

RESEARCH ARTICLE



Do people use methods or tricks to fall asleep? A comparison between people with and without chronic insomnia

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Summary

The present study estimated the frequency of using methods or tricks to fall asleep in the general Norwegian population. Further, people with chronic insomnia were compared with people without chronic insomnia. A representative sample of 1028 participants aged 18 years or older completed a web-based survey. The response rate was 33.5%. Insomnia symptoms were assessed with the validated Bergen Insomnia Scale, and chronic insomnia based on ICSD-3/DSM-5 criteria. Data were analysed with chi-square tests and logistic regression with adjustment for sex, age, education, and circadian preference. The results showed that 34.3% reported using a method or a trick to fall asleep, with relaxation exercises/breathing exercises being the most common. More females (39.5%) compared with males (29.1%) reported the use of a method/trick to fall asleep with an adjusted odds ratio (aOR) of 1.44. Chronic insomnia was reported by 24.9%, and clearly associated with higher use of such methods/tricks (53.7%; aOR = 3.49). Among the participants without chronic insomnia, 28.1% reported using methods/tricks to fall asleep. In conclusion, most people do not use methods or tricks to fall asleep, but chronic insomnia was associated with a higher frequency of such use. Still, since methods/tricks were also used by some participants without chronic insomnia, this may suggest that, for some people, this strategy may be effective or at least does not seem to disrupt the sleep onset process.

KEYWORDS

epidemiology, insomnia symptoms, sleep initiation, sleep tips

1 | INTRODUCTION

To fall asleep requires cognitive and somatic deactivation (Lemyre, Belzile, Landry, Bastien, & Beaudoin, 2020). For many people this deactivation is not a problem, and the sleep-wake process is considered to be self-regulatory and automated (Espie, Broomfield, MacMahon, Macphee, & Taylor, 2006). Still, some people may adopt

behavioural strategies to aid sleep initiation. However, few studies have explored the use of such strategies in the general population. Do people use specific methods or tricks to fall asleep, or do people fall asleep without such conscious effort? Are there differences in the use of such methods or tricks depending on sociodemographic factors? There are also few studies examining whether people with sleep problems use methods or tricks to fall asleep more often than people without a sleep problem.

Chronic insomnia is the most prevalent sleep disorder (American Academy of Sleep Medicine, 2014; Riemann et al., 2017). At least

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10% of the adult population suffer from chronic insomnia (Riemann et al., 2017). A recent study from Norway using a validated questionnaire based on criteria from the International Classification of Sleep Disorders version 3 (ICSD-3) found an even higher prevalence of 20% (Bjorvatn, Waage, & Pallesen, 2018). This study is in line with other studies indicating that the prevalence of chronic insomnia is on the rise (Pallesen, Sivertsen, Nordhus, & Bjorvatn, 2014). Moreover, the global COVID-19 pandemic has further increased the prevalence of insomnia symptoms dramatically (Morin et al., 2021; Partinen et al., 2021).

Some may think that good sleepers have adopted an effective method for falling asleep, and that people with insomnia ought to use a similar method. However, common sense and clinical experience suggest that good sleepers are able to initiate sleep without any specific effort (Espie et al., 2006), and thus do not need specific methods or tricks to fall asleep. On the other hand, people with chronic insomnia may try different methods or tricks to aid sleep onset, methods that are not necessarily effective (Harvey, 2000). In a study from the general Canadian population, participants were asked about self-help strategies to promote sleep during the past year. Data showed that 32.5% of the sample used reading, 25.2% listening to music, 20.7% relaxation, 15% herbal/dietary products, and 11% prescribed medications (Morin, LeBlanc, Daley, Gregoire, & Merette, 2006). Furthermore, individuals with insomnia reported a higher use of these strategies, with odds ratios for reading, listening to music, relaxation, herbal/dietary products, and prescribed medications of 1.8, 2.6, 2.6, 3.7, and 5.2, respectively (Morin et al., 2006). However, we have not been able to find other scientific publications which study in detail whether people use methods or tricks to fall asleep. To count sheep is a classical advice, considered to be ineffective, but whether such a method is actually used by people is unclear. More studies are needed to advance our understanding of the use of self-help methods such as relaxation or breathing exercises, book reading, listening to music, or the use of mobile phone. In clinical practice, one of the first pieces of advice given to patients with insomnia is to get out of bed and stay up until you become sleepy (Riemann et al., 2017). Whether this method is used among people in the general population is unknown, as is whether there are differences in the use of this method between people with and without chronic insomnia.

