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Psychometric Properties of the Social Comparison Motives Scale

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Abstract

This article describes the 19-item Social Comparison Motive Scale [SCMS], a measure of adolescents' motives for social comparison related to pregnancy. Dimensions and items were developed based on adolescent focus groups. The instrument was reviewed for content validity, pilot tested, and administered to 431 adolescents aged 14–18 years. Principal axis factor analysis with oblique rotation supported five dimensions. Convergent and discriminant validity were demonstrated by moderate correlations ($r = .50$) between the SCMS and the Iowa–Netherlands Comparison Orientation Measure and low correlations ($r = .15$) between the SCMS and the Rosenberg Self-Esteem Scale. Cronbach's alphas were .91 overall and .71 to .85 for the subscales. The SCMS demonstrated reliability and validity as a measure of adolescents' motives for comparing themselves with others about pregnancy.

Keywords

social comparison; psychometrics; reliability; validity; adolescents; pregnancy

Despite a decrease in adolescent pregnancy in recent years, 750,000 15- to 19-year-old adolescents in the United States still become pregnant each year (Alan Guttmacher Institute, 2006). The United States has the highest teen pregnancy and birth rates of all industrialized nations (Flanigan, 2001). Nationwide, 63% of adolescents report that they have had sex by the time they finish high school (Centers for Disease Control and Prevention, 2006). The development of effective interventions to prevent pregnancy continues to be a top priority among clinicians and researchers who work with adolescents. A common characteristic of interventions that have been successful is that they are theoretically based. An intriguing theme in the teen pregnancy literature is the idea of pregnancy as an adolescent career choice or alternative, normative life path (Aarons & Jenkins, 2002; Crump et al., 1999; Davies et al., 2004; Merrick, 1995). This theme suggests that adolescents' perceptions of themselves compared to others (social comparisons) may be important when they are making decisions about sexual activity. However, there is no existing measure to evaluate adolescent's motives for comparing themselves with others when they think about pregnancy. This article presents the development of an instrument based on social comparison theory, the Social Comparison Motives Scale (SCMS), and the results of its initial reliability and validity testing.

BACKGROUND AND CONCEPTUAL FRAMEWORK

Social comparison theory was first proposed by Leon Festinger in 1954 and asserts that people learn about themselves through comparisons with other people. In the past two

decades, the theory has been increasingly applied to the study of health-related issues (Buunk & Gibbons, 1997; Tennen, McKee, & Affleck, 2000) and has led to the publication of multiple books and articles (Buunk & Gibbons, 1997; Guimond, 2006; Suls & Wheeler, 2000; Suls & Wills, 1991). Yet despite this recognition of social comparison as a critical component of all social behaviors and interaction, the theory has rarely been applied to the study of adolescents and their day-to-day choices. The conclusions that adolescents reach when they compare themselves with others may influence their decisions about sexual behavior.

Conceptual Framework

Merriam-Webster's Collegiate Dictionary (2003) defines a motive as “something (as a need or desire) that causes a person to act.” Social comparison motive, the construct that is the basis for this instrument, is defined as the need or desire that causes a person to socially compare with others. The motives that people have for socially comparing are important because they quite likely affect who the individual chooses to compare with, their conclusions about those comparisons, and any subsequent actions that they may take based on those comparisons (Helgeson & Mickelson, 1995; Wills, 1981; Wood, 1989). Over the years, theorists and researchers have speculated about various motives for social comparison, but few have provided an overarching framework of the range of motives and none have developed an instrument designed to measure that range of motives.

In his initial conceptualization of social comparison theory, Festinger (1954) identified the primary motive for comparison as self-evaluation. He hypothesized that people choose comparison others who are similar to themselves on the ability, attitude, or outcome in question. Since that time, other motives for comparison have been proposed (Helgeson & Mickelson, 1995; Wills, 1981; Wood, 1989). Wills observed that when people feel threatened, they compare with others who are worse off (downward comparisons) for the purpose of self-enhancement. Wood later asserted that people also compare with those who are better off (upward comparisons) to self-improve. Helgeson and Mickelson identified an additional three motives in their work with undergraduate psychology students—common bond, altruism, and self-destruction—although the results about altruism and self-destruction motives, in particular, have not been widely replicated in other populations. Thus, there is a theoretical base and empirical work that supports social comparison motives for self-evaluation, self-enhancement, and self-improvement among adults, and possible support for motives related to common bond, altruism, and self-destruction. However, the existence of these motives among adolescents, either in general or in relation to a specific behavior such as sexual decision making, have not been studied.

