

Screening for insomnia disorder in primary care using a two-item short form of the Sleep Condition Indicator (SCI-02)

Annemarie I. Luik, PhD^{a,b}, Pedro Farias Machado, PhD^b, A. Niroshan Siriwardena PhD, MD^c, Colin A. Espie, PhD, DSc^{a,b}

^a Sleep & Circadian Neuroscience Institute, Nuffield Department of Clinical Neurosciences, University of Oxford, UK

^b Big Health Limited, London, UK and San Francisco, USA

^c Community and Health Research Unit, University of Lincoln, UK

Corresponding Author:

Colin A. Espie

Nuffield Department of Clinical Neurosciences/ Sleep & Circadian Neuroscience Institute, University of Oxford, OX1 3RE, UK

Phone: +44 01865 618661

Email: colin.espie@ndcn.ox.ac.uk

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No abstract

Insomnia, defined as difficulty falling asleep, staying asleep or waking up too early for 3 or more nights per week for 3 months or more with significant daytime effects (1) is the most common sleep problem presenting in general practice: 10 to 12% of the population meet formal diagnostic criteria for insomnia disorder, and up to 40% express complaints of insomnia (2).

For those suffering from sleep problems, the general practitioner (GP) is often the first point of contact with previous research suggesting 79% of GPs see someone with a sleep complaint at least once a week (3). GPs are often unaware of patients' sleep problems, and even when they are, fewer than 8% of doctors use validated sleep questionnaires or sleep diaries (4). Despite both GPs and patients believing that a detailed sleep assessment is important, this lack of assessment may be due to time pressures and/or a limited knowledge of how best to evaluate sleep complaints (5).

For these reasons, a brief measure that can reliably screen for insomnia could be invaluable. The two-item Sleep Condition Indicator (SCI-02) has been developed to help GPs and primary care nurses screen for insomnia (6) (Figure 1). The two items derived from the full, validated 8-item Sleep Condition Indicator (SCI) (6), also available in Chinese, French, Italian and Romanian, include questions reflecting being troubled about sleep problems and the duration of the sleep complaint, and have been suggested for a short version based on their high predicted value (82% variance) of the full scale SCI (6).

Each item is scored on a 5-point scale (0 – 4), with lower scores, in the 0 – 2 range, reflecting DSM-5 threshold criteria for Insomnia Disorder and sleep being in relatively poor condition.

Possible total scores ranges from 0 – 8, with higher values indicative of better sleep (that is sleep being in better condition). To facilitate use within clinical practice reference values are available for different sex and age groups.

We have validated the SCI-02 using a sample of 200,000 persons who completed it online, randomly extracted from an online platform or mobile app (www.sleepio.com), similar to a previous validation of the full SCI (7). By completing the measures online participants agreed that their data could be used anonymously for research. A subsample of participants also completed the remaining questions of the full SCI within one hour allowing us to assess the correlation between the SCI-02 and the full SCI.

The sample of 200,000 adults had a mean age of 40.24 ± 14.31 years and comprised 105,839 women (55.7%). Cronbach's α and the Spearman-Brown's correlation, suggested to be a better indicator of reliability for two item-measures, for the entire sample were both acceptable at 0.74 (8). The test-retest reliability and intraclass correlation coefficient in a sample repeating the test from 12 hours up to 7 days were $r = 0.680$ and $ICC = 0.680$ respectively.

In a subsample of 4,612 users (age: 41 ± 12 ; 57% female) who completed both the SCI-02 and the remaining 6 items of the full SCI within 1 hour, the SCI-02 was correlated strongly ($r=0.80$) with the total score of the full SCI. A cut-off of ≤ 2 for the SCI-02 predicted those identified with probable insomnia according to the full SCI with a specificity of 80% and sensitivity of 79%. Some caution is needed as the sample was self-selected, thus likely to be

in favour of those who had an interest in sleep, and a bias towards those with a sleep problem.

The ultra-short, two-item version of the Sleep Condition Indicator can be used to rapidly screen for insomnia in routine clinical practice, asking about being troubled by sleep and the duration of the complaints, with a SCI-02 score of 2 or less indicating insomnia (Figure 1).

The GP could then assess the insomnia complaint further by administering the remaining 6 items of the SCI and can also compare the patients' score to the reference values presented in Table 1 to facilitate clinical interpretation.

In conclusion, ultrashort instruments such as the SCI-02 could help GPs and nurses to routinely assess potential sleep problems in their patients, accurately, reliably and quickly.

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Figure 1 Two-item version of the Sleep Condition Indicator (SCI-02)

Item	Score				
	4	3	2	1	0
<i>Thinking about the past month, to what extent has poor sleep ...</i>					
1. ... troubled you in general	Not at all	A little	Somewhat	Much	Very much
<i>Thinking about a typical night in the last month ...</i>					
2. ... how many nights a week do you have a problem with your sleep?	0 - 1	2	3	4	5 - 7

Scoring instructions:

- a. Add the item scores to obtain the SCI total (minimum 0, maximum 8)
- b. A higher score means better sleep

Table 1 Two-item version of Sleep Condition Indicator (SCI-2) sex and age-related reference values, N=200,000

Age group (years)	Sex	N	Mean (SD)	Median (IQR)
16 – 25	F	17,526	2.76 (2.24)	2 (1-4)
	M	14,450	3.19 (2.33)	3 (1-5)
26 – 35	F	26,509	2.95 (2.28)	3 (1-5)
	M	25,833	3.35 (2.31)	3 (1-5)
36 – 45	F	19,342	2.38 (2.16)	2 (1-4)
	M	17,748	2.85 (2.24)	2 (1-4)
46 – 55	F	21,123	2.01 (2.01)	2 (0-3)
	M	13,431	2.42 (2.16)	2 (1-4)
56 – 65	F	15,689	1.86 (1.92)	1 (0-3)
	M	8,868	2.22 (2.06)	2 (1-3)
66 – 75	F	5,650	1.46 (1.63)	1 (0-2)
	M	3,831	1.75 (1.75)	1 (0-2)
All ages	F	105,839	2.39 (2.17)	2 (1-4)
	M	84,161	2.88 (2.28)	2 (1-4)
	All	200,000	2.60 (2.23)	2 (1-4)

F: female; M: male; SD: standard deviation; IQR: interquartile range.
Range SCI 0-8 with 8 indicating better sleep.