–6	• What did you like about this story? • What did you like less about this story? • What did you think were the key messages from the story? • Did you understand the terms that were used throughout the comic? • Are the instructions that are provided before reading the story easy to understand? Please elaborate. • What do you think of Activity 1? • What do you think of Activity 2?	• What did you like about this story? • What did you like less about this story? • What did you think were the key messages from the story? • Do you think this story is relatable and relevant to your students? • Do you think the students will understand all the terms used in the comics? • Do you think the instructions provided to the students before narrating the story will be easy to understand? Please elaborate. • What do you think of Activity 1? • What do you think of Activity 2?
Evaluation of comic books overall	• How did you find reading all the comic books and following the different adventures of Adhafull?	• What do you think of the comic books as an overall series for promoting body confidence among young people?
Evaluation of teacher guide	Students were not asked these questions	• What do you think of the teacher guide?
Difficulties and challenges	• Was there anything you found difficult to understand in the comic books? If so, what?	• Did you think the comic books would be easy or hard for young people to understand? • Would students be able to read the comic books by themselves, or would they need support? • How do you think young people would find the activities? • Would you feel comfortable delivering these comics to adolescents?
Recommendations for future	• Would you like to read these in class? • Who would you like to deliver these comic books, if they were taught in a classroom (teachers, peers, external facilitators)? • Would you like to read these alone in the classroom, or as part of a group/with the whole class? What things would you change or do differently in the comics (e.g. format, content • of story, language)?	• Would you recommend these comic books to be delivered in schools in India? • What would you change in the comics (e.g. format, content of the story, language)? • Would having a glossary (which will include key terms with short definitions) alongside the Teacher Guide help you in delivering the sessions more effectively? Please elaborate.
Relevance of body image issues	• How important do you think it is for young people your age to learn about improving body confidence? Why/why not? • Was there anything we didn't cover in the comics, which you feel is relevant?	*Asked earlier on in the schedule*

relatability with and comprehension of the intervention content, and elements of the intervention that could be improved. In addition, teachers were asked questions relating to the teacher guide and perceived challenges in delivering the intervention. These interviews lasted between 60 and 90 min and were audio-recorded and transcribed.

Next, students and teachers completed a quantitative questionnaire on Qualtrics (see Tables 3 and 4). Each item related to perceptions of the intervention and was anchored on a five-point Likert scale (1 = *not at all* to 5 = *very much*). As participants were not accustomed to responding to online surveys, the interviewer 'shared' their computer screen (via 'share screen' feature of the software), read the questions and response options aloud, and asked participants to choose the most suitable option. To ensure participants' comfort and minimize social desirability, participants were reminded of their right to withdraw from the study.

Data analyses

Quantitative data analysis

Quantitative analyses were conducted independently for teachers and students, using SPSS software. As per previous school-based

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Table 3. Student quantitative findings

	Percentage of participants (%) $N = 34$				
	Not at all	A little	Middle	A lot	Very much
I think these comic books helped me understand about image and body confidence	0.0	2.9	5.9	23.5	64.7
I can relate to the characters in the comics (e.g. how they think or their experiences)	5.9	23.5	8.8	17.6	44.1
The characters in the comics are like me and my friends	5.9	26.5	14.7	14.7	38.2
I enjoyed the comic books	0.0	2.9	0.0	26.5	70.6
Reading the comics made me feel good about myself	5.9	2.9	17.6	41.2	32.4
I would read more comics like these	5.9	8.8	17.6	26.5	38.2
I would share these comics with my friends	0.0	8.8	8.8	17.6	61.8
I think understanding the language of these comic books is easy	0.0	5.9	8.8	17.6	64.7
I found the activities beneficial and interesting	0.0	2.9	2.9	17.6	70.6

acceptability research (Garbett *et al.*, 2021), the five response options were collapsed into three categories; 'a lot' and 'very much' were collapsed to indicate favourable attitudes towards the comics, 'not at all' and 'a little' were collapsed to indicate less favourable views, and 'in the middle' constituted neutral views.

Qualitative data analysis

Data analyses were conducted iteratively, where transcripts were analysed and coded simultaneously by two authors (LA; FH) using qualitative codebook thematic analysis (Fereday and Muir-Cochrane, 2006; Garbett *et al.*, 2021). This is a pragmatic approach, where codes and themes are created and described in detail *a priori* (MacQueen *et al.*, 1998).