Against this backdrop, one aim of the present study was to estimate how many people in the general population use methods or tricks to fall asleep, and which methods/tricks are most common. Furthermore, we aimed to compare the use of such methods and tricks in relation to sex, age, educational level, and circadian preference. Circadian preference was included as evening types have more sleep problems than morning types (Merikanto et al., 2022). Another important aim of the study was to compare the use of such methods/tricks between people with and without chronic insomnia. Our main hypothesis was that more people with chronic insomnia use methods or tricks to fall asleep than people without insomnia. We did not have a priori hypotheses regarding the use of such methods or tricks in relation to sociodemographic variables or circadian preference but

considered that it would be important to adjust for such measures when interpreting the effect of chronic insomnia.

2 | MATERIALS AND METHODS

2.1 | Design and study population

In April/May 2022, a representative population-based sample of Norwegian adults aged 18 years or older were invited to participate in a web-based survey on sleep and health. The survey was technically administered by the opinion-research institute Kantar TNS. The sample was selected from Kantar's web panel, which is designed to reflect the demography of the general Norwegian population. The goal was to include at least 1000 participants. Of 3071 invited participants, a total of 1028 responded to the study, yielding a response rate of 33.5%.

2.2 | Sociodemographic variables and circadian preference

Data were collected about sex (male, female), age (in this study grouped into the following categories: 18–29; 30–39, 40–49; 50–59; 60–69; 70 years and older), and educational level (grouped into primary school; secondary school; college/university). The participants responded to a single question about circadian preference: “Are you a morning- or an evening person?,” with the following response options: “I am very alert and active in the morning, and sleepy early in the evening (definitely a morning person);” “I am rather alert in the morning and rather sleepy in the evening (more morning- than evening person);” “Neither morning- nor evening person;” “I am rather alert in the evening and rather sleepy in the morning (more evening- than morning person);” “I am very alert and active in the evening and sleepy in the morning (definitely an evening person).” In this study, circadian preference was grouped into three categories: morning type (first two response options), intermediate type, evening type (last two response options).

2.3 | Insomnia

Insomnia symptoms were assessed with the Bergen Insomnia Scale (BIS) (Pallesen et al., 2008). The BIS consists of six items, and was developed based on the diagnostic criteria for insomnia according to the Diagnostic and Statistical Manual for Mental Disorders version 4 (DSM-IV-TR) (American Psychiatric Association, 2000). The items were scored along an eight-point scale indicating the number of days per week for which a specific insomnia symptom is experienced (0–7 days). Thus, the total BIS score ranges from 0 to 42. The items refer to sleep onset (sleep latency exceeding 30 min), wake after sleep onset (more than 30 min), early morning awakening (more than 30 min), non-restorative sleep, daytime impairment, and dissatisfaction with sleep.

The BIS originally specified insomnia symptoms experienced during the past month, but this was modified in the present study to a time frame of the past 3 months based on the updated DSM-5/International Classification of Sleep Disorders-3 (ICSD-3) diagnostic criteria (American Academy of Sleep Medicine, 2014; American Psychiatric Association, 2013). According to the DSM-5/ICSD-3 criteria, chronic insomnia disorder, based on the modified BIS, was defined as scoring 3 days per week or more on at least one of the first three items, as well as 3 days per week or more on at least one of the latter two items. The scale has acceptable test-retest reliability, and good convergent and discriminative validity in relation to other self-report measures as well as to polysomnographic data (Pallesen et al., 2008). Cronbach's alpha for the BIS was 0.81 in the present sample. For the purpose of this study, we also identified participants with no sleep problems at all, defined as scoring 0 days per week on all six BIS items (in this study classified as "great sleepers").

2.4 | Methods or tricks to fall asleep

The participants were asked "When you lie in bed, do you use a method or trick to fall asleep?" with three response options: "No, I fall asleep without using any specific method or trick"; "Yes, I use one or more methods/tricks to fall asleep"; and "I do not know." For participants responding yes to this question, they were further asked to indicate what type of method/trick they use (yes, no) with the following response options (with the possibility to indicate more than one method/trick): "count sheep"; "follow a particular train of thought"; "perform relaxation exercises/breathing exercises"; "reading a book"; "get out of bed and wait until I become sleepy"; "listen to music, podcast or similar"; "active use of mobile phone/tablet/PC"; and "other method/trick" (with the possibility to specify type of method/trick in writing).

