

THE SEXUAL COMMUNICATION SCALE: A MEASURE OF FREQUENCY OF SEXUAL COMMUNICATION BETWEEN PARENTS AND ADOLESCENTS

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ABSTRACT

This study reports on the psychometric properties of a brief instrument that can be used in research or practice to measure the frequency of communication about sexual matters between parents and adolescents: The Sexual Communication Scale (SCS). The instrument was designed to assess communication between a mother/mother-figure and an adolescent and between a father/father-figure and an adolescent. The instrument, which contains 20 items for mothers and the same 20 for fathers, addresses sexual topics ranging from dating to sexual intercourse to homosexuality to HIV/AIDS. The sample used to establish reliability and validity of the SCS consisted of 158 males and females, who were primarily Caucasian, suburban, low to upper middle socioeconomic status, and in the 9th through 12th grades. Factor analyses revealed a strong unidimensional construct. Further, internal consistency was found to be very high. In sum, the SCS demonstrated adequate psychometric properties.

Frequency of sexual communication between parents and adolescents has been studied over the past several decades. In a review of the literature on parent-adolescent communication about sexuality, Miller (1998) reported that results varied widely over a 20-year period (1980–1998). Some studies have found no relations for sexual communication, while other studies have indicated that the construct of parent-adolescent communication about sexual topics is important in understanding a variety of adolescent outcomes, including sexual attitudes and behaviors. However, few researchers have rigorously investigated the measurement of this construct. Researchers have typically created their own measures, but in general have failed to present psychometric information. This shortcoming poses a problem for those who want to utilize well-established instruments with sound psychometric properties.

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For example, Noller and Bagi (1985) created a detailed measure of communication regarding 14 topics, including social issues, sex roles, philosophy, rules of society, sexual information, and sexual attitudes. Participants provided such information as how frequently communication occurred and who initiated it. This instrument was also used in later research (Noller & Callan, 1990), although in both studies no psychometric information was made available. Others have also developed sexual communication instruments to answer their research questions. Raffaelli, Bogenschneider, and Flood (1998) created a measure of parents' perceptions of parent-child communication about three sexual topics (whether it is okay for teenagers to have sex; the dangers or risks of getting AIDS, HIV, or STDs; and birth control). Adolescents' reports of parent-adolescent communication about sexuality were also obtained; using the same five-point scale, they rated whether they had "one good talk with either or both parents in the past year" regarding each of the three topics about which parents were asked (p. 323). The researchers coded responses to reflect the presence or absence of such discussions, a format that did not allow an examination of how much communication occurred. In another study by Raffaelli et al. (1999), they created an 18-topic instrument that used a five-point scale. However, no psychometric information was included, and the authors suggested that there is a need for more reliable and valid ways of measuring parents' and adolescents' perceptions of sexual communication.

Others have created Likert-type measures of frequency of sexual communication, with internal consistency/reliability (Cronbach's alpha) reported (e.g., Bynum, 2001; Jaccard, Dittus, & Gordon, 2000; Lefkowitz, Romo, Corona, Au, & Sigman, 2000; Raymond & Silverberg, 1997). Perhaps the study most closely related to the current study was that conducted by Rosenthal and Feldman (1999), in which Australian, tenth-grade, middle-SES adolescents' perceptions of frequency and importance of communication with parents about 20 sexual topics were explored using a four-point response system. Multiple factors emerged from factor analyses, suggesting that parents and adolescents may report patterns of conversations that vary by topic.

There have been a variety of instruments created, using a host of formats. However, the lack of psychometrically tested instruments has been somewhat problematic. Therefore, the purpose of the present study was to report on the psychometric properties of the Sexual Communication Scale. This instrument was created to measure the frequency of communication about sexual matters between adolescents and either or both of their parents. It is a broad yet relatively brief

measure that can be used by researchers and practitioners. The instrument was created for an earlier study (Somers & Paulson, 2000) in which parent-adolescent communication about sexuality was found to be related to certain adolescent sexual outcomes, such as more conservative attitudes toward premarital sexual intercourse. Expanded psychometric information is included in the current study.

