Measurement Characteristics and Clinical Utility of the Pittsburgh Sleep Quality Index Among Adolescents

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Adolescents commonly encounter sleep problems, including insufficient sleep, poor sleep quality, and disorders such as insomnia. A measure of sleep quality for adolescents can enable standardized sleep assessment in research and clinical practice. The Pittsburgh Sleep Quality Index (PSQI) is a self-report measure that assesses sleep quality to identify “good” or “poor” sleepers. The PSQI includes 19 items with 7 components: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbances, sleeping medications, and daytime dysfunction. Each component score ranges from 0 (no difficulty) to 3 (severe difficulty), and these scores are added together to yield a global score ranging from 0-21. A higher global score indicates worse sleep quality, with a cutoff score of ≥5 indicative of poor sleep quality. The PSQI administration time is 5-10 minutes.

Psychometric properties are studied in adolescents for the Spanish, Brazilian, and English versions. Raniti et al administered the English PSQI to 889 adolescents (mean age, 15.71y) from schools in Australia and reported adequate internal consistency (α=0.73) as well as adequate convergent validity with Center for Epidemiological Studies-Depression Scale (r=0.58) and Spence Children’s Anxiety Scale (r=0.45). Passos et al report minimal detectable change of 3.10 points for the Brazilian version studied in 209 adolescents (mean age, 14.38y).

The short administration time and adequate psychometric properties reported for adolescents provide evidence to support the clinical utility of the English, Spanish, and Brazilian versions of the PSQI.

This abbreviated summary provides a review of the psychometric properties of the PSQI in adolescents. A full review of the PSQI and reviews of over 500 other instruments for patients with various health conditions can be found at: www.sralab.org/rehabilitation-measures.

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**Rehabilitation Measures**

**Measure Name:** Pittsburgh Sleep Quality Index

**Acronym:** PSQI

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**Populations Reviewed:** Adolescents

**Administration Time:** 5-10 min

**Score:** 0-21

**Items:** 19 self-report items; Optional: 5 bedpartner/roommate-report items

**Purpose and Administration Instructions:**

PSQI is a 19-item self-report scale that can be used for screening and assessment of sleep quality. The PSQI identifies “good” or “poor” sleepers to detect the presence of sleep disturbances and to provide an index that can be interpreted by patients, clinicians, and researchers. PSQI is freely available for not-for-profit uses after completing a request form with the University of Pittsburgh (Center for Sleep and Circadian Science) or by contacting Daniel J. Buysse, MD (buyssedj@upmc.edu) for permission to use this instrument.

**Validity:**

- Adequate correlation of global PSQI score (English version) with Center for Epidemiological Studies-Depression Scale (r=0.58) and Spence Children’s Anxiety Scale (r=0.45) in adolescents.

- Adequate correlation of global PSQI score (Spanish version) with mood (r=-0.35) and fatigue (r=0.42) in adolescents, as measured by single question numerical rating scales of mood and fatigue respectively.

- Single factor model with fit indices of 0.96 (English version), 0.91 without sleep medication component (Spanish version).

- Two factor model explained 60.41% of the variance without sleep medication component (Spanish version): daytime dysfunction and sleep disorders.

**Reliability:**

- Adequate internal consistency of the global PSQI score for adolescents: Cronbach’s alpha=0.71 (Brazilian version), 0.73 (English version), 0.72 (Spanish version).

- Adequate test-retest reliability. ICC=0.65, of the global PSQI score for adolescents (Brazilian version).

- Excellent test-retest reliability, r=0.81, of the global score for adolescents (Spanish version).

**Standard Error of Measurement:**

Standard error of measurement for global PSQI score=1.12 points (Brazilian version)

**Minimal Detectable Change:**

Minimal Detectable Change in global PSQI score is 3.10 points (Brazilian version)

**Considerations:**

- PSQI is available in many different languages.

- 5 bedpartner/roommate items are optional and not included in global sleep score of 0-21

**Abbreviations:**

- ICC=Intra-class Correlation Coefficient

- PSQI=Pittsburgh Sleep Quality Index

- r=Pearson’s product moment correlation

**Cut-off Criteria:**

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<thead>
<tr>
<th></th>
<th>r</th>
<th>ICC</th>
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<tbody>
<tr>
<td>Excellent</td>
<td>≥ .6</td>
<td>≥ .75</td>
</tr>
<tr>
<td>Adequate</td>
<td>.31-.59</td>
<td>.40-.74</td>
</tr>
<tr>
<td>Poor</td>
<td>≤ .3</td>
<td>&lt; .4</td>
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