Functional assessment of school attendance problems: An adapted version of the School Refusal Assessment Scale – Revised

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Conflict of Interest

Author D. Heyne, Author L.J. Vreeke, Author M. Maric, Author H. Boelens, and Author B. Van Widenfelt declare that they have no conflict of interest.

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Abstract

The School Refusal Assessment Scale (SRAS) was developed to identify four factors that might maintain a youth's school attendance problem (SAP) and thus be targeted in treatment. There is still limited support for the 4-factor model inherent to the SRAS and its revision (SRAS-R). Recent studies indicate problems with the wording of 8 items added to the SRAS to form the SRAS-R. We examined the factorial validity of an adapted item set comprising 16 of the 24 SRAS-R items and 8 items developed for this study. The 8 items paralleled the content of the SRAS-R items being replaced but were less complex and ambiguous. Data were gathered from 199 youth with a SAP and 131 parents. CFA of the adapted item set supported a 4-factor model. Internal consistency reliability of the subscales was higher than is commonly reported in SRAS-R studies. Concurrent validity was supported by associations between the four factors and measures of internalizing or externalizing behavior. The adapted SRAS-R may help professionals reliably assess the relative strength of factors maintaining SAPs. This is one of the few studies conducted independently of the instrument's developer and in a school culture different to that where the instrument is usually tested.

Keywords: absenteeism; school attendance problem; functional assessment; School Refusal Assessment Scale – Revised; treatment utility

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School non-attendance has been shown to affect learning and achievement (Carroll, 2010) and to place youth[1] at risk for early school drop-out (Christle, Jolivette, & Nelson, 2007) and drug use (Henry & Huizinga, 2007). Non-attendance can seriously disrupt a young person's social-emotional development (e.g., Garland, 2001; Hersov, 1990; Malcolm, Wilson, Davidson, & Kirk, 2003) and many youth with difficulty attending school meet diagnostic criteria for internalizing and/or externalizing disorders (Heyne & Sauter, 2013). Family functioning can also be affected by a young person's difficulty going to school (e.g., Kearney & Bensaheb, 2006; McAnanly, 1986).

Youth are identified as having a school attendance problem (SAP) contingent upon the legitimacy and amount of their non-attendance (Heyne, Sauter, & Maynard, 2015). Legitimate absences are those that are agreed upon by school and parents (e.g., because of illness or religious holidays) and can be compensated for (e.g., with extra classwork). Criteria for determining whether the amount of non-attendance is problematic have been presented by Kearney (2008a): "(1) missed at least 25% of total school time for at least 2 weeks, (2) severe difficulty attending classes for at least 2 weeks with significant interference in a child's or family's daily routine, and/or (3) absent for at least 10 days of school during any 15-week period while school is in session" (p. 265). According to the second criteria, some youth who are not absent from school may fulfil criteria for a SAP based on their difficulty attending.

Treatment-Relevant Differences among Youth with School Attendance Problems

The successful treatment of school attendance problems (SAPs) is an important task. Burke and Silverman (1987) recognized the need for a rigorous system to determine

treatment-relevant differences among youth with SAPs. Kearney and Silverman (1990) then proposed a functional analytic model of school refusal behavior, with school refusal behavior encompassing the two types of SAPs commonly known as truancy and school refusal (Heyne & Sauter, 2013). In the functional analytic model, the four hypothesized reasons for the maintenance of a young person's SAP are: (1) avoidance of school-related stimuli that provoke a sense of general negative affectivity (ANA); (2) escape from aversive social and/or evaluative situations at school (ESE); (3) pursuit of attention from significant others (PA); and (4) pursuit of tangible reinforcement outside of the school setting (PTR). The ANA and ESE functional conditions represent negative reinforcement of school refusal behavior and the PA and PTR functional conditions represent positive reinforcement of the behavior (Kearney & Silverman, 1990).

The School Refusal Assessment Scale (SRAS; Kearney & Silverman, 1993) embodied Kearney and Silverman's (1990) model. Parent and youth versions included 16 items to measure the four functional conditions. A therapist guide and parent workbook link the four conditions with corresponding cognitive-behavioral treatment recommendations (Kearney & Albano, 2007a;b). Case studies (e.g., Chorpita, Albano, Heimberg, & Barlow, 1996; Kearney, 2002a; Kearney, Pursell, & Alvarez, 2001; Kearney & Silverman, 1990) and a small controlled study (Kearney & Silverman, 1999) document positive outcomes following treatment guided by SRAS data. These accounts support the treatment utility of the SRAS. That is, the instrument seems to help clinicians employ appropriate interventions. The extent to which an instrument has treatment utility is contingent in part on its psychometric properties (Hayes, Nelson, & Jarrett, 1987). For example, if an instrument reliably measures the constructs it is intended to measure then treatment-related decisions based on measurement of those constructs are more likely to be appropriate.

Construct validity of the SRAS and SRAS-R

There is some support for the construct validity of the SRAS. Kearney and Silverman (1993) found a significant correlation between the items of the two negative reinforcement conditions, a significant correlation between the items of the two positive reinforcement conditions, and a non-significant correlation between the combined negative reinforcement conditions and the combined positive reinforcement conditions. A small study evaluating the German version of the SRAS yielded similar results (Overmeyer, Schmidt, & Blanz, 1994). On the other hand, Higa, Daleiden, and Chorpita (2002) found a weak and non-significant correlation between the items of the two positive reinforcement conditions. They also found an unexpected significant correlation between the PA condition and the negative reinforcement conditions. Further, low to moderate internal consistency reliability was found for the four functional conditions of the French version of the SRAS (alphas ranged between 0.29 and 0.67; Brandibas, Jeunier, Gaspard, & Fourasté, 2001).

To improve the psychometric properties of the SRAS Kearney (2002b) revised the instrument. Firstly, the original 16 items were modified to varying degrees. For example, the categorical sentence stem “Do you …” was changed to “How often …” and the constructs measured in some items (e.g., “Are you afraid of the teachers or others at school”) were replaced with other constructs (e.g., “How often do you stay away from school because you will feel sad or depressed if you go?”). Secondly, eight new items were added, two per functional condition. The revised instrument (SRAS-R) thus has 24 items. Principal components factor analysis of the youth version yielded a 3-factor structure (Kearney, 2002b). With a few exceptions, items associated with the ANA and ESE functional conditions clustered together in one factor and items associated with the PA and PTR conditions clustered together in two separate factors. For Kearney, failure to find a 4-factor

solution raised the question of whether it is possible or useful to differentiate between the first and second hypothesized conditions.