To address this gap in the literature, Tigges (2004, 2008) conducted eight focus groups of 9th-grade adolescents ($N = 50$) to ask adolescents about motives they had for comparing themselves to others when they were thinking about the issues of adolescent pregnancy and pregnancy prevention. Similar to other studies, adolescents readily acknowledged making social comparisons and identified six primary motives. Four of these motives were similar to those found in past work related to adult motives (self-evaluation, self-enhancement, modeling self-improvement, similarity identification) and two were new motives (future self and distancing). These motives and their definitions are listed in Table 1 and form the conceptual framework for the development of the SCMS.

Measurement of Social Comparison

One of the difficulties in studying social comparison activity in adolescents is that there has been little systematic effort to develop reliable and valid measures of social comparison, particularly in nonexperimental or field settings. Much social comparison research has been

conducted using experimental designs and populations of college students. Researchers in field studies, including those involving adolescents, typically used one of two methods for operationalizing social comparisons, that is, comparative ratings or selection.

The use of comparative ratings is one of the most common methods used by researchers (e.g., Blanton, Buunk, Gibbons, & Kuyper, 1999; Tigges, Wills, & Link, 1998). Comparative rating measures ask participants to judge their standing relative to other people on some dimension. For example, adolescents may be asked: "How often do you think you use condoms when you have sex compared to a typical male your age?" (Tigges et al., 1998). Response choices typically range on a 5- to 7-point scale (1 = much worse/much less, 3 or 4 = same, 5 or 7 = much better/much more). Adolescents who chose responses with higher values are assumed to be making downward comparative ratings (comparing themselves with others who are worse off), while those who chose lower values are assumed to be comparing upward (with others who are better off). The problem with comparative rating measures is that participants may not be thinking about social information (social comparison) when they respond. Comparative ratings may reflect a self-serving strategy or cognition, whereby the person gives him- or herself a favorable rating compared to others rather than actual social comparing (Wood, 1996). In addition, comparative ratings provide little definite information about an individual's motivation for comparing.

Selection measures are those in which respondents are asked who they would like to observe, be with, or have information about under certain conditions (e.g., Blanton et al., 1999; Tigges, 2001). For example, adolescents are asked about who they would like to be with in a discussion group about condom use (Tigges, 2001). Once again, respondents are assumed to be making upward or downward comparisons if they chose someone who is doing better or worse than they are, respectively. Although selection measures provide information about who adolescents would like to affiliate with, they provide little information as to why adolescents want to be with that person or have that information.

Thus both of the methods used to measure social comparisons in adolescents have been criticized for a variety of reasons. The overarching problem with both is that they rely on a single item without supported reliability or validity to measure the complex phenomenon of social comparison. In addition, there have been significant concerns as to what these methods are measuring, that is, they may not be measuring social comparison activity. The motive for social comparison (self-improvement, self-enhancement, etc.) is inferred from a response a participant gives or a comparison target a respondent identifies. Wood (1989) observed that the direction of the comparison target (upward, downward, lateral) is not always directly linked to one comparison motive. Current methods of measuring social comparison activity are not accurate when one wants to measure social comparison motives because these methods are indirect. Indirect measurement creates the possibility that some uses may not be identified or may be incorrectly labeled because they are being inferred.

There has been one exception to the lack of instrument development to measure social comparisons. Gibbons and Buunk (1999) developed a reliable and valid 11-item measure of individual differences in social comparison orientation, the Iowa–Netherlands Comparison Orientation Measure (INCOM). The scale includes such items as: "I often compare myself with others with respect to what I have accomplished in life." It identifies people who are high and low in their tendencies to use social comparisons, but does not identify the motives that respondents have for making social comparisons (e.g. for self-improvement, self-enhancement, etc). Future behavioral interventions must be based on an understanding of the reasons that social comparisons are used at various stages of the change process. An instrument such as the SCMS would provide more specific information regarding

motivations for certain comparisons and allow development of interventions that make use of these motivations to promote health behavior.

