

The Sociocultural Internalization of Appearance Questionnaire – Adolescents (SIAQ-A): Psychometric analysis and normative data for three countries

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ABSTRACT. *A brief measure of internalization of societal norms regarding appearance was developed and validated on six early adolescent female samples (mean ages 11.7-13.3) from three countries (US, Australia, India; total n=2210). Internal consistency levels were uniformly high in all samples, ranging from 0.83 to 0.92. Convergent validity estimates were high in all samples. Level of internalization was significantly positively correlated with levels of body dissatisfaction and restriction for all samples. Internalization was also significantly positively correlated with bulimic behaviors and negatively correlated with levels of self-esteem for the four samples that included these variables. The findings indicate that the Sociocultural Internalization of Appearance Questionnaire – Adolescents (SIAQ-A) may be used to further explore a media influence cross-culturally, allowing for the investigation of the role of internalization as a potential risk factor for body image problems and eating disturbances in different contexts.*

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INTRODUCTION

A variety of interpersonal, biological, and social factors have been posited to play a formative role in the onset and perpetuation of eating and shape-related problems (1, 2). Analysis of sociocultural factors has often targeted media influences, such as exposure to fashion magazines and TV shows that contain unrealistic images and messages regarding thinness and appearance. Recently, work in this area has focused on the construct of internalization of the thin-ideal as a possible risk factor (3). Internalization has been defined as a “buying into” of media based images and messages related to appearance, to the point that the individual desires or engages in behaviors designed to produce these often unrealistic appearance ideals (4).

Much of the work on assessment of internalization has focused on adults, however, Cusumano and Thompson (5) developed a preliminary scale with children (ages 8-11). In their study, internalization predicted variance associated with body dissatisfaction beyond that accounted for by awareness of media influences and pressures ascribed to media

messages and images. Additionally, Smolak et al. (6) revised an adult measure of internalization, the Sociocultural Attitudes Towards Appearance Questionnaire (7) for use with adolescents, finding that internalization was correlated with measures of body dissatisfaction, eating disturbance, and self-esteem.

However, both of these studies were limited in important ways. First, neither study included a cross-validation sample to ensure the psychometric integrity of the derived scale. Additionally, both studies were limited by the relatively small sample sizes, reducing the utility of the findings for normative purposes. Third, both studies included a predominantly Caucasian sample in the US; it would be very instructive to evaluate the internalization construct psychometrically in a more diverse sample.

Recent cross-cultural work has demonstrated that potential risk factors such as media exposure and negative verbal feedback may be associated with eating and body image disturbances in diverse countries (8, 9), however, no cross-cultural work has evaluated the internalization construct. The development of a measure of internalization using samples from several cultures

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is a first step towards this end. Accordingly, the current study was designed to further develop a measure of internalization of media images by using multiple samples from different countries, conducting psychometric evaluations of each sample's data, and also evaluating the relations among internalization, body dissatisfaction, eating disturbance, and self-esteem in an effort to demonstrate construct validity of the measure. Our primary goal was not an examination of the content or phenomenology of media cross-culturally, rather we sought to evaluate the psychometric integrity of a measure of a particularly relevant media influence, internalization, in various cultural contexts.

METHOD

Scale development and initial psychometric evaluation: Studies 1 and 2

Participants

Two hundred and eighty-two female sixth and seventh grade students attending a middle school in Tampa, Florida, US, who had not previously been assessed, served as the initial pool of participants. Their ages ranged from 11 to 14 years ($M=12.1$, $SD=0.76$). Sixty-nine percent of the participants were Caucasian, 12% were Hispanic, 4% were African American, 3% were Native American, 2.5% were Asian, and 9% identified themselves as Other.

A second sample of 187 sixth and seventh grade girls from Tampa, Florida, US was used to cross-validate the measure that resulted from the factor analysis conducted in Study 1. The age range for this second sample was 10 to 13 years ($M=11.5$, $SD=0.65$). Seventy-nine percent of the participants were Caucasian, 7% were Hispanic, 2% were African American, 2% were Asian, 1.5% were Native American, and 8% identified themselves as Other. Thirty-three participants were tested again following a two-week interval to determine test-retest reliability.

Measures – Rationale and development of the new media scale

Although two earlier versions of an internalization measure for adolescents were available, the studies that involved the development of these measures were limited methodologically (see Introduction), therefore, a more extensive piloting and item development process was undertaken for the current investigation. Specifically, one of the prior studies used items developed on adults (6) and the other investigation involved only one sample

of 107 girls (5). Neither study assessed reading level of the items.