After initial familiarization with the data, the authors generated a codebook from the raw data, and subsequently identified themes and sub-themes that were analytically relevant. Whilst student and teacher data were coded independently, the data were merged and analysed simultaneously due to the similarity of the codes (Garbett *et al.*, 2021). Both authors engaged in reflexive analysis throughout the process until agreement was achieved. These themes were then renamed and finalized. Coders were mid-20s women, born and raised in India, but currently living in the UK.

Results

Quantitative acceptability findings

Overall, 71% of students enjoyed reading the comics and 73% felt that they made them feel good about themselves. Moreover, 65% of students wanted to read more comics like these. Similarly, 75% of teachers indicated that adolescents would find the comics relatable, with 100% expressing that they would enjoy teaching comics like these and acknowledging that these would help adolescents understand concepts of body image and body confidence. Tables 3 and 4 include more details.

Qualitative acceptability findings

Four themes were identified: (1) body dissatisfaction is a concern; (2) the comics are powerful; (3) increasing ease of understanding; (4) a teacher guide to aid delivery

Theme 1: body dissatisfaction is a concern

This theme reflects that body dissatisfaction is a significant issue requiring attention among Indian adolescents. Most teachers lacked detailed prior knowledge of body dissatisfaction; having neither thought about it in detail nor undergone related training:

> 'I had not learnt about body image issues before reading the comics…this is a new concept for me' (Teacher, Man).

Only a few teachers reported basic understanding of 'body confidence' and understood that body dissatisfaction could have a negative impact on students:

> 'Body confidence is definitely an important issue amongst kids…and all adolescents should learn about these issues. Kids often compare themselves, waste their time and money trying to look a certain way…and this can lead to harmful emotions' (Teacher, Man).

Similarly, none of the students had prior knowledge of body image concerns. However, reading the comics helped students recognize that body dissatisfaction was a significant and commonly encountered concern:

> 'I have not learnt about these (body image) issues before…(but) everyone teases each other because of skin color and because they are too dark or too fair…and kids around me have similar issues to those discussed in the comics' (Student, Girl, 12).

Overall, all participants felt that the comics helped them recognize and articulate that body image issues were a relevant concern, and that they would help students learn more about these issues.

Theme 2: the comics are powerful

This theme discusses students' and teachers' views on the comics' potential ability to target body image concerns. Most participants articulated that the comics would help adolescents feel better about their appearance, as they focused on important and salient issues, including pressure to conform to appearance ideals, media pressure to alter appearance, body talk and appearance-based comparisons.

> 'These comics will help other kids feel better about their appearance…and will help other students learn not to focus on looks' (Student, Male, 11).

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Table 4. Teacher quantitative findings

Quantitative findings	Percentage of participants (%) $N = 8$				
	Not at all	A little	Middle	A lot	Very much
I think adolescents would be able to relate to the characters in the comics	0.0	12.5	12.5	25.0	50.0
I think the comics would help adolescents feel good about themselves	0.0	0.0	0.0	50.0	50.0
I think the students would find the comic books engaging/enjoyable	0.0	0.0	0.0	50.0	50.0
I would enjoy teaching comics like these	0.0	0.0	0.0	75.0	25.0
I think these comic books would help adolescents improve their body confidence	0.0	0.0	0.0	12.5	87.5
I think understanding the language of these comic books is easy	0.0	0.0	0.0	0.0	100.0
I think adolescents would find the activities beneficial and interesting	0.0	0.0	0.0	12.5	87.5
I think these comic books would help adolescents understand body image and body confidence	0.0	0.0	0.0	12.5	87.5

All participants enjoyed reading the comics, and felt that the stories were educational and appealing, due to the unique yet relatable characters and exciting storylines:

> 'This story is really exciting, and students will be able to understand it… these stories will also help teach students and teachers about body confidence' (Teacher, Man; regarding comic 3).

The teachers found comic 4 particularly apt for students, as it centred on appearance-related teasing, which was cited as common behaviour. Several students liked that one of the girls found the treasure in comic 1, '*despite being a girl*'. They found Adrak's character likeable because he was '*full of ideas*' and they were able to relate to Payal's insecurities regarding skin colour (in comic 2). All participants felt that the comics accurately represented body image concerns experienced by Indian adolescents, thus endorsing that they would share any gleaned knowledge with their peers:

> 'These comics capture how young people feel…everyone around me goes through similar (body image) issues discussed in comics' (Student, Boy, 13).

