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Perception of sleep during hospitalisation from the nurses' and patients' perspective: an exploratory qualitative study

Percepcja snu w trakcie hospitalizacji z perspektywy pielęgniarek i pacjentów: badanie jakościowe

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STRESZCZENIE

PERCEPCJA SNU W TRAKCIE HOSPITALIZACJI Z PERSPEKTYWY PIELĘGNIAREK I PACJENTÓW: BADANIE JAKOŚCIOWE

Cel pracy. Zbadanie, w jaki sposób pielęgniarki i pacjenci postrzegają sen i wskazanie czynników, które negatywnie wpływają na sen pacjentów podczas hospitalizacji na wybranych oddziałach w dwóch szpitalach w Republice Czeskiej.

Materiał i metody. Eksploracyjne badanie jakościowe – analiza tematyczna. Uzyskaliśmy dane z trzech wywiadów grupowych z udziałem 16 pielęgniarek i ośmiu pacjentów szpitalnych z wybranych oddziałów w dwóch szpitalach. Przeprowadziliśmy eksploracyjne badanie jakościowe i analizę tematyczną.

Wyniki. Analiza tematyczna zidentyfikowała cztery główne tematy. Temat (1): Znaczenie snu. Temat (2): Jakość i organizacja opieki pielęgniarskiej. Temat (3): Doświadczanie intensywnych emocji i uczuć. Temat (4): Zdrowie.

Wnioski. Hospitalizacja często negatywnie wpływa na sen pacjentów. Emocje pacjentów, doświadczenia i środowisko szpitalne są niezbędne do osiągnięcia dobrego snu. Pielęgniarki i cały system opieki zdrowotnej mają duży potencjał, aby poprawić warunki hospitalizacji dotyczące snu i nastroju emocjonalnego pacjentów, a tym samym pośrednio wpływają na ogólny stan zdrowia pacjentów i ich rekonwalescencję.

Słowa kluczowe: sen, szpital, pacjenci, pielęgniarki, analiza tematyczna

ABSTRACT

PERCEPTION OF SLEEP DURING HOSPITALISATION FROM THE NURSES' AND PATIENTS' PERSPECTIVE: AN EXPLORATORY QUALITATIVE STUDY

Aim. To investigate how nurses and patients perceive sleep and point out the factors that negatively impact patients' sleep during hospitalisation in selected departments in two hospitals in the Czech Republic.

Material and methods. An exploratory qualitative study – thematic analysis. We obtained data from three group interviews involving 16 nurses and eight inpatients from selected departments in two hospitals. We conducted an exploratory qualitative study and thematic analysis.

Results. The thematic analysis identified four main themes. *Theme (1): Importance of sleep. Theme (2): Quality and organisation of nursing care. Theme (3): Experiencing intense emotions and feelings. Theme (4): Health*.

Conclusions. Hospitalisation often negatively affects patients' sleep. Patients' emotions, experiences, and the hospital environment are essential to achieve good sleep. Nurses and the entire health care system have great potential to improve hospitalisation conditions concerning sleep and the emotional mood of patients and thus indirectly influence the general health of patients and their recovery.

Key words: sleep, hospital, patients, nurses, thematic analysis

INTRODUCTION

Sleep is a basic human need. People need sufficient sleep of adequate quality at appropriate times, but studies examining sleep changes in hospitalised patients have risen only in recent years. Sleep disorders are common [1] and are often exacerbated and intensified by hospitalisation. Sleep disorders include many well-defined diagnoses, but in the context of sleep changes during hospitalisation, „sleep disorder" is understood as a reduction in sleep duration or a deterioration in sleep quality. A Dutch study conducted in 39 hospitals [2] reported that sleep duration and quality were negatively affected during hospitalisation compared to home conditions. Sleep abnormalities can negatively affect the health status of patients [3]. Sleep deprivation increases anxiety [3] and negatively affects cognition [4]. An experimental study [5] evaluating the effect of overnight sleep deprivation in healthy volunteers confirmed the alteration of their respiratory muscles and respiratory system. Short sleep duration is a causal risk factor for coronary heart disease and heart failure [6]. Poor sleep contributes to decreased physical activity in old age [7] and increased pro-inflammatory markers [8]. Insomnia, one of the most common sleep disorders, is almost integral to the clinical picture of depressive disorders [1].

