

Confirmatory Factor Analysis of the School Refusal Assessment Scale-Revised: Child and Parent Versions

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Published online: 3 December 2005

The School Refusal Assessment Scale-Revised (SRAS-R) is an instrument designed to evaluate the relative strength of four functional conditions of school refusal behavior in youth. Although previous work has shown the scale's child and parent versions to show good reliability, verification of the SRAS-R factor structure remains necessary. The present study investigated administrations of the child and parent versions of the SRAS-R (SRAS-R-C and SRAS-R-P) using confirmatory factor analysis. For both measures, four-factor models were supported following the removal of two SRAS-R-C and three SRAS-R-P items. Three-factor and two-factor models for each SRAS-R version were not supported. Ramifications of these results for use of the SRAS-R are discussed.

KEY WORDS: school refusal assessment scale-revised.

School refusal behavior is a common mental, health, and educational problem that refers to a child-motivated refusal to attend school and/or difficulties remaining in classes for an entire day (Kearney & Silverman, 1996). The clinical characteristics of this population have been described elsewhere, but largely consist of a heterogeneous array of internalizing and externalizing behavior problems and troublesome family dynamics (Kearney, 2001; Kearney & Albano, 2004). Left unaddressed, school refusal behavior can lead to serious long-term consequences such as school dropout, delinquency, and, in adulthood, marital, occupational, and psychiatric problems (Hibbett & Fogelman, 1990).

Although various treatments for youths with school refusal behavior have been evaluated in recent years, comprehensive taxonomic and assessment strategies for this population remain needed (Kearney, 2003). One strategy that has been developed is a functional model that organizes this population according to the negative and positive reinforcers received for problematic absenteeism. In this model, youths are hypothesized to refuse school to (1) avoid stimuli that provoke negative affectivity, (2) escape

aversive social and/or evaluative situations, (3) pursue attention from significant others, and/or (4) pursue tangible reinforcers outside of school.

The four functional conditions listed here were originally intended to be orthogonal in nature, and each was to be assigned a specific prescriptive treatment package to bolster therapeutic effectiveness. Indeed, the model has been used preliminarily to predict successful and unsuccessful prescriptive treatment for youths with school refusal behavior (Chorpita, Albano, Heimberg, & Barlow, 1996; Kearney, 2002a; Kearney, Pursell, & Alvarez, 2001; Kearney & Silverman, 1990, 1999).

A primary assessment tool regarding this functional model is the School Refusal Assessment Scale (SRAS) (Kearney & Silverman, 1993). The original SRAS was a 16-item instrument that contained 4 items devoted to each of the 4 functional conditions mentioned above. Child and parent versions of the scale were developed. Item means were averaged across administered versions of the scale to derive a functional profile that included the primary and secondary reasons why a particular child was refusing school. The original SRAS versions were largely reliable across time and between parent raters.

In addition, as expected, the negative reinforcement functions (1 and 2) were uncorrelated with the positive reinforcement functions (3 and 4). However, the negative reinforcement functions tended to be highly intercorre-

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lated (Higa, Daleiden, & Chorpita, 2002). These findings have raised the question of whether the SRAS and the functional model it represents are best illustrated by a two-factor (i.e., negative versus positive reinforcement) or a three-factor (i.e., negative reinforcement, attention, and tangible reinforcement) model. One of the goals of the present study was to statistically determine the fit of these various models.

The SRAS was later revised in an attempt to increase the psychometric strength of the scale and to reflect changes in the functional model over time. In the revised child and parent versions (SRAS-R-C and SRAS-R-P), 24 items were equally divided across the 4 functions. All SRAS-R-C and SRAS-R-P items displayed good test-retest reliability and 22 SRAS-R-P items displayed good parent interrater reliability. In addition, the negative reinforcement functions, as expected, were more greatly associated with internalizing behavior problems and diagnoses than the positive reinforcement functions. Positive reinforcement functions were more greatly associated, as expected, with externalizing behavior problems and diagnoses. Functional scores from the SRAS and SRAS-R also correlated significantly, providing some evidence of concurrent validity for the revised scale (Kearney, 2002b).