METHOD

Participants

The sample consisted of 158 adolescents (63 males and 95 females), which was approximately half of the 300 who were originally approached for participation in the study. They were drawn from the ninth through the twelfth grades (n s = 40, 35, 23, and 60, respectively), and ranged from 14 to 18 years old (M = 16.2 years, SD = 1.36). They came from both low (42%) and middle or upper middle (58%) socioeconomic status families (as measured by the Hollingshead, 1975, Two-Factor Index) located in two suburban areas of a large Midwestern city. Most were Caucasian (87.3%). Almost all reported living with a mother or female guardian (n = 156) and 132 reported also living with a father or male guardian.

Instrument

The Sexual Communication Scale (SCS) measures the frequency of parent-adolescent communication about a relatively large variety and number of sexual topics (the SCS is available from the first author). The topic list was created by first thoroughly reviewing existing studies on sexual communication and previously created measures. Second, a broad and relatively inclusive list of sexual topics about which parents and adolescents may engage in conversation was compiled.

Many previous studies measured sexual communication dichotomously (e.g., occurred/did not occur) and used only one or a few sexual topics. Adolescents in the current study reported their perceptions of the amount of communication for each of 20 topics using a five-point scale, where 1 = never, 3 = a few times, and 5 = a lot of times. The same list of topics was used for both communication with mothers (Mother Communication) and communication with fathers (Father Communication), resulting in each adolescent responding to a total of 40 items if both a mother/mother-figure and father/father-figure were present in the home. The topics were as follows: (1) sexual reproductive system ("where babies come from"), (2) the father's part in conception,

(3) menstruation ("periods"), (4) nocturnal emissions ("wet dreams"), (5) masturbation, (6) dating relationships, (7) petting ("feeling up"), (8) sexual intercourse, (9) birth control in general, (10) personal use of birth control, (11) consequences of teen pregnancy (other than AIDS), (12) sexually transmitted diseases, (13) love and/or marriage, (14) whether premarital sex is right or wrong, (15) abortion and related legal issues, (16) prostitution, (17) homosexuality, (18) AIDS, (19) sexual abuse, and (20) rape. Responses are summed, with higher scores representing greater amounts of communication. Total score can range from 20 to 100 for each scale (Mother Communication, Father Communication).

Analysis

Pearson product-moment correlation matrices for the 20 Mother Communication items and 20 Father Communication items were separately subjected to principal components exploratory factor analysis with varimax rotation to investigate the orthogonal solution, and direct oblimin rotation to investigate oblique solutions, using SPSS for Macintosh 6.1. As recommended by Gorsuch (1983), multiple criteria were used to determine the number of factors to retain, and included the scree test (Cattell, 1966) and parallel analysis (Horn, 1965). The scree test was used to visually determine the optimum number of factors to retain, while parallel analysis indicated factors considered meaningful (when the eigenvalues from the sample data were larger than those produced by random data containing the same number of participants and factors; see Lautenschlager, 1989). For the parallel analysis, random data and resulting eigenvalues were produced using the Monte Carlo PCA for Parallel Analysis computer program (Watkins, 2000), with 100 replications to provide stable eigenvalue estimates.

RESULTS

Mother Communication

The intercorrelation matrix and descriptive statistics for the 20 Mother Communication items are presented in Table 1. Principal components exploratory factor analysis was used to determine the underlying factor structure of these items. Both the scree test (Cattell, 1966) and parallel analysis (Horn, 1965) suggested a strong one-factor model and a possible two-factor solution. Figure 1 presents the results of the parallel analysis suggesting a possible two-factor solution. Results of the one- and two-factor solutions are presented in Table 2.