2.5 | Ethics

Kantar's web-panel is a consent-based database with 40,000 participants recruited to reflect the demography of the Norwegian population. Kantar TNS is the data controller for all personal data in the web panel, and their procedures for data collection are in accordance with GDPR (general data protection regulation in the EU). According to Kantar's procedures, no personal data are disclosed. Before responding to this specific questionnaire, the participants received general information about the purpose of the study, and that anonymous data would be provided to the research team. The potential participants accepted or rejected participation before responding to any specific question. Since only anonymous data were provided to the research team, the survey was exempted from review by The Regional Committee for Medical and Health Related Research Ethics (REK Nord, application number 458482).

2.6 | Statistics

Data analyses were conducted with SPSS, version 28 (IBM SPSS). The data were weighted according to the population distribution of age, sex, and county of living, to correct for potential divergence between the sample and the distribution in the general population. The association between using a method/trick to fall asleep and sex, age group, educational level, circadian preference, and chronic insomnia was explored using Pearson chi-square statistics. Furthermore, both crude and adjusted logistic regression analyses were conducted with "using a method/trick to fall asleep" as a dependent variable (no/do not know = 0; yes = 1) and chronic insomnia as an independent variable with sex, age, educational level, and circadian preference as covariates in the adjusted analysis. The significance level was set to 0.05.

3 | RESULTS

Table 1 presents the characteristics of the study sample. In total, 34.3% responded yes to the question about using a method or trick to

TABLE 1 Characteristics of the general Norwegian population sample ($n = 1028$)

	<i>n</i> (percentage)
Sex	
Male	518 (50.4%)
Female	510 (49.6%)
Age (years)	
18–29	201 (19.6%)
30–39	163 (15.8%)
40–49	150 (14.6%)
50–59	215 (21.0%)
60–69	151 (14.7%)
70+	147 (14.3%)
Education	
Primary school	46 (4.5%)
Secondary school	381 (37.1%)
College/university	600 (58.4%)
Circadian preference	
Morning type	378 (37.1%)
Intermediate type	284 (27.9%)
Evening type	357 (35.0%)
Chronic insomnia	
No	769 (75.1%)
Yes	255 (24.9%)
Method/trick to sleep	
No	591 (57.4%)
Yes	352 (34.3%)
Do not know	85 (8.3%)

Note: Data are weighted for sex, age, and county of living.

fall asleep. The prevalence of chronic insomnia was 24.9%. Only 5.9% (60 people) were classified as “great sleepers” (scoring 0 days per week on all six BIS items).

Among the people using a method or trick to fall asleep, the most common method/trick was to perform relaxation exercises/breathing exercises (Table 2). Only 12.7% reported they get out of bed and wait until becoming sleepy. In total, 74 participants (21.0%) reported using a method or trick that was not among the predefined options. There was a large diversity among these other methods/tricks (data not shown), but the use of sleep medications or melatonin (15 people) and sexual activity (3 people) were the most common ones.

TABLE 2 Type of method or trick to fall asleep among the 352 participants who reported using such a method/trick

	n (percentage)
Count sheep	25 (7.0%)
Follow a particular train of thought	86 (24.3%)
Perform relaxation exercises/breathing exercises	131 (37.3%)
Reading a book	81 (22.9%)
Get out of bed and wait until I become sleepy	45 (12.7%)
Listen to music, podcast or similar	84 (23.8%)
Active use of mobile phone/tablet/PC	47 (13.4%)
Other methods/tricks	74 (21.0%)

Note: Data are weighted for sex, age, and county of living. The participants were allowed to indicate multiple methods/tricks.

To use a method or trick to fall asleep was significantly more common among females (39.5%) compared with males (29.1%), whereas we found no differences in relation to age, educational level, or circadian preference (Table 3).

Chronic insomnia was clearly associated with the use of a method/trick to fall asleep compared with not having chronic insomnia (53.7% versus 28.1%). This was further supported by the finding that among “great sleepers” only 13.3% (8 people) reported using a method/trick to fall asleep, whereas 78.3% reported “no” and 8.3% reported “I do not know.” Among the different methods/tricks to fall asleep, reading a book was less common among people with chronic insomnia compared with people without chronic insomnia (15.4% versus 27.4%, $p = 0.009$) whereas “get out of bed and wait until I become sleepy” was more common among people with chronic insomnia compared with people without chronic insomnia (20.6% versus 7.4%, $p < 0.001$). For the other specific response options (count sheep, follow a particular train of thought, relaxation exercises/breathing exercises; listen to music, podcast or similar, active use of mobile phone/tablet/PC), we found no significant differences between people with or without chronic insomnia (data not shown).