Given a lack of clarity about the orthogonal nature of the proposed functional conditions, examining the structure of the School Refusal Assessment Scale-Revised using confirmatory factor analysis (CFA) would seem crucial. When scale factors have been initially hypothesized or explicated, use of CFA is most appropriate to verify factor structure (Thompson, 2004). The purpose of this study was thus to conduct a CFA on the child and parent versions of the School Refusal Assessment Scale-Revised to determine the validity of their factor structure. The four-factor structure, with accompanying items, was expected to be supported for both versions. In addition, three- and two-factor structures were not expected to be supported.

METHOD

Participants

Data for this study included SRAS-R-C and SRAS-R-P administrations from a previous examination of the scales' psychometric strength (Kearney, 2002b) as well as new administrations. For youths, previous SRAS-R-C administrations included 115 youths housed at a juvenile detention facility and 53 youths referred to a specialized university outpatient clinic (total, 168). The characteristics of this sample have been described previously (Kearney,

2002b), but all had school refusal behavior as a primary behavior problem. New SRAS-R-C administrations included 45 youths referred to a specialized university outpatient clinic for primary school refusal behavior. These youths were largely male (75.6%), had a mean age of 11.4 years ($SD = 2.53$), had missed an average of 44.7% of school time at assessment ($SD = 31.2$), and were European American (84.4%), Hispanic (8.9%), African American (2.2%) or other (4.4%). These characteristics were equivalent to those of the previous samples (Kearney, 2002b). A total of 213 SRAS-R-C administrations were thus utilized for this study.

For parents, previous SRAS-R-P administrations included parents of the youths referred to a specialized university outpatient clinic (no parent data had been collected from the juvenile detention sample). These administrations included 112 from the parent interrater reliability analysis and 26 from the parent test-retest reliability analysis who were not part of the interrater reliability analysis (total, 138). New scale administrations included 45 parents of youths recently referred to a specialized university outpatient clinic. Families of these youths were largely dual-parent in nature (60.0%) with a mean annual income of \$48,670. These characteristics were equivalent to those of the previous sample (Kearney, 2002b). A total of 183 SRAS-R-P administrations were thus utilized for this study.

Measure

The School Refusal Assessment Scale-Revised is a 24-item measure of the relative strength of four hypothesized functions of school refusal behavior in children and adolescents. Six items are devoted to each functional condition in sequential order: items 1, 5, 9, 13, 17, and 21 comprise the avoidance of stimuli provoking negative affectivity function, items 2, 6, 10, 14, 18, and 22 comprise the escape from aversive social and/or evaluative situations function, items 3, 7, 11, 15, 19, and 23 comprise the attention-seeking function, and items 4, 8, 12, 16, 20, and 24 comprise the tangible reinforcement function. Items are rated on a Likert-type scale from 1 (*never*) to 7 (*always*). Item wording can be found in Kearney (2002b).

Test-retest reliability across 7–14-day intervals for the four SRAS-R-C functional condition scores has been found to be .64, .73, .78, and .56, respectively. Test-retest reliability across 7–14-day intervals for the four SRAS-R-P functional condition scores has been found to be .63, .67, .78, and .61, respectively. All SRAS-R-C and SRAS-R-P items also displayed statistically significant test-retest reliability. Interrater reliability across mother and father

reports for the four SRAS-R-P functional condition scores has been found to be .57, .49, .64, and .46, respectively. All values represent Pearson coefficients and are statistically significant (Kearney, 2002b).

Procedure and data analysis

Child and parent versions of the SRAS-R were administered as part of a comprehensive assessment of youths with primary school refusal behavior. Assessments were conducted within a juvenile detention facility or university-based outpatient clinic. Within the clinic setting, versions of the SRAS-R were administered in conjunction with structured diagnostic interviews, child self-report measures of negative affectivity, general and social anxiety, fear, depression, and self-esteem, and parent and teacher measures of family environment and internalizing and externalizing behavior problems. All parties were instructed to answer SRAS-R items independently and to consult with their assigned therapist when questions arose. Interviews with school officials, reviews of relevant records, and behavioral observations were also conducted.