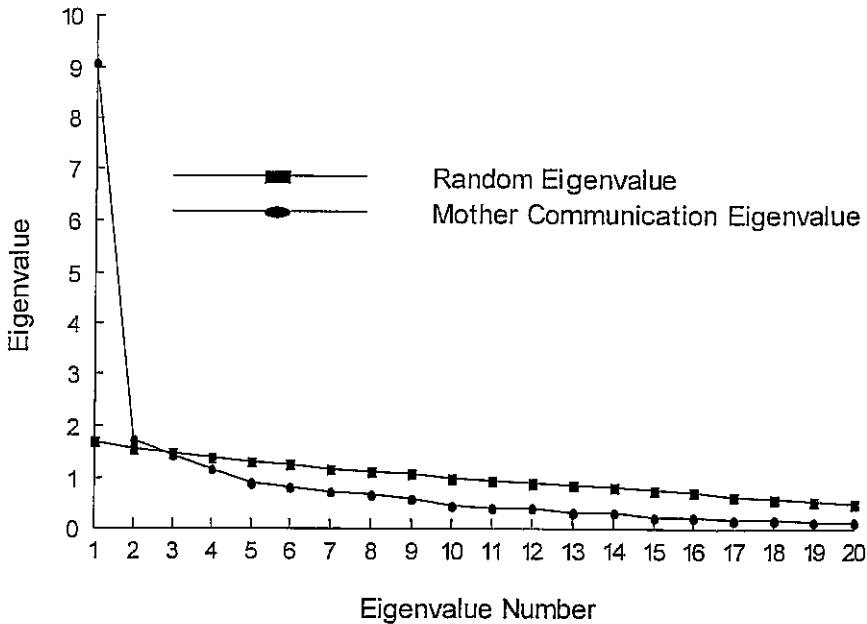
Table 1

Mother Communication Items: Intercorrelation Matrix and Descriptive Statistics

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2	.81																			
3	.66	.50																		
4	.45	.49	.27																	
5	.32	.32	.17	.67																
6	.55	.47	.51	.25	.19															
7	.25	.32	.10	.37	.31	.27														
8	.70	.69	.49	.49	.33	.61	.52													
9	.51	.55	.38	.35	.15	.44	.27	.62												
10	.36	.40	.25	.19	.17	.34	.34	.42	.70											
11	.53	.48	.37	.27	.20	.52	.31	.61	.53	.46										
12	.56	.49	.38	.33	.20	.48	.24	.61	.61	.47	.79									
13	.56	.46	.54	.19	.14	.64	.20	.57	.43	.32	.51	.49								
14	.49	.46	.42	.28	.21	.42	.27	.52	.33	.27	.49	.42	.55							
15	.50	.39	.48	.29	.13	.46	.12	.43	.44	.33	.43	.44	.59	.61						
16	.42	.31	.35	.27	.20	.30	.11	.39	.32	.19	.30	.39	.37	.41	.50					
17	.49	.32	.36	.25	.18	.32	.13	.43	.29	.21	.30	.41	.42	.48	.52	.61				
18	.53	.43	.42	.30	.16	.55	.21	.56	.46	.38	.64	.77	.53	.46	.52	.42	.55			
19	.39	.36	.34	.22	.11	.39	.25	.48	.38	.36	.48	.53	.45	.50	.43	.44	.43	.58		
20	.43	.44	.45	.32	.27	.45	.31	.53	.41	.35	.49	.53	.49	.54	.49	.46	.39	.55	.76	
M	2.51	2.29	3.00	1.38	1.23	3.67	1.57	2.66	2.29	1.63	2.71	2.47	3.21	2.45	2.54	1.71	1.82	2.80	2.04	2.26
SD	1.23	1.26	1.53	.70	.53	1.34	1.07	1.36	1.39	1.23	1.50	1.45	1.47	1.49	1.46	1.11	1.07	1.47	1.33	1.42

Figure 1

Parallel Analysis for Mother Communication



The one-factor solution illustrated in Table 2 indicates that all items except item 5 (.37) had salient factor coefficients ($\geq .40$) that were judged to be fair to excellent (Comrey & Lee, 1992). The internal consistency (α) of the 20-item, one-factor Mother Communication scale was .93.

