Adaptation and validation of the Internalisation-General Subscale of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) in English among urban Indian adolescents

Helena Lewis-Smith[1], Kirsty Garbett [1], Anshula Chaudhry, Nora Uglik-Marucha[2], Silia Vitoratou[2], Megha Dhillon[3], Hemal Shroff[4], & Phillippa C. Diedrichs[1]

[1] Centre for Appearance Research, University of the West of England, Bristol, UK

[2] Institute of Psychiatry, King's College London, UK

[3] Lady Shri Ram College, University of Delhi, India

[4] Toronto District School Board, Ontario, Canada

Author Note

1

authors declare no other conflicts of interest in relation to this work.

Correspondence: Helena Lewis-Smith, Centre for Appearance Research, University of the

West of England, Bristol, BS16 1QY, UK; Helena.lewis-smith@uwe.ac.uk

Abstract

Few studies have validated body image related measures in Asian countries, including in India, thus stunting research progress. To provide a robust method of assessing internalisation of cultural appearance ideals, the purpose of this study was to validate a culturally appropriate English version of the Internalisation-General Subscale from the Sociocultural Attitudes Towards Appearance Questionnaire-3 among a school sample of 1,432 urban Indian adolescents (Mage = 12.9 years; 44% girls). Exploratory factor analyses revealed a one-factor solution for both girls and boys. Analyses indicated a six-item scale for girls and a four-item scale for boys; both of which were verified by confirmatory factor analysis. Cronbach's alpha was high for both female (.88) and male scales (.87), and convergent validity was confirmed via significant correlations with measures of body esteem and disordered eating. Using the items which were common in both the male and female versions of the scale, confirmatory factor analysis supported a psychometrically sound model that was gender invariant, and thus can be used to assess and compare both genders. Overall, results support the reliability and validity of the Internalisation-General Subscale among English-speaking urban Indian adolescents.

Keywords: Sociocultural Attitudes Towards Appearance Questionnaire-3; Internalisation; Media; Validation; Adolescents; India

Introduction

Most body image research to date has been confined to high-income Western countries (e.g., Al Sabbah et al., 2009). Nonetheless, body image concerns are gaining recognition in low-middle income and non-Western contexts (e.g., Rubin, Gluck, Knoll, Lorence, & Geliebter, 2008; Swami et al., 2010; Wardle, Haase, & Steptoe, 2006), including in India. In this highly populated country, body image concerns are prevalent among both adults (e.g., Ganesan, Ravishankar, & Ramalingam, 2018; Gupta, Bhargava, Chavan, & Sharan, 2017) and adolescents (e.g., Deshmukh & Kulkarni, 2017; Ganesan et al., 2018). India has also been increasingly exposed to images and messages relating to idealised appearance in Western countries, in addition to appearance ideal media from its own 'Bollywood' industry (Ciecko, 2001; Parameswaran & Cardoza, 2009).

'Bollywood' refers to the dominant Hindi language film industry, which is characterised by its distinctive features of song, dance, and drama (Ganti, 2013). Over time, Bollywood has transmitted increasingly narrow and unattainable beauty ideals, such as fair skin, thinness, and muscularity (Ciecko, 2001; Cullity, 2002; Parameswaran & Cardoza, 2009; Thapan, 2004). It is therefore unsurprising that exposure to, and perceived pressure from, the media, has been associated with greater body dissatisfaction among adolescents and young adults in India (Das & Sharma, 2016; Ganesan et al., 2018; Nagar & Virk, 2017; Singh Mannat, Parsekar, & Bhumika, 2016). Further, qualitative research has also indicated the pervasive and adverse impacts of Bollywood media in relation to body image (Dixit, Agarwal, Singh, Kant, & Singh, 2011; Kapadia, 2009; Karan, 2008).

Internalisation of appearance ideals as portrayed by media is a well-supported mechanism by which media influences body image, as captured in the Tripartite Influence Model of body image (Thompson, Heinberg, Altabe, & Tantleff-Dunn, 1999). Internalisation refers to the degree to which an individual cognitively "buys into" socially and culturally

4

determined standards of appearance and pursues behaviours which will bring them closer to these ideals (Thompson et al., 1999). Internalisation of appearance ideals has emerged as a consistent risk factor for body dissatisfaction and eating pathology among adolescents throughout Europe, North America, and Australia (Cafri, Yamamiya, Brannick, & Thompson, 2005; Stice, 2002). However, studies exploring the role of internalisation in the Indian context are scarce. Nonetheless, existing quantitative research has identified a relationship between internalisation and both body dissatisfaction and drive for thinness among adolescent girls in India (Shroff & Thompson, 2004; Singh Mannat et al., 2016), whilst qualitative research suggests that Bollywood stars are sources of internalisation among both young men and women (Kapadia, 2009; Martin & Govender, 2013). These limited findings indicate that internalisation of appearance ideals warrants further exploration in India. However, the dearth of research in the Indian context may stem from the absence of measures to assess internationalisation that are culturally appropriate and have been psychometrically validated among Indian populations.

One of the most widely used scales to measure the degree to which individuals internalise appearance ideals is the Internalisation-General Subscale of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3; Thompson, van den Berg, Roehrig, Guarda, & Heinberg, 2004). The SATAQ-3 has demonstrated good internal consistency, in addition to favourable construct, discriminant and predictive validity, in high-income and English-speaking countries (Calogero, Davis, & Thompson, 2004; Markland & Oliver, 2008; Thompson et al., 2004). The Internalisation-General Subscale specifically has been found to have the highest internal reliability across all four SATAQ-3 subscales, which also include information from the media, pressures from the media, and internalisation of athletic ideals, specifically (Thompson et al., 2004). The Internalisation-General Subscale is also the most commonly and exclusively used subscale to measure the construct of

internalisation of appearance ideals across cross-sectional, prospective, and intervention research, to date (e.g., Brown & Keel, 2015; Rodgers, McLean, & Paxton, 2015).

The Internalisation-General Subscale of the SATAQ-3 has been translated and validated in Spanish (Llorente, Warren, de Eulate, & Gleaves, 2013; Sánchez-Carracedo et al., 2012), Italian (Stefanile, Matera, Nerini, & Pisani, 2011), Greek (Argyrides, Kkeli, & Kendeou, 2014), Lithuanian (Jankauskiene, Mieziene, & Balciuniene, 2016), Portuguese (Amaral, Ribeiro, Conti, Ferreira, & Ferreira, 2013), Malay (Swami, 2009), Chinese (Jackson & Chen, 2010), Persian (Mousazadeh, Rakhshan, & Mohammadi, 2017), and Arabic (Madanat, Hawks, & Brown, 2006). These studies have found the subscale to be a robust measure across different populations and languages.

To add to this work, this study aimed to validate a culturally appropriate English version of the Internalisation-General Subscale among adolescents in India. Whilst a more recent version of the SATAQ has undergone development and validation (i.e., the SATAQ-4; Schaefer et al., 2015), we felt the SATAQ-3 was more appropriate for validation in the Indian context. Given the multiple sources of appearance concern beyond weight and shape, such as body hair and skin tone (Peltzer et al., 2016; Phadke, 2017; Shroff, Diedrichs, & Craddock 2018), it is important to measure internalisation more broadly, as opposed to focussing specifically on thin-ideal and muscular-ideal internalisation, as is the case in the SATAQ-4. Thus, the decision was made to validate the Internalisation-General Subscale from the SATAQ-3. As per our reasoning above, we chose not to validate the Internalisation-Athletic Subscale from the SATAQ-3; instead focussing on internalisation more broadly. Similarly, we did not validate the Pressure and Information subscales from the SATAQ-3, given that pressure and information from the media regarding appearance ideals tend to be weaker predictors of body dissatisfaction and disordered eating compared with internalisation of appearance ideals (Cafri et al., 2005; Stice, 2002).