Data analysis for the SRAS-R-C and SRAS-R-P involved confirmatory factor analysis (CFA) using EQS (Bentler & Wu, 2005). The original four-factor models of the SRAS-R-C and SRAS-R-P were subjected to CFA, and three goodness-of-fit indices were examined to test the models. These indices included the comparative fit index (CFI), standardized root mean-square residual (SRMR), and root mean square error of approximation (RMSEA). Multiple indices of fit are typically recommended when conducting a CFA. Acceptable goodness-of-fit in this study was defined as CFI values of .90+ and SRMR and RMSEA values of <.10. In addition, the upper end of the 90% confidence interval for the RMSEA should be <.10 (Kline, 2005). Model trimming consisted of removing the weakest paths until criteria for goodness-of-fit were met.

RESULTS

School Refusal Assessment Scale-Revised-Child

The original four-factor, 24-item model for the SRAS-R-C proposed by Kearney (2002b) was not supported by all three indices of fit (CFI = .861, SRMR = .085, and RMSEA = .073, 90% confidence interval: .064–.082). Model trimming then consisted of removing the weakest path coefficients from this model, which included items 20 (.20) and 24 (.31). Removal of these items produced a four-factor model that was supported by

all three indices of fit (CFI = .911, SRMR = .075, and RMSEA = .062, 90% confidence interval: .052 – .072) (see Fig. 1). Cronbach's alpha values for each of the four functional conditions, respectively, were .82, .80, .87, and .74.

An examination of alternative models was conducted, but none were supported by all three indices of fit. A three-factor solution that combined functions 1 and 2 (negative reinforcement) (CFI = .806) and a similar three-factor solution with items 20 and 24 removed (CFI = .852) were not supported. In addition, a two-factor solution that combined functions 1 and 2 (negative reinforcement) and combined functions 3 and 4 (positive reinforcement) (CFI = .713) was not supported.

School Refusal Assessment Scale-Revised-Parent

The original four-factor, 24-item model for the SRAS-R-P proposed by Kearney (2002b) was not supported by all three indices of fit (CFI = .827, SRMR = .094, and RMSEA = .090, 90% confidence interval: .079–.101). Model trimming then consisted of removing the weakest path coefficients from this model, which included items 20 (.07), 24 (.44), and 18 (.47). Removal of these items produced a four-factor model that was supported by all three indices of fit (CFI = .938, SRMR = .078, and RMSEA = .069, 90% confidence interval: .047 – .089) (see Fig. 2). Cronbach's alpha values for each of the four functional conditions, respectively, were .86, .86, .88, and .78.

An examination of alternative models was conducted, but none were supported by all three indices of fit. A three-factor solution that combined functions 1 and 2 (negative reinforcement) (CFI = .723) and a similar three-factor solution with items 18, 20, and 24 removed (CFI = .776) were not supported. In addition, a two-factor solution that combined functions 1 and 2 (negative reinforcement) and combined functions 3 and 4 (positive reinforcement) (CFI = .599) was not supported.

DISCUSSION

This study is the first to examine the factor structure of the child and parent versions of the School Refusal Assessment Scale-Revised using confirmatory factor analysis. Results indicated that the four-factor structures of the SRAS-R-C and SRAS-R-P were supported with the exception of a few items. In particular, items 20 and 24 seemed to detract from the SRAS-R-C and SRAS-R-P. Item 18 also seemed to detract from the SRAS-R-P.