PROCEDURES FOR INSTRUMENT DEVELOPMENT

Procedures for instrument development included content analysis of focus group transcripts for initial item development; evaluation and rating of content validity; pilot testing; administration to a school-based sample of adolescents to evaluate reliability, construct, convergent, and discriminant validity of the SCMS.

Item Development

Dimensions and items to describe adolescents' motives for social comparisons related to pregnancy prevention were developed based on a content analysis of the transcripts from eight focus groups (four male, four female) of 9th-grade adolescents ($N = 50$) recruited from a public high school. These results have been reported elsewhere (Tigges, 2004, 2008). The initial content analysis resulted in an instrument with eight dimensions and 54 items. Six of the eight dimensions are listed in Table 1. The remaining two dimensions were Target Evaluation, defined as "to decide if someone is useful for social comparison," and Social Support, defined as "to get support for emotional or instrumental reasons."

Content Validity

The eight dimensions and 54 items were rated by a panel of five doctorally prepared content validity experts with expertise in social comparison, adolescent health behavior, and instrument development using a 4-point scale (1 = not relevant, 2 = unable to assess relevance without revision or is in need of such revision that it would no longer be relevant, 3 = relevant but needs minor alteration, 4 = very relevant and succinct; Lynn, 1986). The validity ratings were conducted independently by each expert over the course of three rounds. Dimensions and items rated a three or four on the scale were judged content valid and were retained if five of the five experts agreed.

As a result of the content validity procedures, two of the eight dimensions and 19 of the 54 items were deleted. The expert panel believed that the dimension Target Evaluation described a process that occurs before social comparison begins. In addition, they asserted that the dimension Social Support was a separate construct from social comparison. These two dimensions and their respective 12 items were deleted from the final instrument. An additional 7 items were deleted because they were not judged content valid or clearly worded by the panel. The content validity index (CVI) of the final 35-item instrument was 1.0. The number of items in the developed instrument was consistent with guidelines that an instrument's initial item pool be composed of 1.5 to 2 times as many items as the final instrument (Nunnally & Bernstein, 1994).

Pilot Test

The preliminary SCMS was administered in a pilot test to a convenience sample of 23 9th-grade students in their health education class. Written parental consent and adolescent assent were obtained prior to questionnaire administration. Students completed the SCMS and a brief demographic questionnaire, then rated each item and the directions as "clear" or "unclear" and provided written comments. Students were then encouraged to provide verbal feedback about the instrument and individual items. An a priori criterion of 66% agreement was set for clarity of each scale item and scale instructions, with 80% as the criterion for the overall scale (Imle & Atwood, 1988).

Pilot test results showed that clarity of the items ranged from 78% (1 item) to 100% agreement, with clarity of the overall scale at 94% agreement. Analysis of both written and verbal feedback demonstrated no major problems with any individual item or any systematic trends in item clarity, missing data, or response bias based on gender or ethnicity. The single item with a clarity of 78% was rewritten and resubmitted to the content validity process prior to final data collection.

Description, Administration, and Scoring of the Instrument

Table 1 shows the final six tested dimensions and sample items for the preliminary 35-item SCMS. The items were arranged in random order and were preceded by the stem: "Think about comparisons you make with other people when you think about teen pregnancy or preventing teen pregnancy. When you *compare yourself to others*, how often is this one of the reasons you are comparing? I compare myself . . ." Answer choices for each item ranged from 1 = never to 5 = very often. The middle responses, two through four, were not anchored. Final SCMS scores were calculated by taking the mean of summated items in the total scale or respective subscale. Higher scores on the SCMS or subscale indicated more use of social comparison and lower scores indicated less use either overall or for that subscale (motive), respectively.

METHODS

Sample

The final convenience sample of 431 9th and 10th graders from a public high school ranged in age from 14 to 18 years ($M = 15.27$; $SD = .82$). The sample was 52% female, 66% Hispanic White; 8% Native American; and 7% African American. Ninety-three percent were born in the United States; 3% were born in Mexico. All reported that they could read and speak English equal to or better than Spanish. Thirty-one percent were eligible for free or reduced price lunches at school. Forty five percent were sexually active.