The validation of the Internalisation-General Subscale from the SATAQ-3 will enable researchers to reliably measure the influence of internalisation on body image and related health outcomes among adolescents in India, thereby assisting with the robust identification of risk factors for poor body image, which could inform intervention development in future. Whilst India is linguistically diverse, English and Hindi are considered the official languages of the country (The Official Languages Act, 1963). Thus, we validated the measure in English initially, given that this is the increasingly preferred language of instruction across schools in urban areas of India (Trines, 2018). Further, adapting the English measure for the Indian context also formed the first step to translating and validating the measure in Hindi (Hindi validation to be published in a separate manuscript).

Methods

The present study is part of a broader research programme focused on the validation of body image-related and general psychosocial measures among adolescents in India, and the development and evaluation of community-based body image interventions for Indian adolescents. Given that there are few validated measures in India, concurrent validation of scales was conducted per recommendations by Swami and Barron (2019). Further, as validation of each measure followed rigorous and extensive guidelines (e.g., the COSMIN checklist; Terwee et al., 2012), separate manuscripts have been prepared for each scale validated (e.g., Lewis-Smith et al., under review).

Participants

A total of 1,465 adolescents aged 11-15 years ($M = 12.88$, $SD = .84$) from eight private (i.e., socioeconomically high) secondary schools in urban North-West India participated in this study. Participants who had more than 10% of items missing were deleted from the dataset ($n = 33$); which consequently left 1,432 participants for the analyses. The final sample included 795 (55.52%) boys and 637 (44.48%) girls. Nearly all participants ($n = 1,410$; 98.9%) were

born in India. The majority of participants (n = 1,069; 76%) practiced Hinduism, with a minority practicing Sikhism (n = 258; 18.3%), Islam (n = 28; 2%), Christianity (n =16; 1.1%), or other religions (n = 36; 2.6%). With respect to parents' education, the majority of students reported their highest qualification to be either Undergraduate (Father 40.7%; Mother 40%) or Postgraduate (Father: 25.6%; Mother: 27.8%) degrees.

Test-retest sample

The measures were re-administered to a sub-sample of 238 participants one week later to evaluate test-retest reliability. This included 140 (58.82%) boys and 98 (41.18%) girls.

Measures

Before participants completed the measures listed below, a process of cultural adaptation took place. First, the sixth and seventh authors modified the original scales for the Indian context based on their cultural, research, and psychological science expertise (e.g., deletion or adaptation of particular words). Next, the third author conducted acceptability interviews with a small sample of students to explore their comprehension and understanding of the adapted measures. They were 12 adolescents (6 girls; 6 boys) aged 11-14 years, from an urban school in North West India. Students were asked to explain each item in their own words. When they found it difficult to understand, they discussed alternative ways of phrasing the item to facilitate understanding with the researcher. These adolescents reported no issues with understanding and comprehension, and thus the items were finalised without revisions.

The measures below were used to test for the construct (convergent) validity of the Internalisation-General Subscale, whilst also undergoing synchronous psychometric evaluation (separate manuscripts are in preparation). Consequently, some measures below do not reflect the original scales. However, given that they are not the focus of the present study, we will only provide details regarding the final number of items for each respective measure and gender when relevant.

SATAQ-3: Internalisation-General subscale (Thompson et al., 2004)

The 9 items from the Internalisation-General Subscale (e.g., "I compare my body to the bodies of people who are on TV", "I wish I looked like the models in music videos") were rated on a 5-point ordinal scale (1 = "Definitely disagree" to 5 = "Definitely agree"). Two items were reverse coded.

Body Esteem Scale for Adolescents and Adults (BESAA): Weight and Appearance subscales (Mendelson, Mendelson, & White, 2001)

Cultural adaptation and validation of the original 18-items comprising the Weight and Appearance subscales among urban Indian adolescents resulted in a 15-item version for girls and 7-item version for boys (e.g., "I am proud of my body", "I look as nice as I'd like to"; Garbett et al., under review). Both versions had an Appearance Positive and Appearance Negative subscale, whilst the female version had an additional Weight subscale. For the purpose of the present study, we used the Appearance Positive and Appearance Negative subscales to assess convergent validity. Items were rated on a 5-point ordinal scale (1 = "Never" to 5 = "Always"). Once the appropriate items were reverse coded, scores on all items were averaged; with lower scores indicating lower body esteem. Internal consistency for the male version in the present study was *Cronbach's alpha* = .64 for the Appearance Positive and α = .55 for the Appearance Negative subscale. With regard to the girls' version, α = .74 for the Appearance Positive, and α = .73 for the Appearance Negative subscale. Based on previous research (e.g., Knauss, Paxton, & Alsaker, 2008; Lawler & Nixon, 2011; Stice & Whitenton, 2002), we expected internalisation to be positively correlated with the Appearance Negative subscale and negatively associated with the Appearance Positive subscale.

Eating Disorder Examination Questionnaire (EDE-Q; Fairburn, Wilson, & Schleimer, 1993)

The original four subscales of the EDE-Q comprise 22 items. The first 13 of these items (e.g., "Have you been trying to limit the amount of food you eat to change your weight or shape (whether or not you have succeeded)?") are rated on a 4-point ordinal scale (0 = "0 days", 1 = "1-2 days", 2 = "3-5 days", 3 = "6-7 days"), whilst the last 9 items (e.g., "If we ask you to check your weight once every week for four weeks, would this upset you?") are rated on a 7-point ordinal scale (1 = "Not at all" to 7 = "Very much so"). Cultural adaptation and validation of this measure among urban Indian adolescents resulted in a 15-item version for girls and 18-item version for the boys (Lewis-Smith et al., under review). Scores across all items were averaged; with higher scores indicating greater eating pathology. Internal consistency for the present study was good for the total scale (boys *Cronbach's α = .91*; girls *α = .91*), and the Preoccupation and Control (boys *α = .88*; girls *α = .85*) and Weight and Shape Concerns (boys *α = .88*; girls *α =.90*) subscales. Based on previous research (Stice, 2002), it was hypothesised that internalisation would be positively correlated with both the subscales and total scale scores.

Procedure

Ethical approval was sought from the first author's university ethics committee (HAS.18.01.074). Secondary schools that taught in English were recruited in urban North-West India via opportunistic sampling. School principals or counsellors were initially contacted about the study and were provided with information about what participation would involve. The consent protocol followed for this study was compliant with the ethical guidelines that are customary in India. Parental consent or headmaster consent was sought at the school's discretion. All students were provided with an information sheet and given the opportunity to ask questions before providing written consent. Questionnaires were administered in classes (up to 50 students per class) and took around 30 minutes to complete. The third author and a teacher were present for all data collections. A subsample of students completed the

questionnaire for a second time a week later. Schools received 13,500 Indian Rupees to purchase school equipment as an honorarium.

Statistical Analyses

Analyses were conducted using the following statistical packages: R (R Core Team, 2019) for test-retest reliability analyses; SPSS (IBM Corp, 2017) to assess internal consistency and to compute correlations; and MPlus 8 (Muthen & Muthen, 1998) to run exploratory and confirmatory factor analyses, and MIMIC models. Missing values ranged from 0-.2% and 0-.8% per item for girls and boys, respectively. As these values were low, multiple imputation was deemed unnecessary. Instead, listwise deletion of incomplete data was conducted. All analyses were conducted separately for each gender.