Both sleep quantity and quality are fundamental parameters of sleep assessment, and their importance is discussed. A literature review [9] lists four attributes of sleep quality: sleep efficiency, sleep latency, sleep duration, and wake after sleep onset. Sleep quality parameters can be assessed subjectively (e.g. interviews or questionnaires) or using objective methods (e.g. polysomnography or actigraphy).

Several potentially modifiable factors related to disturbed sleep during hospitalisation have been identified, and we can classify them as patient-related (e.g. pain, underlying illness, anxiety, stress, and discomfort) and hospital-related (e.g. noise, light, and nursing interventions) [10].

Hospital nurses play an irreplaceable role in the care of patients' sleep. Nurses' knowledge about sleep, its importance, and how to improve sleep in hospitalised patients is affected by many factors, including the organisation of healthcare, nurses' education, and the local social and economic situation. In the last decade, several qualitative studies focused on nurses' and/or patients' sleep experiences during hospitalisation [11-14]. These studies were heterogeneous in the experience of the participating nurses and patients (intensive care units [ICUs], regular wards), the samples were of various sizes (10-23 participants) and data collection techniques (e.g. interviews or focus groups), and there were used different methods of data analysis (e.g. content or thematic analysis). Most studies of hospitalised patients with sleep disturbances focus on environmental factors, while our study also focused on patients' emotional experiences that affect their sleep. Our study differs in that it analyses the perception of sleep from the perspective of patients and the nurses who care for them. Earlier studies assessed nurses and patients separately. This approach brings a new perspective and opens the way to possible changes in nursing care.

AIM

The present study investigated how nurses and patients perceive sleep and pointed out the factors that negatively impact patients' sleep in selected departments in two hospitals in the Czech Republic.

MATERIALS AND METHODS

Design

In this study, we have adopted an exploratory qualitative research design involving group interviews and used a thematic analysis approach [15] to analyse the collected empirical material.

Settings and participants

The study was conducted with 16 nurses from two tertiary care hospitals and eight patients from one. The first group interview (8 patients) included patients who met the following inclusion criteria: stabilised condition, hospital stay of at least 72 hours, no previous sleep disorder, dementia ruled out, and informed consent given to participate in the study (Tab. 1). A second group interview was conducted with five nurses caring for the first patient group (Tab. 2). The inclusion criteria for the nurses were at least one year of experience in inpatient care, night shifts, providing or organising care for patients after admission and informed consent to participate in the study. The preliminary results of the two interviews showed that the nurses working in intensive care units (ICUs) did not sufficiently cover the theme. Therefore, we extended the study to a third group interview with 11 nurses (Tab. 3). The group interviews lasted from 45 to 70 minutes and were audio-recorded.

Data collection

We collected data from May through June 2022. The interview script consisted of open-ended questions elaborated to determine the target of the interviews (Tab. 4). The first author guided all three group interviews, and the third group interview observed the co-author.

Data analysis

We conducted an exploratory qualitative study, a thematic analysis [15] to identify and investigate themes in the data. The transcribed data were then read and reread several times, and, in addition, the records were listened to several times to ensure the accuracy of the transcription. All group interview recordings were transcribed verbatim by one researcher and independently verified. In the qualitative thematic analysis, words, sentences, or paragraphs were collected in meaning units in each interview. After that, the text in the meaning units was coded. The next step involved searching for subthemes; these explained larger sections of the data by combining different codes that may have been very similar. Once a clear idea of the various subthemes and how they fit together emerged, we defined the main themes. The coding framework and final set of themes were proposed by one researcher and confirmed by a second (Tab. 5).