Sample size for the 35-item instrument was based on Knapp and Campbell-Heider's (1989) criteria of 10 participants per item plus an additional 50 participants. For the tests of convergent and discriminant validity, a sample size of 431 allowed for detection of correlations in the small effects range ($r = .14$) for a two-sided test with an alpha of .05 and a power of .85 (Borenstein, Rothstein, & Cohen, 1997).

Procedures

The final 35 items were administered to adolescents during school hours in the cafeteria using anonymous, self-administered surveys. Parents were notified by first class mail of the survey administration and given 4 weeks to decline their child's participation if desired; 28 parents (3%) declined. Students were notified about the survey using an announcement in the school newsletter, posted flyers, and daily announcements in the week prior to the survey. On the day of questionnaire administration, students reported to the cafeteria, were given verbal and written information about the study, and asked to read and sign the study assent form if they were interested in participating. Students who did not wish to participate ($n = 4$; <1%) returned to their classrooms. Questionnaires were distributed as signed assent forms were returned.

Approaches to Reliability and Validity Assessment

Initial item analysis was conducted by examining the means, standard deviations, and ranges of all of the items to assess for significant skew that would result in floor or ceiling effects. Reliability was assessed using Cronbach's alpha coefficients as measures of internal consistency for the items in each factor and for the total scale. The interitem correlation

matrix, average interitem correlation coefficient, item to total correlation coefficients, and information about the alpha estimate if the item was dropped from the scale were used to make decisions about item retention and subscale composition (Ferketich, 1991). Content (described earlier), construct, convergent, and discriminant validity were evaluated for the scale.

Exploratory factor analysis was used to investigate the construct validity of the SCMS. Exploratory analysis, rather than confirmatory analysis, was used because the dimensions and items for the SCMS were based on exploratory empirical work (Tigges 2004, 2008) and are in initial stages of development. Social comparison motives have not been studied in adolescents before and the factor structure (motives and items measuring motives) has not been validated (Byrne, 2001; DeVellis, 2003; Pett, Lackey, & Sullivan, 2003; Thompson, 2004). Common factor analysis with principal axis factoring was chosen because of the assumptions that each item was composed of both systematic and random measurement error (Ferketich & Muller, 1990). The variance of each item was assumed to be composed of common variance (a latent factor), unique item variance, and random error. Oblique (direct oblim) rotation was used because of the assumption that factors would be correlated (someone who compares more for one reason may also compare more for another). Because the more correlated the factors, the more difficult it is to interpret the factor structure loadings, delta (δ) was set at -1.0 in Statistical Package for the Social Sciences (SPSS) to limit the degree of correlation (obliqueness) between factors to approximately 0.30 (Nunnally & Bernstein, 1994; Pett et al., 2003). Factor extraction was guided by application of the Kaiser–Guttman Criteria (eigenvalue greater than one) and scree plot analysis. Criteria for retaining items included: (a) loading of 0.40 or higher on a given factor; (b) loading is at least 0.20 higher than loading on any other factor; and (c) theoretical considerations, including results of the content validity procedures (Pett et al., 2003). Discriminant validity was assessed by comparing scores on the SCMS with scores on the Rosenberg Self-Esteem Scale (SES) (Rosenberg, 1965, 1979). It was hypothesized that self-esteem, as measured by the SES, would have very low correlations with social comparison motives, as measured by the SCMS.

Convergent validity of the SCMS was assessed by comparing the SCMS with the only other well defined and psychometrically sound measure of social comparison activity, the Iowa–Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999).

Other Instruments

The Iowa–Netherlands Comparison Orientation Measure (INCOM)—The INCOM is an 11-item measure of one's tendency to make social comparisons. The scale includes such items as: “I always like to know what others in a similar situation would do.” Response choices range from 1 (disagree strongly) to 5 (agree strongly). Higher scores indicate more of a tendency to socially compare. The scale has demonstrated consistent Cronbach's alphas ranging from .78 to .85 in 10 American samples and .78 to .84 in 12 Dutch samples, including an alpha of .83 when used with American high school students. The scale has well documented and multiple tests of construct and criterion-related validity. Confirmatory factor analysis supports its two-factor structure (interest in ability-related comparisons and opinion-related comparisons) with Goodness-of-Fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI) both $>.95$ (Gibbons & Buunk, 1999). It was hypothesized that individuals who have more of a tendency to make social comparisons would also report more frequent use of social comparisons for specific motives.