Items were constructed for the new scale to reflect different aspects of a media influence, including internalization, awareness, pressures, and comparison. For instance, an internalization item included specific language to reflect the incorporation or internalization of media images and messages, by including phrases such as “makes me want to change my appearance.” As with our earlier work, awareness reflected a simple acknowledgement that appearance was an important aspect of social existence. Pressures and comparison items specifically indexed a tendency to engage in appearance comparison to media images and feeling pressure after exposure to movies, TV, or magazines. Unlike previous investigations, a reading level was computed for the final scale.

Measures

Two measures from the Eating Disorder Inventory-2 (10) were included to test for convergent validity. The Body Dissatisfaction (EDI-BD) scale contains nine items that measure satisfaction with specific body sites such as the waist, hips, and thighs. The Drive for Thinness (EDI-DT) scale measures restricting tendencies, desire to lose weight, and fear of weight gain. Both subscales have received extensive use and psychometric evaluation in adult and adolescent samples (10).

Procedure

All students completed the measures in a classroom setting. Parent consent was obtained for their participation.

Analyses

Principal Axis factor analyses, using a Promax oblique rotation method, was performed to determine which items should be retained. Analysis of the scree plot, eigenvalues, parallel analysis, theory, and ease of interpretation determined the number of factors retained. Standardized regression coefficients were used as factor loadings. Two a priori criteria for item retention were used: items had to load ± 0.40 on the primary factor and not more than ± 0.20 on alternative factors. Test-retest and internal consistencies (Cronbach's alpha) were also computed.

Result

The initial factor analysis indicated that a four-factor solution consisting of the dimensions of Internalization, Information, Comparison, and Awareness best fit the data. The 17-item scale

contained 6 Internalization items, 5 Information items, 3 Comparison items, and 3 Awareness items. The factor analysis on the cross-validation data set indicated that three items did not cross-validate, yielding a set of 5 internalization items, 5 information items, 2 comparison items, and 2 awareness items. Because the study was primarily focused on the development of the internalization scale and due to the low item content of the awareness and comparison dimensions, these scales did not receive further evaluation. However, it was of interest to perhaps more fully evaluate the 5-item information scale. The test-retest reliability of the internalization scale was 0.86 ($n=33$) and the test-retest reliability of the Information factor was 0.68 ($n=30$). The correlation between Internalization and EDI-Body Dissatisfaction was 0.50 ($p<0.01$) and the correlation between Internalization and EDI-Drive for Thinness was 0.51 ($p<0.01$). The correlation between Information and EDI-Body Dissatisfaction was 0.13 (ns) and the correlation between Information and EDI-Drive for Thinness was 0.32 ($p<0.01$).

These analyses indicate that the test-retest reliability for the Information dimension was below the acceptable range of 0.70 and the convergence correlations were quite a bit lower than those found with the Internalization scale. Therefore, the focus of the subsequent studies was on the evaluation of the Internalization scale in a variety of diverse samples. A test of the reading level of the final scale revealed a grade level of 5.2, indicating its appropriateness for use with adolescent girls in grades 5-8 (ages 11-14, the age range of all samples under investigation). The final scale, the Sociocultural Internalization of Appearance Questionnaire – Adolescents (SIAQ-A), is contained in Appendix A (Note that all items were worded in a positive direction; in previous work with adolescents, we have found that reverse-keyed items often cause interpretation difficulties and also compromise internal consistency levels.)

Psychometric evaluation of the SIAQ-A cross-culturally: Studies 3-6

General description of samples and method

Studies 3-6 consisted of three samples from the US (Florida, Ohio) and samples from India and Australia. The US-Florida samples came from public schools in Tampa, FL, US – an urban area with a metropolitan sample of over two million. The US-Ohio sample was from a public school in a central Ohio town of approximately 20,000. The Australian sample was from three schools (two private and one public) in an outer suburban area of Melbourne, Australia, which has a population of approxi-

mately five million. The India sample came from a private school in Mumbai (formerly, Bombay), which has a population of approximately 10 million.

All data were collected in classroom settings and usually as part of larger investigations. Permission for testing was obtained from all participants. Cronbach's alpha was calculated to determine the reliability within the given sample and the exact same measures were used to determine convergent and discriminant validity. Specifically, as was done in the scale development sample, the EDI-DT and EDI-BD were used. Additionally, for four of the samples, the EDI-Bulimia subscale and the Rosenberg Self-Esteem scale were used. The EDI-Bulimia scale, like other subscales of the EDI, has received extensive psychometric evaluation (10). The Rosenberg Self-Esteem Scale (11) is perhaps the most widely used and evaluated measure of general self-esteem and was developed specifically for use with adolescents (12, 13).