Tab. 1. Group 1: patients (n=8)

ID	Gender	Ward	Duration of hospitalization on the day the information was obtained	Previous ICU experience during the current hospital stay	Duration of ICU stay	Age (years)	Reason for admission
1	female	internal medicine	day 3	no		60	dyspnea
2	female	internal medicine	day 3	no		63	collapse- rehydration therapy
3	female	surgery	day 8	yes	3 days	72	gastric surgery
4	male	geriatric	day 13	no		69	hip fracture and replacement
5	male	surgery	day 6	no		53	big toe amputation, diabetes
6	male	geriatric	day 12	no		67	back pain
7	male	internal medicine	day 7	yes	3 days	59	arrhythmia – atrial flutter
8	male	internal medicine	day 8	yes	4 days	81	arrhythmia – atrial fibrillation

ICU: intensive care unit

Tab. 2. Group 2: nurses (n =5)

ID	Gender	Ward	Age (years)	Experience (years)	Position
1	female	internal medicine	55	25	head nurse
2	female	internal medicine	32	8	nurse
3	female	internal medicine	40	12	nurse
4	female	geriatric	24	2	nurse
5	female	surgery	36	6	nurse

Tab. 3. Group 3: nurses (n =11)

ID	Gender	Ward	Age (years)	Length of experience (years)	Position
6	female	internal ICU	31	6	nurse
7	female	internal ICU	28	3	nurse
8	female	internal medicine	26	2	nurse
9	female	internal medicine	25	2	nurse
10	female	neurology	42	11	nurse
11	female	neurological ICU	40	16	nurse
12	female	neurological ICU	38	15	nurse
13	female	internal medicine	50	24	nurse manager
14	female	internal medicine	55	25	nurse manager
15	female	neurological ICU	38	13	nurse manager
16	male	neurological ICU	29	4	nurse

ICU: intensive care unit

Tab. 4. Interview guide

What comes to your mind when you hear the word sleep?
What do you think influences sleep in the hospital?
How would you characterise your sleep in the hospital?
If you had the opportunity, what would you suggest to improve the quality of sleep in the hospital?
In your opinion, what are the possible solutions to make patients (you) sleep better in the hospital?
What do you think are the consequences of insufficient/poor sleep in the hospital?

Tab. 5. An example of qualitative thematic analysis

Statement	Code	Subtheme	Theme
"The running of the ward, the mattresses, the noise in our workplaces is considerable, the monitors, even we, the nurses, are noisy." (Nurse 16)	disturbances	interaction with the environment	quality and organization of nursing care
"And what annoyed me in the ICU was the beeping of the machines, a lot, yeah, the noise and the beeping and you don't know what it is." (Patient 7)	disturbances	interaction with the environment	
"I would say the lights in the ICU, the monitors are on, you move and the alarm goes off, it's such a noise, it's hot at night, we're a short distance from the helipad, at night the helicopter comes in, and the wires would bother me, the light at night when something is happening like resuscitation, some action, you often get medications or other procedures every hour." (Nurse 15)	disturbances	interaction with the environment	
"You see, it's enough to have a delirious person next to you, isn't it? What can you do about them? They disturb everyone around them. We even have triple rooms, we're all different, we're not used to it, some snore, next to you is another patient who shuffles to the toilet several times a night." (Nurse 2)	roommate	interaction with the environment	

Ethical aspects

The study, conducted according to the Declaration of Helsinki, was approved by the Ethics Committee of the Faculty of Medicine of the University of Ostrava (no. R2/2021), the Ethics Committee of the University Hospital Ostrava (no. 524/21), and the Ethics Committee of the General University Hospital in Prague (no. 54/21, Grant AVZ VES 2022 VFN). The study is registered in the ClinicalTrials.gov database (ID: NCT05402280). Before each group interview, the researchers explained the purpose and procedure of the study to the participants.

RESULTS

The text analysis identified four main themes and five subthemes from the interviews. Theme (1): *The importance of sleep was linked to the subtheme Lack of knowledge and information*. Theme (2): *Quality and organisation of nursing care settings* to two subthemes: *Interaction with the environment* and *Interventions* – strategy. Theme (3): *Experiencing intense emotions and feelings* was related to patients and pointed to the two subthemes, *Experiencing* and *Emotions*. Theme (4): *Health status* was identified only in the patients' category and contained no subthemes.

Theme 1: Importance of sleep

Although sleep is a natural and inherent part of our lives, participants had difficulty describing and characterising it. A central feature of this theme was the prevailing consensus about sleep's importance and significance. Patients perceived the importance of sleep more through the lens of physical fitness (inefficiency, loss of strength to exercise), whereas nurses perceived and emphasised the importance of sleep concerning psychological recovery and cognitive status.

