A Review of the Perceived Stress Scale

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Abstract

The Perceived Stress Scale (PSS) is a 10-item self-report instrument designed to measure the degree to situations in one’s life are appraised as stressful (Cohen, Kamarck & Mermelstein, 1983). This report provides an overview of the instrument including its purpose, the population(s) for whom it is intended, and the intended use of the scores. Additionally, information about the reliability and validity of the instrument (including a review of the factor analysis), scoring and scaling procedures, and norms from sample demographics are provided. Also included is a description of two studies which employed the PSS and an abbreviated reference list of additional studies using the PSS.
A Review of the Perceived Stress Scale

Sheldon Cohen and his colleagues in the 1980s created the Perceived Stress Scale (PSS) as a quick and simple instrument to measure how stressful the subject perceives their life. The items were designed to “. . . tap the degree to which respondents found their unpredictable, uncontrollable, and overloading” (Cohen, Kamarck & Mermelstein, 1983). The PSS currently comes in three versions; 14-items, 10-items, and four-items. The most frequently used, and statistically sound, version of the PSS is the 10-item version.

The PSS is a popular instrument in the United States and is also used internationally. As a matter of fact, the PSS has been translated into 14 languages including, Spanish, Chinese, Bulgarian, and Greek (Cohen, 2007). The original instrument was designed for individuals at least junior high school-aged and according to the studies covered in this review, is typically used with adults (mean age, 42-years old) and college students (mean age, 20-years old).

The researchers and clinicians employ the PSS in clinical, university, and community settings. In clinical settings the instrument often serves along side other measures as a tool to assess whether a subject is “at risk” for other disorders often associated with a measurable inability to cope with one’s life circumstances (e.g., depression, addictions). Because the PSS measures a subject’s perceived stress “within the last month,” it is considered a “state” measure, not a “trait” measure.

Perceived stress as measured by the PSS has demonstrated predictive power in relation to smoking cessation, the higher the PSS score the less likely to quit smoking; and, vulnerability to life events associated with depressive symptoms, the higher the PSS the more vulnerable the subject (Cohen & Williamson, 1988).

Scoring and Scaling the PSS
One of the most important qualities about the PSS is the simplicity of scoring the instrument. The individual delivering and scoring the PSS does not need special training to compute a subject’s score. The items are scored using a Likert scale ranging from “0 = never” to “4 = very often.” Simply, the higher the score on the PSS the more perceived stress an individual possesses; scores range from 0-40.1 According to normative national data of the PSS (n=2,387; mean age=42.8 years, sd=17.2), the mean score for the entire sample was 13.02 with a standard deviation of 6.35 (Cohen & Williamson, 1988). In research conducted with college students (n=285; mean age=23.8, sd=7.9), no significant difference was found between men’s average PSS score, 17.4 with a standard deviation of 6.1, and women’s average PSS score, 18.4 with a standard deviation of 6.5 (Roberti, Harrington & Storch, 2006).

Reliability and Validity

Since its creation, researchers have performed exploratory and confirmatory factor analyses on the original 14-item scale (e.g., Cohen & Williamson, 1988; Roberti, Harrington & Storch, 2006; González & Ladero, 2007). The factor analyses revealed a more parsimonious version of the scale (10-items) to be equally if not more statistically reliable and predictive (see Table 1).

<table>
<thead>
<tr>
<th>Research Team</th>
<th>Cronbach’s α</th>
<th>Total Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cohen &amp; Williamson, 1988</td>
<td>.78</td>
<td>48.9%</td>
</tr>
<tr>
<td>Roberti, Harrington &amp; Storch, 2006</td>
<td>.89</td>
<td>61.9%</td>
</tr>
<tr>
<td>González &amp; Ladero, 2007</td>
<td>.83</td>
<td>53.2%</td>
</tr>
</tbody>
</table>

1 The statistics reported in this review are those associated with the 10-item PSS unless otherwise noted.
In addition, a four-item scale has been tested (for use when time does not permit using the longer instruments) and proven to be slightly less reliable (Cronbach’s $\alpha=.60$; total variance explained, 45.6%). Depending on the research scenario sacrificing statistical power for a quick assessment (e.g., in a clinical setting) may be worthwhile (Cohen & Williamson, 1988).

