Sleep Quality and Sleep Disturbances among Breast Cancer Patients Attending a Tertiary Cancer Center in Nepal: A Descriptive Cross-sectional Study

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Abstract

Introduction: Sleep problems are common in people with cancer and can affect quality of life. This study aimed to find the prevalence of poor sleep quality and describe common sleep disturbances among breast cancer patients attending a tertiary cancer care center in Nepal.

Methods: This descriptive cross-sectional study was conducted at B. P. Koirala Memorial Cancer Hospital (BPKMCH), Nepal, from July 2025 to December 2025. A non-probability convenient sampling method was used to recruit 391 breast cancer patients attending inpatient and outpatient services. Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Data was entered in Microsoft Excel 2016 and analyzed using STATA version 17.

Results: Among 391 participants, the prevalence of poor sleep quality (PSQI global score >5) was 92 (23.53%). The mean global PSQI score was 4.82±3.12. Difficulty initiating sleep at least once per week was reported by 115 (29.41%) participants, and 156 (39.90%) reported waking in the middle of the night at least once per week. A total of 92 (23.53%) participants reported using sleep medication at least once per week.

Conclusion: About one-fourth of breast cancer patients had poor sleep quality by PSQI. Many others reported specific sleep problems, suggesting that sleep issues may be present even when overall sleep is not described as very poor. Routine screening and simple supportive measures may help improve patient well-being.

Keywords: breast cancer; Nepal; Pittsburgh Sleep Quality Index; sleep quality; sleep disturbances.

Introduction

Breast cancer is one of the most common cancers in women, and the burden is increasing worldwide, with a large future rise expected in low- and middle-income countries (1,2). Breast cancer is the second most common cancer among women in Nepal, characterized by a rising incidence, a younger average age of onset, and high mortality rates driven by late-stage diagnoses and limited access to early screening (3). Sleep problems are common in people with cancer and may include difficulty falling asleep, frequent awakenings, and poor sleep quality (4-8).

In breast cancer, systematic reviews show that sleep disturbance affects more than half of patients or survivors, and it can be higher during active treatment (9,10). Poor sleep can worsen fatigue, distress, and overall quality of life (11). Even so, sleep problems are often not routinely assessed and managed in breast cancer care (12).

In Nepal, data on sleep quality is emerging; research has shown a 70.7% prevalence of sleep-wake disturbances among patients on chemotherapy, while a more recent study observed that 56% of those with advanced-stage solid malignancies suffered from poor sleep quality (13,14). Despite these findings in general cancer populations, evidence focused specifically on the unique challenges of breast cancer remains scarce. This study aimed to describe sleep quality and sleep disturbances among breast cancer patients attending inpatient and outpatient services at a tertiary cancer center in Nepal using the PSQI.

Methods

This descriptive cross-sectional study was conducted at B. P. Koirala Memorial Cancer Hospital (BPKMCH), Nepal, from July 2025 to December 2025.

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Patients with a diagnosis of breast cancer who attended inpatient or outpatient services during the study period and those providing informed consent were included. Those who had a critical illness impairing their mental status and ability to respond were excluded. Clinical stage (Stage I-IV) was recorded from the medical record when available.

The sample size was calculated using Cochran's formula for descriptive studies: $n = (Z^2 \times p \times q) / e^2$. Using Z = 1.96 (95% CI), p = 36.6% (from a previous study) (6), q = 1 − p, and e = 5%, the calculated sample size was 356.56. After adding 10% for non-response, the final sample size was 391. A non-probability convenience sampling method was used to recruit participants until the sample size was met.

Sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). The PSQI includes 19 self-reported items and 5 additional items for a bed partner/roommate (if available), and gives seven component scores. The global PSQI score ranges from 0 to 21. A global PSQI score >5 was taken as poor sleep quality/sleep disorder (15).

Data were entered in Microsoft Excel 2016 and analyzed using STATA version 17. Descriptive statistics (frequency, percentage, mean and standard deviation, and median with interquartile range where appropriate) were used to present the findings.