The Rosenberg Self-Esteem Scale (SES)—The 10-item SES was originally designed to measure adolescents' global feelings of self-worth. A sample of an item is “On the whole,

I am satisfied with myself.” Response choices range from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate higher self-esteem. The scale has demonstrated unidimensionality, internal consistency (.77 to .88), test–retest reliability (.82 to .85), and convergent and discriminant validity in multiple studies (Blascovich & Tomaka, 1991; Gray-Little, Williams, & Hancock, 1997). The SES has been shown to have only small correlations (–.09 to –.23) with the tendency to socially compare, as measured by the INCOM, in multiple samples (Gibbons & Buunk, 1999).

RESULTS

Initial item analysis demonstrated that item responses for each of the 35 items ranged from 1 (never) to 5 (very often). The means of the individual items ranged from 2.60 to 3.61 ($SD = 1.02$ – 1.47). There were no ceiling or floor effects for any item.

Factor Analysis

Matrix analysis showed that factor analysis was appropriate to analyze the data. Bartlett's Test of Sphericity demonstrated $\chi^2 (595, N = 431) = 6211.40; p = .00$. The Kaiser–Meyer–Olkin measure of sampling adequacy was 0.94. All measures of sampling adequacy (MSA) for the 35 individual items were greater than 0.88.

Initial principal axis factor analysis with oblique rotation of all 35 items resulted in the elimination of 2 items based on weak loadings ($<.40$) and 10 items with similar moderate loadings on multiple factors. Initial decisions were made based on the factor structure matrix and theoretical considerations. The factor analysis was rerun using 23 items and resulted in the 19-item solution presented in this paper. Four additional items did not load on any factor in this final analysis.

The final exploratory factor analysis showed a five-factor solution for the SCMS that explained 50% of the variance (see Table 2). Table 3 shows the final factor pattern matrix for the 19-item scale. Loadings are similar to partial standardized regression coefficients in multiple regression. Table 4 shows the factor structure matrix, equivalent to simple zero order correlations, for the scale. Both the pattern matrix and the structure matrix were analyzed to determine final factor interpretation for the SCMS; the pattern matrix was more heavily weighted in determining simple structure for the SCMS because it controls for correlation among the factors and is most easily interpreted (Hair, Anderson, Tatham, & Black, 1995; Tabachnick & Fidell, 2001). Items in the structure matrix that had less than a 0.20 difference between loadings on multiple factors were assigned to a given factor based on theoretical consistency, including initial conceptualization of the item and dimension, the pattern matrix, and a detailed item and reliability analysis.

The five factors corresponded to five of the hypothesized dimensions from the instrument development phase of the study. The self-evaluation dimension of the instrument was not supported because four of the five self-evaluation items loaded on multiple factors and were dropped from the final instrument. The final proposed self-evaluation item “to see my strengths and weaknesses” loaded on the Future self factor that related to adolescents’ comparisons with others to determine possible desired futures for themselves with respect to pregnancy. As hypothesized, the factors were correlated (see Table 5). The fourth factor, Similarity Identification, was negatively correlated with the other factors.

As a final check of simple structure (Pett et al., 2003), the analyses was also run using principal axis factoring with a varimax rotation (see Table 6). The results of the orthogonal varimax rotation, where factors are assumed to be uncorrelated, were identical to the oblique rotation.

Item Analysis and Reliability

Table 7 shows the means, standard deviations, Cronbach alphas, interitem and item to total correlations for the five subscales and the total scale. Cronbach alphas ranged from .71 to .85 for the subscales, an acceptable range for a newly developed instrument (DeVellis, 2003; Nunnally & Bernstein, 1994). Interitem and item to total correlations for the 19 items were also in the acceptable range of .37 to .67 (Ferketich, 1991; Nunnally & Bernstein, 1994). No items were eliminated because of lack of homogeneity with the construct or redundancy. Cronbach's alpha for the 19-item SCMS was .91.