Four confirmatory factor analytic (CFA) studies of the 24-item SRAS-R have since been conducted[2]. Kearney (2006) administered the instrument to youths whose primary problem was school refusal behavior, and to their parents. A 4-factor model was supported following the removal of two youth items and three parent items. (See Table 1 for an overview of the items removed in the context of the four CFA studies.) Each removed item came from the group of eight items added to the SRAS to form the SRAS-R. Kearney pointed to problems with the wording of some of the removed items. He suggested, for example, that item 20 might be confusing and that item 24 might be problematic because of the comparison to other children.

Lyon (2010) administered the SRAS-R to youth not necessarily displaying problematic levels of absenteeism. The parent version of the SRAS-R was not administered. The best fit for the youth data was a 4-factor model in which three items were removed and the errors of two items were allowed to covary. Lyon similarly pointed to the problematic wording of items, such as items 17 and 18 which begin with the conditional wording ‘if’.

Richards and Hadwin (2011) elicited the responses of youth from a typical school population. Again, the parent version was not administered. A 3-factor model provided the best fit for the youth data following the removal of 12 items, including seven of the eight items added to the SRAS to form the SRAS-R. The researchers argued that ambiguity in item wording played a large role in the emergence of a factor structure different from that intended by Kearney (2002b).

Haight, Kearney, Hendron, and Schafer (2011) administered the SRAS-R to youth referred to school-based truancy programs or a truancy court because of problematic

absenteeism, and to their parents or guardians. The 4-factor model was supported when two youth items and four parent items were removed. The wording of the items added to the SRAS was called into question. It was suggested, for example, that the hypothetical nature of some items may have lead to an inflated variance in ratings.

Of the five factor analytic studies of the SRAS-R described above (one principal components factor analysis and four CFA studies), two yielded a 3-factor solution and three yielded a 4-factor solution. The studies yielding a 4-factor solution required the removal of items to achieve good model fit. Indeed, one of these studies (Haight et al., 2011) required the removal of half of the parent PTR items. On the weight of the available evidence it seems premature to conclude that the 24 items of the SRAS-R reliably measure the four functional conditions they were intended to measure. This calls into question the use of the SRAS-R to prescribe treatment because four different treatments are recommended on the basis of subscale scores (i.e., the four functional conditions).

Concurrent validity of the SRAS and SRAS-R

The concurrent validity of the SRAS was investigated in three small studies (30-50 participants). Regarding the negative reinforcement conditions, Kearney and Silverman (1993) reported expected positive correlations between ANA and ESE on the one hand, and youth and parent reports of youth internalizing behavior on the other hand. Higa and colleagues (2002) found that ANA and ESE were positively correlated with youth and parent measures of internalizing behavior for 15 of 22 predicted effects. As expected, the two negative reinforcement conditions did not correlate with measures of externalizing behavior. Brandibas, Jeunier, Clanet, and Fourasté (2004) found that the ANA functional condition correlated positively with youth reports of state and trait anxiety. Regarding the positive reinforcement conditions, youth reports of separation anxiety converged with PA (Higa et al.,

2002) and parent reports of externalizing behavior converged with PA (Kearney & Silverman, 1993) and PTR (Higa et al., 2002; Kearney & Silverman, 1993). Results contrary to expectations were also reported. Kearney and Silverman (1993) noted that the positive reinforcement functional conditions correlated moderately with parent reports of internalizing behavior and PA correlated with youth reports of fear and anxiety. In Higa and colleagues' (2002) study, PA converged with various youth reports of negative affect, depression, and anxiety (other than separation anxiety) and parent reports of internalizing behavior. Moreover, Brandibas et al. (2004)[3] found that separation anxiety was positively correlated with the PTR functional condition.

Four studies provide modest support for the concurrent validity of the SRAS-R. Based on a small sample (between 9 and 28 participants), Kearney (2002b) found that youth scoring highest on the negative reinforcement condition (ANA and ESE combined) scored higher on some self-report measures of internalizing behavior, and youth scoring highest on PTR had higher parent-reported externalizing behavior. In a larger study (143 participants), Kearney and Albano (2004) found predicted relationships between diagnostic categories and functional conditions. For example, major depressive disorder was associated more with ANA, separation anxiety disorder was associated more with PA, and oppositional defiant disorder and conduct disorder were associated more with PTR. In Haight and colleagues' (2011) study of a large sample (216 participants), "predicted associations were largely supported" (p. 201). By youth reports, ANA predicted generalized anxiety and depression and ESE predicted social anxiety. However, ANA also predicted social anxiety, and separation anxiety was not predicted by PA alone but by ESE and PA combined, and by ESE alone. Parent reports of ESE showed expected associations with anxious-shy behavior and social problems, but ESE combined with ANA was also associated with anxious-shy

behavior. PTR showed an expected association with oppositional behavior, but the association was also found when PTR and ANA were combined. The one study not conducted by the instrument's author examined the mediating role of SRAS-R functional conditions in the link between youth anxiety and school attendance (Richards & Hadwin, 2011). Modified versions[4] of ANA, ESE, and PA were found to be positively associated with self-reported trait anxiety.

Current Study

Further development and evaluation of the SRAS-R is important. It is one of the few instruments designed for use among youth with SAPs. Of these, it is the only one which links assessment results with specific treatment plans. Our initial goal was to develop a Dutch translation of the 24-item SRAS-R. During piloting it became clear that there were problems with the wording of the eight items added to the SRAS, as noted by those who have evaluated the instrument (i.e., Haight et al., 2011; Kearney, 2006; Lyon, 2010; Richards & Hadwin, 2011). Other authors have also commented on the overly complex nature of the items (Inglés, Gonzálvez-Maciá, García-Fernández, Vicent, & Martínez-Monteagudo, 2015). We therefore developed eight items measuring the same constructs as the items added to the SRAS but using less complex or ambiguous wording (see Appendix A).

The primary aim of the study reported here was to examine the construct validity of the SRAS-R when the eight items Kearney (2002b) added to the SRAS were replaced with the items developed for this study. For comparative purposes participants were administered all items: the 'original items' 1 to 16 (i.e., the first 16 items of the SRAS-R), together with 'items added to the SRAS' 17 to 24, and 'items developed for this study' 25 to 32. We hypothesized that Kearney's 4-factor model would be supported by CFA when analysing the original items together with the items developed for this study (i.e., the 'adapted item set'). It

was further hypothesized that the set of original items together with the items developed for this study would yield a better fit to the 4-factor model than the item set comprising the original items and the items added to the SRAS (i.e., the 'standard item set'). For the adapted and standard item sets we also tested a 2-factor model and a 3-factor model, given that prior studies indicated support for the former (Kearney & Silverman, 1993) and the latter (Kearney, 2002b).

