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Clinical Innovation Accelerator – Health Economic Insight Report

Digital Cognitive Behavioural Therapy for Insomnia (CBT-I)

1. What is a clinical innovation health economic Insights Report?

The Clinical Innovation Accelerator's (CIA) health economic Insight reports are economic reviews of clinical innovations. These are available to all stakeholders, such as Welsh Health Boards, GP Clusters, and Welsh Government, etc. They form part of the CIA series of health economics reports on different topics and are included in the CIA's library of clinical innovation reports.

The topic of cognitive behavioural therapy for insomnia (CBT-I) was suggested by Sue Bevan and Corinne Ngyuen, CIA senior innovation fellows.

Note - the Accelerator was established in 2018 with funding from Welsh Government and the European Regional Development Fund to support clinical innovation in Wales.

Disclaimer: the author is the health economic advisor to the Accelerator.

2. What is digital cognitive behavioural therapy for insomnia (CBT-I)?

The National Institute of Health and Care Excellence (NICE) in England recommends that CBT-I should be offered as a first line treatment for short and long-term insomnia in adults of all ages ⁽¹⁾. It comments that 'unlike medication, the benefits associated with CBT-I persist on completion of treatment'. Note: Health Technology Wales has not yet published advice on treating insomnia.

Patients are generally referred for CBT-I by either general practitioners (GPs) or NHS mental health services. Traditionally, most CBT-I has been in the form of face-to-face therapy by either NHS staff or independent professionals. Digital CBT-I is provided using a digital platform technology (laptops, tablets, etc.) often with helpline support. The evidence from studies is that the clinical effectiveness of digital CBT-I does not generally differ from more traditional face-to-face therapy ⁽²⁾.

In the last 10 years, there has been a steady increase in the number of digital platforms offering cognitive behavioural therapy for a range of different healthcare needs.

3. What is the prevalence of insomnia?

National data on the prevalence of insomnia is not routinely collected across the NHS in the UK. However, estimates can be derived from the findings of academic studies.

In 2012, the Journal of Psychiatric Research published the results of a study into the prevalence and incidence of acute insomnia (3). The study was based on two samples: UK (n = 1095) and USA (n = 2861). In addition, 412 normal sleepers in the UK sample were surveyed longitudinally to determine prospectively the incidence, transition, and remission rates for acute insomnia and to assess whether cases were a first or recurrent episode, or co-morbid with symptoms of other illnesses.

The prevalence of acute insomnia was found to be 7.9% (UK) and 9.5% (USA). The annual incidence of acute insomnia in the UK sample was between 31.2% and 36.6%.

4. What are the key issues in the demand and supply of CBT-I on the NHS?

National data sets on the demand for CBT-I are also not routinely collected across the NHS in the UK. Before covid-19 there were indications that the demand for CBT-I in Wales and the UK had been increasing at a faster rate than the NHS could add extra capacity. This is evident by the growing waiting times between when patients are referred and when they access CBT-I. Anecdotally, waiting times had increased to up to 6 months. The impact of covid-19 since March 2020 may have further widened the gap between the demand and supply for NHS CBT-I, and lengthened waiting times.

CBT-I has traditionally been supplied via face-to-face therapy. Data sets on the capacity of these services is also not collected across the NHS in the UK. Consequently, it is not clear whether the shortfall between supply and demand is due to a lack of capacity (trained CBT-I therapists) or a lack of funds or a combination of the two.

Digital CBT-I is growing in popularity in the USA because some providers set their prices below those of face-to-face therapy. In effect, there are price and cost incentives for healthcare insurers and paying-individuals to switch to more competitively priced digital CBT-I services.

The organisation and funding of healthcare in the USA differs significantly compared to the NHS. However, the growth of digital CBT-I in the USA shows that when price and cost incentives favour digital CBT-I then healthcare providers are more likely to switch. Additionally, where waiting times to access CBT-I are faster for digital CBT-I then speed of access also acts as an incentive to choose the digital version.