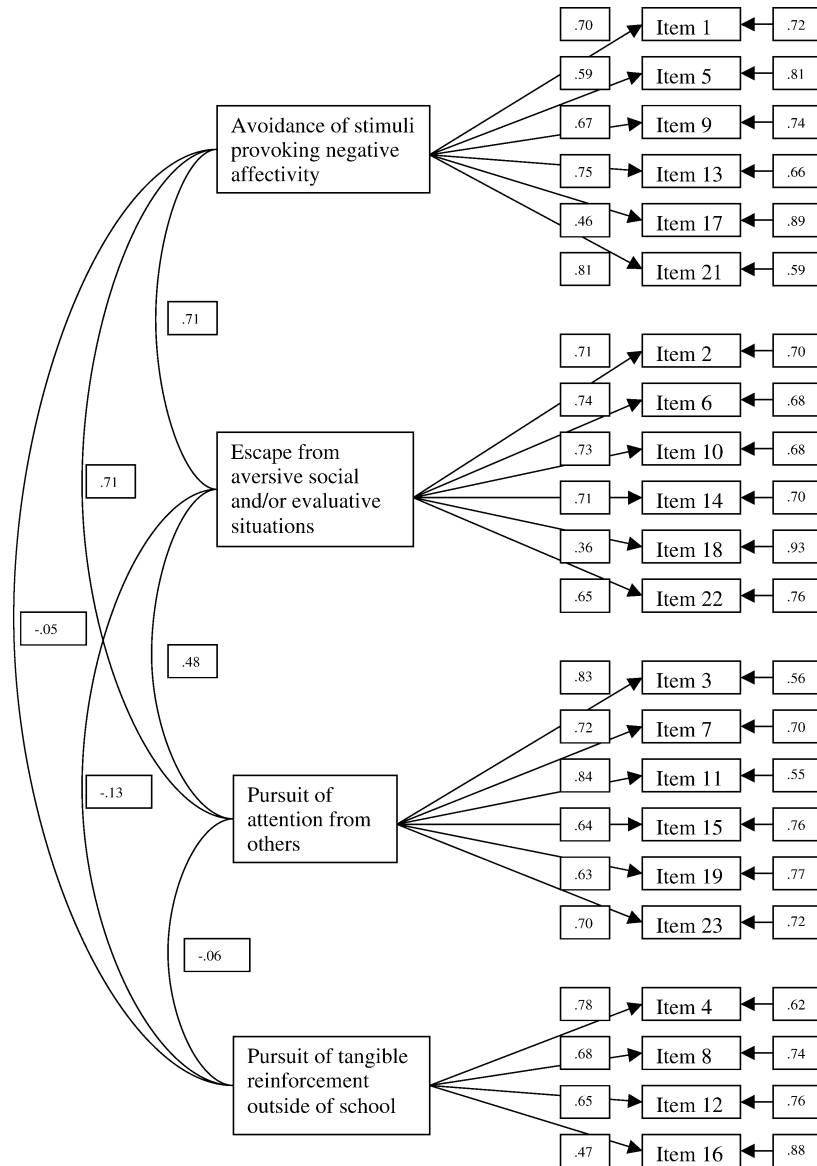


Fig. 1. Four-factor model of the School Refusal Assessment Scale-Revised (child version) with standardized path coefficients.

Items 20 and 24 are part of the tangible reinforcement function of the SRAS-R. Item 18 is part of the escape from aversive social and/or evaluative situations function of the SRAS-R.

On the SRAS-R-C, items 20 and 24 are worded as follows: “Would it be easier for you to go to school if you could do more things you like to do after school hours (e.g., being with friends)?” and “Would you rather be doing fun things outside of school more than most kids your age?” On the SRAS-R-P, items 20 and 24 are

worded as follows: “Would it be easier for your child to go to school if he/she could do more things he/she likes to do after school hours (e.g., being with friends)?” and “Would your child rather be doing fun things outside of school more than most kids his/her age?” On the SRAS-R-P, item 18 is worded as follows: “If it were easier for your child to make new friends, would it be easier for him/her to go to school?”

Item 20 may be confusing and interpreted in different ways. The question was designed to reflect greater ease