In the Australian sample, a short form of the Children's Social Desirability Scale (CDS) (14) was administered as a measure of discriminant validity. The CSD's content is based on the Marlowe Crown Social Desirability Scale but is modified for children (15, 16). In Grade 7 and 8 girls, the short form has an alpha of 0.82 and correlates 0.94 with the long form (14).

RESULTS

The results indicate a remarkable consistency of internalization scores across the diverse samples (Table 1). The mean scale score on the SIAQ-A for the four US samples ranged from 13.3 to 14.1, with the India (14.8) and Australia (15.8) samples a bit higher. Alphas were uniformly high across all six samples (above 0.80). Additionally, correlations were significant in all samples for all measures, indicating that high levels of internalization were associated with higher levels of body dissatisfaction, restriction, and bulimia and lower self-esteem. These r s were quite high, in the 0.40-0.60 range, with the exception of the Indian sample, where the correlation between internalization and body dissatisfaction was 0.30 and the r between internalization and restriction was 0.24. Note also that the BMI/internalization correlations are much lower than the convergent estimates, with the highest estimate of 0.21 for one of the US samples, indicating a shared variance of only 4.4%. For two samples, India and US-Ohio, the r was not significant (0.11 and 0.07, respectively).

TABLE 1

Characteristics of samples: internalization levels, reliability estimates, and convergence ratios (rs between BMI, internalization, EDI scales, and self-esteem).

Data set	Age	N	BMI	SIAQ-A	Alpha	BMI (r)	EDI-BD	EDI-DT	EDI-B	SE
US-F1	11.8 (0.7)	462	19.2 (3.6)	13.8 (6.0)	0.87	0.21*	0.50*	0.51*	NA	NA
US-F2	12.6 (0.8)	384	18.5 (3.2)	13.3 (5.2)	0.87	0.16**	0.46*	0.47*	0.31*	-0.36*
US-F3a	12.6 (0.9)	433	19.7 (3.6)	14.1 (5.5)	0.88	0.15**	0.54*	0.59*	0.37*	-0.44*
US-Ohio	12.9 (1.0)	352	20.1 (3.1)	14.1 (5.3)	0.88	0.07	0.57*	0.59*	0.41*	-0.42*
Australia	13.3 (0.7)	484	21.0 (3.8)	15.8 (5.2)	0.92	0.20**	0.53*	0.65*	0.48*	-0.51*
India	11.7 (0.5)	94	16.9 (2.7)	14.8 (5.3)	0.83	0.11	0.30*	0.24*	NA	NA

Note: ns for BMI data are lower for some samples (US-Ohio =284; Australia =476)

* $p < 0.01$; ** $p < 0.05$; α -item 5 of the scale for this sample contained "movies" in place of "magazines" due to a typing error.

NA: Not available; SIAQ-A: Sociocultural Internalization of Appearance Questionnaire - Adolescents; EDI-BD: Eating Disorder Inventory-Body Dissatisfaction; EDI-DT: Eating Disorder Inventory-Drive for Thinness; EDI-B: Eating Disorder Inventory-Bulimia; SE: Rosenberg Self-Esteem Inventory; US-F: United States-Florida.

In the Australian sample, social desirability correlated at a low level with the internalization scale but due to the large sample size the r was significant ($r = -0.23$, $p < 0.01$), indicating that girls who desired to create an overall positive impression were slightly less likely to endorse an internalization of media images. To examine whether a response set might explain convergent validity findings, partial correlations were used to remove the effects of social desirability from the relationships among internalization and the other variables. These data indicated that there was very little effect of social desirability, witnessed by the minimal change in the r s. The uncorrected r for restriction was 0.65 and the corrected r was 0.64. For the measure of bulimia, the uncorrected r was 0.48 and the corrected r was 0.45. For self-esteem, the uncorrected r was -0.51 and the corrected r was -0.58 . The r between internalization and body dissatisfaction was 0.53 uncorrected for social desirability and 0.62 corrected.

DISCUSSION

These findings indicate that a brief measure of internalization of media attractiveness ideals for adolescents developed on a US sample has excellent psychometric characteristics and convergent validity cross-culturally. Also, discriminant validity was demonstrated by the low correlation with social desirability and analyses that indicated that social desirability did not explain the common variance between internalization and measures of body dissatisfaction and eating disturbance. An evaluation of the normative data indicates that the mean levels are very similar across samples from a variety of sites. We did not address the issue of statisti-

cally significant differences among samples because of the broad range in sample sizes and variability of the data collection methods. These data are best utilized as an indication of preliminary normative data in diverse samples.

Of perhaps more interest and utility from a preventive angle than a test of mean differences across samples, is the finding that correlations among internalization and measures of restriction, body dissatisfaction, bulimia, and self-esteem were significant for all samples. These data indicate that internalization is associated with levels of disturbance and a potentially relevant risk factor for the development of body image and eating disturbances in three different countries. These preliminary findings replicate our earlier work with US, Swedish and Australian samples, in that putative risk factors are similarly associated with levels of body image and eating disturbance (9).