Convergent and Discriminant Validity

In the test for convergent validity, the SCMS was moderately correlated with the INCOM as hypothesized, $r = .50$, $p = .000$. The INCOM was also moderately correlated with each of the five subscales: Future self ($r = .42$, $p = .000$); Modeling ($r = .41$, $p = .000$), Self-enhancement ($r = .37$, $p = .000$); Similarity identification ($r = .41$, $p = .000$); and Distancing ($r = .32$, $p = .000$). In the test for discriminant validity, the SCMS had a very low correlation with the Rosenberg SES as hypothesized, $r = .15$, $p = .003$. The INCOM had an even lower correlation with the SES, $r = .05$, $p = .337$.

DISCUSSION

There have not been any instruments developed to measure motives for social comparison, yet adolescent's perceptions of themselves within a social context may be important predictors of sexual risk behavior. The overall purpose of this study was to develop an instrument to measure adolescents' motives for comparing themselves with others when they think about adolescent pregnancy and pregnancy prevention. The results provide evidence of preliminary reliability and validity for the newly developed SCMS. Conceptually, items and dimensions for the instrument were developed based on the results of adolescent focus groups (Tigges, 2004, 2008) and a review of the social comparison literature. The items and dimensions were evaluated as content valid by an expert panel and pilot tested with a group of 9th graders. The final instrument was tested with 431 9th- and 10th-grade students. Preliminary construct analysis of the SCMS was supported by factor analysis. The high internal consistency of the overall scale (Cronbach's $\alpha = .91$) and the reasonable consistency of the subscales (Cronbach's $\alpha = .71-.85$) provides additional evidence that the subscales are each measuring specific domains.

The SCMS's construct validity was also supported by tests of convergent and discriminant validity. The SCMS was positively correlated ($r = .50$) with a measure of a related construct, the INCOM, which measures one's tendency to socially compare, and had a very low correlation ($r = .15$) with the Rosenberg SES, a measure of the unrelated construct of self-esteem. The correlation between the INCOM and the SCMS was high, but not high enough to suggest that the SCMS was measuring the exact same construct as the INCOM. Although the correlation between the SCMS and the SES was not zero, the correlation was low, particularly when compared to the higher correlation between the SCMS and the INCOM, and could be explained by shared method variance alone (similar interval level response choices; Streiner & Norman, 2003). Buunk and Gibbons (1997) reported low correlations between the INCOM and the SES in multiple samples and the results of this study are consistent with those results.

One of the debates in the literature related to factor analysis is whether or not one should choose an oblique or an orthogonal rotation. In the past, orthogonal rotations have been preferred because they were easier to interpret. However, some authors have argued that measures of physiological and psychological constructs will have naturally correlated

factors (subcategories) and that orthogonal rotations are inappropriate for these types of constructs (Kline, 1994; Pedhazur & Schmelkin, 1991; Pett et al., 2003). In this study, results of the oblique rotation demonstrated that the factors were correlated. Although the pattern matrix showed clear results, the structure matrix showed several items with loadings on multiple factors, a common problem with oblique rotations. As recommended by a number of authors, several strategies were used to make the decision about where to place the items, including results of the pattern matrix, results of content validity procedures, and additional conceptual considerations (Hair et al., 1995; Pett et al. 2003). In addition, a varimax rotation was conducted and, along with the reliability analysis, supported the more complicated interpretations of the structure and pattern matrices in the oblique rotation.

The five separate motives (subscales) for social comparison supported in this study—Future self, Modeling, Self-enhancement, Similarity identification, and Distancing—are identical to domains identified in earlier work with adolescent focus groups (Tigges, 2004, 2008) and are consistent with the social comparison literature. Interestingly, the Similarity identification factor in this study was negatively correlated with the other four factors. One intriguing possibility for this finding is that, as Wills (1981) and Wood (1989) proposed, many motives for social comparison may be based on comparing oneself with others who are different (in order to see a potential future self, have a model, make one feel better about oneself, or show one what not to become). In contrast, comparisons made to feel similar to or identify with others may involve choosing comparison others who are similar to oneself rather than different. The finding in this study supports earlier work by Helgeson and Mickelson (1995) showing that “common bond” is a significant motivator for social comparison activity.