Ethical approval was obtained from the Institutional Review Committee of BPKMCH. Written informed consent was taken from each participant, and confidentiality was maintained.

Results

A total of 391 breast cancer patients were included. Poor sleep quality (PSQI global score >5) was seen in 92 (23.53%) participants, and the mean global PSQI score was 4.82±3.12. Median time to fall asleep was 30 minutes (IQR 20-60) and median sleep duration was 6 hours (IQR 5-7).

Table 1. Socio-demographic characteristics of participants (n=391)

Variable	Category	Frequency n (%)
Sex	Male	4 (0.98)
	Female	387 (99.02)
Marital status	Married	337 (86.28)
	Separated	23 (5.88)
	Unmarried	23 (5.88)
	Widowed	8 (1.96)
Religion	Hindu	322 (82.35)
	Buddhist	46 (11.76)
	Christian	15 (3.92)
	Muslim	8 (1.96)
Education	Illiterate	192 (49.02)
	Primary	107 (27.45)
	Lower secondary	46 (11.76)
	SLC	31 (7.84)
	Higher secondary	8 (1.96)
	Graduate	8 (1.96)
Occupation	Housewife	337 (86.28)
	Farmer	23 (5.88)
	Unemployed	15 (3.92)
	Business	8 (1.96)
	Student	8 (1.96)
Living condition	With family	356 (91.09)
	Alone	35 (8.91)
Annual income	<1 lakh	321 (82.00)
	1-5 lakhs	55 (14.00)
	>5 lakhs	16 (4.00)

Table 2. Clinical stage of breast cancer (n=391)

Stage	n (%)
I	79 (20.10)
II	100 (25.49)
III	174 (44.61)
IV	38 (9.80)
Total	391 (100.00)

Table 3. Sleep disturbances during the past month (PSQI items) (n=391)

Sleep disturbance	Not during past month n (%)	<1 per week n (%)	1-2 per week n (%)	≥3 per week n (%)
Cannot get to sleep within 30 minutes	276 (70.59)	69 (17.65)	8 (1.96)	38 (9.80)
Wake up in the middle of the night	235 (60.00)	78 (20.00)	39 (10.00)	39 (10.00)
Get up to use the bathroom	360 (92.16)	15 (3.92)	15 (3.92)	-
Cannot breathe comfortably	261 (66.67)	61 (15.69)	46 (11.76)	23 (5.88)
Cough or snore loudly	235 (60.00)	125 (32.00)	23 (6.00)	8 (2.00)
Feel too cold	161 (45.10)	161 (41.18)	15 (3.92)	54 (9.80)
Feel too hot	172 (38.00)	172 (44.00)	55 (14.00)	15 (4.00)
Bad dreams	149 (38.11)	149 (38.11)	54 (13.81)	15 (3.84)
Have pain	172 (44.90)	168 (42.86)	24 (6.12)	24 (6.12)

Difficulty initiating sleep at least once per week was reported by 115 (29.41%) participants, while waking in the middle of the night at least once per week was reported by 156 (39.90%) participants.

Table 4. Subjective sleep quality, sleep medication use, and daytime dysfunction (n=391)

Variable	Category	n (%)
Overall sleep quality	Very good	115 (29.41)
	Fairly good	184 (47.06)
	Fairly bad	61 (15.69)
	Very bad	31 (7.84)
Use of sleep medication	Not during past month	299 (76.47)
	<1 per week	46 (11.76)
	1-2 per week	46 (11.76)
Trouble staying awake (driving/eating/social activity)	Not during past month	253 (64.71)
	<1 per week	77 (19.61)
	1-2 per week	31 (7.84)
	≥3 per week	31 (7.84)
Problem maintaining enthusiasm	No problem	253 (64.71)
	Very slight problem	31 (7.84)
	Somewhat a problem	84 (21.57)
	Very big problem	23 (5.88)
Bed partner/roommate	None	168 (43.14)
	Same bed	184 (47.06)
	Same room	15 (3.92)
	Other room	23 (5.88)

