Life & Times

Screening for insomnia in primary care:

using a two-item version of the Sleep Condition Indicator

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 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 pressure 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] (Table 1). The two items derived from the full, validated eight-item Sleep Condition Indicator (SCI)[6] include questions reflecting being troubled about sleep problems and the frequency 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]

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

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

[a]Scoring instructions: Add the item scores to obtain the SCI total (minimum 0, maximum 8). A higher score means better sleep.

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. Possible total scores range from 0–8, with higher values indicative of better sleep.

We have validated the SCI-02 using a sample of 190 000 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 1 hour, allowing us to assess the correlation between the SCI-02 and the full SCI.

The sample of 190 000 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 correlation for the entire sample were both acceptable at 0.74. The test–retest reliability and intraclass correlation coefficient in a sample repeating the test from 12 hours up to 7 days were $r = 0.68$ and ICC = 0.68 respectively.

In a subsample of 4612 users (age: 41 ± 12; 57% female) who completed both the SCI-02 and the remaining six 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 81% and sensitivity of 80%. 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 SCI can be used to rapidly screen for insomnia in routine clinical practice, asking about being troubled by sleep and the frequency of the complaints, with a SCI-02 score of 2 or less indicating insomnia (Table 1). The GP could then assess the insomnia complaint further by administering the remaining six items of the SCI and can also compare the patient's score to the reference values presented in Table 2 to facilitate clinical interpretation.

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

Table 2. Two-item version of Sleep Condition Indicator (SCI-2) sex-and age-related reference values, *N* = 190 000

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 (1–3)
56–65	F	15 689	1.86 (1.92)	1 (0–3)
	M	8868	2.22 (2.06)	2 (1–3)
66–75	F	5650	1.46 (1.63)	1 (0–2)
	M	3831	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	190 000	2.60 (2.23)	2 (1–4)

F = female. IQR = interquartile range. M = male. SD = standard deviation. Range SCI 0–8 with 8 indicating better sleep.

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Competing interests
Colin A Espie is co-founder and CMO of Big Health Ltd, which owns the data, and is a shareholder in the company. Annemarie I Luik was employed by the University of Oxford in a post funded by Big Health. Pedro Farias Machado was Head of Data Science with Big Health Ltd, and is salaried by the company. The other author has no conflicts to declare.

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ALTERNATIVES TO DRUG THERAPY

GPs and patients have an increasing interest in the use of non-drug interventions to treat common conditions seen in primary care. Nearly half the thousands of clinical trials conducted each year are for evaluating non-drug treatments, such as diet, exercise, procedures, and devices. Advances in such treatments in the past few decades have been substantial and diverse — for example, exercise for heart failure and COPD, the Epley manoeuvre for benign paroxysmal positional vertigo, and CBT for depression. However, effective non-drug methods are less well known, less promoted, and less used than their pharmaceutical cousins.

There are well-established drugs/medications formularies such as the *British National Formulary*. However, no such formulary or resource for non-drug treatments (interventions) currently exists in the UK.

WHAT IS HANDI?

The Handbook of Non-Drug Interventions — HANDI — project was launched by the Royal Australian College of General Practitioners (RACGP) in 2013 to promote effective non-drug treatments. HANDI is an

Box 1. Using HANDI in the GP consultation

Common GP consultations	Examples of HANDI resources
Skin disorders	• Sunscreen for skin cancer prevention • Emollient therapy for infant atopic dermatitis • Moisturiser for prevention of skin tears • Wet combing for head lice • Probiotics in pregnancy for infant atopic eczema
Musculoskeletal problems	• Stretching exercises for plantar fasciitis • Mindfulness and cognitive behavioural therapy (CBT) for chronic low back pain • Exercise for acute lower back pain • Exercise for knee osteoarthritis • Exercise for preventing recurrent ankle sprain • Exercises for falls prevention • Exercise for preventing bone loss and reducing fracture risk
Upper respiratory and ear, nose, and throat conditions	• Honey for coughs in children with URTI • Autoinflation for glue ear • Mother's kiss for nasal foreign bodies • The Epley manoeuvre for vertigo
Mental health problems	• Bibliotherapy for depression • Brief behavioural therapy for insomnia in adults • Exercise for depression • Internet-based or computerised CBT for depression and anxiety • Music for insomnia in adults • CBT for panic disorder • CBT for chronic insomnia
Neurological problems	• Graded exercise therapy for chronic fatigue syndrome • Physical fitness training for stroke
Chronic respiratory disease	• Mandibular devices for obstructive sleep apnoea • Pulmonary rehabilitation for COPD
Women's health issues	• Antenatal perineal massage • Pelvic floor muscle training for pelvic organ prolapse • Pelvic floor muscle training for urinary incontinence
Diabetes	• Exercise for type 2 diabetes
Gastrointestinal/ nutritional problems	• Dilute apple juice for children rehydration • Low-FODMAP diets for irritable bowel syndrome • Probiotics for acute infectious diarrhoea • Egg allergy prevention • Peanut allergy prevention

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