The latent structure of the Internalisation-General subscale was assessed using item factor analysis (IFA; frequently referred to as factor analysis for categorical data) due to the five-point ordinal data being skewed, and thus unsuitable for the common factor model (designed for normal data). The sample was split into two halves using a random number generator to ensure samples with identical characteristics. The first half was used in exploratory factor analysis (EFA), whilst the second half was used in confirmatory factor analysis (CFA). In EFA, the weighted least squares estimator (WLSMV; Muthén, du Toit, & Spisic, 1997) was used with Geomin rotation for both male and female versions.

To estimate the number of factors to retain, the Guttman-Kaiser (identifying eigenvalues greater than 1; Guttman, 1954; Kaiser, 1960) and parallel analysis (Horn, 1965) criteria were employed. Parallel analysis involved identifying the number of eigenvalues which were larger than the eigenvalues of 50 randomly computed samples with the same number of factors and observations. This was conducted using the R package, 'random.polychor.pa', for categorical data (Presaghi & Desimoni, 2019). The results of parallel analysis were presented using Cattell's (1966) scree plot. Goodness of fit indices were computed for both EFA and CFA to

establish the number of factors to retain and to evaluate the absolute and relative fit of contesting models. These included the Root Mean Square Error of Approximation (RMSEA: values below .08 indicate a close fit; Hu & Bentler, 1999), the relative chi-square (Relative $\chi 2$: values below 5 indicate an adequate fit; Hoelter, 1983), the Comparative Fit Index (CFI: values above .90 indicate a close fit; Bentler, 1990), the Taylor-Lewis Index (TLI: values above .90 indicate a close fit; Bentler & Bonett, 1980), and the Standardized Root Mean Residual (SRMR: values below .05 indicate a good fit; Hu & Bentler, 1999). In addition, items that cross-loaded above .25 on more than one factor, and/or had unsatisfactory loadings <.40 on a single factor, and/or or did not load on any factor, were removed. Measurement invariance in relation to gender was evaluated via the multiple indicator multiple cause (MIMIC) model (Muthén, 1979).

When the desirable solution was achieved, internal consistency was assessed using Cronbach's (1951) alpha coefficient (α values above .70 indicate acceptable internal consistency), Cronbach's alpha if item deleted (AID), and item-total correlations (ITC; values between .30 and .80 are considered adequate). Internal consistency was evaluated at the factor and scale level. Test-retest reliability was evaluated at the item level using Cohen's weighted kappa coefficient (κ; Cohen, 1968), the percentage of agreement, and the Psi Non-Parametric Concordance Coefficient (Kuiper & Hogenboezem, 2019). At the scale level, test-retest reliability was assessed using the mixed effects, absolute agreement, intraclass correlation coefficient (Shrout & Fleiss, 1979) and interpreted using the guidelines outlined by Landis and Koch (1977).

Convergent validity was evaluated via the correlations of the Internalisation-General subscale score with the total and subscale scores of the BESAA and the EDE-Q. Spearmans's *rho* was preferred to Pearson's *r* as the data were skewed. In the case where a measure had low

reliability, the correlations were corrected for attenuation using the 'psych' R package (Revelle, 2019).

Results

Girls

Test-retest reliability at the item level

Test-retest analyses at the item level revealed Cohen's weighted Kappa coefficients ranging from .54 to .67 (see Supplementary Table S1), indicating moderate to substantial agreement (Landis & Koch, 1977).

Factor structure

EFA for categorical items was performed on a random half of the sample of girls ($n =$ 322). This sample size exceeded the recommended participant-to-item ratio of 10:1 (Swami & Barron, 2019; Tabachnick & Fidell, 2013) and thus was deemed appropriate. One eigenvalue was above 1 (6.09), which suggests up to one factor according to Kaiser's criterion. Parallel analysis (for categorical data using bootstrap simulations) also indicated a one-factor solution (see scree plot in Figure S1). The one-factor solution with all items present produced unsatisfactory goodness of fit indices (relative χ^2=6.001, RMSEA=.126, CFI=.970, TLI=.960, SRMR=.059). Exclusion of items I01, I06, and I09 improved the fit, and produced a satisfactory solution in terms of loadings and fit indices (relative $\chi^2 = 2.877, \text{RMSEA} = .077, \text{CFI} = .993, \text{TLI} = .988, \text{SRMR} = .033$). Table 1 presents the loadings of the items on the unique factor (Geomin rotation), which was labelled "Internalisation".

CFA was subsequently performed on the second random split half of the sample of girls ($n = 315$). The one-factor solution that was suggested by EFA indicated an adequate fit (relative $\chi^2 = 2.600, \text{RMSEA} = .072, \text{CFI} = .995, \text{TLI} = .991, \text{SRMR} = .018$). Table 1 displays the CFA factor loadings.

-- INSERT TABLE 1 NEAR HERE --

Reliability

The Internalisation scale indicated good internal consistency among girls ($\alpha = 0.88$). The item-total correlations varied between .627 and .741, thus indicating no problematic items (see Supplementary Table S2). On a factor level, the test re-test reliability was satisfactory (ICC = .71; 95% [.60, .80]).

Construct validity

The results provide evidence towards convergent validity through moderately strong significant correlations with the Appearance Negative subscale of the BESAA, in addition to the total EDE-Q and its Weight and Shape Concerns subscale (Table 2).

-- INSERT TABLE 2 NEAR HERE --

Boys

Test-retest reliability at the item level

Cohen's weighted Kappa varied between .29 and .56 (see Supplementary Table S3). One problematic item (item I01; "I would like my body to look like the bodies of people who are on TV") had a Kappa coefficient below the acceptable .40. For the remaining items, Kappa indicated moderate agreement, thus suggesting adequate test-retest reliability. Based on these results, item I01 was removed from the scale.

Factor Structure

EFA for categorical items was performed on a random half of the sample of boys ($n = 370$). One eigenvalue was above 1 (6.06), which suggests up to one factor according to Kaiser's criterion. This was also indicated by parallel analysis for categorical data using bootstrap simulations (see scree plot in Figure S2). The one-factor solution did not fit our data (relative $\chi^2 = 5.74$, RMSEA=.117, CFI=.977, TLI=.969, SRMR=.052). Omission of items I01 and I06 led to a close fit (relative $\chi^2 = 1.858, \text{RMSEA} = .050, \text{CFI} = .998, \text{TLI} = .997, \text{SRMR} =$

.022). Table 3 displays the loadings of the items on the factor (Geomin rotation), which was labelled "Internalisation".

The one-factor solution was evaluated using CFA on the other random half of the sample of boys (n = 425) and demonstrated a close fit (relative $\chi^2 = 2.617, \text{RMSEA} = .063, \text{CFI} = .998, \text{TLI} = .995, \text{SRMR} = .010$). The CFA loadings on the factor are displayed in Table 3.

-- INSERT TABLE 3 NEAR HERE --

Reliability

With regard to internal consistency, Cronbach's alpha for the boys' scale was .87, indicating strong reliability. The item total correlations varied between .650 and .722, thus indicating no problematic items (see Supplementary Table S4). With respect to the factor's stability, the ICC was .55 (95% [.41, .66]), which is below satisfactory levels.

Construct validity

Internalisation correlated moderately with the Appearance Negative subscale of the BESAA, in addition to the total EDE-Q and its Weight and Shape Concerns subscale (Table 4).