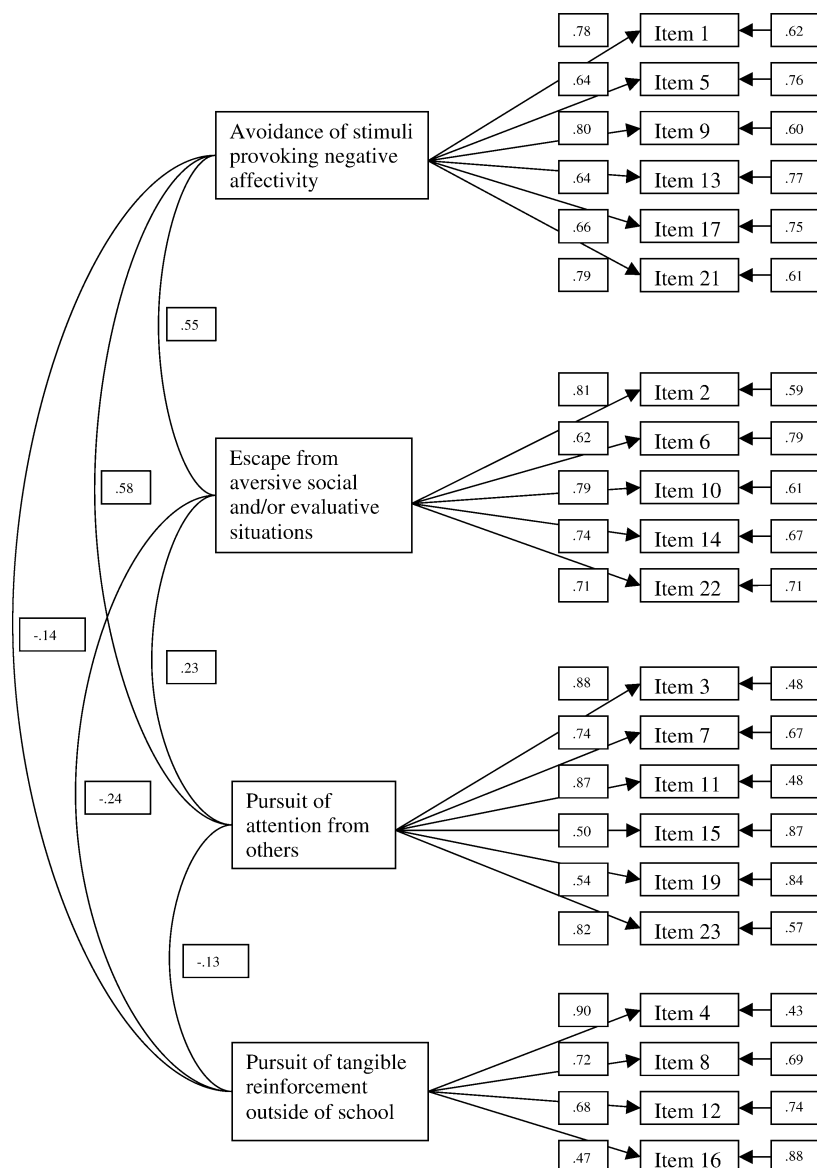


Fig. 2. Four-factor model of the School Refusal Assessment Scale-Revised (parent version) with standardized path coefficients.

of school attendance if more “fun things” were available *in school*, but those completing the measure may have inferred “fun things” available *after school*. In the case of item 24, a comparison to other children may be problematic if a child has been out of school for some time. Indeed, youths who refuse school for tangible reinforcement generally have more problematic absenteeism than youths of other functional conditions (Kearney, 2001). SRAS-R-P items 20 and 24 have demonstrated weak interrater reliability as well (Kearney, 2002b). Finally, in the case of item 18, some parents may be unsure about their child’s

ability to make new friends or how such ability may affect school attendance.

Clinicians and researchers who use the SRAS-R are thus encouraged to exercise caution when using items 18, 20, and 24. Even if these items are removed, however, a sufficient number of SRAS-R items remain to conduct an adequate descriptive functional analysis of school refusal behavior. In addition, an examination of path coefficients among the functions indicates that the tangible reinforcement function is not highly associated with other functions. At any rate, the SRAS-R has been advocated as part

of a comprehensive assessment process for this complex population. Results from SRAS-R administrations should be utilized with various sources of information as well as observational data and records (Daleiden, Chorpita, Kollins, & Drabman, 1999; Kearney, 2004; Kearney & Albano, 2000).

Despite the presence of a small number of items that may detract from the scale, strong support was found overall for the four-factor structures of the SRAS-R-C and SRAS-R-P. These data provide support for the functional model of school refusal behavior in general and the discriminant validity of the SRAS-R in particular. Directions for future research include fine-tuning items, examining more diverse samples of youths, fully evaluating the link between identified function and successful prescriptive treatment, and developing other SRAS versions, particularly for teachers or other school personnel.

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