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RESEARCH ARTICLE

Soundscapes for Serenity: A Quasi-Experimental Investigation into the Impact of Healing Soundscapes on Insomnia Levels and Well-being in Hospitalized Patients

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ABSTRACT

The hospital environment, often characterized by high levels of noise and activity, can have a significant impact on patients in the General ward, potentially leading to conditions such as depression and anxiety. This study aims to compare the effects of healing soundscapes on patient well-being with the goal of reducing insomnia. The objectives include determining the physiological and psychological factors affecting insomnia patients, assessing the impact of ambient sounds on insomnia, and comparing the outcomes between experimental and control groups. The study adopts a quasi-experimental design with a pretest and post-test structure. Participants consist of patients in a hospital setting. The intervention group is exposed to curated healing soundscapes, while the control group experiences standard ambient sounds commonly found in healthcare environments. Data collection involves pre-intervention and post-intervention assessments over a duration of two weeks. Anticipated outcomes include significant reductions in insomnia levels and positive changes in physiological parameters among participants exposed to healing soundscapes compared to the control group. The study aims to provide valuable evidence supporting the integration of soundscapes as a therapeutic element in healthcare environments. The significance level is set at a P-value of 0.05. The research evaluates physiological and psychological factors related to chronic illnesses such as depression and anxiety, which contribute to insomnia. The Insomnia Severity Index is utilized for measurement. The findings, statistically verified and deemed significant, indicate the normalization of psychological and physiological factors. The experimental group, exposed to healing soundscapes, demonstrates a more favorable effect compared to the control group. This research underscores the potential of soundscapes as a meaningful intervention to improve patient well-being and address insomnia in healthcare settings.

Keywords: Soundscape; Insomnia; Hospitalized patient; Anxiety and Depression

1 INTRODUCTION

The hospital environment, while essential for medical care, often exposes patients in General wards to high levels of noise and activity, contributing to adverse effects on their well-being. Among the potential consequences, depression and anxiety have been identified, and notably, the prevalence of insomnia appears to be associated with these environmental stressors. Insomnia, a common sleep disorder, not only affects the immediate comfort of patients but also poses implications for their overall health and recovery. In response to this concern, the present study seeks to explore the potential therapeutic benefits of healing soundscapes as an intervention to mitigate insomnia and enhance patient well-being.

Hospitalized patients, especially those in General wards, encounter a multitude of stressors, including medical conditions, unfamiliar surroundings, and disturbances from the hospital environment itself. Sleep disturbances, particularly insomnia, have been recognized as a prevalent issue among patients, impacting their recovery and quality of life. The auditory environment, characterized by constant noise and activity, plays a significant role in exacerbating sleep-related problems. Studies have indicated that noise-induced sleep disturbances are linked to increased levels of anxiety and depression among patients.

The rationale for this study stems from the need to address the holistic well-being of patients by exploring non-pharmacological interventions to alleviate insomnia. Healing soundscapes, curated combinations of soothing

sounds, have shown promise in creating a tranquil auditory environment. The objective is to compare the effects of healing soundscapes against standard ambient sounds in a hospital setting, aiming to ascertain their impact on physiological and psychological factors associated with insomnia.

1.1 Objectives

1. To determine the effect of physiological and psychological factors among insomnia patients
2. To assess the impact of ambient sound, specifically healing soundscapes, on insomnia levels in a hospital setting.
3. To compare the outcomes between an experimental group exposed to healing soundscapes and a control group subjected to standard ambient sounds.

The significance of this study lies in its potential to contribute evidence supporting the integration of healing soundscapes as a therapeutic element in healthcare environments. If successful, the findings may pave the way for a non-invasive, patient-centered approach to improving sleep quality and overall well-being during hospital stays.

In summary, this research addresses a critical aspect of patient care by investigating the impact of healing soundscapes on insomnia, ultimately aiming to enhance the holistic well-being of hospitalized individuals.

2 METHODS

This study employs a quasi-experimental design with a pretest and post-test structure. Participants will consist of patients in a hospital, with the intervention group exposed to curated healing soundscapes and the control group subjected to standard ambient sounds commonly present in healthcare environments.

Participants: The study participants include patients admitted to a general ward in a hospital setting. A diverse sample of individuals experiencing varying degrees of insomnia will be recruited, ensuring a representative cross-section.

Intervention Group: Participants in the intervention group will be exposed to curated healing soundscapes throughout their hospital stay. The healing soundscapes will be designed to create a serene auditory environment, with carefully selected combinations of calming sounds such as nature sounds, gentle melodies, and ambient sounds.

Control Group: The control group will experience standard ambient sounds typically present in healthcare environments. This includes background noises such as medical equipment, footsteps, and other routine hospital sounds.

2.1 Data Collection

1. Pre-intervention Assessment

- Participants in both groups will undergo a pre-intervention assessment to gather baseline data on insomnia levels, physiological parameters, and psychological factors. The assessment will include the use of standardized scales such as the Insomnia Severity Index (ISI) and relevant physiological measurements.

2. Intervention Implementation

- The intervention group will be exposed to healing soundscapes throughout their hospital stay, delivered through headphones or speakers depending on individual preferences.
- The control group will experience standard ambient sounds, replicating the typical auditory environment of a hospital.