A secondary aim was to examine the concurrent validity of the adapted item set. Findings across prior studies of the SRAS and SRAS-R are highly consistent with respect to the relationship between ANA, ESE, and internalizing behavior; mixed with respect to PA; and rather consistent with respect to the relationship between PTR and externalizing behavior. We thus hypothesized that there would be medium to large positive correlations between the ANA and ESE functional conditions on the one hand, and internalizing behavior on the other hand; small to medium positive correlations between PA and both internalizing and externalizing behavior; and medium positive correlations between PTR and externalizing behavior.

Method

Participants

Participants (youth and their parents) were recruited in two ways. First, 16 professionals working in mental health services (n = 9) or special education services (n = 7) invited the families of youth identified as having a SAP to participate. SAP was defined as a problem attending school regularly, excluding legitimate absences. Second, we drew upon data pertaining to primary school students who participated in the '@School in Rotterdam' study (Vuijk, Heyne, & van Efferen-Wiersma, 2010) and high school students who

participated in the 'Learning Problems and School Refusal' study (Vanheffen, 2011). These cases were included when teacher, parent, or youth information indicated at least 25 percent non-attendance in the last two weeks and the presence of a SAP according to one or more of the following screening criteria: "was reluctant or unwilling to attend school", "found it difficult to attend school", "was upset or fearful about going to school", "chose to stay away from school, even though it was not difficult to attend", "stayed away from school without the parents' knowing", or "unapproved absence". Across both recruitment procedures, cases were excluded when there was more than one missing item per SRAS-R functional condition (9 of 208 youth cases [4%] and 4 of 135 parent cases [3%]). In total, data from 199 youth with a SAP were analysed. The mean age of the youth was 14.2 years (*SD* = 2.3; range 7 to 18 years) and 56% were males. Country of birth was the Netherlands (83.9%), Morocco (1.5%), Turkey (1.0%), Afghanistan (0.5%), Colombia (0.5%), Ecuador (0.5%), England (0.5%), Iran (0.5%), Pakistan (0.5%), Suriname (0.5%), Syria (0.5%), or unreported (9.5%). The data from 131 parents or guardians were also analysed (67.8% mothers, 28.8% fathers, and 3.4% guardians). Of the 131 cases with data from parents or guardians (hereafter referred to simply as parents), 26 (19.8%) involved data from both parents.

Measures

School Refusal Assessment Scale-Revised.

Youth and parent versions of the SRAS-R were translated and adapted according to the steps recommended by Van Widenfelt and colleagues (2005). Three members of the translation team independently prepared forward translations of items to Dutch. Discussion took place to derive a consensual version of each item. Back-translation to English by a professional translator unfamiliar with the SRAS-R revealed that semantic equivalence had not been achieved for all items. Problematic items were modified after consultation with the

developer of the SRAS-R to clarify item intent. A second back-translation conducted by a specialist in the translation of psychological instruments (BvW) indicated that semantic equivalence had been achieved for all 24 items.

We piloted the SRAS-R with 12 youth and 9 parents. One third of them reported difficulty responding to items 17 to 24, the eight items added to the SRAS to form the SRAS-R. These items were unclear in meaning and it was difficult to apply the response scale to them. The team decided to retain items 17 to 24 because they were in keeping with the format of the English-language items, and to develop eight items reflecting the content of items 17 to 24 but with less complex or ambiguous wording. Specifically, items 25 to 28 (developed for the current study) did not contain the conditional wording included in items 17 to 20 (added by Kearney [2002b] to form the SRAS). We also reduced the number of comparatives ("less"; "more"; "easier"; "compared to"). Among the 8 items Kearney added to form the SRAS-R, there were four items (17, 18, 20, 21) with two comparatives and four items (19, 22, 23, 24) with one comparative. None of the 8 items developed for the current study contained two comparatives, and four of them (29, 30, 31, 32) contained just one comparative. For example, we retained item 18 which was conditional in nature and contained two comparatives ("*If* it were *easier* for you to make new friends, would it be *easier* for you to go to school?") and included our newly developed item 26 which did not include conditional wording or comparatives ("How often do you have a problem going to school because you find it difficult to make friends?").

The final youth and parent versions of the experimental SRAS-R comprised 32 items: the first 16 items of the SRAS-R which were based on the 16 items of the original SRAS (hereafter 'original items' 1 to 16), the 8 items added to the SRAS to form the SRAS-R (hereafter 'items added to the SRAS' 17 to 24), and 8 items which paralleled, respectively,

the content of items 17 to 24 (hereafter 'items developed for this study' 25 to 32). All items were rated on a 7-point scale (from 0 = "never" to 6 = "always"). Christopher Kearney, developer of the SRAS-R, reviewed the second back-translation and approved of the Dutch translation and the addition of the parallel items[5].

Internalizing and Externalizing Behavior

Youth reports of internalizing behavior were gathered as follows: anxiety was measured via the Multidimensional Anxiety Scale for Children (MASC; March, 1997); depression was measured via the Children's Depression Inventory (CDI; Kovacs, 1992); fear was measured via the Fear Survey Schedule for Children-Revised (FSSC-R; Ollendick, 1983), using the 12 school-related items (FSSC-R-SI; Kearney, 2007); and emotional problems were measured via the emotional symptoms subscale of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997). Parent reports of youth internalizing behavior were similarly gathered via the emotional symptoms subscale of the SDQ. Youth and parent reports of youth externalizing behavior were gathered via the conduct problems subscale of the SDQ.

Procedure

Youth recruited via professionals in mental health or special education services were individually administered the experimental SRAS-R under the supervision of a psychologist or school counselor. The participating professionals had received written instructions about identifying youth with SAPs and administering the questionnaire. Parents who were present when their child completed the questionnaire were administered the parent version of the experimental SRAS-R. If parents were not present at this time then the parent questionnaire was sent home.

Youth who participated in the '@school in Rotterdam' study and the 'Learning Problems and School Refusal' study were administered the experimental SRAS-R at school. In the former study, an MA-level psychology student administered the questionnaire with groups of four or five children, outside of the classroom setting. Parents were administered the questionnaire at school, individually, by the psychology student. In the latter study, adolescents were administered the experimental SRAS-R in the classroom setting and the parent version was sent home for parents to complete.

The measures of internalizing and externalizing behavior were administered to youth and parents following administration of the experimental SRAS-R, with a few exceptions. For example, youth who participated in the 'Learning Problems and School Refusal'study were not administered the SDQ. Overall, data related to the evaluation of concurrent validity was available for 118 to 150 youth (depending on the measure) and 69 parents.

All youth and parents provided informed written consent to participate. The study was approved by the ethics committee of the Leiden University Institute of Psychology.

Data Analysis

For cases with no more than one missing item per SRAS-R functional condition, missing values were replaced with the mean score for the respective functional condition, as recommended by Kearney and Silverman (1993). In 11 of the 199 youth cases (6%) and 5 of the 131 parent cases (4%) one item was replaced by the mean score for the functional condition. Two missing values (related to different functional conditions) were replaced in 1 youth case and 2 parent cases, and three missing values (related to different functional conditions) were replaced in 3 youth cases and 3 parent cases.

