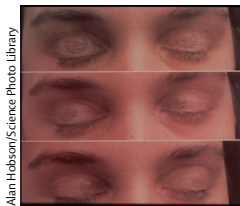




Sleep improvement by internet-based cognitive behavioural therapy might help prevent mental health disorders



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Insomnia and mental health disorders are growing public health concerns. In addition to being highly prevalent, persistent, and recurrent, they cause substantial burden at both an individual and a societal level. Furthermore, both insomnia and mental health disorders typically emerge during adolescence,¹ highlighting the significance of early detection and prevention efforts to avoid loss of functioning and work ability. The association between insomnia and mental health disorders throughout the lifespan is complex, and possibly bidirectional. Although the historical notion remains that insomnia is secondary to, or a symptom of, a depressive disorder, a review of prospective studies² emphasised the temporal link between insomnia and mental health disorders. If insomnia is causally linked to onset of mental health outcomes, this link would suggest that successful identification and treatment of insomnia could not only reduce the burden of insomnia itself, but also reduce and possibly prevent many of its adverse consequences, including mental health disorders.

A consensus now exists that psychological and behavioural interventions, such as cognitive behavioural therapy (CBT) for insomnia, should be the first-line treatment option, and are preferred over pharmacological treatments in the management of chronic insomnia.³ Still, use is limited due to high cost, low availability, and unequal access. Particularly since 2014, internet-based CBT for insomnia has become available and has been successful in reducing insomnia symptoms,^{4,7} and evidence is emerging that CBT for insomnia might improve mental health problems.^{8,9} Still, knowledge is lacking on how such treatments improve patients' functioning across domains, because previous studies have mainly been small-scale.

In *The Lancet Psychiatry*, Freeman and colleagues¹⁰ show the contribution of insomnia treatment using internet-based CBT to changes in insomnia and various mental health outcomes. Their study might be the largest randomised controlled trial to address the effects of insomnia treatment on mental health, including less common and more severe symptoms. In short, the study found that treatment of insomnia compared with usual practice resulted in clear

changes in insomnia (adjusted difference 4.78, 95% CI 4.29 to 5.26, Cohen's $d=1.11$; $p<0.0001$) and reductions in symptoms of paranoia (−2.22, −2.98 to −1.45, Cohen's $d=0.19$; $p<0.0001$) and hallucinations (−1.58, −1.98 to −1.18, Cohen's $d=0.24$; $p<0.0001$), as well as small-to-moderate improvements of other mental health problems such as anxiety and depression.

The findings highlight the potential benefits of the implementation of easily available and low-cost internet therapies for insomnia. Treatment of insomnia might help reduce the burden of mental ill health and prevent onset of symptoms such as hallucinations and paranoia. The findings add to understanding of the significance of insomnia as a causal factor in mental ill health, and corroborate findings from observational studies or smaller trials.

Although the dropout in the study was large (50%), it corresponds with an earlier, similar, albeit smaller study.⁸ In studies in which no direct contact or support are provided by a therapist or group, such as online self-help treatment, high dropout is expected. Moreover, the authors provided compelling analyses assessing the potential effects of dropout and selectiveness, and importantly, outcomes were not associated with missingness.

As opposed to traditional face-to-face interventions, this web-based treatment is more easily accessible to participants as treatment could be accessed at any convenient time or place. All 3755 study participants were university students from the UK. Because this was a homogenous group, the authors appropriately discuss the generalisability to other population groups. The authors argue that because the treatment used and the observed effects were similar to previous studies among general adult populations, the findings might be transferable beyond student samples. Still, a need clearly exists for future studies to address some of the shortcomings that exist in the current published work, including recruiting other demographic groups, and using longer follow-up times, in order to examine whether treatment gains and relapse prevention are maintained. Studies are needed with sufficient statistical power to undertake moderation analysis on smaller patient subgroups, which will expand

understanding of which treatment aspects work for which patient populations.

In summary, the evidence on the effectiveness of online CBT to reduce insomnia in students suggests that treatment of insomnia has potential in the improvement of their overall mental health and wellbeing, and online therapy is an effective strategy in reaching wide numbers of participants.

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How should cost-of-illness studies be interpreted?

The effects of suicide and self-harm are enormous whether the perspective is personal, national, or worldwide. WHO estimates that more than 800 000 people die by suicide in the world each year.¹ In *The Lancet Psychiatry*, Apostolos Tsiachristas and colleagues² estimate that more than 200 000 episodes of self-harm are treated in hospitals in England every year. The personal cost is well known to anybody who has lost a family member, friend, or patient to suicide.

Tsiachristas and colleagues² calculate the hospital resource use and care costs for all presentations for self-harm to the John Radcliffe Hospital in Oxford between April, 2013, and March, 2014. Altogether, the authors analyse detailed costs of 1623 presentations by 1140 patients. The individual-level information in the paper is outstanding and is broader and deeper than has been available in England and most other countries hitherto. The authors estimated that the average hospital cost of each episode of self-harm was £809. When this figure is extrapolated to all of

England, the total hospital costs of self-harm is almost £162 million a year.

More than 30% of the average cost of the presentations were attributed to the cost of a psychological assessment even though only 75% of the episodes included such an assessment. Tsiachristas and colleagues estimate that it would cost the NHS £51 million if every episode of self-harm included a psychological assessment as NICE have recommended for a number of years.²

The reasons researchers on suicide and service providers focus so much attention on people who present with self-harm are well known. Not only is self-harm itself something to be avoided, but good evidence also suggests that people who self-harm are one of the groups with the highest risk of suicide.³ Figuring out ways of treating people who present in hospital after self-harming has been a top priority for health agencies for some time.⁴ In a systematic review and meta-analysis of psychosocial interventions after



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