Interestingly, the r s for the Indian sample, although significant, are a bit lower than for the other samples. It should be noted that the sample size (94) for this group is lower than for the other groups and the Indian sample also had the lowest BMI. It is also possible that the attenuated r s for the Indian sample might be due to less variance in the measures for this sample. However, Table 1 demonstrates that the SIAQ-A standard deviation for the Indian sample was comparable to that for the other samples. The standard deviation for the EDI-BD (not shown in the table) for the Indian sample (10.4) was congruent with that for the Australian (10.2) and US samples (Oh=9.9, FL=10.6). Variance for the EDI-DT measure was similar across all samples.

It was also possible that the lower r s for this sample may have resulted from problems with the interpretation of the measures.

Anderson-Fye et al. (8) have advocated caution when using screening instruments developed on Western populations with other samples and King et al. (17) found that North Indian girls misinterpreted some questions on the Eating Attitudes Test. To evaluate this issue, we conducted an internal consistency on the EDI measures, finding a high Cronbach's alpha for both the EDI-BD (0.88) and EDI-DT (0.82), indicating that items for these scales for the Indian sample were answered consistently and the scales were reliable. Finally, it is possible that the somewhat weaker relations among variables for the Indian sample may reflect the relatively more recent introduction of western media to that country, when compared to Australia. One of us (HS) lived in Bombay during the introduction of western media, which began in earnest in the early 90s and currently consists of primarily TV and movies, rather than a print influence. In contrast, western media in all forms have been present in Australia for a much longer period of time. Therefore, in essence, internalization levels in our India sample may be similar to those from the US and Australia in terms of base rates, but not have developed as strong an association with restriction and body dissatisfaction (although, as noted, the correlations were significant).

Although this paper provides an initial test of the utility of the SIAQ-A as a valid and reliable measure for cross-cultural work, it will be important to further evaluate the relationship between the current measure and other measures of media influence. Unfortunately, typical measures of media influence involve some aspect of media exposure, such as magazine readership or TV/movie viewing, that have suspect reliability and validity. In adults, we previously found that exposure, even when quantified carefully, was poorly connected to levels of body dissatisfaction and eating disturbance, whereas, internalization was a very strong predictor (4). It will be useful to not only determine the relations among the SIAQ-A and other measures of media influence, but also to assess the connections among media internalization and internalization of other influences, such as peer groups and family members.

Additionally, evaluation of internalization and its correlates in other countries is indicated, as well as the examination of gender and ethnicity as moderating factors. In particular, a specific focus on how image-based media affect the social and interpersonal life of individuals in India, Australia, and other countries is indicated. Although a great deal of recent cross-cultural work has focused on the evaluation of preva-

lence, very little investigation has dealt with the examination of risk factor correlates of eating disturbance. Internalization has been found to be a causal risk factor for adults, based primarily on US studies (3). Use of the current measure in risk factor work cross-culturally may yield important information regarding its role in predicting onset of eating and body image-related problems in adolescence.

Risk factor work in the US and other countries has led to the creation of prevention and intervention programs that have received empirical evaluation (18, 19). In fact, many of these clinical studies with adults and adolescents have used as a measure of change the internalization subscale of the Sociocultural Attitudes Towards Appearance Questionnaire. The current measure provides an improved index of internalization that might be considered for future work in this area with child and adolescent samples.

APPENDIX

A: Sociocultural Internalization of Appearance Questionnaire - Adolescents

1. I would like my body to look like the bodies of people in the movies.
 - 1 definitely disagree
 - 2 mostly disagree
 - 3 neither agree nor disagree
 - 4 mostly agree
 - 5 definitely agree
2. Looking at magazines makes me want to change the way I look.
 - 1 definitely disagree
 - 2 mostly disagree
 - 3 neither agree nor disagree
 - 4 mostly agree
 - 5 definitely agree
3. Reading magazines makes me want to lose or gain weight.
 - 1 definitely disagree
 - 2 mostly disagree
 - 3 neither agree nor disagree
 - 4 mostly agree
 - 5 definitely agree
4. Reading magazines makes me want to change my appearance.
 - 1 definitely disagree
 - 2 mostly disagree
 - 3 neither agree nor disagree
 - 4 mostly agree
 - 5 definitely agree

5. I would like my appearance to be like the appearance of people in the magazines.
- 1 definitely disagree
 - 2 mostly disagree
 - 3 neither agree nor disagree
 - 4 mostly agree
 - 5 definitely agree

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