„*Regeneration for the body, definitely, to get the strength to recover, to exercise*." (Patient 1) „*...also the patient's mental state quality, their overall cognitive function*." (Nurse 4)

Subtheme: Lack of knowledge, information

Although general knowledge about sleep was low, everyone agreed on its importance and necessity but struggled to find the right words. „*Well, I feel like we take sleep as something terribly important, an integral part of us, but we have trouble talking about it because we don't know much about it; it's all kind of automatic*" (Patient 6). Nurses from all specialities reported a lack of information about sleep during their studies. „*An assessment tool? That doesn't even exist, does it? I know there's a NANDA diagnosis of disturbed sleep that I was taught, but we never really discussed it [sleep] in-depth, and nobody ever focused on it in class*" (Nurse 3). During the interviews, there was a noticeable difference in sleep ratings between ICU nurses and those caring for patients on regular inpatient wards. The former tended to assess sleep objectively and, based on this, to quantify sleep indirectly (e.g. by looking at a monitor displaying physiological functions). Nurses from regular wards assessed sleep only by looking at the patient (eyes open/closed). „*In the ICU, we look at the numbers on the monitor, we see that the patient is not moving, their pulse and blood pressure is dropping, so I can tell they are sleeping...*" (Nurse 11) „*...yeah, but we can't do that in the regular one, there we look at their eyes*" (Nurse 9). At the same time, nurses appeared interested in learning more about sleep and were willing to develop their expertise.

Nurses and other nursing personnel did not distinguish between spontaneously sleeping patients and those on sleep-promoting medications. „*I mean, if they're sedated, on propofol, I simply don't think about it. Well, they probably perceive something somehow, but I don't care. I mean, they're sedated, so they must be asleep, right?*" (Nurse 7).

Theme 2: Quality and organisation of nursing care

According to informants, they were concerned about environmental, medical and nursing care issues.

Subtheme: Interaction with the environment

Patients with ICU experience perceived a range of disruptors and found the inpatient environment inhospitable. „*And what annoyed me in the ICU was the beeping of the machines, a lot, yeah, the noise and the beeping, and you don't know what it is*" (Patient 7). Patients' perceptions were consistent with those of the nurses, who were aware of numerous disturbing factors that patients encounter during their stay in the ICU, such as constant monitoring or various procedures, regardless of whether it is day or night, that significantly affect patients' sleep. „*I would say the lights in the ICU, the monitors are on, you move, and the alarm goes off, it's such a noise, it's hot at night, we're a short distance from the helipad, at night the helicopter comes in, and the wires would bother me, the light at night when something is happening like resuscitation, some action, you often get medications or other procedures every hour*" (Nurse 15).

Patients who had only been in regular wards more strongly perceived another patient in their room as a significant disturbing factor, especially if the patient was agitated or delirious. „*Well, I witnessed a drunk brought to the surgical ward; yeah, let me put it this way, these people don't know what they're doing; they're screaming all night or worse*" (Patient 5). The nurses knew that patients were disturbing each other but did not know how to fix the problem. From their point of view, the only solution was to try to appropriately select patients to stay in the same room if possible. „*You see, it's enough to have a delirious person beside you, right? What can you do about them? They disturb everyone around them. We even have triple rooms, and we're all different; we're not used to it; some snore; next to you is another patient who shuffles to the toilet several times a night*" (Nurse 2).

Subtheme: Interventions – strategy

The interviews revealed that hospitals do not have a set policy on how nurses should assess sleep. „*Well, we actually don't have it in the interventions; we don't write it down anywhere; we put ticks for IV access, but not for sleep. The truth is that many things are addressed, but sleep is not addressed at all*" (Nurse 13). Nurses predominantly reported measures such as combining nursing interventions or reducing noise to achieve quality patient sleep. None of the nurses mentioned using earplugs, for example, even though they are available in hospitals. Nurses reported that, given the number of patients and the range of activities and interventions they have to perform during their shift, they cannot devote more time to promoting the usual bedtime rituals of individual patients. „*You know, different people have different rituals, and when you have three or two in the same room, you can't please everyone. Well, there's a lot to do, and sometimes we work*

hard to give them what they should get; I'm happy when I sit down, yeah, I know it's these other things that are needed, but I often don't have the time to do them" (Nurse 5). To get patients to sleep, nurses preferred to use medications as prescribed by doctors. „*Sleep medication is not a problem... Yeah, they [doctors] always prescribe it; they want them to enjoy good sleep and know it's hard to achieve. Well, I think they want to have a calm night*" (Nurses 8 and 10).

