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Effects of Noise Reduction and Care Clustering on Quality of Sleep in Critical Care Patients

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PATIENT CARE ISSUE

Background & Significance of Sleep in Critical Care Patients

- Extreme sleep deprivation in ICU patients has been a common problem over the past 30 years (Nesbitt & Goode, 2013).
- A lack of sleep can have many detrimental consequences on patients, including negative effects on multiple body systems, such as neurological, immune, cardiovascular, and respiratory (Tembo & Parker, 2009).
- Cognitive impairment is the most readily observable presentation of sleep deprivation (Cirelli, 2014).
- Reduced sleep can lead to mental status changes, resulting in depression, anxiety, poor mood, irritability, and poor judgment (Cirelli, 2014).
- A decrease in sleep can disrupt circadian rhythms, causing body temperature differences during wake and sleep cycles (Cirelli, 2014).

EVIDENCE-BASED PRACTICE QUESTION

Question: In critical care patients (P), how do reduced noise levels (I), compared to care clustering (C), affect the quality of sleep (O)?

P: Critical Care Patients

I: Reduced Noise Levels

C: Care Clustering

O: Quality of Sleep

REGISTERED NURSE INTERVIEW

Grandview Medical Center RN, Vernena Hibbitt, stated:

- Sleep deprivation is a problem on the unit where she currently works.
- Patients will often complain about noise disruptions during the day and night.
- Interventions are implemented to keep noise levels and nursing care interruptions to a minimum.
- Two hours are set aside each afternoon to enforce a time of quiet throughout the unit for the benefit of the patients and staff.
- Noise reduction and care clustering allow for better periods of rest, which she observes result in lower levels of anxiety and blood pressure.

METHODS

Databases: UpToDate, CINAHL, PubMed, PsycInfo, Proquest, and CCForum

Inclusion Criteria: Research published between 2009 and 2014 pertaining to the quality of sleep, effects of noise, and implementation of nurse care clustering on critical care populations.

Exclusion Criteria: Articles published more than 5 years ago, or articles that solely discussed specific interventions other than the topics of quality of sleep, noise reduction, and nurse care clustering in critical care populations.

Key Words: ICU patients, sleep deprivation, insomnia, health, nursing, care clustering, promoting sleep, delirium, interventions, noise.

