Scoring the PSC

Instructions for Scoring

The standard parent-completed PSC form consists of 35-items that are rated as: "Never", "Sometimes", or "Often" present and scored 0, 1, and 2, respectively. Item scores are summed so that the total score is calculated by adding together the score for each of the 35 items, with a possible range of scores from 0-70. If one to three items are left blank by parents, they are simply ignored (score = 0). If four or more items are left blank, the questionnaire is considered invalid. The total score is recoded into a dichotomous variable indicating psychosocial impairment or not. For children aged six through eighteen, the cut-off score is 28 (28 or above = impaired; 27 or below = not impaired). For children ages 3-5, the scores on elementary school related items 5, 6, 17 and 18 are ignored and a total score based on the 31 remaining items is computed. The cut-off score for younger children is 24 or greater.

A positive score on the PSC suggests the need for further evaluation by a qualified health (M.D., R.N.) or mental health (Ph.D., LICSW, Psy.D.) professional. Both false positives and false negatives occur, and only an experienced clinician should interpret a positive PSC score as anything other than a suggestion that further evaluation may be helpful.

All forms of the PSC are scored in this same way, although different cut-off scores have been recommended for some of the available versions. Pediatricians whose practices serve a distinct culture should begin by collecting data on a number of cases to ascertain the accuracy of a cut-off score of 28 for their population. If more than 25% or less than 5% of a given population screen positive, it may be especially important to consider using a different cut-off score.

- For the **Spanish** and **English** versions of the **pictorial** PSC, the cut-off scores are the same as for the standard parent form.
- For the **PSC-Youth** versions in **English** and **Spanish**, a cut-off score of 30 is recommended (Pagano et al., 2000).
- For the **Japanese** version of the PSC-35, a cut-off score of 17 is recommended (Ishizaki et al., 2000).
- For the **German** form, the optimal cut-off has been found to be 24 (Herzog & Thun-Hohenstein, 2007).
- For the **Dutch** version, a cut-off of 25 is recommended (Reijneveld et al., 2006).
- For the **Chilean** version of the PSC, subscales for both risk and protective factors are calculated. Detailed instructions for this coding can be obtained by contacting the author Dr. Maria Paz Guzman (mariapazguzman@gmail.com).

PSC Subscales

A 17-item version of the PSC (PSC-17) has also been validated and used successfully to detect youth with psychosocial impairment (Borowsky, Mozayeny & Ireland 2003; Duke, Ireland, & Borowsky 2005; Gardner et al. 2007; Gall et al. 2000). For the **PSC-17**, a total cut-off score of 15 has been recommended (Gardner et al., 2007). Although its properties are similar to those of the original PSC 35 form, studies (Gardner et al., 1999; Gardner et al., 2007) do suggest a somewhat greater degree of accuracy with the original form, so it is still the instrument of choice unless time pressures mandate the use of the briefest possible screen.

Subscale scores for internalizing, conduct, and attention problems can be calculated from specific items (Borowsky et al., 2003). The clustering of these items and cutoff scores can be found in **Appendix 1** below.

How PARENTS Should Interpret the PSC

It may be helpful for parents or others who administer the form to consult with an experienced clinician if their child receives a PSC positive score. Data from past studies using the PSC indicate that 2 out of 3 children who

screen positive on the PSC will be correctly identified as having moderate to serious impairment in psychosocial functioning. The one child "incorrectly" identified usually has at least mild impairment, although a small percentage of children turn out to have very little actually wrong with them (e.g., an adequately functioning child of an overly anxious parent). Data on PSC-negative screens indicate 95% accuracy, which, although statistically adequate, still means that 1 out of 20 children rated as functioning sufficiently may actually be impaired. The inevitability of both false-positive and false-negative screens underscores the importance of experienced clinical judgment in interpreting PSC scores.

The training required may differ according to the ways in which the data are to be used. Professional school (e.g., medicine or nursing) or graduate training in psychology of at least the Master's degree level would ordinarily be expected. However, no amount of prior training can substitute for professional maturity, a thorough knowledge of clinical research methodology, and supervised training in working with parents and children. There are **no** special qualifications for scoring.

Psychometrics

Validity: Using a Receiver Operating Characteristic Curve, Jellinek and his colleagues (Jellinek et al., 1988) found that the PSC cut-off score of 28 has a specificity of 0.68 and a sensitivity of 0.95 when compared to clinicians' ratings of children's' psychosocial dysfunction. In other words, 68% of the children identified as PSC positive will also be identified as impaired by an experienced clinician and, conversely, 95% of the children identified as PSC negative will be identified as unimpaired. Similarly high rates of validity have been reported for the PSC-Y and for the translations of the PSC. This information can be found in the articles cited in the reference section below.

Reliability: Test-re-test reliability of the PSC ranges from $r = .84 - .91$. Over time, case/not case classification ranges from 83% - 87% (Jellinek et al., 1988; Murphy et al., 1992).

Inter-item Analysis: Our studies (Murphy & Jellinek, 1988; Murphy et al., 1996) indicate strong (Cronbach alpha = .91) internal consistency of the PSC items and highly significant ($p < 0.001$) correlations between individual PSC items and positive PSC screening scores.

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Appendix 1

Attention Problems Subscale:

1. Fidgety, unable to sit still
2. Daydreams too much
3. Distracted easily
4. Has trouble concentrating
5. Acts as if driven by a motor

AT RISK - Children with scores of 7 or higher usually on this subscale usually have significant impairments in attention.

Internalizing Problems Subscale:

1. Feels sad, unhappy
2. Feels hopeless
3. Is down on him or herself
4. Worries a lot
5. Seems to be having less fun

AT RISK - Children with scores of 5 or higher on this subscale usually have significant impairments with anxiety and/or depression.

Externalizing Problems Subscale:

1. Fights with others
2. Does not listen to rules
3. Does not understand other people's feelings
4. Teases others
5. Blames others for his or her troubles
6. Takes things that do not belong to him or her
7. Refuses to share

AT RISK - Children with scores of 7 or higher on this subscale usually have significant problems with conduct.

PSC Subscale Scoring

Attention Subscale:

- Sum responses to items 4, 7, 8, 9, 14
  - 7 or higher is considered significant

Internalization Subscale (Mood/Anxiety Symptoms):

- Sum responses to items 11, 13, 19, 22, and 27
  - 5 or higher is considered significant

Externalization (ODD / Conduct Disorder):

- Sum responses to items 16, 29, 31, 32, 33, 34, and 35
  - 7 or higher is considered significant