**Issues with Validity**

The predictive validity of the PSS drops rapidly after four to eight weeks owing to the fact that the instrument was designed to measure perceived stress occurring “within the last month” (Cohen, Kamarck & Mermelstein, 1983). The strongest critique of the PSS questions its ability to measure perceived stress based on the potential influences of other variables such as the subject’s personality, mood during testing, and psychopathology. Furthermore, if these types of variables are associated with a psychological disorder (diagnosed or undiagnosed) then the subject’s ability to appraise their stress is suspect thereby nullifying the instrument’s predictive validity (Herbert & Cohen, 1996).

**Employing the PSS**

In the United States and abroad, the PSS is commonly used to measure perceived stress as an outcome measure and/or a dependent variable in clinical, community, and college settings for research and diagnostic purposes (for a list of recent studies employing the PSS see the Appendix). As specific examples of how the PSS is employed by researchers and clinicians, two recent studies conducted to investigate stress among college students (Deckro et al., 2002; Pierceall & Keirn, 2007) are described in the following section.
Study One

Deckro et al. (2002) conducted an intervention and evaluation study to measure the impact of a six-week mind/body intervention program on college students’ perceived stress ($n=128$). Subjects were randomly assigned to the experiment or control groups. Both groups were given the PSS$^2$ (along with three other psychometric instruments) pre- and post-intervention. Pre- and post-intervention change score means were analyzed for statistical significance. The PSS change score of the experiment group ($n=46$, $m=5.11$, $sd=7.39$) was significantly higher ($p=.008$) than the control group’s change score ($n=44$, $m=1.57$, $sd=4.63$). Although researchers found varying levels of statistical significance across all of the instruments, they concluded mind/body intervention programs might potentially reduce students’ self-reported perceptions of stress. Furthermore, they recommended the adoption of such low-cost, easy-to-implement programs on college campuses to alleviate the stress and anxiety among college students (Deckro et al., 2002).

Study Two

Pierceall and Keirn (2007) used the PSS$^3$ as a diagnostic tool to assess the average stress levels among two samples of community college students ($n=212$). Differences between men and women and between traditional and nontraditional students, along with other comparisons, were also investigated. The researchers further reported ways subjects cope with stress. The goal of the study was to describe stress and coping to community college personnel so that they may develop programs to assist students deal with stress.

Subjects in the samples reported perceived stress levels ranging between 4 and 56 ($m=27.78$, $sd=8.22$). Only 12% of all subjects reported “high stress” (PSS score above 36). The

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$^2$ The 14-item PSS was used in this study.

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mean differences between male ($m=25.87$) and female ($m=29.11$) students was found to be statistically significant ($t=-2.869$, $df=211$, $p=.005$). Women reported higher perceived stress. No significant differences were found when comparing any of the other independent variables including traditional vs. nontraditional, type of program enrolled in, GPA, and plans to transfer to a four-year institution. One finding of interest was more than one-third of students in the study reported a desire to receive information about stress reduction techniques. The researchers reported these subjects to have statistically significant higher scores on the PSS than those students who expressed no interest in such activities (Pierceall & Keirn, 2007).

**Conclusion**

Overall, the PSS is a statistically robust instrument. Its popularity in research and clinical settings encourages its ongoing validity as a measure of perceived stress. Future research looking at stress as a dependent variable will undoubtedly depend on the PSS as one of the best measures available.

Further use and validation of the four-item PSS and/or converting the PSS into an online instrument (and assessing its reliability and validity as an electronic form) are two areas the PSS can continue to develop.
References


Appendix

Empirical Studies Employing the PSS