To examine construct validity, data were analysed via CFA using EQS (Bentler & Wu, 2005). For comparative purposes we modelled our analytic procedure on Kearney (2006)

and Haight et al. (2011). Like us, these researchers focused exclusively on youth with SAPs. The three goodness-of-fit indices examined were the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). Acceptable goodness-of-fit was defined as CFI values > .90, SRMR values < .10, and RMSEA values < .10 (with the upper end of the 90% confidence interval < .10), following Kearney (2006) and Haight et al. (2011). Model trimming consisted of the removal of items with the weakest paths. If a removed item was one of the items developed for this study then a subsequent CFA was conducted with the item replaced by the corresponding item added to the SRAS, to see if this would improve model fit.

To examine concurrent validity, Pearson correlation was used to determine the strength of association between the functional conditions of the adapted item set and measures of internalizing and externalizing behaviour. Correlations less than 0.30 were considered small, correlations between 0.30 and 0.49 were considered medium, and correlations of 0.50 or greater were considered large (Cohen , 1988).

Results

Confirmatory Factor Analysis of the Adapted Item Set

To test the first hypothesis, that a 4-factor model would be supported when analysing our adapted item set, we analysed the 16 original items together with the 8 items developed for this study. Kearney's (2002b) 4-factor model was not supported by all three indices of fit. The CFI values for youth and parent versions were .894 and .878 respectively, and the SRMR value for the parent version was not below .10. Only the RMSEA values were within the acceptable level of fit for both the youth version (.054 [.043-.064]) and the parent version (.082 [.069-.093]).

The weakest path coefficient for both the youth version (.42) and parent version (.44) was observed for item 28 (see Appendix A for the item). Its removal resulted in an increased CFI value for the youth version (.905) and parent version (.902). These CFI values were only slightly higher than the conventional rule of thumb (i.e., .90; Hu & Bentler, 1999) and the SRMR value for the parent version was not below .10. A CFA was then conducted with item 28 (developed for this study) replaced by item 20 (added to the SRAS by Kearney [2002b]) because the content of item 20 paralleled the content of item 28 (see Appendix A). The CFI values for the youth and parent versions still did not exceed .90.

A new CFA of the adapted item set was conducted with items 28 and 7 removed. Item 7 ("How often do you think about your parents or family when in school?") had the second weakest path coefficient for the youth and parent versions (.51 and .49 respectively) and as noted above, item 28 had the weakest path coefficients. With the removal of items 28 and 7 the CFI values for youth and parent versions increased to .913 and .915, respectively. The SRMR values were .099 and .085 respectively, and the RMSEA values were .051 (.039-.062) and .076 (.062-.089) respectively. Thus the 4-factor model was supported by all three indices of fit for the youth version (see Figure 1) and the parent version (see Figure 2). The ANA and ESE functional conditions comprised six items each and the PA and PTR functional conditions comprised five items each. Cronbach's alpha values for these subscales were .87 (ANA), .82 (ESE), .82 (PA), and .80 (PTR) for the youth version, and .93 (ANA), .93 (ESE), .84 (PA), and .82 (PTR) for the parent version.

[Insert Figures 1 and 2 here]

Confirmatory Factor Analysis of the Standard Item Set

To test the second hypothesis, that the adapted item set would yield a better fit to the 4-factor model than the 'standard item set', we analysed the 16 original items together with

the 8 items added to the SRAS to form the SRAS-R (i.e., the standard item set). The 4-factor model was not supported by all four indices of fit. Specifically, the CFI values for the youth and parent versions were .874 and .857, respectively.

For the youth data, the two weakest path coefficients were observed for items 20 (.24) and 18 (.30) (see Appendix A for the items). For the parent data, the weakest path coefficients were also observed for items 18 (.37) and 20 (.42). When item 20 was removed, the CFI values for the youth and parent versions were .898 and .877. Likewise, when item 18 was removed the CFI values were not above .90. When items 18 and 20 were both removed the 4-factor model was supported by all four indices of fit. The respective values for youth and parent data were .909 and .908 (CFI), .083 and .085 (SRMR), and.053 (.049-.065) and .074 (.059-.087) (RMSEA). Cronbach's alpha values for the subscales were .81 (ANA), .79 (ESE), .79 (PA), and .79 (PTR) for the youth version, and .90 (ANA), .91 (ESE), .84 (PA), and .81 (PTR) for the parent version.

We then simultaneously removed items 20 and 7. This permitted comparison with the results obtained when we analysed the adapted item set without item 28 (which parallels the content of item 20) and item 7. The 4-factor model was supported by all indices of fit for the youth version (CFI = .907, SRMR = .078, RMSEA = .052 [.040-.063]) but not the parent version (CFI = .890, SRMR = .086, RMSEA = .083 [.069-.096]). The Cronbach's alpha values for the four subscales of the youth version were .81 (ANA), .73 (ESE), .79 (PA), and .79 (PTR).

Additional Analyses of 2-factor and 3-factor models

We also tested the 2-factor model by combining the negative reinforcement functional conditions (ANA and ESE) and the positive reinforcement functional conditions (PA and

PTR). To test the 3-factor model the negative reinforcement conditions were combined while the two positive reinforcement conditions were treated as separate factors.

First, we used the entire adapted item set (i.e., the 16 original items together with the 8 items developed for this study). Based on the results reported above (when testing the 4-factor model) we then did the following: (a) removed item 28, (b) replaced item 28 with item 20, and (c) removed items 28 and 7. Next, we analysed the entire standard item set (i.e., the 16 original items together with the 8 items added to the SRAS to form the SRAS-R). We then compared the effects of removing different items as follows: (a) item 20, (b) item 18, (c) items 18 and 20, and (d) items 7 and 20.

Neither the 2-factor model nor the 3-factor model was supported by all three indices of fit. All CFI values were below .90 (range .653 to .881) and all SRMR values were above .100. In most analyses the RMSEA values were above .100.

Concurrent Validity

Functional conditions comprising items from the adapted item set were correlated with measures of internalizing and externalizing behavior. The results are presented in Table 2. All ten correlations between internalizing behavior and the ANA and ESE conditions were significant, as expected, and all but one of the correlations was medium to large (.33 to .60). Only youth reports of school-related fear (FSSC-R-SI) had a small (.23) albeit significant correlation with ESE. No measure of internalizing behavior was correlated with the PTR functional condition. As expected, correlations between internalizing behavior and the PA condition were small to medium (.17 to .45), and all were significant.