The two-factor solution illustrated in Table 2 indicates a large first factor that accounted for 45.3% of the variance and a smaller second factor that accounted for 8.7% of the variance. Both orthogonal (varimax) and oblique (direct oblimin) rotations are presented and the results are quite similar. In the oblique solution, the correlation between Factor 1 and Factor 2 was .40. Items 3, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20 were strongly associated with Factor 1, while items 4, 5, and 7 were strongly associated with Factor 2. Items 1, 2, 8, 9, and 10 were associated with both factors (cross-loaded) and thus considered problematic. Alpha coefficients were calculated for the combined items that were strongly associated with the two factors listed above. The

Table 2

Principal Components Factor Analysis Results and Factor Structure Coefficients for Mother Communication Items

Item	Factor 1	Varimax Structure Coefficient		Oblimin Structure Coefficient	
		Factor 1	Factor 2	Factor 1	Factor 2
1	<u>.80</u>	<u>.63</u>	<u>.51</u>	<u>.75</u>	<u>.59</u>
2	<u>.73</u>	<u>.48</u>	<u>.63</u>	<u>.64</u>	<u>.69</u>
3	<u>.64</u>	<u>.61</u>	.23	<u>.65</u>	.30
4	<u>.51</u>	.13	<u>.79</u>	.34	<u>.80</u>
5	.37	-.01	<u>.74</u>	.20	<u>.73</u>
6	<u>.70</u>	<u>.63</u>	.30	<u>.69</u>	.38
7	<u>.41</u>	.10	<u>.64</u>	.28	<u>.65</u>
8	<u>.83</u>	<u>.59</u>	<u>.63</u>	<u>.75</u>	<u>.70</u>
9	<u>.70</u>	<u>.53</u>	<u>.47</u>	<u>.64</u>	<u>.54</u>
10	<u>.56</u>	<u>.40</u>	<u>.42</u>	<u>.50</u>	<u>.47</u>
11	<u>.74</u>	<u>.65</u>	.37	<u>.72</u>	<u>.45</u>
12	<u>.78</u>	<u>.70</u>	.35	<u>.77</u>	<u>.44</u>
13	<u>.73</u>	<u>.75</u>	.16	<u>.76</u>	.26
14	<u>.69</u>	<u>.68</u>	.20	<u>.71</u>	.29
15	<u>.69</u>	<u>.75</u>	.09	<u>.74</u>	.19
16	<u>.58</u>	<u>.63</u>	.07	<u>.63</u>	.15
17	<u>.61</u>	<u>.67</u>	.06	<u>.66</u>	.15
18	<u>.77</u>	<u>.77</u>	.20	<u>.80</u>	.30
19	<u>.67</u>	<u>.72</u>	.11	<u>.72</u>	.21
20	<u>.73</u>	<u>.69</u>	.26	<u>.74</u>	.35
Eigenvalue		9.06	1.74		
Variance explained		45.3%	8.7%		

Note. Coefficients $\geq .40$ were considered salient and are underlined.

internal consistency (α) of Factor 1 was .92, while the internal consistency of Factor 2 was .40. Alpha coefficients were also calculated for the two factors when assigning items that cross-loaded to the factor with the highest factor coefficient. Internal consistency for Factor 1 was .93, while internal consistency for Factor 2 was .78. Mother Communication Factor 1 is comprised of items 1, 3, 6, 9, 11, 12, 13, 14, 15, 16, 17, 18, 19, and 20. Mother Communication Factor 2 is comprised of items 2, 4, 5, 7, 8, and 10.