The self-evaluation domain and items were not supported as a separate construct in this psychometric assessment. Self-evaluation has been widely accepted as a primary motive for social comparison since it was first identified by Festinger (1954). In this study, many of the self-evaluation items loaded on multiple constructs rather than standing alone as a separate construct. It may be that self-evaluation is an underlying component of all motives for social comparison. That is, one must self-evaluate to a certain extent when one chooses comparison others to use for modeling, self-enhancement, similarity identification, and distancing related to pregnancy. Alternatively, it may be that the Future self construct identified in this study reflects self-evaluative motives as they apply to adolescents who are thinking about pregnancy or pregnancy prevention. One of the items in the Future self construct “to see my strengths and weaknesses,” was initially identified as an item in the self-evaluation domain. In addition, several of the other items “to help me decide what I want” or “to think about my future” have distinct self-evaluative overtones.

This study is limited in several ways. First, as in all research, the results of this psychometric assessment need to be replicated in different and heterogeneous populations of adolescents. Second, this study evaluated the reliability and validity of the SCMS, but did not address the sensitivity of the instrument (Streiner & Norman, 2003). It did not address how well the instrument will measure difference between groups or individual change over time. Gibbons and Buunk (2006) have suggested that one's social comparison orientation, or tendency to use social comparisons, may be a consistent trait, rather than a temporary state of individuals. What remains to be determined is whether or not individuals have the tendency to make use of certain types of social comparisons, for example, self-enhancing comparisons consistently over time, or whether motivations for comparisons vary according to situations that one is facing.

In conclusion, the SCMS demonstrates preliminary reliability and validity in measuring the motives that adolescents have for social comparison related to pregnancy and pregnancy

prevention. This instrument provides a tool for studying social influence and adolescent sexual risk behavior. Future research is needed to evaluate the psychometric properties of the SCMS in other populations of adolescents. In addition, the SCMS should be evaluated in studies designed to determine whether or not this instrument may be used to predict sexual risk behavior or the effects of interventions designed to minimize adolescent pregnancy.

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TABLE 1

Preliminary Dimensions and Sample Items of the SCMS

Dimension	Definition	Sample Item
Future consequences	To think about the future and anticipate one's own possible performance or preferences	"To help me think about what I want"
Distancing	To assure oneself that one is not like or will not become like a particular undesirable target	"To show me what not to do"
Modeling	To show one what to be or how to attain a goal	"To find out how to be more like someone"
Self-enhancement	To increase subjective well-being	"To make myself feel better"
Self-evaluation	To evaluate one's standing on given attributes, behaviors, or opinions relative to others	"To see my strengths and weaknesses"
Similarity identification	To feel similar to or connected with others	"To show me that I have a lot in common with someone else"

Total Variance Explained by the Five Extracted Factors of the SCMS; Principal Axis Factoring With Oblimin Rotation

TABLE 2

Factor	Initial Eigenvalues			Extracted Sums of Squares Loadings		
	Total	% Variance	Cumulative %	Total	% Variance	Cumulative %
1	8.76	38.07	38.07	8.27	35.95	35.95
2	1.58	6.88	44.95	1.11	4.82	40.77
3	1.39	6.03	50.98	.94	4.06	44.83
4	1.13	4.91	55.89	.66	2.85	47.68
5	1.07	4.65	60.54	.60	2.60	50.28

Note. When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

TABLE 3

Factor Loadings .40 From the Rotated Pattern Matrix for the SCMS; Principal Axis Factoring With Oblimin Rotation

Dimension/Items	Factor				
	1	2	3	4	5
1. Future self					
To help me think about what I want	.59				
To think about my future	.57				
To learn what to do to improve myself	.44				
To help me decide what I want	.43				
To give me a goal	.42				
To see my strengths and weaknesses	.41				
2. Modeling					
To find out how to be more like someone		.69			
To try to be like someone I admire		.67			
To have someone be a role model for me		.52			
3. Self-enhancement					
To prove to myself that I am very different from someone who is worse off than me			.65		
To make myself feel better			.60		
To prove to myself that I am very different from someone who has certain problems			.52		
To feel good about myself			.51		
4. Similarity identification					
To let me know that we are similar				-.77	
To show me that I have a lot in common with someone else				-.61	
To let me know that I can trust someone else because we are similar				-.56	
5. Distancing					
To show me what not to do					.65
To show me what not to be					.62
To make sure I never become like them					.60

