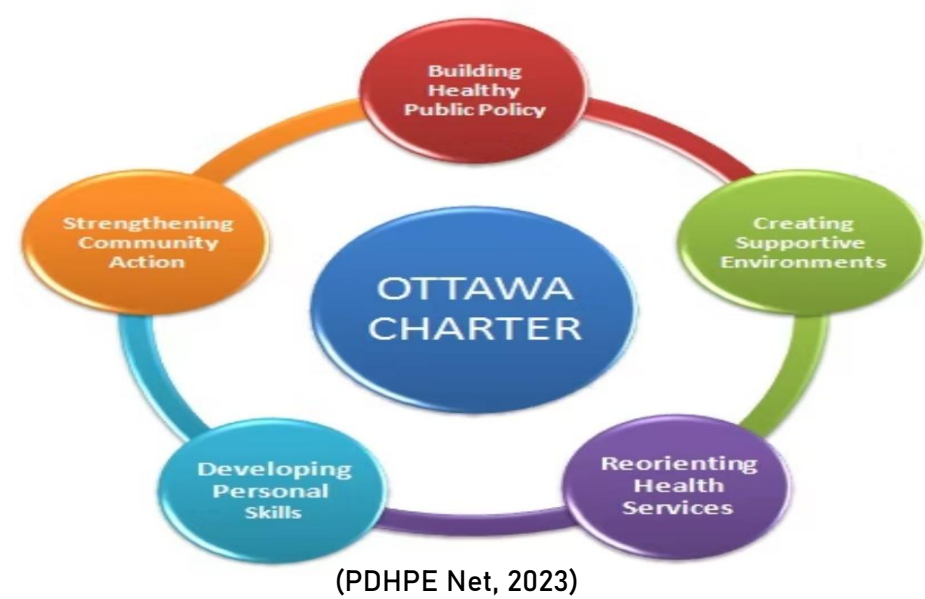
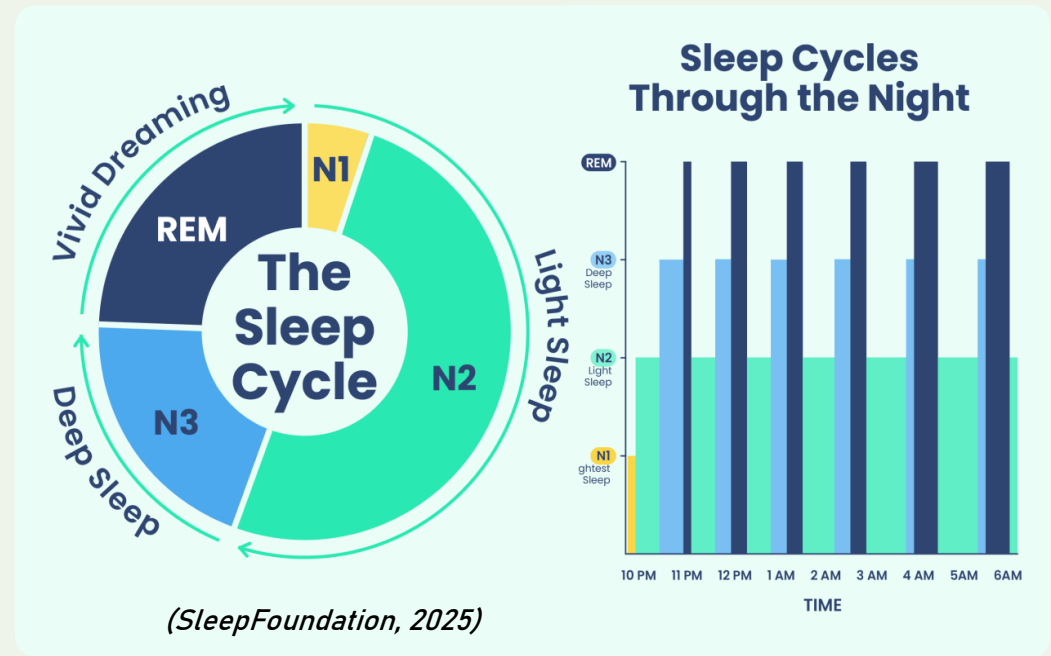


Using SleepSense+ to Improve Sleep Health in the UK: A Digital Health Promotion Approach

Name and ID: Utsav Patel (2431966) 2431966@student.uwtsd.ac.uk Module: Population Health and Digital Health Promotion (LCHS7009) | Component 2: Academic Poster | Programme: MSc Public Health and Social Care in Practice | Lecturer: Dr Ping Wu