With respect to externalizing behavior, youth reports had a small significant correlation with PA and a medium significant correlation with PTR, as expected. Unexpectedly, youth reports of externalizing behavior also had a small significant correlation

with ANA. Parent reports of externalizing behavior had a small significant correlation with PTR, whereas a medium correlation was expected.

Discussion

Kearney (2002b) added 8 items to the SRAS to form the SRAS-R but these 8 items have not been well-supported by research. We piloted and evaluated an adapted item set. Results of a CFA conducted with this adapted item set supported the 4-factor functional analytic model proposed by Kearney and Silverman (1990) and further developed by Kearney (2002b), in line with our first hypothesis. More specifically, a 4-factor model was supported when items 28 and 7 were removed from the youth and parent versions. We also evaluated the standard item set comprising the 24 items of the SRAS-R. The 4-factor model was supported when items 18 and 20 were removed from the youth and parent versions. In sum, the adapted and standard item sets yielded good model fit when two items were removed from each set. These results do not support our second hypothesis that the adapted item set would yield a better fit to the 4-factor model. At the same time, the CFI values for the adapted item set were higher than those for the standard item set. Further, for the adapted item set the alpha values for all four youth subscales and for three of the four parent subscales were higher than the respective alpha values for the standard item set.

The adapted and standard item sets employed in the current study appear to perform better than the standard item set employed in prior studies. We observed good fit to the 4-factor model following the removal of just two youth items and two parent items. By comparison, Kearney (2006) removed two youth items and three parent items, Haight et al. (2011) removed two youth items and four parent items, and Lyon (2010) removed three youth items and allowed two youth items to co-vary. The alpha values for the subscales associated with our adapted item set (.80 to .87 for the youth version and .82 to .93 for the

parent version) were generally higher than the alpha values reported in prior studies supporting the 4-factor model (.40 to.63 [Lyon, 2010]; .73 to.84 [Haight et al., 2011]; .74 to .88 [Kearney, 2006]).

Two-factor and 3-factor models were not supported by the adapted item set or the standard item set. This confirms the notion that the functional conditions represented in Kearney's (2002b) model are indeed four different factors associated with the maintenance of school refusal behavior. In effect, we can have greater confidence in the likely treatment utility of the four-factor SRAS-R.

Given our focus on improving the SRAS-R item set, we consider the performance of four specific items. Recall that item 28 was removed from the adapted item set to achieve good model fit. This item parallels the content of item 20 which is 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)?" During development of the adapted item set, the meaning of item 20 was considered to be unclear. After consultation the researchers understood item 20 to be about difficulty going to school because, outside of school hours, one does not get to do many of the things one likes to do. Consistent with the notion of truancy (Kearney & Silverman, 1990), the young person absents himself from school so as to engage in preferred activities. Parallel item 28 was thus worded as follows: "How often do you have a problem going to school because, after school hours, you don't get to do many of the things you like to do (e.g., being with friends)?" After the development and testing of the adapted item we noted Kearney's (2006) suggestion that item 20 is about it being easier to go to school if more fun things are available in school, rather than after school. In this case, item 28 could be better worded as: "How often do you have a problem going to school because,

when you're at school, you don't get to do many of the things you like to do (e.g., being with friends)?"

Second, item 20 was removed from the standard item set to achieve good model fit. Item 20 was also removed in three CFA studies supporting the 4-factor model in youth data (Haight et al., 2011; Kearney, 2006; Lyon, 2010) and two CFA studies supporting the 4-factor model in parent data (Haight et al., 2011; Kearney, 2006). This item may have performed poorly because the construct it measures is unclear, as discussed in the previous paragraph. Furthermore, item 20 included conditional wording and two comparatives because we deliberately retained the format of items 17 to 24 so that they would be in keeping with the format established by Kearney (2002b).

Third, in prior studies supporting the 4-factor model, item 24 was commonly removed from the youth data (Kearney, 2006; Lyon, 2010) and consistently removed from the parent data (Haight et al., 2011; Kearney, 2006). In the current study, item 24 did not need to be removed from the youth or parent data. Our version of item 24 includes the specification 'during school hours', as follows: "Would you rather be doing fun things outside of school (*during school hours*) more than most kids your age?" This may have reduced misunderstanding about the item.

The items discussed so far – items 20, 24, and 28 – belong to the PTR functional condition. In prior studies yielding support for the 4-factor model, PTR items were commonly removed. In Kearney's (2006) study the two youth items removed were both PTR items and two of three parent items removed were PTR items. Lyon (2010) removed three items from the youth version, all of which were PTR items. In the study of Haight et al. (2011), one of the two youth items removed was a PTR item and three of the four parent items removed were PTR items. In the current study, for both the youth and parent versions,

only one PTR item (28) was removed from the adapted item set and only one PTR item (20) was removed from the standard item set. It appears that the current adaptation of the SRAS-R has improved the functioning of the PTR subscale. Indeed, the alpha values for the adapted PTR subscale were higher (.80 for youth and .82 for parents) relative to prior studies (.63 for youth [Lyon, 2010]; .73 for youth and .79 for parents [Haight et al., 2011]; .74 for youth and .78 for parents [Kearney, 2006]).

Fourth, item 18 was removed from the standard item set for both the youth and parent versions. It was also removed in two of the four CFA studies reporting youth data (Lyon, 2010; Richards & Hadwin, 2011) and the two CFA studies reporting parent data (Haight et al., 2011; Kearney, 2006). Our re-working of item 18, in the form of item 26 (see Appendix A), appears to have improved the item. That is, when the adapted item set was analysed item 26 did not need to be removed. The difference between items 18 and 26 is that the former comprises a hypothetical situation and two comparatives while the latter is not hypothetical and is devoid of comparatives. Item 26 is probably easier to answer according to the frequency-related response scale inherent to the SRAS-R.

A secondary aim was to examine the concurrent validity of the adapted item set. Findings supported the hypotheses: ANA and ESE were correlated with internalizing behavior; PA was correlated with internalizing and externalizing behavior; and PTR was correlated with externalizing behavior. The PTR condition was unrelated to measures of internalizing behavior, which contrasts with research on the original SRAS (Brandibas et al., 2004; Kearney & Silverman, 1993) but corresponds with some SRAS-R findings (Haight et al., 2011; Kearney, 2002b). This further supports the notion that the PTR subscale of the adapted SRAS-R measures the construct intended by the author of the SRAS-R. An unexpected finding was the correlation between ANA and youth-reported externalizing

behavior. Haight and colleagues (2011) similarly found that PTR combined with ANA predicted youth oppositional behavior. One explanation might be found in the conceptual link between PTR and truancy (Kearney, 2008b), statistical links between truancy and externalizing behavior (Vaughn et al., 2013) and between truancy and depression (Egger, Costello, & Angold, 2003), and the statistical link between ANA and depression (Haight et al., 2011; Kearney & Albano, 2004). That is, the associations between ANA and externalizing behavior may reflect the occurrence of depression among a sub-group of truanting youth. Perhaps some truanting youth experience negative affect when at school because of the encumbrance of having to be there while preferring to have fun outside of school.