Nurses realised that patients slept a lot during the day after admission and believed this was due to the boredom and inactivity associated with hospitalisation. Although nurses were aware of patients' disrupted sleep patterns, they did not have enough time or opportunity to address the issue. „*Yes, sometimes it's challenging to keep these patients busy, to pass the time in the afternoon, and sometimes, a nasty thing to say, there's no time for them. It's because of the mix of patients, different things, and even, let's say it's a habit*" (Nurse 2). Patients felt the same way: „*...and what do you want to do all day if you have no tests or anything, you just lie all day? Twenty-four hours...*" (Patient 4). Patients stated that hospitalisation considerately interfered with their usual way of life and habits, consequently affecting their sleep quality as they could not perform various home activities. They realised that ward rules and regulations must be respected, even if they may cause discomfort. „*We're in a hospital, not a hotel, and there are some responsibilities, and nurses come at five o'clock in the morning to give infusions and things like that; it's just part of it, isn't it? We'll catch up on sleep during the day, no big deal...*" (Patient 5).

Theme 3: Experiencing intense emotions and feelings

The third theme was closely related to the patients' experiences regarding their hospitalisation. Emotions were expressed individually during the interviews, and the account content often correlated with the strength of their expression. Women expressed their emotions and feelings more openly than men.

Subtheme: Experiencing

In the hospital room, patients are exposed to various situations, and very often, they have to deal with unpleasant circumstances related to shame, smells, the sight of emergencies, or moments they are not comfortable with. „*Oh yes, it's uncomfortable to see someone vomiting blood and stuff like that, and now you're sitting across the room looking at it like... well, it's upsetting. I mean, being here is hard on the psyche*" (Patient 8). It was interesting to hear a nurse with many years of experience make a point during the interview about patients' experiences: „*Sure, it's nice to see my colleagues laughing at night, but in room two, where the patient is suffering, you could hear everything they were laughing about, and it was 11:30 pm...*" (Nurse 1).

Subtheme: Emotions

Patients' accounts of their feelings and moods were rather heterogeneous, and their descriptions expressed many emotions (fear, anxiety, helplessness) related to sleep. It may also indicate sleep's influence on a person's mental state. Patients consistently reported that their psychological discomfort may be responsible for problems with falling asleep and with sleep itself. „*We all go to the hospital; it's stressful, right? Nobody knows what to expect, what's going to happen; we're all different, I'm going through it, I'm disturbed... that kind of helplessness and what to do?*" (Patient 5).

Some patients claimed they had not been sufficiently informed about their condition despite asking for more precise information. They did not understand the professional terminology when communicating with their doctors. They were afraid to ask repeatedly or did not dare to mention some of their difficulties and uncertainties regarding their illness. „*Well, it's stupid that they don't have time to explain it to me; I don't know much about what to expect, what I've done to myself, just any information. Then I'm worried, and my mind is racing; I'm scared, maybe even anxious...*" (Patient 3). Uncertainty about the results of examinations and surgery played an essential role in adjustment to hospitalisation and illness. „*Well, I can't sleep for two nights before my surgery, tossing and turning, not knowing what's going to happen, if it's going to go well or wrong. I'm scared, but that's due to nerves; nothing can help. I have to fight it myself; that's how it is*" (Patient 7).

Theme 4: Health

This theme included conditions responsible for their hospitalisation (illness) or accompanying phenomena (e.g. pain). Patients reported that their pain increased in intensity mainly at night, affecting their sleep. Men tolerated pain more poorly than women. „*At night, some pain wakes you up, which is unbearable, but I guess it's the same for every sick person... Well, yeah... You, blokes, should be glad you didn't give birth; you would have seen everything differently*" (Patients 4 and 2). Not surprisingly, the disease and its manifestations reduce sleep quality and may further impact patients' quality of life. „*I have spine problems and wake up every time I turn over*" (Patient 6). Informants frequently reported the link between their illness and the associated sleep disturbances and vice versa.