> 'I'd like to discuss these comics with my friends in my class' (Student, Boy, 11).

Thus, participants found the comics to be engaging, relevant and beneficial for adolescents in India.

Theme 3: increasing ease of understanding

This theme describes participants' views on the ability to understand the comics' content, particularly the language. It also highlights adaptations to optimize the intervention.

All participants stated that the Hindi language was simple, accessible and represented the commonly spoken dialect in India. However, students felt that the periodic use of English terms impeded their engagement with the comics, particularly when they related to key concepts, such as 'gender stereotypes':

> 'If someone doesn't know English, how will they read and understand the comics? Because my English is not strong…I could not understand the English words used in the comics' (Student, Boy, 13).

Teachers expressed that the activities across all comics would be enjoyable for students, due to their interactive nature. However, activities in comics 3–6 were perceived as difficult, as these required students to independently reflect on their learnings and practice abstract thinking (e.g. role plays) within hypothetical scenarios (e.g. imagining they are getting ready for a photo shoot). As a result, teachers felt that students would require support to complete these activities:

> 'The activity is easy, but students will need help from teachers to understand…especially students in younger grades' (Teacher, Man).

This was corroborated by students, who also expressed concerns about the lack of examples and difficult instructions. They also perceived the embedded imagery as distracting, making it difficult for students to focus:

> 'I am not able to understand instructions…you can provide more examples in instructions to make it easier' (Student, Girl, 12; regarding comic 3, Activity 1).

> 'I don't understand what to do in this activity…it will be good to have teacher's help to complete the activity because the images given here are confusing' (Student, Boy, 11; regarding comic 6, Activity 1).

To address concerns surrounding language, students suggested either simplification of English words or replacement with Hindi words. The comprehension of English words varied across age, literacy levels and geographic location, and thus the use of English words would risk excluding a large percentage of students (and potentially teachers) from understanding the comics. Thus, edits regarding inclusion and simplification of Hindi words were suggested.

> 'It would be good to have the English words in Hindi… or to write the English words in bracket…it will make it easier to understand the comics' (Student, Boy, 14).

To improve understanding of activities, participants suggested focusing on more concrete rather than abstract thinking (e.g. multiple choice format, sentence completion) and adding examples for each activity, which was deemed more consistent with the students' learning style at school. Despite the challenges relating to language and activities, both teachers and students were able to identify key learnings from each story, and felt they were important:

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> 'These stories and messages will teach others not to worry about their appearance' (Teacher, Man).

> 'I have learnt from the key messages and found them to be useful' (Student, Girl, 11).

Nonetheless, teachers felt that students might struggle to grasp the more nuanced key learnings, which was re-affirmed by students. For example, whilst students understood that '*we should not tease anyone based on appearance or say bad things*', they were unable to explain the specific harmful impact of teasing. Consequently, both students and teachers suggested adding explicit key messages following each story.

Thus, while participants were able to understand the comics, there were certain elements that they found difficult to follow and suggested that these could be improved.

Theme 4: a teacher guide to aid delivery

This theme discusses participants' perceptions on intervention delivery, including teacher's thoughts on the use of the teacher guide. Further, recommended edits to the teacher guide are also addressed.

Nearly all teachers expressed that the guide would help them in delivering the sessions as intended. They felt that it provided in-depth explanations of novel concepts relating to body image (e.g. appearance-based comparisons, body talk):

> 'This document guides teachers on how to teach the comics and gives instructions on how to conduct the activities. The teachers will be able to use it well' (Teacher, Woman).

All teachers found the structure, formatting and language of the guide easy to understand. However, most teachers felt that the font size could be increased and Hindi language simplified, to better reflect the spoken language in India. Teachers also proposed including a glossary of key terms in the guide, to support teachers during the sessions:

> 'Adding a glossary would be better…as this will help all teachers understand the concepts easily' (Teacher, Man).

> 'The font size should be slightly bigger…and the language should be made a little simpler otherwise it will be difficult to read' (Teacher, Man).

Several teachers lacked clarity regarding the guide's purpose, as they were unable to ascertain whether it was for them or the students. Therefore, teachers recommended highlighting who it was for on the front page. Lastly, teachers stressed that the key messages for each comic should be explicitly stated in the teacher guide, to ensure that teachers aptly communicated these during intervention delivery.