-- INSERT TABLE 4 NEAR HERE --

Common items for both genders

Factor structure

Using items common to both the male and female versions of the Internalisation scale (I02, I03, I04, and I05), CFA was run on the complete sample (N = 1432), with both boys (n = 795) and girls (n = 637). The one-factor solution was confirmed by CFA and demonstrated a close fit to our data (relative $\chi^2 = 2.890, \text{RMSEA} = .036, \text{CFI} = .999, \text{TLI} = .998, \text{SRMR} = .005$). See the factor loadings in Supplementary Table S5.

Measurement invariance

The MIMIC model revealed no significant direct effects with respect to gender. Therefore, it can be concluded that the common-items Internalisation scale is invariant with respect to gender. Consequently, the total scores can be compared across girls and boys. The distribution of total scores for common items between girls and boys was not statistically different (Mann-Whitney U = 249.531, p = 633).

Internal consistency reliability

Cronbach's alpha for the scale with common items showed satisfactory internal consistency (α =. 839). Item-total correlations were inspected at the factor level and did not reveal any problematic items (see Supplementary Table S5).

Discussion

Growing research highlights that body image concerns affect young people in India, and in particular, adolescents (e.g., Ganesan et al., 2018; Singh, Ashok, Binu, Parsekar, & Bhumika, 2015). However, there is a dearth of validated measures to examine potential risk factors which could be targeted in preventative interventions. One well-recognised risk factor in Europe, North America and Australia, is internalisation of cultural appearance ideals (Cafri et al., 2005; Stice, 2002). This influence warrants examination in India, particularly given the prevalence of appearance ideals across the Indian media landscape (Ciecko, 2001; Cullity, 2002; Parameswaran & Cardoza, 2009; Shroff & Thompson, 2004; Thapan, 2004). In this study, we sought to validate the Internalisation-General subscale from the SATAQ-3 (Thompson et al., 2004) in English among adolescents in urban India. Following cultural adaptation and examination of its factor structure, reliability, and construct validity, the scale was revealed to be a psychometrically sound and culturally appropriate tool to assess internalisation of appearance ideals among Indian adolescents. Specifically, psychometric evaluation resulted in a six-item scale for girls, a five-item scale for boys, and a four-item scale which can be used across both genders.

With regard to the factor structure, EFA revealed a one factor solution among both genders (in addition to the common-items version). This mirrors findings of validation studies conducted in Italy (Stefanile et al., 2011), Spain (Llorente et al., 2013), Greece (Argyrides et al., 2014), Lithuania (Jankauskiene et al., 2016), and Jordan (Madanat et al., 2006). Further, all three versions of the scale indicated good internal consistency (≥.839), as reflected elsewhere (Argyrides et al., 2014; Jankauskiene et al., 2016; Llorente et al., 2013; Madanat et al., 2006).

With regard to the factor structure of the scale for the girls, the final solution resulted in the removal of three items; leaving a six-item scale. One of the items removed was "I would like my body to look like the body of people who are on TV", which was also removed in validations among adult women in Malaysia (Swami, 2009) and young adults of both genders in Brazil (Amaral et al., 2013), due to low factor loadings. Similarly, whilst "I compare my body to the bodies of people in magazines" was removed in the present study, low factor loadings have been reported in other validation studies (.40-.45; Amaral et al., 2013; Swami, 2009). Finally, "I try to look like people on TV" had one of the lowest factor loadings in the original development paper (.47; Thompson et al., 2004). Thus, it is probably unsurprising that this low factor loading was replicated in other validation studies, including the present study and others conducted among Lithuanian adolescents of both genders (.55; Jankauskiene et al., 2016) and Spanish adult women (.47; Llorente et al., 2013). Further, the item scored so low in Malaysia and Brazil that is was removed for all analyses (Amaral et al., 2013; Swami, 2009), thus mirroring the present findings.

With regard to the factor structure of the scale for the boys, the final solution involved the removal of four items, leaving a five-item scale. Two of the items removed for boys were also removed for girls: "I would like my body to look like the body of people who are on TV" and "I compare my body to the bodies of people in magazines". These items have shown low factor loadings in male samples elsewhere (.40; Amaral et al., 2013). "I wish I look liked the

models in music videos" was also removed for boys in this study. Whilst not removed, this was the lowest scoring item in the scale among the girls. This is not surprising, given that most new music in India is introduced and popularised via Bollywood movies, and consequently, music videos (made by independent musicians) tend to be uncommon. This item has tended to show one of the lower factor loadings in other validation papers among females (<.68; Llorente et al., 2013; Madanat et al., 2006; Stefanile et al., 2011; Swami, 2009). However, it scored relatively higher when validated among Chinese adolescent boys (.73; Jackson & Chen, 2010). The final item to be removed was "I compare my appearance to the appearance of people in magazines"; similar to its lower loading among adolescent boys in China (.58; Jackson & Chen, 2010). This finding may be explained by the absence of exclusive 'teen' magazines in India for boys or girls. Indeed, both the items relating to magazines and music videos had a higher percentage of adolescent boys and girls strongly disagreeing with them in another study using the SATAQ-3 in the Indian context (Singh Mannat et al., 2016).

It is unsurprising that the four items with the highest and similar loadings across both versions of the scale pertained to comparisons with, and aspirations to look like, "movie" actors and actresses. This mirrors previous findings from adolescents in India, who indicated higher rates of endorsement with these items (Singh Mannat et al., 2016). Further, these items also showed the strongest association with body dissatisfaction among this group. Actors and actresses typically represent narrow appearance ideals (e.g., youthfulness, thick hair, fair skin), which is the case in both films made in and outside of India (Ciecko, 2001; Cullity, 2002; Parameswaran & Cardoza, 2009; Thapan, 2004). Additionally, there has been a trend for increased thinness and muscularity among Bollywood actresses and actors, respectively, over time (Ciecko, 2001; Kapadia, 2009; Kavi, 2000). In a qualitative study, young Indian women recognised the adverse impacts of Bollywood on their body image; admitting that they regularly compared themselves to the actresses (Kapadia, 2009). Similarly, adolescent boys

have also reported feeling pressure from Bollywood films to look muscular (Martin & Govender, 2013); thus reconfirming actors and actresses as sources of appearance inspiration.

The item assessing internalisation via music videos was the lowest loading item among girls and was excluded entirely among the boys' scale. This replicates previous low loadings among other validations of the scale (Llorente et al., 2013; Madanat et al., 2006; Stefanile et al., 2011; Swami, 2009). The finding that this item was of greater relevance to girls than boys is expected, as female music artists are objectified, sexualised, and conform to narrow appearance ideals to a greater extent, than male artists in music videos (Aubrey & Frisby, 2011; Vandenbosch, Vervloessem, & Eggermont, 2013; Wallis, 2011). It is therefore unsurprising that girls are more likely to self-objectify and internalise appearance ideals portrayed by female models from music videos than boys and their male equivalents (Fredrickson & Roberts, 1997; Karsay & Matthes, 2016; Vandenbosch & Eggermont, 2012). Nonetheless, it is important to note that these findings are based on research conducted in high-income and English-speaking countries.