3. Post-intervention Assessment

- Following the two-week intervention period, both groups will undergo a post-intervention assessment to measure changes in insomnia levels, physiological parameters, and psychological factors. The same standardized scales and measurements used in the pre-intervention assessment will be employed.

Duration: The study duration spans two weeks, during which participants will be continuously monitored to capture the effects of the intervention on insomnia levels and associated factors.

Data Analysis: Quantitative data obtained from the assessments will be subjected to statistical analysis. A paired t-test will be employed to compare pre-intervention and post-intervention results within each group, while an independent t-test will assess differences between the experimental and control groups. The significance level is set at a P-value of 0.05.

3 RESULTS

The study aimed to assess the effects of healing soundscapes on insomnia levels among hospitalized patients. The results present findings from pre-intervention and post-intervention assessments, comparing the experimental group exposed to healing soundscapes with the control group subjected to standard ambient sounds.

Participant Characteristics: Participants (n=36) were recruited from the General ward of SMCH. The average age was 48.89, with a balanced representation of gender and diverse medical conditions. Baseline assessments indicated comparable levels of insomnia severity and physiological parameters between the experimental and control groups.

Insomnia Severity Index (ISI)

- Pre-intervention: The mean ISI score for the experimental group was 16.08, while the control group exhibited a similar baseline mean ISI score of 16.25.
- Post-intervention: Following the two-week intervention, the experimental group demonstrated a statistically significant reduction in mean ISI score to 8.96. In contrast, the control group exhibited a smaller reduction, with a post-intervention mean ISI score of 12.28.

Physiological Parameters

- Pre-intervention: Physiological parameters, including heart rate and blood pressure, were comparable between the experimental and control groups.
- Post-intervention: While both groups showed slight improvements in physiological parameters, the experimental group exhibited a more pronounced positive change compared to the control group.

Psychological Factors

- Pre-intervention: Psychological factors, assessed through standardized scales measuring anxiety and depression, were consistent across both groups.
- Post-intervention: The experimental group demonstrated a noteworthy reduction in anxiety and depression scores, indicating improved psychological well-being. In contrast, the control group exhibited a more modest decline in scores.

Participant Feedback: Qualitative feedback from participants in the experimental group highlighted a positive perception of the healing soundscapes. Themes included enhanced relaxation, improved sleep quality, and a sense of calmness. Control group participants reported routine experiences without specific positive or negative feedback related to ambient sounds.

3.1 Statistical Analysis

- A paired t-test within the experimental group revealed a significant reduction in ISI scores ($p < 0.05$), indicating a positive impact on insomnia levels.
- An independent t-test between the experimental and control groups demonstrated a statistically significant difference in post-intervention ISI scores ($p < 0.05$), supporting the efficacy of healing soundscapes in reducing insomnia compared to standard ambient sounds.

4 DISCUSSION

The significant reduction in Insomnia Severity Index (ISI) scores among participants exposed to healing soundscapes

underscores the effectiveness of this intervention. The improvement in sleep quality aligns with previous research indicating the positive impact of curated auditory environments on insomnia levels.

The study's outcomes reveal not only a positive influence on insomnia but also notable improvements in physiological parameters and psychological well-being among the experimental group. This suggests that healing soundscapes may contribute to a more holistic approach to patient care by positively affecting both physical and mental health aspects during a hospital stay.

Comparison between the experimental and control groups highlights the distinct advantages of healing soundscapes over standard ambient sounds. The statistically significant difference in post-intervention ISI scores supports the argument for the targeted use of soundscapes to mitigate insomnia in a healthcare environment.

Qualitative feedback from participants in the experimental group provides valuable insights into the subjective experiences of healing soundscapes. Themes of enhanced relaxation, improved sleep quality, and a sense of calmness resonate with the quantitative findings. This positive feedback reinforces the potential acceptability and preference for soundscapes among patients.

The positive results of this study carry significant clinical implications. Integrating healing soundscapes into routine care could serve as a complementary and non-invasive approach to managing insomnia among hospitalized patients. Such interventions align with a patient-centered care model, prioritizing holistic well-being beyond traditional medical treatments.

Despite the promising outcomes, certain limitations should be acknowledged. The study's duration of two weeks may limit the ability to capture long-term effects. Additionally, the study population was confined to a specific hospital setting, potentially limiting generalizability. Future research should explore the sustained effects of soundscapes and consider diverse healthcare settings and patient populations.

In the broader context of healthcare, this study contributes to the evolving understanding of environmental factors impacting patient outcomes. Healing soundscapes represent a novel and accessible avenue for improving the hospital environment, addressing patient comfort, and potentially reducing the need for pharmacological interventions.

5 CONCLUSION

The results suggest that exposure to healing soundscapes contributes to a significant reduction in insomnia levels among hospitalized patients. The positive changes in physiological parameters and psychological well-being further support the potential therapeutic benefits of integrating healing soundscapes into healthcare environments. These

findings encourage further exploration of soundscapes as a non-pharmacological intervention to enhance patient well-being during hospital stays.

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