Table 5. Bed partner/roommate report (n=223)

Item	Not during past month n (%)	<1 per week n (%)	1-2 per week n (%)	≥3 per week n (%)
Loud snoring	173 (77.58)	23 (10.31)	22 (9.87)	4 (1.79)
Long pauses between breaths while asleep	165 (74.00)	37 (16.59)	13 (5.83)	8 (3.59)
Legs twitching/ jerking while asleep	115 (51.57)	73 (32.74)	27 (12.11)	8 (3.59)
Episodes of disorientation/ confusion during sleep	122 (54.71)	83 (37.22)	4 (1.79)	13 (5.83)
Other restlessness while asleep	204 (91.48)	19 (8.52)	-	-

Discussion

In this descriptive study of breast cancer patients attending inpatient and outpatient services, about one-fourth had poor sleep quality by PSQI (23.53%). Even among those who did not cross the PSQI cutoff, many reported problems such as waking in the middle of the night and difficulty falling asleep. This suggests that sleep problems can be present even when overall sleep is not described as very poor.

Compared with international breast cancer literature, our prevalence is lower than that of many studies. In a PSQI-based breast cancer study, 61% of patients had PSQI scores above 5, and sleep was commonly disturbed by pain, getting up to use the bathroom, feeling too hot, and coughing/snoring (16). In a large study of breast cancer survivors, more than half were classified as poor sleepers using PSQI, and disturbed sleep was linked with patient and treatment characteristics (17). Systematic reviews also report that sleep disturbance affects more than half of breast cancer patients or survivors (8), and around 60% of people receiving breast cancer treatment may have poor sleep quality by PSQI, depending on treatment type (10).

There are a few reasons why our estimate may be lower. Studies differ in treatment phase, symptoms, and setting. Also, even when the same PSQI cutoff is used, sleep problems may be underreported due to low awareness or other priorities during cancer care. A recent breast cancer paper highlighted the need for regular assessment and management of sleep problems in routine care (12). Cancer-wide reviews also show that poor sleep quality is common across cancers, but the reported prevalence varies by tool, cutoff, and study population (7,8).

Looking at specific sleep problems, waking in the middle of the night and difficulty falling asleep were common in our participants. Pain, temperature discomfort (feeling too hot or too cold), and breathing-related complaints were also reported by some patients. Similar symptom patterns have been described in breast cancer studies using PSQI (16).

Sleep problems matter because they can affect daily functioning and quality of life. A longitudinal breast cancer study showed that sleep disturbance, along with fatigue and psychological distress, was linked with poorer quality of life over time (11). Sleep quality can also change during treatment and follow-up; a meta-analysis reported that sleep quality may worsen as time passes after starting therapy (18).

In Nepal, evidence regarding sleep problems in cancer patients is emerging but remains limited. A study at Bhaktapur Cancer Hospital involving patients on chemotherapy reported a 70.7% prevalence of sleep-wake cycle disturbances (13). More recently, a study at a tertiary center using the PSQI found that 56% of patients with advanced-stage solid malignancies had significant sleep disorders, specifically noting that

nearly half of the breast cancer subgroup within that study experienced poor sleep quality (14). Although these previous studies included diverse or advanced-stage cancer populations, their findings particularly the high prevalence in the breast cancer subset, underscore the urgent need for systematic sleep assessment in Nepalese oncology care.

This study was cross-sectional and descriptive, so it describes the burden of sleep problems at one time point. Sleep quality was measured by self-report PSQI, and we did not use objective methods such as actigraphy or polysomnography. We also did not formally measure pain severity, anxiety, depression, or treatment details, which may influence sleep. Finally, this was a single-center study with convenience sampling, so the findings may not represent all breast cancer patients in Nepal.

Conclusion

Poor sleep quality was present in about one-fourth of breast cancer patients attending care services, and many more reported specific sleep complaints. Routine screening using a simple tool like PSQI, along with basic supportive measures, may help improve patient comfort and overall well-being during cancer care.

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Conflicts of interest

The authors declare no conflicts of interest.

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