Background

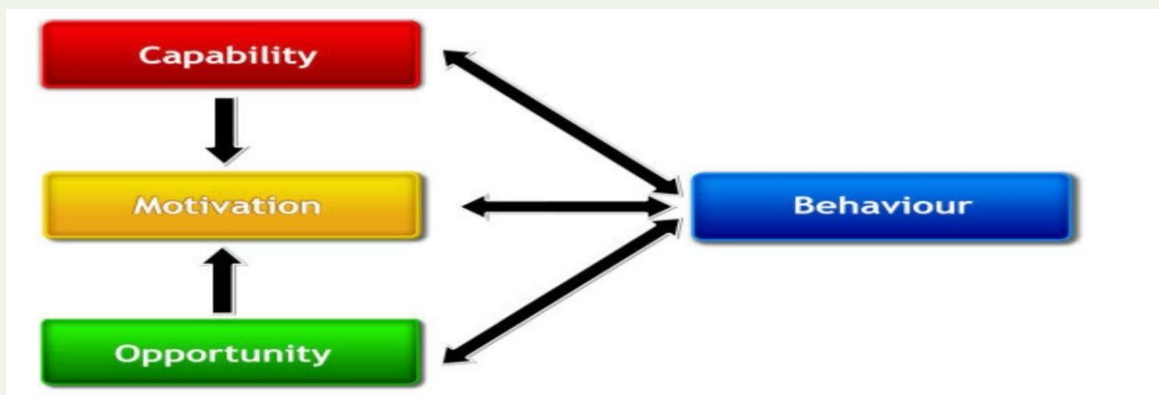
Unhealthy Patterns such as not sleeping long enough, having disrupted rest, or maintaining inconsistent routines are becoming increasingly common and irregular routines-represent a growing public health concern in the UK. One in three adults report inadequate or disrupted sleep, influenced by stress, screen exposure and lifestyle pressures (ONS, 2022; NHS, 2023). Poor sleep increases the risk of cardiovascular disease, obesity, depression, weakened immunity and accidents, placing pressure on health services and the wider economy (WHO, 2021; PHE, 2021). Existing interventions include digital CBT-I tools such as Sleepio and traditional sleep-hygiene counselling. SleepSense+, an integrated wearable and mobile app system, offers personalised behavioural support to address sleep problems and promote healthier routines.



Health Promotion Values and Principles

At its foundation, health promotion focuses on empowerment, collaborative involvement, and the pursuit of health equity across communities enabling individuals to gain greater control over their health (WHO, 2021). SleepSense+ aligns with these principles by providing personalised feedback, real-time monitoring and tailored behaviour-change support. This empowers users to understand how lifestyle, stress, and environmental factors affect their sleep. By offering accessible digital guidance, SleepSense+ supports equity by widening access to evidence-based sleep interventions beyond traditional services (NICE, 2020). The tool also fits within UK health-promotion values by strengthening self-management, improving sleep hygiene and reducing health inequalities associated with poor sleep quality (PHE, 2021; NHS, 2023).

Behaviour Change Theory: COM-B Model



(Michie, van Stralen and West, 2011)

- SleepSense+ is based on the COM-B approach to behaviour change, recognising that behaviour arises from the combined effects of an individual's capability, their opportunities, and their motivation which supports the design of digital interventions (Michie et al., 2019). which supports the design of digital interventions (Michie et al., 2019).

1

Capability

Enhances psychological capability through sleep-diary analysis, education on sleep hygiene, and real-time biosensor feedback on environmental triggers (British Sleep Society, 2023).

2

Opportunity

Customised prompts, circadian-rhythm scheduling and blue-light detection create supportive external opportunities for healthier sleep habits.

3

Motivation

Micro-CBT modules, personalised goals and progress visualisation strengthen reflective and automatic motivation, encouraging users to adopt consistent routines and reduce sleep-disrupting behaviours (Ritterband et al., 2022).



(Yogasleep, 2025)

Expected Outcomes

- Applying COM-B within SleepSense+ is expected to improve users' sleep duration, sleep efficiency and bedtime regularity. Real-time feedback increases awareness of sleep-disrupting factors, while personalised recommendations support reductions in nighttime awakenings and improved circadian alignment (British Sleep Society, 2023; Ritterband et al., 2022).
- At a population level, SleepSense+ may reduce reliance on sleep medication, lower GP consultations, and improve mental wellbeing—mirroring the positive outcomes seen in digital CBT-I tools such as Sleepio (NICE, 2020; NHS Digital, 2022).

Conclusion

- SleepSense+ offers a scalable, accessible digital solution aligned with UK health-promotion priorities and behavioural-science evidence. Its integration of physiological monitoring, personalised feedback and CBT-based guidance aligns closely with NHS strategies to enhance self-management and reduce burden on primary care.
- The intervention has implications for health policy (digital-first sleep services), education (public guidance on sleep hygiene), and future research (AI-driven sleep optimisation and environmental sleep analytics). Overall, SleepSense+ contributes to reducing sleep-related health inequalities and improving population wellbeing.

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