DISCUSSION

The primary finding of our exploratory qualitative study is the insufficient awareness of sleep. Nearly all informants knew the importance of sleep as a natural need. However, not being professionals, most had difficulty expressing themselves regarding its significance during the interviews; they often pondered and searched for appropriate formulations. The main reason for the limited knowledge about sleep among nurses is probably the education system and their qualification training. Critical thinking is essential for nursing practice and enormous significance is exreted by educational factors [16]. It is not defined in which lectures or courses sleep, its role, and disorders should be addressed; thus, these topics are often not covered. Our results are consistent with the studies from Sweden and the United Kingdom [17,18], showing little attention to sleep issues in nursing education.

During the interviews, nurses mostly felt responsible for promoting sleep and responding to sleep-related problems. They also reported a lack of patients' sleep information in medical records. Consequently, nurses do not perceive the patient's need for sleep as a priority aspect of care, as reported in other studies [14].

The second finding of our exploratory qualitative study has confirmed the significant influence of the environment on patients' sleep quality. The hospital environment is associated with noise. According to the World Health Organization, noise levels in healthcare facilities should not exceed 45 decibels (dB) during the day and 35 dB at night [19]. The results of several studies indicate that noise levels are often exceeded, especially in ICUs [20,21]. The impact of noise on individuals varies and may be due to their irritability, bad temper, and fears. Hospitalised patients often require supervision and numerous nursing interventions, carried out as needed, regardless of the time of day or night. Therapeutic and diagnostic interventions during the night are other sleep-disturbing factors mentioned by informants. A study that analysed nocturnal interventions performed on 200 patients over 51 nights found that almost 14% of interventions performed at night could have been safely skipped [22]. In our study, the presence of a roommate influenced patients' sleep and overall satisfaction with their hospital stay. Shared rooms are standard in Czech hospitals, although single rooms offer patients more privacy, better sleep quality, a better atmosphere for family visits, and more openness when discussing medical issues. However, shared rooms also have advantages, such as establishing social contacts and facilitating communication.

Many patients reported that inactivity during their hospital stay made them sleep in the daytime. A study assessing the extent of daytime sleep in hospitalised patients is missing.

The interviews revealed that the primary sleep-promoting intervention is medication administration, even though appropriate nursing interventions can modify many hospital factors that disrupt patients' sleep [23].

An individual's mental state and personality play an essential role in achieving good sleep and perceiving possible sleep disturbances. Patients reported a wide range of emotions and feelings (e.g. anxiety, helplessness, loss of privacy, fear, distress at not being informed) that reflected in their sleep quality. Other studies also describe the impact of hospitalised patients' emotions and feelings on their sleep quality. Qualitative analyses [11,13] collectively refer to these feelings as fear-related factors, specifically mentioning anxiety, uncertainty, hopelessness, helplessness, and even a sense of loss of control over oneself. Our interviews show that the occurrence of sleep disorders is closely linked to patients' personalities and hospitalisation, which is a stressful or adverse event for them. Nurses' performance at the patient's bedside is a partly modifiable factor [12]. Nurses' behaviours reflect their attitudes and perceptions about the importance of sleep, so they must be aware that their bedside activities can affect patients' experiences. Sleep disorders during hospitalisation are of multifactorial origin, and prevention is a collaborative effort by all staff on the ward.

Strengths and Limitations

Most nursing research on sleep in hospital has traditionally emphasised physical factors. Our study took the qualitative approach of examining patients' emotional experiences that impact their sleep in the hospital. This study evaluated how patients and the nurses caring for them perceive sleep and identified factors that have a negative impact on patients' sleep. Previous studies primarily looked at the perceptions of nurses and patients separately. On the other hand, the selection of hospitals and participants, the way the interviews were conducted, and the interpretation of the obtained statements may have influenced the results of this study. However, the results are consistent with many previous studies. The nature and methodology of the study suggest that the small number of participating informants limits the generalizability of the findings.

CONCLUSIONS

Awareness of the importance of appropriate sleep during hospitalisation is underestimated. Hospitalisation often negatively affects patients' sleep. Patients' emotions, experiences, and the hospital environment are essential to achieve good sleep. Nurses and the entire health care system have great potential to improve hospitalisation conditions concerning sleep and the emotional mood of patients and thus indirectly influence the general health of patients and their recovery.

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