Father Communication

The intercorrelation matrix and descriptive statistics for the 20 Father Communication items are presented in Table 3. Principal components exploratory factor analysis was used to determine the underlying factor structure of these items. As with Mother Communication, both the scree test (Cattell, 1966) and parallel analysis (Horn, 1965) suggested a strong one-factor model and a possible two-factor solution. Figure 2 presents the results of the parallel analysis suggesting a possible two-factor solution. Results of the one- and two-factor solutions are presented in Table 4.

The one-factor solution illustrated in Table 4 indicates that all items had salient factor coefficients ($\geq .40$) that were judged to be fair to excellent (Comrey & Lee, 1992). The internal consistency (α) of the 20-item, one-factor Father Communication scale was .92.

As with Mother Communication, the two-factor model illustrated in Table 4 indicates a large first factor that accounted for 41.4% of the variance and a smaller second factor that accounted for 11.2% of the variance. Both orthogonal (varimax) and oblique (direct oblimin) rotations are presented and, as with Mother Communication, the results are quite similar. In the oblique solution, the correlation between Factor 1 and Factor 2 was .39. Items 3, 6, 11, 13, 15, 17, 18, 19, and 20 were strongly associated with Factor 1, while items 4, 5, 7, and 10 were strongly associated with Factor 2. Items 1, 2, 8, 9, 12, 14, and 16 were associated with both factors (cross-loaded) in either the orthogonal or oblique rotations and therefore considered problematic. Alpha coefficients were calculated for the combined items that were strongly associated with the two factors listed above. The internal consistency (α) of Factor 1 was .86, while the internal consistency of Factor 2 was .78. Alpha coefficients were also calculated for the two factors when assigning items that cross-loaded to the factor with the highest factor coefficient. Internal consistency for Factor 1 was .91, while internal consistency for Factor 2 was .82. Father Communication Factor 1 is