Therefore, while the teacher found the teacher guide beneficial, they suggested ways in which it could be optimized for smooth intervention delivery.

Discussion

This study demonstrates the acceptability of a comics-based body image intervention among adolescents in lower socio-economic areas of India, where body dissatisfaction is a salient concern requiring intervention (Adithyan *et al.*, 2018). All participants found the comics to be engaging, relatable and beneficial in increasing their knowledge of body dissatisfaction. Further, the teacher guide was perceived as helpful in facilitating intervention delivery. Nonetheless, some edits were recommended to improve accessibility of the intervention material.

This study is one of the first to consider a comics-based body image intervention and reiterates the importance of exploring acceptability of interventions during their development and evaluation (Craig *et al.*, 2008; Eldridge *et al.*, 2016). The findings align with research that found story-telling interventions to improve body image and mental health (Branscum *et al.*, 2013; Lewis-Smith *et al.*, Under review). While one comics-based intervention has targeted body image concerns previously within its content, it did not examine improvements in body image or target risk factors (Gauvin *et al.*, 2021). Therefore, the present intervention is the first to be based on fictional characters and storylines, aiming to improve body image and related outcomes. To the authors' knowledge, only one previous mixed-gender body image intervention has been evaluated among Indian adolescents (Garbett *et al.*, 2021; Lewis-Smith *et al.*, Under review), which is not suitable for lower socio-economic regions of India. Therefore, the indicated acceptability of the present intervention responds to the mental health provision calls in India. As this intervention relies on minimal resources and would be delivered by teachers rather than mental health experts, it is likely to be cost-effective and scalable (Garbett *et al.*, 2021).

All participants expressed that body dissatisfaction was a significant issue in lower socio-economic parts of India. These findings align with those highlighting the prevalence of adolescent body dissatisfaction among higher socio-economic parts of India and contribute to the understanding that body image concerns are not limited to urban India (Adithyan *et al.*, 2018; Sharma *et al.*, 2019). Given the present findings, in addition to the paucity of research examining body image in lower socio-economic parts of India, future studies examining the scale of this issue are essential. Most participants in this study lacked understanding of how body dissatisfaction affected mental health, which is unsurprising, given that mental health issues are rarely discussed in Indian schools (Garbett *et al.*, 2021). Further, this finding supports the notion of 'normative discontent', highlighting experiences of body dissatisfaction as a societal stereotype, which restricts them to consciously recognize this is a concern (Sharda, 2014; Waghachavare *et al.*, 2021).

Participants understood the prevalence and adverse consequences of gender stereotyping, and felt it was well addressed by the intervention. Indeed, gender stereotyping is a prominent issue in India (Waghachavare *et al.*, 2021), and is particularly ingrained in lower socio-economic regions (Mohan, 2017). However, participants had limited understanding as to how stereotyping, in addition to other risk factors (e.g. pressure to conform to appearance ideals, appearance-based comparisons), contribute to body dissatisfaction (Gattari *et al.*, 2015). While current evidence highlights the independent role of these risk factors (Spencer *et al.*, 2015), there is limited understanding regarding how they operate in conjunction to influence body image at a global level, let alone within patriarchal cultures. This is a research avenue worth exploring further. Nonetheless, this is the first intervention to jointly address body dissatisfaction and gender stereotypes among young people.

All participants enjoyed the content of the comics, including the storylines, characters and illustrations. This supports previous research, which has also found 'edutainment' comics to be well received by the target group, thus demonstrating their beneficial

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use for targeting sensitive topics or hard-to-reach populations (Katz *et al.*, 2014). Teachers found the content to be highly relevant, as they recognized appearance-based comparisons and body shaming as common behaviours among students; consequently, supporting previous findings (Gam *et al.*, 2020). Participants expressed no concern regarding the comics' content, suggesting that all elements (e.g. context, character representation) were sensitive to the Indian cultural context. This consolidates the importance of contextualizing and adapting interventions across different cultures, as a 'one size fits all' approach is not appropriate (Garbett *et al.*, 2021), and responds to public health calls to culturally adapt interventions for real-life settings (Marsiglia and Booth, 2015).

