

Measuring sleep-wake activity and bedroom environment in a residential treatment setting: acceptability and feasibility of using actigraphy and environmental data loggers and links with recovery outcomes.

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Introduction and Aims: Quality sleep may be protective in substance-use recovery. Measuring and supporting sleep during residential treatment can be challenging, but unobtrusive technology (e.g., wrist-worn actigraphy, wall-mounted environmental sensors) offers opportunities for objective measurement. We examined feasibility and acceptability of actigraphy and environmental sensors for assessing sleep, bedroom environments and links to recovery outcomes.

Design and Methods: Exploratory mixed-methods design: participants were 52 adults engaged in residential treatment for substance-related issues. Continuous measurements of sleep-wake activity and sleep environments were collected via actigraphy and environmental sensors, alongside daily sleep diaries, for ≤4 weeks. At study intake and exit, participants completed measures assessing pre-sleep arousal and sleep quality, alongside routine clinical measures. Feasibility was assessed as the proportion of participants wearing actigraphs for >14 days; acceptability using qualitative interviews conducted on a participant subset.

Results: Of 52 consenting participants, 45 completed the study. Sleep data were recovered from 43 devices; 28/45 wore actigraphs for >14 days; 22 completed exit questionnaires, and 10, interviews. Relationships between clinical outcomes and sleep-related data were examined. Interview data suggested most participants found participation easy/non-invasive; few noted early-treatment discomfort from actigraphs.

Discussions and Conclusions:

Unobtrusive continuous monitoring of sleep and bedroom environments is feasible in residential settings. Additional strategies are needed to address data collection challenges on program exit. Protocols could be adapted for other residential settings, however feasibility/acceptability for outpatient or community settings, or different client groups requires investigation. Sleep remains important for recovery.

Implications for Practice or Policy (optional): Established sleep-management strategies could be used during treatment to reduce relapse and mental health symptoms but need tailoring to the specific needs of this setting and client group. Accurate and unobtrusive sleep measurement in the treatment context is the first step in identifying targets for future interventions to improve sleep and support recovery.

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