Given the lower number of items on the scale for boys compared with girls, it may be that the present scale is not capturing all the ideals of relevance for adolescent boys in India. Interestingly, a study conducted among Indian adolescent boys living in South Africa found higher scores for internalisation of athletic ideals compared with internalisation of media ideals (using the SATAQ-3; Martin & Govender, 2013). Further, internalisation of both were related to Bollywood pressure for muscularity in the study, suggesting that athletic muscularity may be internalised in Bollywood films; which portray the actors as fit and muscular (Ciecko, 2001; Kavi, 2000). Similarly, other qualitative research conducted among British Indian adolescent boys found that they were striving to be muscular like athletes (Hill, 2013). As the present study was conducted with boys living in India, it highlights the importance of future research examining the Muscular Internalisation subscale of the Sociocultural Attitudes Towards

Appearance Questionnaire – 4 Revised (SATAQ-4R; Schaefer, Harriger, Heinberg, Soderberg, & Thompson, 2017) specifically among this group. More generally, it also suggests that body image research conducted in India may benefit from more locally developed scales, instead of relying on those developed in high-income countries in Europe, North America, and Australia. These scales may more accurately assess culture-specific issues or influences (such as the impact of Bollywood actors/actresses).

With regard to construct validity, both the girls' and boys' version of the scale demonstrated acceptable convergent validity with the EDE-Q, as indicated by significant correlations of medium size. Similarly, both versions indicated convergent validity of medium size with the Appearance Negative subscale of the BESAA, thus replicating previous validation research using different measures of body image (Amaral et al., 2013; Jackson & Chen, 2010; Stefanile et al., 2011; Thompson et al., 2004). These relationships are not surprising, given that internalisation of appearance ideals has emerged as a consistent risk factor for body dissatisfaction and eating pathology throughout Europe, North America, and Australia (Cafri et al., 2005; Stice, 2002). This also mirrors previous findings in Asian contexts (Jackson & Chen, 2011). Further, two studies have highlighted the influence of internalisation in the Indian context (Shroff & Thompson, 2004; Singh Mannat et al., 2016), whilst others have identified an association between perceived pressure from the media and body dissatisfaction in India (e.g., Ganesan et al., 2018; Rajagopalan & Shejwal, 2014; Rekha & Maran, 2012). Neither the girls' nor boys' scale demonstrated a significant correlation with the Appearance Positive subscale of the BESAA. This suggests that internalisation is not related to positive feelings concerning the body among either Indian girls or boys. This is supported by research conducted among adolescents in other countries (Lunde, 2013; Wang, Fardouly, Vartanian, & Lei, 2019), which found no association between internalisation and the Body Appreciation Scale (Avalos, Tylka, & Wood-Barcalow, 2005); a scale which assesses positive feelings regarding the body.

With regard to limitations of the present study, we did not test for discriminant validity of the Internalisation scale. Unfortunately, we were unable to identify a brief psychosocial measure that had undergone rigorous validation among adolescents in India and was theoretically distinct enough from internalisation. Relatedly, it was also difficult to identify previously validated measures to assess concurrent validity. This is unsurprising, given the scarce research exploring the psychometric properties of related outcomes (e.g., disordered eating, body image) among adolescents in India. However, we addressed this by conducting synchronous validation of these measures and ensuring that they were psychometrically sound, which is a recommended strategy in the absence of psychometrically validated measures among a particular population (Swami & Barron, 2019). Further, the internal consistency reliability (α = 0.59) of the BESAA scale (male version) and its subscales, Appearance Negative (α = 0.55) and Appearance Positive (α = 0.64), which were used in the convergent validity assessment were comparatively low, and consequently led to a weaker correlation size with the total score of the Internalisation scale. However, the correlations were corrected for attenuation, which allowed for estimating the correlation between the two variables as if the two measures had perfect reliability and were free from random errors. An additional limitation relates to the narrow recruitment of English-speaking students from higher socioeconomic status schools in an urban area of North-West India. Translating and validating the scale into Hindi (which is underway) will enable more adolescents across rural parts of India to be included in future research, as English is spoken less in those contexts. However, it should be noted that existing research has found body dissatisfaction and dietary behaviours to be higher among adolescent girls in urban areas compared with rural areas of India (Dixit et al., 2011; Mishra & Mukhopadhyay, 2011). The authors suggest this may be due to the greater exposure to foreign media and "thinness" ideals in urban areas. Nonetheless, this warrants further investigation with validated scales. An additional limitation relates to the validation of only

one subscale from the SATAQ-3, as opposed to the full scale. Whilst this constitutes an important first step in facilitating the conduct of body image research in India, we recommend that future research validates the remaining SATAQ-3 subscales or the equivalent subscales of the SATAQ-4R, as described above. This will enable other potential influences on body image to be explored in this context. Finally, the Internalisation-General subscale of the SATAQ-3 does not address the influence of social media, despite its use being high among adolescents in urban areas of India (e.g., 75% using Facebook; Raj, Bhattacherjee, & Mukherjee, 2018) and its association with body dissatisfaction in high-income English-speaking countries (Fardouly & Vartanian, 2016). However, given that not all adolescents will have access to mobile phones and the internet (Tenhunen, 2017), we wanted to validate a scale which could be used across the country.

Despite these limitations, the present study makes a novel contribution to the field. To our knowledge, we are the first to validate the Internalisation-General subscale in an Indian context. Further, unlike most previous research which has only validated the scale among one gender (e.g., Jackson & Chen, 2010; Stefanile et al., 2011; Swami, 2009), we have generated gender-specific scales. In addition, our common-items version of the scale allows comparisons between genders. Whilst Thompson and colleagues (2004) originally developed and validated the scale with adult women, our findings demonstrate the extension of its psychometric properties to both adolescent girls and boys in urban India. Collectively, this will facilitate further research to examine the role of this construct in an Indian context, and thus inform preventative research.

Conclusions

We conclude that the English version of the Internalisation-General subscale has adequate factor structure, internal consistency, test-retest reliability, and construct validity, among Indian adolescents. We present three versions of the psychometrically sound measure to be

used with girls, boys, and both genders collectively. We are hopeful that the availability of these measures will stimulate further body image and preventative research among adolescents in India.

References

Al Sabbah, H., Vereecken, C. A., Elgar, F. J., Nansel, T., Aasvee, K., Abdeen, Z., . . . Maes, L. (2009). Body weight dissatisfaction and communication with parents among adolescents in 24 countries: international cross-sectional survey. *BMC Public Health, 9*(1), 52-61. https://doi.org/10.1186/1471-2458-9-52

Amaral, A. C., Ribeiro, M. S., Conti, M. A., Ferreira, C. S., & Ferreira, M. E. (2013). Psychometric evaluation of the sociocultural attitudes towards appearance questionnaire-3 among Brazilian young adults. *The Spanish Journal of Psychology, 16*(1), 1-10. https://doi-org.ezproxy.uwe.ac.uk/10.1017/sjp.2013.94

Argyrides, M., Kkeli, N., & Kendeou, P. (2014). Validation of the factor structure of the Greek adaptation of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3). *Body Image, 11*(3), 201-205. https://doi.org/10.1016/j.bodyim.2014.02.003

Aubrey, J. S., & Frisby, C. M. (2011). Sexual objectification in music videos: A content analysis comparing gender and genre. *Mass Communication and Society, 14*(4), 475-501. https://doi-org.ezproxy.uwe.ac.uk/10.1080/15205436.2010.513468

Avalos, L., Tylka, T. L., & Wood-Barcalow, N. (2005). The Body Appreciation Scale: development and psychometric evaluation. *Body Image, 2*(3), 285-297. https://doi.org/10.1016/j.bodyim.2005.06.002

Batra, R. (2007). *Beauty and Body Dissatisfaction Experienced by Young Indian Women Exposed to Foreign Print Advertisements Found in International Fashion Magazines Targeted at Women*. (Upublished master's thesis). University of Nottingham, Nottingham, United Kingdom.