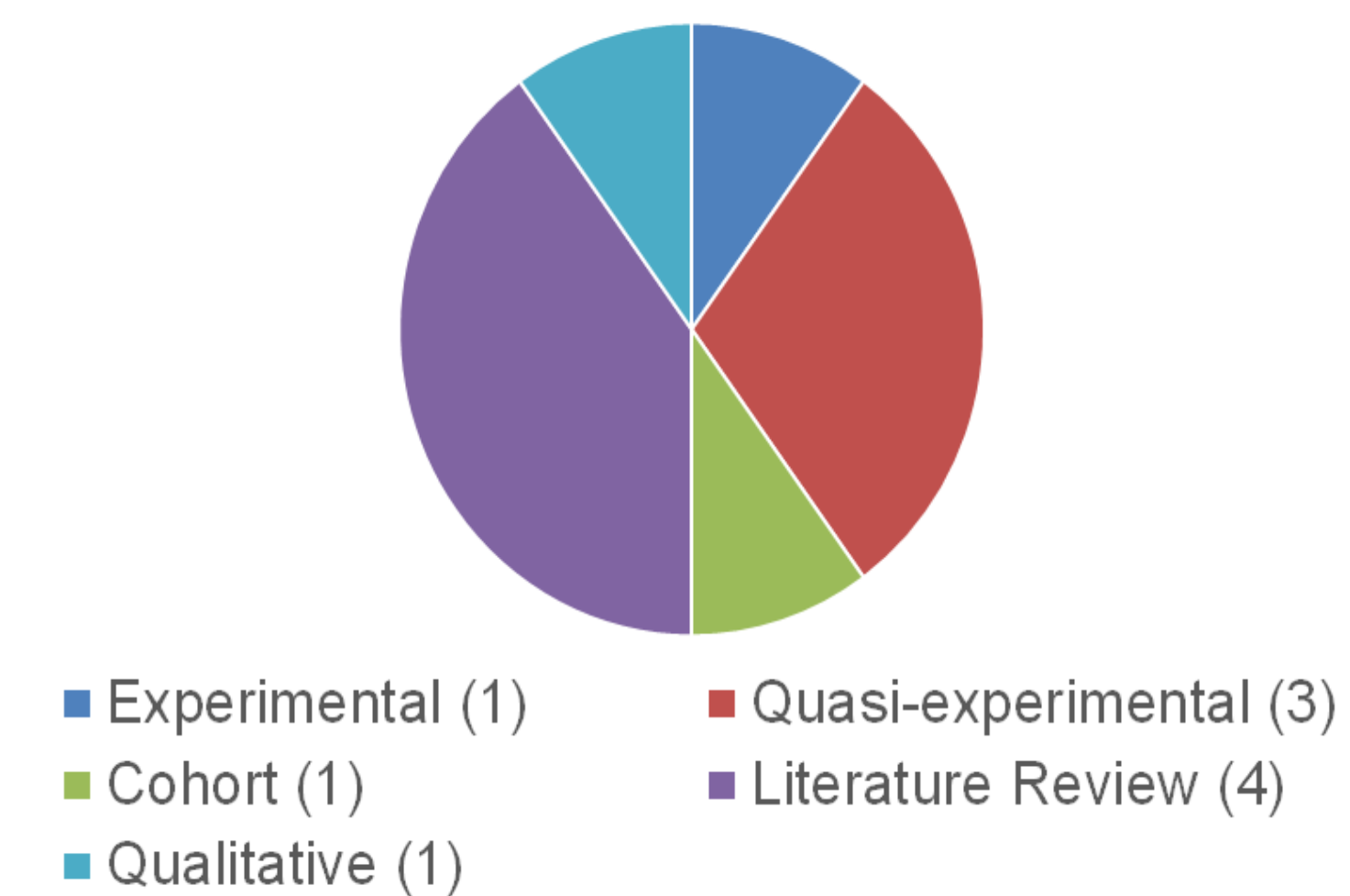
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RESULTS

Articles Examined	20
Articles Used	10

Levels of Evidence



SYNTHESIS OF EVIDENCE

- The best two ways to decrease fatigue are to sleep longer or to have fewer interruptions in sleep (Cirelli, 2014).
- Noise reduction evidence:
 - Higher noise levels increase the number of arousals/awakenings, which impair the restorative function of sleep, thus prolonging the healing process (Waye, Elmenhorst, Croy, & Pedersen, 2013).
 - The heart monitor alarm, IV pump alarm, nebulizer, and vital checks were reported as the most disrupting sources of noise (Li, Wang, Vivienne Wu, Liang, & Tung, 2011).
 - Simple interventions, such as distributing eye masks and earplugs, helped promote sleep (Jones & Dawson, 2012).
 - It is not unanimously agreed that noise is the most significant cause of sleep disturbance (Xie, Kang, & Mills, 2009).
- Care Clustering evidence:
 - Nurses appear to want to promote sleep, but do not always follow the evidence to do so (Eliassen & Hopstock, 2011).
 - Numerous nocturnal nursing interventions disrupt sleep, and 13.9% of them could be safely omitted (Le *et al.*, 2012).
 - Sleep promotion interventions are feasible, but are less likely to be performed because they require more time and effort on the part of the healthcare provider (Kamdar *et al.*, 2013).
- "Nursing education programmes and ICU introductory courses must be reviewed in order that nurses are educated to recognize the importance of sleep" (Nesbitt & Goode, 2013, p. 234).

EVIDENCE-BASED PRACTICE RECOMMENDATIONS

- Noise reduction to encourage undisturbed sleep can be accomplished by minimizing the level of noise made by staff and by distributing earplugs.
- Clustering care, by postponing non-essential nighttime interactions and collectively prioritizing critical interventions, will limit sleep disturbances.
- Intensive care units should be given uniform sleep assessments to help nurses assess patients' sleep patterns correctly.

LIMITATIONS

- Higher levels of evidence are needed in order to make strong recommendations.
- There needs to be more research on how to practically implement sleep promotion into everyday nursing care.
- The evidence is inconclusive on whether noise reduction or care clustering interventions are more effective.

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