The adjusted logistic regression analysis confirmed the significant associations reported in the chi-square tests for sex and chronic insomnia. Females reported 1.44 higher odds of using a method or trick to fall asleep compared with males. People with chronic insomnia reported 3.49 higher odds of using a method/trick compared with people without insomnia (Table 4). Furthermore, when BIS was

	Use a method/trick to fall asleep			χ^2 (df)	p-value^a
	No	Yes	Do not know		
Sex				12.6 (2)	0.002
Male	323 (62.2%)	151 (29.1%)	45 (8.7%)		
Female	268 (52.4%)	202 (39.5%)	41 (8.0%)		
Age (years)				8.0 (10)	0.629
18–29	111 (55.2%)	75 (37.3%)	15 (7.5%)		
30–39	88 (54.3%)	54 (33.3%)	20 (12.3%)		
40–49	90 (59.6%)	51 (33.8%)	10 (6.6%)		
50–59	119 (55.1%)	76 (35.2%)	21 (9.7%)		
60–69	91 (60.3%)	51 (33.8%)	9 (6.0%)		
70+	91 (61.5%)	46 (31.1%)	11 (7.4%)		
Education				6.5 (4)	0.162
Primary school	30 (63.8%)	15 (31.9%)	2 (4.3%)		
Secondary school	220 (57.7%)	120 (31.5%)	41 (10.8%)		
College/university	341 (56.7%)	217 (36.1%)	43 (7.2%)		
Circadian preference				4.6 (4)	0.326
Morning type	232 (61.4%)	119 (31.5%)	27 (7.1%)		
Intermediate type	162 (57.0%)	95 (33.5%)	27 (9.5%)		
Evening type	193 (54.1%)	132 (37.0%)	32 (9.0%)		
Chronic insomnia				77.3 (2)	<0.001
No	501 (65.1%)	216 (28.1%)	52 (6.8%)		
Yes	86 (33.7%)	137 (53.7%)	32 (12.5%)		

Note: Significant results are indicated in bold. Data are weighted for sex, age, and county of living.

df, degrees of freedom.

^aPearson Chi-square.

TABLE 3 Association between use of a method or trick to fall asleep and sociodemographic variables, circadian preference, and chronic insomnia in a representative sample of Norwegian adults ($n = 1028$)

TABLE 4 Logistic regression analyses with the use of a method or trick to fall asleep (no/do not know = 0; yes = 1) as the dependent variable and sociodemographic variables, circadian preference, and chronic insomnia as predictors among a representative sample of Norwegian adults ($n = 1028$). In the adjusted model, all predictors were entered in the same analysis

	Use a method/trick to fall asleep OR (95% CI)	
	Crude	Adjusted
Sex		
Male	1.0 (ref)	1.00 (ref)
Female	1.62 (1.24–2.11)	1.44 (1.08–1.91)
Age (continuous variable)	1.00 (0.99–1.00)	1.00 (0.99–1.01)
Education		
Primary school	1.00 (ref)	1.00 (ref)
Secondary school	1.09 (0.56–2.12)	0.99 (0.49–1.99)
College/university	1.27 (0.67–2.43)	1.18 (0.60–2.32)
Circadian preference		
Morning type	1.00 (ref)	1.00 (ref)
Intermediate type	1.14 (0.81–1.59)	1.20 (0.84–1.71)
Evening type	1.33 (0.98–1.82)	1.35 (0.97–1.88)
Chronic insomnia		
No	1.0 (ref)	1.00 (ref)
Yes	3.70 (2.70–5.06)	3.49 (2.53–4.81)

Note: Significant results are indicated in bold. Data are weighted for sex, age, and county of living. CI, confidence interval.

entered as a continuous score, the adjusted (for sex, age, educational level, and circadian preference) logistic regression analysis showed an OR of 1.08 (CI 1.06–1.10), indicating that for every increased step on BIS, the odds of using a method/trick to fall asleep increased by 8%.

4 | DISCUSSION

About a third of the participants reported using a method or trick to fall asleep. Such use was more common among females than among males. Furthermore, the findings confirmed our main hypothesis that more people with chronic insomnia use a method or trick to fall asleep than people without chronic insomnia. Using the Bergen Insomnia Scale as a continuous score and restricting the analysis to great sleepers (people scoring 0 days per week on all six BIS items) further underscored our hypothesis.