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238-246. http://dx.doi.org.ezproxy.uwe.ac.uk/10.1037/0033-2909.107.2.238

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588-606. http://dx.doi.org.ezproxy.uwe.ac.uk/10.1037/0033-2909.88.3.588

Brown, T. A., & Keel, P. K. (2015). A randomized controlled trial of a peer co-led dissonance-based eating disorder prevention program for gay men. *Behaviour Research and Therapy, 74*, 1-10. https://doi.org/10.1016/j.brat.2015.08.008

Cafri, G., Yamamiya, Y., Brannick, M., & Thompson, J. K. (2005). The influence of sociocultural factors on body image: A meta-analysis. *Clinical Psychology: Science and Practice, 12*(4), 421-433. https://doi-org.ezproxy.uwe.ac.uk/10.1093/clipsy.bpi053

Calogero, R. M., Davis, W. N., & Thompson, J. K. (2004). The Sociocultural Attitudes Toward Appearance Questionnaire (SATAQ-3): Reliability and normative comparisons of eating disordered patients. *Body Image, 1*(2), 193-198. https://doi.org/10.1016/j.bodyim.2004.01.004

Ciecko, A. (2001). Superhit hunk heroes for sale: Globalization and Bollywood's gender politics. *Asian Journal of Communication, 11*(2), 121-143. https://doi-org.ezproxy.uwe.ac.uk/10.1080/01292980109364807

IMB Corp. (2017). *IBM SPSS Statistics: Version 24.0.* Chicago, IL: IBM Corporation.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297-334.

Cullity, J. (2002). The global desi: Cultural nationalism on MTV India. *Journal of Communication Inquiry, 26*(4), 408-425. https://doi-org.ezproxy.uwe.ac.uk/10.1177/019685902236899

Das, M., & Sharma, S. (2016). Fetishizing women: advertising in Indian television and its effects on target audiences. *Journal of International Women's Studies, 18*(1), 114-132.

https://search-proquest-

com.ezproxy.uwe.ac.uk/docview/1848504081?accountid=14785

Deshmukh, V. R., & Kulkarni, A. A. (2017). Body image and its relation with body mass index among Indian adolescents. *Indian Pediatrics, 54*(12), 1025-1028. https://doi-org.ezproxy.uwe.ac.uk/10.1007/s13312-017-1205-0

Dixit, S., Agarwal, G., Singh, J., Kant, S., & Singh, N. (2011). A study on consciousness of adolescent girls about their body image. *Indian Journal of Community Medicine, 36*(3), 197-202. doi: 10.4103/0970-0218.86520

Fairburn, C. G., Wilson, G. T., & Schleimer, K. (1993). *Binge eating: Nature, assessment, and treatment*. New York, NY: Guilford Press.

Fardouly, J., & Vartanian, L. R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology, 9*, 1-5. https://doi.org/10.1016/j.copsyc.2015.09.005

Fredrickson, B. L., & Roberts, T. A. (1997). Objectification theory: Toward understanding women's lived experiences and mental health risks. *Psychology of Women Quarterly, 21*(2), 173-206. doi: 10.1111/j.1471-6402.1997.tb00108.x

Ganesan, S., Ravishankar, S., & Ramalingam, S. (2018). Are body image issues affecting our adolescents? A cross-sectional study among college going adolescent girls. *Indian Journal of Community Medicine, 43*(Suppl 1), S42-S46. doi: 10.4103/ijcm.IJCM_62_18

Ganti, T. (2013). *Bollywood: A guidebook to popular Hindi cinema*. New York, NY: Routledge.

Garbett, K., Lewis-Smith, H., Chaudhry, A., Uglik-Marucha, E., Vitoratou, S., Shroff, H., Dhillon, M., & Diedrichs, P.C. Cultural adaptation and validation of the Body Esteem

Scale for Adults and Adolescents for use in English among adolescents in urban India. Under Review.

Gupta, N., Bhargava, R., Chavan, B. S., & Sharan, P. (2017). Eating attitudes and body shape concerns among medical students in Chandigarh. *Indian Journal of Social Psychiatry, 33*(3), 219-224. doi: 10.4103/0971-9962.214605

Guttman, L. (1954). Some necessary conditions for common factor analysis. *Psychometrika, 19,* 149–161. https://doi.org/10.1007/BF02289162

Hill, J. (2013). Rejecting the weak Asian body: Boys visualising strong masculinities. In L. Azzarito and D. Kirk (eds), *Physical culture, pedagogies and visual methods.* Abingdon, United Kingdom: Routledge.

Hoelter, J. W. (1983). The analysis of covariance structures: Goodness-of-fit indices. *Sociological Methods & Research, 11*(3), 325-344. https://doi.org/10.1177/0049124183011003003

Horn, J. L. (1965). A rationale and test for the number of factors in factor analysis. *Psychometrika, 30*(2), 179–185. https://doi.org/10.1007/BF02289447

Hu, L. T. & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analfysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55. https://doi-org.ezproxy.uwe.ac.uk/10.1080/10705519909540118

Jackson, T., & Chen, H. (2010). Factor structure of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) among adolescent boys in China. *Body Image, 7*(4), 349-355. https://doi.org/10.1016/j.bodyim.2010.07.003

Jackson, T., & Chen, H. (2011). Risk factors for disordered eating during early and middle adolescence: Prospective evidence from mainland Chinese boys and girls. *Journal of Abnormal Psychology, 120*(2), 454-464. https://doi.org/10.1016/j.bodyim.2010.07.003

Jankauskiene, R., Mieziene, B., & Balciuniene, V. (2016). Validation of the Lithuanian version of the sociocultural attitudes towards appearance questionnaire-3. *Social Behavior and Personality, 44*(10), 1585-1599. doi:10.2224/sbp.2016.44.10.1585

Kaiser, H.F. (1960). The application of electronic computers to factor analysis. *Educational and Psychological Measurement, 20*, 141–151. https://doi.org/10.1177/001316446002000116

Kapadia, M. K. (2009). *Body image in Indian women as influenced by the Indian media* (Upublished PhD thesis). Texas Woman's University, Texas, USA.

Karan, K. (2008). Obsessions with fair skin: Color discourses in Indian advertising. *Advertising & Society Review, 9*(2), 1-13. doi: 10.1353/asr.0.0004

Karsay, K., & Matthes, J. (2016). Sexually objectifying pop music videos, young women's self-objectification, and selective exposure: A moderated mediation model. *Communication Research*, 1-22. doi: 10.1177/0093650216661434

Kavi, A. R. (2000). The changing image of the hero in Hindi films. *Journal of Homosexuality, 39*(3-4), 307-312. https://doi-org.ezproxy.uwe.ac.uk/10.1300/J082v39n03_15

Koch, G. G. (2014). Intraclass correlation coefficient. *Wiley StatsRef: Statistics Reference Online*.

Kuiper, R., & Hoogenboezem, R. (2019). *nopaco: a Non-Parametric Concordance Coefficient. Version 1.0.5.* Retrieved from https://CRAN.R-project.org/package=nopaco

Landis, J. R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. *Biometrics*, *33,* 159-174. https://doi.org/10.2307/2529310

Lewis-Smith, H., Garbett, K., Chaudhry, A., Uglik-Marucha, E., Vitoratou, S., Dhillon, M., Shroff, M., & Diedrichs, P.C. Adaptation and validation of the Eating Disorder

Examination-Questionnaire in English among urban Indian Adolescents. Under Review.