Whilst the overall findings indicate that the intervention was acceptable to students and teachers, there were valuable insights on intervention optimization. For example, the difficulty experienced by students in understanding the more nuanced concepts in the comics and activities suggests that they struggled to engage in higher-order reflection. This is likely due to the teaching methods in the Indian education system, which seldom promote critical thinking (Bulsara, 2015). These findings align with the *Confident Me* evaluation, where strong acceptability and efficacy were likely due to the intervention's explicit messaging (Garbett *et al.*, 2021; Lewis-Smith *et al.*, Under review). This suggests that Indian students require more directional and explicit cues when engaging with interventions, providing important implications for the design of future 'edutainment'-based interventions for Indian adolescents. Considering these findings, the comics are being revised in two ways prior to further testing; the addition of explicit key messages following each story, and the redesign of activities to encourage more concrete thinking styles (e.g. activities following multiple choice format, response matching format). Further, the feedback that imagery within activity instructions reduced readability and comprehension is being resolved by revising the placement of the imagery. This learning should be considered when designing future interventions for Indian adolescents.

The teacher guide was considered beneficial as it provided teachers with stepwise guidance on effective intervention delivery. This was similar to facilitators' feedback from the Indian *Confident Me* evaluation, where the teacher guide was deemed helpful (Garbett *et al.*, 2021). However, the present teachers suggested that the teacher guide could be more user-friendly (e.g. adding detailed instructions regarding use of the document, increasing the font size of text). All recommended edits are being incorporated to ensure that the teacher guide best supports teachers to deliver the intervention. As demonstrated by the high facilitator acceptance and fidelity ratings from the evaluation of *Confident Me*, which led to the intervention's effectiveness up to 3 months later (Garbett *et al.*, 2021; Lewis-Smith *et al.*, Under review), teachers' acceptance and comprehension of the teacher guide are crucial for successful intervention delivery.

Whilst indicating promising findings, the study is not without its limitations. First, the findings may not be applicable to other lower socio-economic parts beyond Rajasthan, given India's cultural, linguistic and socioeconomic diversity (Kurian, 2000; Bandyopadhyay, 2011). Second, because most of these interviews were conducted virtually or through telephone, they were often interrupted due to limited internet or mobile network. This may have frustrated participants, and thus compromised the quality of the data. Third, as the authors were focussed on assessing common issues and recommendations, they did not examine the differences in responses between students from higher and lower socio-economic areas of India, which could have produced interesting insights. Finally, the study is limited by not having conducted a pilot study to explore preliminary efficacy of the intervention. However, this was not possible due to COVID-19. Nonetheless, the study has several strengths, including the novel consideration of comics as the basis for a body image intervention among adolescents. This adds to the growing literature identifying the promising use of 'edutainment' to target body image concerns (Lewis-Smith *et al.*, Under review). Further, this study benefited from acceptability feedback from the target users, which is crucial when evaluating the acceptability of any complex intervention (Moore *et al.*, 2015).

With regard to implications, the present findings are informing optimizations to the comics-based body image intervention, which will be evaluated in a large-scale randomized controlled trial. If found to be effective, it will be the first evidence-based body image intervention for adolescents in lower socio-economic Hindi medium Indian schools. Based on the present acceptability findings, the intervention may have the potential to improve the body image of thousands of students across eight states of India via UNICEF's train-the-trainer scheme. This study provides preliminary evidence on how comics can be utilized as a modality for mental health interventions among adolescents in India and other LMICs that have limited resources to spend on mental health. Further, this study has novel findings that demonstrate the need for 'edutainment' materials targeted at Indian adolescents to focus on more explicit and concrete messaging, to ensure accessibility. Finally, these findings highlight the importance of ensuring that associated intervention delivery guides are concise and easily accessible, to maximize the efficacy of the intervention.

Conclusion

This is first study to consider and evaluate the acceptability of a comics-based body image intervention for adolescents in Hindi medium schools in lower socio-economic parts of Rajasthan, India. The findings indicate that the intervention was met with enthusiasm by students and teachers alike, who recommended helpful revisions to further optimize the intervention. If found to be effective in a large-scale randomized controlled trial, this intervention will have the potential to improve the body image of thousands of Indian adolescents and help to meet their mental health needs.

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Conflict of interest. The authors PD and HLS are independent consultants to Dove, Unilever, and PD was on the Dove Self-Esteem Project Global Advisory Board from 2013 to 2016. The authors declare no other conflicts of interest in relation to this work.

Ethical standards. This research has received full ethical approval from the university's Ethical Review Committee (HAS.18.01.074) and is registered with ClinicalTrials.gov (NCT04317755).

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