In sum, the current study contributes unique international findings in support of an important treatment-related assessment instrument. The factorial validity and concurrent validity of the adapted SRAS-R were supported within a school culture potentially different from the one in which the instrument was developed and tested (i.e., the Netherlands vis-à-vis North America). Cross-cultural consistency in factor analytic results supports the notion that an instrument measures what it is purported to measure (Byrne, 2001). If research continues to show that the SRAS-R possesses measurement equivalence across languages and cultures, cross-national studies using the SRAS-R may help shed light on the influence of cultural factors on the maintenance of SAPs. For example, cultural differences have been observed in overprotective parenting (Vreeke, Muris, Mayer, Huijding, & Rapee, 2013) and in parental demandingness for unquestionable obedience (Dekovic et al., 2006). In cultures characterized by the former, scores on the PA subscale may be higher because youth are more accustomed to gaining parental attention. In cultures characterized by the latter, scores on the PTR

subscale may be higher because youth seek to rebel against parental authority by choosing to engage in other activities during school hours.

A methodological strength of the current study lies in the recruitment of youth from diverse settings (i.e., education and mental health settings). The results are likely to generalize to the broader population of youth with SAPs. Moreover, we deliberately excluded youth without a SAP, in contrast to two prior studies (Lyon, 2010; Richards & Hadwin, 2011). For example, Richards and Hadwin (2011) included youth with authorized (legitimate) absences, equivalent to non-problematic absenteeism. Because the SRAS-R was developed to assess factors maintaining problematic absenteeism, research participants ought to be restricted to those with a SAP.

The study is limited by its exclusive focus on the Dutch-language SRAS-R. It remains to be seen whether similar results will emerge when an English-language version of the adapted item set is tested. The age range of youth completing the SRAS-R was broad (7 to 18 years) and similar to age ranges reported in other studies of referred youth with SAPs (Kearney, 2002b, 2006). Studies with samples larger than that reported in the current study would permit analyses of age differences in the factor structure of the adapted SRAS-R. Age-related differences have been noted across the functional conditions (e.g., Kearney & Albano, 2004) and further evaluation of age effects has been advocated (e.g., Richards & Hadwin, 2011). The need for further evaluation of age effects is supported by the finding that age effects have been associated with the outcome of treatment for various types of school attendance problems (Heyne et al., 2015).

Research should also focus on the treatment utility of the SRAS-R. That is, when a clinician uses the SRAS-R to understand which factors are maintaining a youth's SAP and to develop a corresponding treatment plan, does this lead to better outcomes than if the clinician

had not included the SRAS-R in the assessment battery? Empirical answers to such questions are central to determining the utility of psychological assessment (Hunsley & Mash, 2007). Investigation of the interface between assessment and treatment should account for factors additional to the four SRAS-R subscales, such as pre-treatment classification of the likely need for sustained treatment (McCune & Hynes, 2005) and the impact of a youth's developmental level on the presentation and treatment of SAPs (Heyne, Sauter, Ollendick, van Widenfelt, & Westenberg, 2014).

To conclude, the current study is the third CFA study of the SRAS-R conducted exclusively with youth with SAPs and the first of these conducted independently of the developer of the instrument. The results support Kearney's (Kearney, 2002b; Kearney & Silverman, 1990) 4-factor functional analytic model of problematic school absenteeism. The adapted SRAS-R, which has good construct and concurrent validity, appears valuable for developing or confirming hypotheses about the role of ANA, ESE, PA, and PTR in the maintenance of a young person's SAP. Practitioners are reminded, nevertheless, that the SRAS-R is best employed as part of a more comprehensive assessment of risk and protective factors involved in the development and maintenance of SAPs (Heyne & Sauter, 2013). Researchers may consider using the adapted SRAS-R item set when developing and evaluating versions of the SRAS-R for use among non-English-speaking youth.

Notes

1. We use the term *youth* to refer to children and adolescents.
2. It is not clear whether Geum-Woon's (2010) evaluation of the Korean version focused on the SRAS or SRAS R and whether CFA or PCA was conducted. Seçer's (2014)

CFA study of a Turkish version was based on 20 items only. Therefore, these two studies are not discussed further.

3. The data used in this study appears to overlap with the data used in Brandibas and colleagues' (2001) study reported in French.

4. The ANA and ESE conditions collectively comprised 9 of the 12 corresponding items from the SRAS-R, and the PA condition comprised 3 of the 6 corresponding items.

5. The experimental SRAS-R is available from the first author on request.

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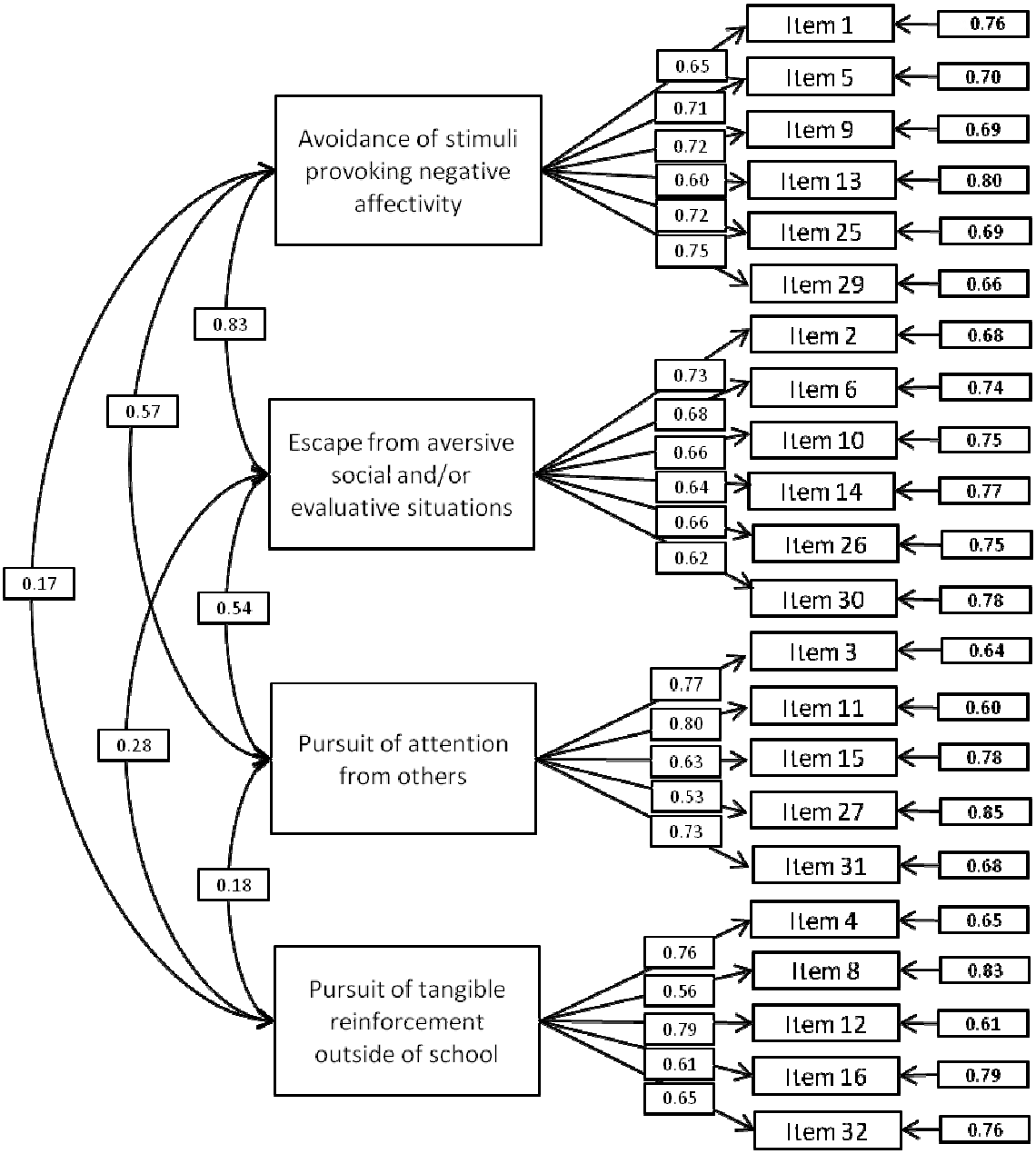