TABLE 4

Factor Loadings .40 From the Rotated Structure Matrix for the SCMS: Principal Axis Factoring With Oblimin Rotation

Dimension/Items	Factor				
	1	2	3	4	5
1. Future self					
To help me think about what I want	.69		.41		
To think about my future	.68				.45
To learn what to do to improve myself	.63			<u>-.51</u>	<u>.48</u>
To help me decide what I want	.61	<u>.45</u>		<u>-.43</u>	
To give me a goal	.62			<u>-.51</u>	<u>.50</u>
To see my strengths and weaknesses	.62			<u>-.48</u>	<u>.47</u>
2. Modeling					
To find out how to be more like someone		.71			
To try to be like someone I admire		.71			
To have someone be a role model for me		.61			
3. Self-enhancement					
To prove to myself that I am very different from someone who is worse off than me			.73		.44
To make myself feel better	.45		.71	<u>-.47</u>	
To prove to myself that I am very different from someone who has certain problems			.65		<u>.51</u>
To feel good about myself	<u>.54</u>		.66	<u>-.49</u>	
4. Similarity identification					
To let me know that we are similar		.41		-.80	
To show me that I have a lot in common with someone else		.48		-.73	.42
To let me know that I can trust someone else because we are similar				-.66	
5. Distancing					
To show me what not to do	.46				.76
To show me what not to be	.45				.70
To make sure I never become like them					.62

Note. Underlined values indicate loadings on more than one factor. Loadings highlighted in bold indicate the factor on which the item was placed.

TABLE 5
Factor Correlations for the SCMS Using Principal Axis Factoring With Oblimin Rotation ($N = 431$)

Factor ($k = \#$ of items)	1	2	3	4	5
1. Future self ($k = 6$)	1.00				
2. Modeling ($k = 3$)	.34	1.00			
3. Self-enhancement ($k = 4$)	.33	.29	1.00		
4. Similarity identification ($k = 3$)	-.40	-.42	-.31	1.00	
5. Distancing ($k = 3$)	.43	.25	.31	-.36	1.00

Note. δ set at -1 to achieve interfactor correlations of approximately .30 (Nunnally & Bernstein, 1994)

TABLE 6
 Factor Loadings .40 From the Rotated Pattern Matrix for the SCMS; Principal Axis Factoring With Varimax Rotation

Dimension/Items	Factor				
	1	2	3	4	5
1. Future self					
To help me think about what I want	.61				
To think about my future	.60				
To learn what to do to improve myself	.53				
To help me decide what I want	.51				
To give me a goal	.53				
To see my strengths and weaknesses	.51				
2. Modeling					
To find out how to be more like someone		.67			
To try to be like someone I admire		.66			
To have someone be a role model for me		.53			
3. Self-enhancement					
To prove to myself that I am very different from someone who is worse off than me			.68		
To make myself feel better			.66		
To prove to myself that I am very different from someone who has certain problems			.59		
To feel good about myself			.59		
4. Similarity identification					
To let me know that we are similar				.72	
To show me that I have a lot in common with someone else				.60	
To let me know that I can trust someone else because we are similar				.54	
5. Distancing					
To show me what not to do					.65
To show me what not to be					.62
To make sure I never become like them					.57

TABLE 7
Factor Means, Standard Deviations, Reliabilities and Item Analyses for the SCMS ($N = 431$)

Factor ($k = \#$ of Items)	M^a	SD	Cronbach's Alpha	InterItem Correlations	Item to Total Correlation
1. Future self ($k = 6$)	3.43	.91	.85	.40-.55	.60-.66
2. Modeling ($k = 3$)	2.87	.97	.71	.37-.52	.48-.60
3. Self-enhancement ($k = 4$)	3.00	1.00	.82	.45-.67	.61-.67
4. Similarity identification ($k = 3$)	3.12	.94	.76	.47-.60	.53-.62
5. Distancing ($k = 3$)	3.39	.96	.75	.45-.58	.52-.61
Total scale ($k = 19$)	3.20	.74	.91		

^aRange: 1.00 to 5.00.