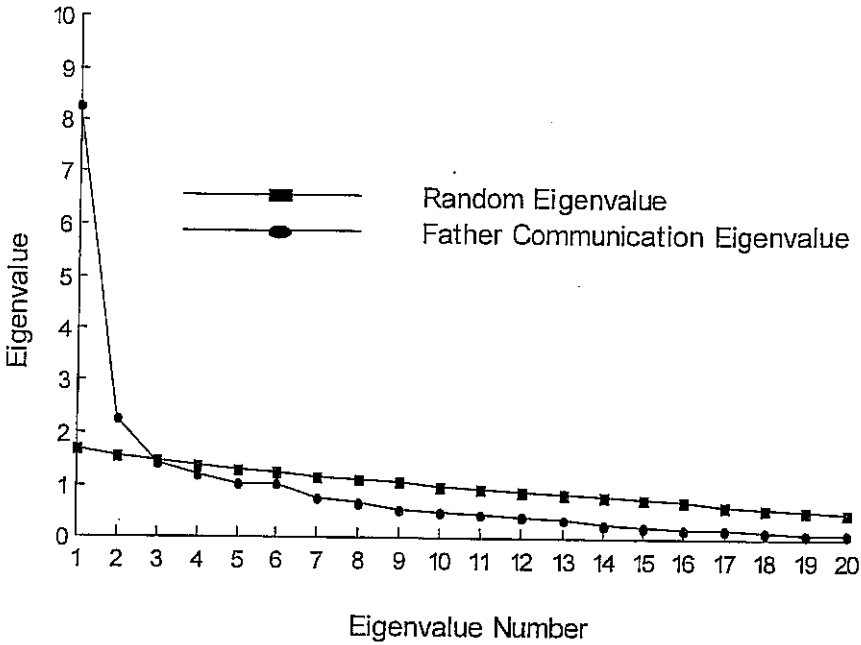
Table 3

Father Communication Items: Intercorrelation Matrix and Descriptive Statistics

Item	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1																				
2	.82																			
3	.37	.45																		
4	.17	.28	.17																	
5	.30	.42	.36	.64																
6	.29	.32	.21	.22	.20															
7	.31	.49	.34	.68	.53	.37														
8	.67	.74	.38	.50	.53	.43	.65													
9	.47	.46	.33	.16	.26	.29	.35	.46												
10	.32	.37	.18	.44	.47	.26	.41	.46	.70											
11	.54	.52	.27	.23	.18	.52	.35	.58	.49	.32										
12	.59	.59	.31	.39	.35	.46	.42	.64	.47	.42	.84									
13	.45	.39	.27	.05	.10	.52	.19	.33	.35	.12	.56	.50								
14	.36	.39	.37	.36	.39	.40	.48	.51	.43	.30	.63	.56	.50							
15	.38	.33	.29	.08	.16	.36	.22	.35	.40	.11	.46	.44	.56	.56						
16	.26	.26	.33	.37	.45	.26	.44	.41	.29	.18	.29	.42	.26	.45	.40					
17	.32	.34	.35	.05	.20	.21	.19	.29	.33	.14	.21	.32	.38	.30	.56	.44				
18	.48	.41	.34	.07	.11	.56	.21	.49	.43	.20	.70	.67	.56	.45	.56	.33	.37			
19	.32	.29	.26	.28	.37	.37	.30	.40	.38	.31	.38	.44	.30	.36	.34	.44	.33	.50		
20	.33	.33	.42	.12	.17	.42	.20	.35	.28	.09	.35	.31	.39	.42	.30	.28	.30	.50	.63	
M	1.51	1.46	1.22	1.14	1.13	2.48	1.31	1.73	1.39	1.24	1.77	1.76	2.14	1.67	1.63	1.32	1.46	1.86	1.44	1.53
SD	.92	.82	.63	.52	.50	1.32	.90	1.17	.89	.78	1.23	1.20	1.29	1.18	1.06	.79	.90	1.21	.96	1.05

Figure 2

Parallel Analysis for Father Communication



comprised of items 1, 2, 3, 6, 9, 11, 12, 13, 14, 15, 17, 18, 19, and 20. Father Communication Factor 2 is comprised of items 4, 5, 7, 8, 10, and 16.

Although a two-factor solution is suggested by the scree test (Cattell, 1966) and parallel analysis (Horn, 1965), the one-factor solution is the more parsimonious solution and much less problematic given this set of data. All items (except item 5 for Mother Communication) had salient factor coefficients ($\geq .40$) in the one-factor solution. Further, the 20-item Mother Communication scale ($\alpha = .93$) and the 20-item Father Communication scale ($\alpha = .92$) demonstrated excellent internal consistency.

Table 4

Principal Components Factor Analysis Results and Factor Structure Coefficients for Father Communication Items

Item	Factor 1	Varimax Structure Coefficient		Oblimin Structure Coefficient	
		Factor 1	Factor 2	Factor 1	Factor 2
1	<u>.70</u>	<u>.60</u>	.37	<u>.68</u>	<u>.45</u>
2	<u>.74</u>	<u>.53</u>	<u>.52</u>	<u>.65</u>	<u>.59</u>
3	<u>.54</u>	<u>.42</u>	.33	<u>.49</u>	.39
4	<u>.47</u>	-.03	<u>.83</u>	.19	<u>.82</u>
5	<u>.54</u>	.07	<u>.81</u>	.28	<u>.81</u>
6	<u>.60</u>	<u>.60</u>	.20	<u>.63</u>	.28
7	<u>.63</u>	.19	<u>.80</u>	.39	<u>.81</u>
8	<u>.81</u>	<u>.49</u>	<u>.69</u>	<u>.66</u>	<u>.75</u>
9	<u>.65</u>	<u>.51</u>	<u>.41</u>	<u>.60</u>	<u>.47</u>
10	<u>.52</u>	.15	<u>.67</u>	.33	<u>.68</u>
11	<u>.77</u>	<u>.76</u>	.27	<u>.80</u>	.37
12	<u>.81</u>	<u>.69</u>	<u>.44</u>	<u>.78</u>	<u>.53</u>
13	<u>.62</u>	<u>.78</u>	-.01	<u>.75</u>	.10
14	<u>.73</u>	<u>.60</u>	<u>.40</u>	<u>.69</u>	<u>.48</u>
15	<u>.62</u>	<u>.73</u>	.05	<u>.72</u>	.15
16	<u>.58</u>	.38	<u>.45</u>	<u>.49</u>	<u>.50</u>
17	<u>.50</u>	<u>.55</u>	.10	<u>.56</u>	.18
18	<u>.72</u>	<u>.84</u>	.07	<u>.83</u>	.18
19	<u>.62</u>	<u>.53</u>	.33	<u>.60</u>	.39
20	<u>.56</u>	<u>.62</u>	.10	<u>.62</u>	.19
Eigenvalue		8.28	2.25		
Variance explained		41.4%	11.2%		