Figure 1. Four-factor model of the adapted item set (youth version) with standardized path coefficients.

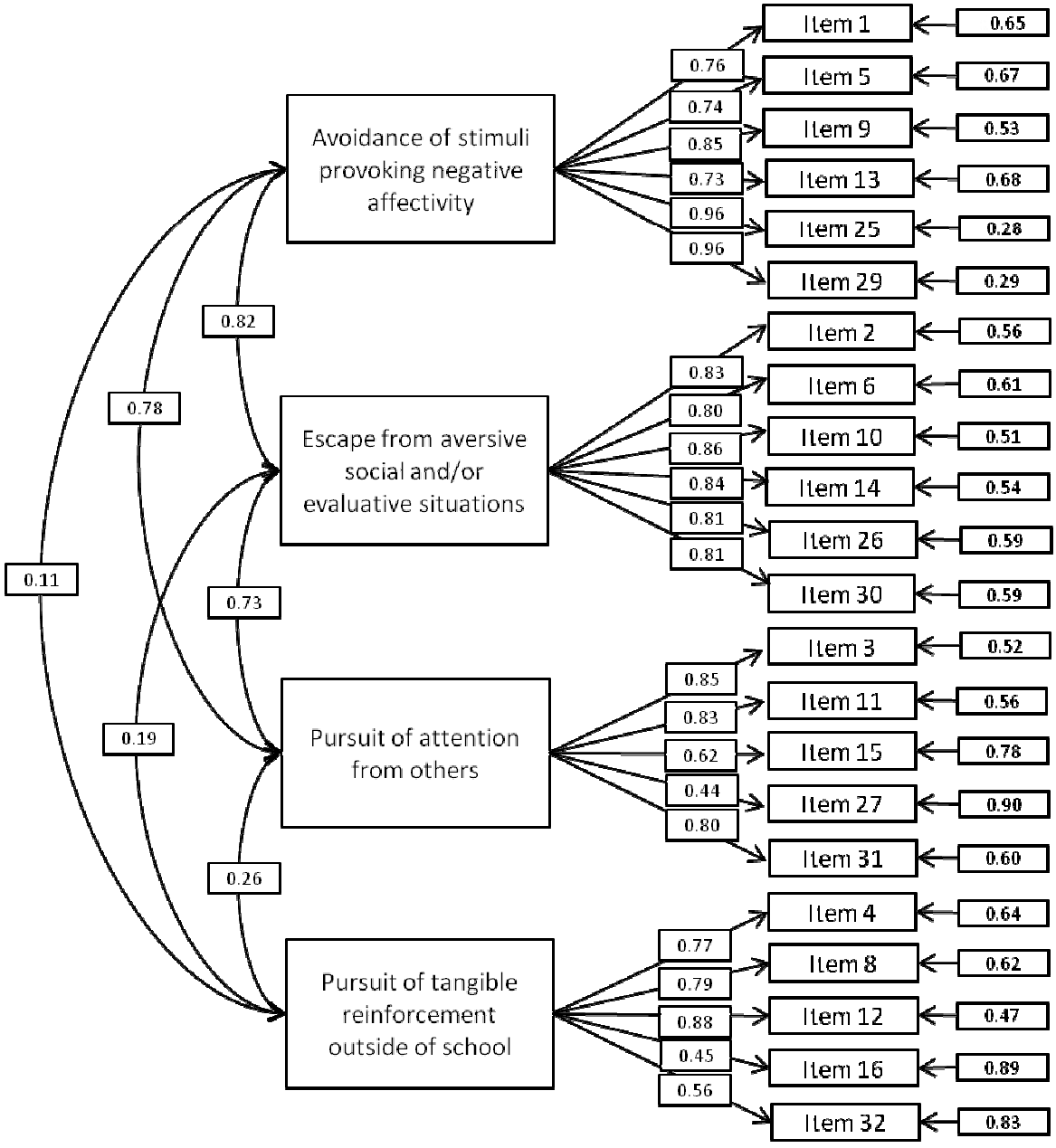

Figure 2. Four-factor model of the adapted item set (parent version) with standardized path coefficients.