Llorente, E., Warren, C. S., de Eulate, L. P., & Gleaves, D. H. (2013). A Spanish version of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3): Translation and psychometric evaluation. *Journal of Clinical Psychology, 69*(3), 240-251. https://doi.org/10.1002/jclp.21944

Lunde, C. (2013). Acceptance of cosmetic surgery, body appreciation, body ideal internalization, and fashion blog reading among late adolescents in Sweden. *Body Image, 10*(4), 632-635. https://doi.org/10.1016/j.bodyim.2013.06.007

Madanat, H. N., Hawks, S. R., & Brown, R. B. (2006). Validation of the Sociocultural Attitudes Towards Appearance Questionnaire-3 among a random sample of Jordanian women. *Body Image, 3*(4), 421-425. https://doi.org/10.1016/j.bodyim.2006.09.004

Markland, D., & Oliver, E. J. (2008). The sociocultural attitudes towards appearance questionnaire-3: a confirmatory factor analysis. *Body Image, 5*(1), 116-121. https://doi.org/10.1016/j.bodyim.2007.10.001

Martin, J., & Govender, K. (2013). "Indenturing the body": Traditional masculine role norms, body image discrepancy, and muscularity in a sample of South African Indian boys. *Culture, Society and Masculinities, 5*(1), 21. doi: 10.1016/j.bodyim.2007.10.001

Mendelson, B. K., Mendelson, M. J., & White, D. R. (2001). Body-esteem scale for adolescents and adults. *Journal of Personality Assessment, 76*(1), 90-106. https://doi.org/10.1207/S15327752JPA7601_6

Mishra, S. K., & Mukhopadhyay, S. (2011). Eating and weight concerns among Sikkimese adolescent girls and their biocultural correlates: an exploratory study. *Public Health Nutrition, 14*(5), 853-859. https://doi-org.ezproxy.uwe.ac.uk/10.1017/S1368980010002478

Mousazadeh, S., Rakhshan, M., & Mohammadi, F. (2017). Investigation of content and face validity and reliability of Sociocultural Attitude towards Appearance Questionnaire-3 (SATAQ-3) among female adolescents. *Iranian Journal of Psychiatry, 12*(1), 15.

Muthén, B. (1979). A structural probit model with latent variables. *Journal of the American Statistical Association, 74*(368), 807-811. https://doi-org.ezproxy.uwe.ac.uk/10.2307/2286403

Muthén, B., Du Toit., S.H.C., & Spisic. (1997). Robust inference using weighted least squares and quadratic estimating equations in latent variable modeling with categorical and continuous outcomes. *Unpublished manuscript.*

Muthen, L. K., & Muthen, B. O. (1998). Mplus [computer software]. *Los Angeles, CA: Muthén & Muthén.*

Nagar, I., & Virk, R. (2017). The struggle between the real and ideal: Impact of acute media exposure on body image of young Indian women. *SAGE Open, 7*(1), 1-6. https://doi.org/10.1177/2158244017691327

Parameswaran, R., & Cardoza, K. (2009). Melanin on the margins: Advertising and the cultural politics of fair/light/white beauty in India. *Journalism & Communication Monographs, 11*(3), 213-274. https://doi.org/10.1177/152263790901100302

Peltzer, K., Pengpid, S., & James, C. (2016). The globalization of whitening: prevalence of skin lighteners (or bleachers) use and its social correlates among university students in 26 countries. *International Journal of Dermatology, 55*(2), 165-172. https://doi.org/10.1111/ijd.12860

Phadke S. (2017) How to Do Feminist Mothering in Urban India? Some Reflections on the Politics of Beauty and Body Shapes. In: Elias A., Gill R., Scharff C. (eds) *Aesthetic Labour. Dynamics of Virtual Work*. London, United Kingdom: Palgrave Macmillan UK. https://doi.org/10.1057/978-1-137-47765-1_14

Presaghi F, Desimoni M (2019). *random.polychor.pa: A Parallel Analysis with Polychoric Correlation Matrices*. R package version 1.1.4-3.

Raj, M., Bhattacherjee, S., & Mukherjee, A. (2018). Usage of online social networking sites among school students of Siliguri, West Bengal, India. *Indian Journal of Psychological Medicine, 40*(5), 452-457. doi: 10.4103/IJPSYM.IJPSYM_70_18

Rajagopalan, J., & Shejwal, B. (2014). Influence of sociocultural pressures on body image dissatisfaction. *Psychological Studies, 59*(4), 357-364. https://doi-org.ezproxy.uwe.ac.uk/10.1007/s12646-014-0245-y

Rekha, V. S., & Maran, K. (2012). Advertisement pressure and its impact on body dissatisfaction and body image perception of women in India. *Global Media Journal, 3*(1), 2249–5835.

Rodgers, R. F., McLean, S. A., & Paxton, S. J. (2015). Longitudinal relationships among internalization of the media ideal, peer social comparison, and body dissatisfaction: Implications for the tripartite influence model. *Developmental Psychology, 51*(5), 706-713. http://dx.doi.org.ezproxy.uwe.ac.uk/10.1037/dev0000013

Rubin, B., Gluck, M., Knoll, C., Lorence, M., & Geliebter, A. (2008). Comparison of eating disorders and body image disturbances between Eastern and Western countries. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 13*(2), 73-80. https://doi-org.ezproxy.uwe.ac.uk/10.1007/BF03327606

Sánchez-Carracedo, D., Barrada, J. R., López-Guimerà, G., Fauquet, J., Almenara, C. A., & Trepat, E. (2012). Analysis of the factor structure of the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-3) in Spanish secondary-school students through exploratory structural equation modeling. *Body Image, 9*(1), 163-171. https://doi.org/10.1016/j.bodyim.2011.10.002

Schaefer, L. M., Burke, N. L., Thompson, J. K., Dedrick, R. F., Heinberg, L. J., Calogero, R. M., . . . Kelly, M. (2015). Development and validation of the Sociocultural Attitudes Towards Appearance Questionnaire-4 (SATAQ-4). *Psychological Assessment, 27*(1), 54-67. https://doi.org/10.1037/a0037917

Schaefer, L. M., Harriger, J. A., Heinberg, L. J., Soderberg, T., & Kevin Thompson, J. (2017). Development and validation of the sociocultural attitudes towards appearance questionnaire-4-revised (SATAQ-4R). *International Journal of Eating Disorders, 50*(2), 104-11. https://doi-org.ezproxy.uwe.ac.uk/10.1002/eat.22590

Shroff, H., Diedrichs, P. C., & Craddock, N. (2018). Skin color, cultural capital, and beauty products: an investigation of the use of skin fairness products in Mumbai, India. *Frontiers in Public Health, 5,* 1-9. doi: 10.3389/fpubh.2017.00365

Shroff, H. & Thompson, J. K. (2004). Body image and eating disturbance in India: Media and interpersonal influences. *International Journal of Eating Disorders, 35*(2), 198-203. https://doi-org.ezproxy.uwe.ac.uk/10.1002/eat.10229

Shrout, P.E. & Fleiss, J.L. (1979). Intraclass correlations: uses in assessing rater reliability. *Psychological Bulletin*, *86*(2), 420–428. doi: 10.1037/0033-2909.86.2.420

Singh Mannat, M., Parsekar, S. S., & Bhumika, T. (2016). Body Image, Eating Disorders and Role of Media among Indian Adolescents. *Journal of Indian Association for Child & Adolescent Mental Health, 12*(1), 9-35.