From an economic perspective, the main issue is not the lack of data on demand and supply, but the way that incentives to switch to digital CBT-I based on price, cost and speed of access are not everywhere clear to NHS funding bodies.

Digital CBT-I is not currently available from the Welsh NHS. However, it was introduced into parts of the NHS in England in 2012 as part of a commissioned service. For further information on this service see the Sleep Station website (4).

5. What are the health economic insights?

First, a key assumption in health economics is that healthcare resources (clinician time, etc.) are relatively scarce when compared to all the needs of patients. Often there are not enough resources to do everything you want to do. As a result, choices must be made about how to use efficiently the resources that are available.

When health economists talk about efficiency, they mean maximising the overall benefits and health gains for patients from available healthcare resources. Economists further split this concept into:

- Allocative efficiency, which can be defined as achieving the optimal use of healthcare resources (healthcare budgets, clinician time, etc.) when there are alternative ways it could be used for the benefit of patients; and
- Technical efficiency, which can be defined as achieving an objective/health gain for the least resource cost (therapeutic interventions, clinician time, etc.).

Second, when economists talk about costs, they mean 'Opportunity costs', and not financial costs. An opportunity cost is the value of the next best use of a resource.

This is an important distinction. This health economic Insight Report makes no attempt to estimate any potential monetary cost savings for the NHS from using digital CBT-I. Instead, it explains how the adoption of digital CBT-I could potentially improve the economic efficiency with which patients with insomnia are managed in primary care and in mental health services.

For example, were digital CBT-I to result in faster access to effective treatments for patients with acute insomnia then it could potentially avoid or mitigate other clinical conditions and healthcare needs produced by the insomnia.

In such cases, the avoidance of any subsequent GP appointments and secondary care outpatient appointments, etc., would not save the average financial cost of these appointments. But rather it would allow the appointments and clinician's time and expertise to be made available for other patients.

6. How could digital CBT-I services lead to greater economic efficiency?

First, where the cost of digital CBT-I is less than face-to-face, there is potential for improved allocative (budget) efficiency as more patients are treated from available funds. In effect, the Welsh NHS could get more health gain (value) for its money.

Second, where digital CBT-I offers faster access to effective therapy then there is potential for improved allocative efficiency in NHS primary and secondary care by minimising or avoiding the use of clinician time and health care resources needed to treat other health conditions produced by insomnia. In effect, these resources would become available to see and treat other patients.

Third, where the cost of digital CBT-I is less than face-to-face, there is potential for improved technical efficiency as more patients receive effective treatment at less cost. As above, the Welsh NHS could evidence health gains for insomnia patients using less clinician time and funds spent per patient.

Fourth, the combined effects of improved allocative and technical efficiency providing effective treatments more quickly and at less clinician time and NHS funds would demonstrate improved economic value overall in how Welsh NHS resources are used to achieve health improvements for patients with insomnia. This might be viewed as an example of 'Value based healthcare'.

7. What about patient health outcomes?

The focus of this report is on how digital CBT-I could potentially improve efficiency and patient access for the first level treatment of insomnia. Its scope does not cover health outcomes.

However, patient reported experience measures (PREMs) are an important factor when assessing new clinical innovations that improve access to healthcare. It might be feasible to include PREMs as part of a pilot to introduce CBT-I into the Welsh NHS to measure its impact on patient access to CBT-I. Their inclusion would complement any assessment of digital CBT-I on the efficient use of NHS resources in primary and secondary care.

8. Conclusion.

Digital CBT-I offers the potential for GPs' to more effectively manage patients with insomnia in primary care and for mental health services to do likewise with patients. More efficient use and faster access to CBT-I using digital platforms could potentially offer a route for the Welsh NHS to make progress towards its stated aims and objectives in "A Healthier Wales, 2018" ⁽⁵⁾ in the context of insomnia.

In closing, one of the barriers to adoption that needs to be overcome is that the incentives to switch to digital CBT-I based on price, cost and speed of access need to be presented more clearly to NHS decision makers and funding bodies.

END

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