Table 1
Items Removed or Allowed to Covary in Prior CFA Studies

	Kearney (2006)	Lyon (2010)	Richards & Hadwin (2011)	Haight et al. (2011)
Items from among the first 16 SRAS-R items (i.e., items based on the original SRAS)				
Item 4, Youth Version (PTR factor)	Retained	Retained	*Removed*	Retained
Item 7, Youth Version (PA factor)	Retained	Retained	*Removed*	Retained
Item 8, Youth Version (PTR factor)	Retained	Retained	*Removed*	Retained
Item 12, Youth Version (PTR factor)	Retained	Retained	*Removed*	Retained
Item 16, Youth Version (PTR factor)	Retained	*Removed*	*Removed*	Retained
Item 16, Parent Version (PTR factor)	Retained	NA	NA	*Removed*
Items from among the last 8 SRAS-R items (i.e., items added to develop the SRAS-R)				
Item 17, Youth Version (ANA factor)	Retained	*Covaried*	*Removed*	Retained
Item 18, Youth Version (ESE factor)	Retained	*Covaried*	*Removed*	Retained
Item 18, Parent Version (ESE factor)	*Removed*	NA	NA	*Removed*
Item 19, Youth Version (PA factor)	Retained	Retained	*Removed*	*Removed*
Item 20, Youth Version (PTR factor)	*Removed*	*Removed*	*Removed*	*Removed*
Item 20, Parent Version (PTR factor)	*Removed*	NA	NA	*Removed*
Item 22, Youth Version (ESE factor)	Retained	Retained	*Removed*	Retained
Item 23, Youth Version (PA factor)	Retained	Retained	*Removed*	Retained
Item 24, Youth Version (PTR factor)	*Removed*	*Removed*	*Removed*	Retained
Item 24, Parent Version (PTR factor)	*Removed*	NA	NA	*Removed*

Note. SRAS-R = School Refusal Assessment Scale – Revised; CFA = confirmatory factor analysis; ANA factor = avoidance of school-related stimuli that provoke a sense of general negative affectivity; ESE factor = escape from aversive social and/or evaluative situations at school; PA factor = pursuit of attention from significant others; PTR factor = pursuit of tangible reinforcement outside of the school setting; NA = not applicable because the Parent Version of the SRAS-R was not evaluated in the study.

Table 2

Correlations between the functional conditions of the adapted SRAS-R and respective youth and parent reports of internalizing and externalizing behavior.

	Functional Conditions			
Measure	ANA	ESE	PA	PTR
Youth report				
MASC[a]	.55**	.49**	.27**	-.08
CDI[b]	.44**	.37**	.22**	.10
FSSC-R-SI[c]	.33**	.23**	.17*	-.10
SDQ emotional symptoms[d]	.58**	.38**	.34**	.01
SDQ conduct problems[e]	.27**	.26	.20**	.45**
Parent report				
SDQ emotional symptoms[f]	.60**	.46**	.45**	.08
SDQ conduct problems[g]	.20	.19	.01	.20*

Note. Youth reports of internalizing and externalizing behavior were correlated with data from the youth version of the adapted SRAS-R, and parent reports of internalizing and externalizing behavior were correlated with data from the parent version. ANA = avoidance of school-related stimuli that provoke a sense of general negative affectivity (items 1, 5, 9, 13, 25, 29); ESE = escape from aversive social and/or evaluative situation at school (items 2, 6, 10, 14, 26, 30); PA= pursuit of attention from significant others (items 3, 11, 15, 27, 31); PTR = pursuit of tangible reinforcement outside of the school setting (items 4, 8, 12, 16, 32); MASC = Multidimensional Anxiety Scale for Children, Total score; CDI = Children's Depression Inventory; FSSC-R-SI = Fear Survey Schedule for Children Revised, School items; SDQ = Strengths and Difficulties Questionnaire.

[a]n = 146. [b]n = 136. [c]n = 118. [d]n = 150. [e]n = 150. [f]n = 69. [g]n = 68.

*$p < .05$ (1-tailed). **$p < .01$ (1-tailed).

Appendix A

Items added to the SRAS and parallel items developed for the current study.

The response scale for all items ranges from “never” (0) to “always” (6).

Items added to the SRAS	
Item 17 Youth	If you had less bad feelings (e.g., scared, nervous, sad) about school, would it be easier for you to go to school?
Item 17 Parent	If your child had less bad feelings (e.g., scared, nervous, sad) about school, would it be easier for him/her to go to school?
Item 18 Youth	If it were easier for you to make new friends, would it be easier for you to go to school?
Item 18 Parent	If it were easier for your child to make new friends, would it be easier for him/her to go to school?
Item 19 Youth	Would it be easier for you to go to school if your parents went with you?
Item 19 Parent	Would it be easier for your child to go to school if you or your spouse went with him/her?
Item 20 Youth	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)?
Item 20 Parent	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)?
Item 21 Youth	How much more do you have bad feelings about school (e.g., scared, nervous, sad) compared to other kids your age?
Item 21 Parent	How much more does your child have bad feelings about school (e.g., scared, nervous, sad) compared to other kids his/her age?
Item 22 Youth	How often do you stay away from people in school compared to other kids your age?
Item 22 Parent	How often does your child stay away from people in school compared to other kids his/her age?
Item 23 Youth	Would you like to be home with your parents more than other kids your age would?
Item 23 Parent	Would your child like to be home with you or your spouse more than other kids his/her age would?

Item 24 Youth	Would you rather be doing fun things outside of school more than most kids your age?
Item 24 Parent	Would your child rather be doing fun things outside of school more than most kids his/her age?

Items developed for the current study

Item 25 Youth	How often do you have a problem going to school because you have bad feelings about school (e.g., scared, nervous, sad)?
Item 25 Parent	How often does your child have a problem going to school because he/she has bad feelings about school (e.g., scared, nervous, sad)?
Item 26 Youth	How often do you have a problem going to school because you find it difficult to make friends?
Item 26 Parent	How often does your child have a problem going to school because he/she finds it difficult to make friends?
Item 27 Youth	How often do you have a problem going to school because you're not with your parents when you're at school?
Item 27 Parent	How often does your child have a problem going to school because he/she is not with you or your partner when he/she is at school?
Item 28 Youth	How often do you have a problem going to school because, after school hours, you don't get to do many of the things you like to do (e.g., being with friends)?
Item 28 Parent	How often does your child have a problem going to school because, after school hours, he/she doesn't get to do many of the things he/she likes to do (e.g., being with friends)?
Item 29 Youth	Some boys/girls have bad feelings about school (e.g., scared, nervous, sad). How often do you have bad feelings about school, compared to others your age?
Item 29 Parent	Some children have bad feelings about school (e.g., scared, nervous, sad). How often does your child feel this way, compared to others his/her age?
Item 30 Youth	Some boys/girls stay away from people at school. How often do you do that, compared to others your age?
Item 30 Parent	Some children stay away from people at school. How often does your child do that, compared to others his/her age?

Item 31 Youth	Some boys/girls like to stay at home with their parents rather than go to school. How often would you like to stay at home with your parents, compared to others your age?
Item 31 Parent	Some children like to stay at home with their parents rather than go to school. How often would your child like to stay at home with you or your partner, compared to others his/her age?
Item 32 Youth	Some boys/girls would rather do fun things outside of school during school-time. How often do you want to do that, compared to others your age?
Item 32 Parent	Some children would rather do fun things outside of school during school-time. How often does your child want to do that, compared to others his/her age?

Note. SRAS-R = School Refusal Assessment Scale – Revised.