Note. Coefficients $\geq .40$ were considered salient and are underlined.

DISCUSSION

The goal of this study was to help develop a measure of parent-adolescent sexual communication so as to add to the relatively small number of instruments available. Results generally suggested that the individual sexual topics factored into one primary construct. This is divergent from past findings, in which a similar list of topics divided into multiple factors (Rosenthal & Feldman, 1999).

Not only does the present study report on an additional measure of parent-adolescent sexual communication, with accompanying psychometric information, but it also offers a different perspective on the nature of this construct. Results suggested that for the purpose of assessing parent-adolescent sexual communication, a single composite score may provide important information, as does examining levels of communication in specialized topic areas. The items as a whole appear to provide a general picture of how much dialogue is occurring about sexual issues. This will be of greatest utility to those researchers and practitioners who are interested in a quick assessment of how frequently parents and adolescents communicate about sexual topics.

There is evidence that higher scores on this instrument are related to certain sexual outcomes, such as more conservative attitudes toward premarital sexual intercourse (Somers & Paulson, 2000). However, further investigations are needed to assess the concurrent validity of the SCS with other measures, as well as criterion-related validity of scores on the SCS with other related outcomes. Future studies could also examine levels of agreement between parents and adolescents in their reports of sexual communication, as others have reported differences in parents' and adolescents' perceptions of various issues (e.g., Paulson & Spota, 1996). Of particular interest is whose perceptions are more predictive of sexual outcomes. That issue needs to be explored in regard to this instrument.

There is also support for a possible multidimensional solution, as was found by Rosenthal and Feldman (1999). However, the two-factor solution reported here ("general sexual communication" and "personal sexual communication") is tentative, and needs to be further examined as well as replicated. The cross-loading items may be related to the smaller second factor pulling variance (and items) away from the larger first factor (Comrey & Lee, 1992). If the second factor is of potential value, adding items may help better define and strengthen this dimension and result in higher internal consistency.

A larger sample size with more variability would contribute to increased confidence in this set of results. The discrepancy between studies suggests on the one hand that more work may be required on the

construct of parent-adolescent sexual communication, and on the other hand that there are now multiple measurement options which are likely to suit varying research purposes.

Another interesting pattern in the tentative two-factor solution is that the item composition of Factor 1 ("general sexual communication") and Factor 2 ("personal sexual communication") for both Mother Communication and Father Communication is quite similar. In the Father Communication scale, cross-loading problems with items 12 (STDs), 14 (whether premarital sex is right or wrong) and 16 (prostitution) prevented perfect item composition for Factor 1 when compared to the Mother Communication scale. In the Mother Communication scale, the cross-loading problem with item 10 (personal use of birth control) prevented perfect item composition for Factor 2 when compared to the Father Communication scale.

Conclusion

The purpose of the present study was to report on the psychometric properties of the SCS, an instrument that was designed to measure the frequency of parent-adolescent communication about sexual topics. This was accomplished, and the study also expanded on prior studies in key ways. The results supported the use of various sexual topics to assess total frequency of communication between parents and adolescents. In summary, the SCS demonstrated adequate psychometric properties, and should prove to be a useful tool for researchers and practitioners.

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