The finding that only a minority (34.3%) reported using a method or trick to fall asleep is in line with an older Canadian study (Morin et al., 2006). This suggests that most people can fall asleep without struggle, consistent with the construct of sleep effort (Broomfield & Espie, 2005; Espie et al., 2006). Sleep is an involuntary physiological process, which cannot be fully controlled. This implies that any effort to control sleep is likely to fail (Broomfield & Espie, 2005). Among people with chronic insomnia, the majority (53.7%) reported using methods or tricks. If someone struggles with falling asleep, it is not

surprising that she/he tries different methods/tricks to promote sleep. However, it may be somewhat surprising that as many as 33.7% of participants with chronic insomnia reported not using any method or trick. Furthermore, among the participants without chronic insomnia, 28.1% reported using a method/trick to fall asleep. In fact, even among the “great sleepers”, some participants (13.3%) reported to use a method/trick. The study design does not allow us to say anything about the effectiveness of these methods or tricks, but for people without sleep problems, the method/trick may seem to work. At least, the method/trick does not seem to disrupt sleep initiation. The possibility that some of these methods/tricks may be effective for some people should be addressed in future studies.

None of the predefined methods/tricks were used by the majority of the participants who reported using methods/tricks. Performing relaxation exercises/breathing exercises was reported by 37.3% and was the most common. There is some limited evidence for this kind of therapy in the treatment of chronic insomnia (Edinger et al., 2021; Riemann et al., 2017). Moreover, relaxation therapy is often included in multicomponent cognitive behavioural therapy for insomnia (CBTi) – the recommended treatment option for this sleep disorder (Edinger et al., 2021; Riemann et al., 2017). One of the most important pieces of therapeutic advice given to patients with chronic insomnia is stimulus control, which includes “get out of bed and wait until you become sleepy”. This advice was only reported by 12.7%, but was more common among patients with chronic insomnia (20.6%). This suggests that some of the participants with insomnia have knowledge about the importance of using the bed for sleep, and not for worry. In contrast to the Canadian study (Morin et al., 2006), we found that reading a book was less common among people with compared with people without chronic insomnia. In a Norwegian study, we found no difference in the frequency of reading in bed between people with or without insomnia (Bjorvatn et al., 2018). Why these studies show different results is unclear but reading a book for promoting sleep is not considered an effective method (Edinger et al., 2021; Riemann et al., 2017). A multitude of different methods and tricks for falling asleep are proposed, but in our study, we had only seven predefined response options and one “other method/trick” option. About 1 in 5 ticked off in this “other” option. In future studies, we recommend including more response options, and qualitative interviews with people with and without insomnia will likely further advance our understanding of how people are able to fall asleep.

We found a high prevalence (24.9%) of chronic insomnia in this representative sample of Norwegian adults. This is higher than reported in many other studies (Riemann et al., 2017), but may indicate that insomnia is on the rise, as suggested by other studies (Bjorvatn et al., 2018; Pallesen et al., 2014; Sivertsen et al., 2021). The high prevalence of insomnia in the present study is also consistent with the reported impact of the COVID-19 pandemic on sleep (Morin et al., 2021).

Our study has several strengths and limitations. A strength was that the participants were randomly drawn from a web panel thought to reflect the general Norwegian population, and that the data were weighted to correct for potential divergence between the sample and

the distribution of sex, age, and county of living in the general population. However, the response rate was low, but comparable to other similar population-based studies (Morin et al., 2006). We believe that the sample is likely to be representative and that the results may be generalisable to the general adult population in Norway. Another strength was the use of a validated insomnia instrument (Pallesen et al., 2008) for assessment of insomnia symptoms, and that chronic insomnia was defined according to DSM-5/ICSD-3 diagnostic criteria (American Academy of Sleep Medicine, 2014; American Psychiatric Association, 2013). However, we need to acknowledge that the insomnia diagnosis was based on questionnaire data only, and not a clinical interview. Some of the participants may suffer from other sleep disorders, since instruments such as the BIS are not able to exclude the possibility that the insomnia symptoms may be better explained by, for instance, obstructive sleep apnea or circadian rhythm sleep-wake disorders (Bjorvatn, Jernelov, & Pallesen, 2021). We adjusted for relevant sociodemographic variables (sex, age, and education) as well as circadian preference in the regression analyses, since such measures are known to be related to insomnia (Merikanto et al., 2022; Riemann et al., 2017). In the statistical comparisons between participants with and without chronic insomnia in relation to the specific methods/tricks, there were few participants in some of the groups, which should be considered as a limitation. A major limitation was that all data were based on self-reports. Recall bias and the common method bias are potential limitations. The study was cross-sectional, and no causal interferences can be made in terms of the relationship between the study variables.

In conclusion, we found that most people do not use methods or tricks to fall asleep, but chronic insomnia was associated with a higher frequency of such use. Still, the use of methods/tricks was also seen among participants without insomnia. This may suggest that for some people, such a strategy may be effective or at least does not seem to disrupt sleep initiation.

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CONFLICT OF INTEREST

None of the authors report any conflict of interest in relation to this paper.

DATA AVAILABILITY STATEMENT

Data available on request from the authors

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