Singh, M. M., Ashok, L., Binu, V., Parsekar, S. S., & Bhumika, T. (2015). Adolescents and body image: A cross sectional study. *The Indian Journal of Pediatrics, 82*(12), 1107-1111. https://doi.org/10.1007/s12098-015-1768-5

StataCorp. (2019). *Stata Statistical Software: Release 16*. College Station, TX: StataCorp LLC

Stefanile, C., Matera, C., Nerini, A., & Pisani, E. (2011). Validation of an Italian version of the Sociocultural Attitudes Towards Appearance Questionnaire-3 (SATAQ-3) on

adolescent girls. *Body Image, 8*(4), 432-436. https://doi.org/10.1016/j.bodyim.2011.06.001

Stice, E. (2002). Risk and maintenance factors for eating pathology: a meta-analytic review. *Psychological Bulletin, 128*(5), 825-848. http://dx.doi.org.ezproxy.uwe.ac.uk/10.1037/0033-2909.128.5.825

Swami, V. (2009). An examination of the factor structure of the Sociocultural Attitudes Towards Appearance Questionnaire-3 in Malaysia. *Body Image, 6*(2), 129-132. https://doi.org/10.1016/j.bodyim.2009.01.003

Swami, V., & Barron, D. (2019). Translation and validation of body image instruments: Challenges, good practice guidelines, and reporting recommendations for test adaptation. *Body Image, 31*, 204-220. https://doi.org/10.1016/j.bodyim.2018.08.014

Swami, V., Frederick, D. A., Aavik, T., Alcalay, L., Allik, J., Anderson, D., . . . Cunningham, J. (2010). The attractive female body weight and female body dissatisfaction in 26 countries across 10 world regions: Results of the International Body Project I. *Personality and Social Psychology Bulletin, 36*(3), 309-325. https://doi.org/10.1177/0146167209359702

Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics.* International edition. Boston, MA: Pearson.

R Core Team (2019). *R: A language and environment for statistical computing,* Version 3.0. Vienna, Austria: R Foundation for Statistical Computing.

Revelle, W. (2019) Psych: Procedures for Personality and Psychological Research, R Version 1.9.12, Northwestern University, Evanston, Illinois, USA, https://CRAN.R-project.org/package=psych

Tenhunen, S. (2017). Mobile phone use and social generations in rural India. In S. Taipale, T.-A. Wilska, & C. Gilleard (Eds.) *Digital Technologies and Generational Identity* (pp. 134-146), Abingdon, United Kingdom: Routledge.

Terwee, C. B., Mokkink, L. B., Knol, D. L., Ostelo, R. W., Bouter, L. M., & de Vet, H. C. (2012). Rating the methodological quality in systematic reviews of studies on measurement properties: a scoring system for the COSMIN checklist. *Quality of Life Research*, *21*(4), 651-657. doi: 10.1007/s11136-011-9960-1

Thapan, M. (2004). Embodiment and identity in contemporary society: Femina and the 'new'Indian woman. *Contributions to Indian Sociology, 38*(3), 411-444. doi: 10.1177/006996670403800305

The Official Languages Act (1963) Retrieved from https://rajbhasha.gov.in/en/official-languages-act-1963

Thompson, J. K., Heinberg, L. J., Altabe, M., & Tantleff-Dunn, S. (1999). *Exacting Beauty: Theory, Assessment, and Treatment of Body Image Disturbance*. Washington, DC: American Psychological Association.

Thompson, J. K., van den Berg, P., Roehrig, M., Guarda, A. S., & Heinberg, L. J. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders, 35*(3), 293-304. https://doi-org.ezproxy.uwe.ac.uk/10.1002/eat.10257

Trines, S. (2018, September 13). Education in India. *World Education New and Reviews,* Retrieved from https://wenr.wes.org/2018/09/education-in-india

Vandenbosch, L., & Eggermont, S. (2012). Understanding sexual objectification: A comprehensive approach toward media exposure and girls' internalization of beauty ideals, self-objectification, and body surveillance. *Journal of Communication, 62*(5), 869-887. https://doi-org.ezproxy.uwe.ac.uk/10.1111/j.1460-2466.2012.01667.x

Vandenbosch, L., Vervloessem, D., & Eggermont, S. (2013). "I might get your heart racing in my skin-tight jeans": Sexualization on music entertainment television. *Communication Studies, 64*(2), 178-194. https://doi-org.ezproxy.uwe.ac.uk/10.1080/10510974.2012.755640

Wallis, C. (2011). Performing gender: A content analysis of gender display in music videos. *Sex Roles, 64*(3-4), 160-172. doi: 10.1007/s11199-010-9814-2

Wang, Y., Fardouly, J., Vartanian, L. R., & Lei, L. (2019). Selfie-viewing and facial dissatisfaction among Chinese adolescents: A moderated mediation model of general attractiveness internalization and body appreciation. *Body Image, 30*, 35-43. https://doi.org/10.1016/j.bodyim.2019.05.001

Wardle, J., Haase, A. M., & Steptoe, A. (2006). Body image and weight control in young adults: international comparisons in university students from 22 countries. *International Journal of Obesity, 30*(4), 644-651. doi: 10.1038/sj.ijo.0803050

Table 1.

Items of the Internalisation-General subscale and item-factor loadings in EFA (N = 322) and

CFA (in parentheses; n = 315) for girls

Item label	Item	Loading
I compare my body to the bodies of people who are on TV	I02	.760 (.786)
I would like my body to look like the models who appear in magazines	I03	.818 (.862)
I compare my appearance to the appearance of TV and movie stars	I04	.829 (.811)
I would like my body to look like the people who are in movies	I05	.876 (.846)
I wish I looked like the models in music videos	I07	.723 (.764)
I compare my appearance to the appearance of people in magazines	I08	.790 (.848)

Table 2.

Internal consistency, mean scores, and correlations between Internalisation score and convergent measures, for girls (n = 620)

Scale/subscale for convergent validity	Cronbach's alpha	Mean (SD)	Internalisation
Total BESAA	.81	3.67 (.68)	-.332**
BESAA: Appearance Positive	.74	3.63 (.88)	-.027
BESAA: Appearance Negative	.73	3.69 (.85)	-.438**
Total EDE-Q	.91	1.88 (.92)	.435**
EDE-Q: Preoccupation and Control	.84	1.63 (.68)	.380**
EDE-Q: Weight and Shape Concerns	.90	2.10 (1.30)	.411**

Two-tailed; **p<0.01

Table 3.

Items of the Internalisation-General subscale and item-factor loadings in EFA (n = 370) and

CFA (in parentheses; n = 425) for boys

Item label	Item	Loading
I compare my body to the bodies of people who are on TV	I02	.787 (.828)
I would like my body to look like the models who appear in magazines	I03	.798 (.755)
I compare my appearance to the appearance of TV and movie stars	I04	.839 (.861)
I would like my body to look like the people who are in movies	I05	.870 (.852)
I try to look like the people on TV	I09	.798 (.806)

Table 4.

Internal consistency, mean scores, and correlations between Internalisation score and convergent measures, for boys (n=751)

Scale/subscale for convergent validity	Cronbach's alpha	Mean (SD)	Internalisation
Total BESAA	.59	3.97 (.67)	-.184** (-.290**)
BESAA: Appearance Positive	.64	3.72 (.98)	.008 (-.033)
BESAA: Appearance Negative	.55	4.17 (.79)	-.302** (-.460**)
Total EDE-Q	.91	1.82 (.80)	.347**
EDE-Q: Preoccupation and Control	.88	1.71 (.68)	.299**
EDE-Q: Weight and Shape Concerns	.88	2 (1.21)	.312**

Two-tailed; **p<0.01; correlations in brackets were corrected for attenuation