

Quality of Sleep among Cancer Survivors: A Systematic Review

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ABSTRACT

Background: The quality of sleep and sleep difficulties are highly frequent in cancer patients, whether or not they are linked to various medical illnesses. Cancer diagnosis and treatment can cause sleep disruptions or aggravate pre-existing sleep issues. More than half of cancer patients experience sleep disturbances, according to studies using quantitative and qualitative sleep parameters. The aim of the study was to evaluate the quality of sleep among cancer survivors.

Methods and materials: The keywords "sleep," "sleep quality," "cancer patients," "cancer survivors," and "quality of sleep" were used to search databases (PubMed, Google Scholar, Academia, Open Access, Directory of Open Access Journals), which resulted in 110 research studies. The studies were sorted based on the inclusion and exclusion criteria, and consequently, 15 articles were chosen for the main analysis.

Results: It was found that most of the studies used a prospective and survey research design. The mean age of the samples was in the range of 25–60. The majority of the studies used the Pittsburgh Sleep Quality Index scale (PSQI). All studies arrive at the same conclusion that quality of sleep is deprived in cancer survivors.

Keywords: Cancer survivors, Nursing personnel, Prevalence, Quality of sleep.

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INTRODUCTION

Sleep is indeed vital to human lives. It aids in ensuring our mental and physical health, as well as safety and productivity.¹ Every individual spends about one-third of their lives sleeping, which implies that if a person lives to be 75-years-old, the person will have slept for 25 years.² Sleep has a significant impact on mental and physical health, and having a better sleep can also help improve oneself. Getting sufficient sleep is crucial for a person's health and well-being to remain optimal. Sleep is just as necessary to their health as physical activity and a well-balanced diet. Sleep disorders are a series of problems that impair an individual's capacity to get enough sleep on a regular basis. Sleep difficulties are highly frequent in cancer patients, whether or not they are linked to various medical illnesses. Cancer diagnosis and treatment can cause sleep disruptions or aggravate pre-existing sleep issues. Sleep problems are prevalent in cancer patients, although they are frequently misdiagnosed. More than half of cancer patients experience sleep disturbances, according to studies using quantitative and qualitative sleep parameters.³

OBJECTIVES

The aims of the current systematic review were as follows:

- To comprehend the research methodologies of several studies.
- To understand how cancer survivors rate the quality of their sleep.
- To recognize the research methods in data analysis.

METHODS AND MATERIALS

Literature Search: From 2016 to 2019, a comprehensive literature review was carried out. The researcher investigated relevant

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studies to determine sleep quality among cancer survivors. In 2019, the results of the literature search were analyzed and confirmed. Until 2019, the review comprised published theses and articles from numerous journals. PubMed, Google Scholar, Academia, Open Access, and Directory of Open Access Journals were used to conduct the literature search. The keywords used in the literature search were "sleep," "sleep quality," "cancer patients," "cancer survivors," and "quality of sleep." The open-access publications were also found using the Google search engine. The researcher followed the preferred reporting items for systematic reviews and meta-analysis (PRISMA) standards when conducting the review.

SELECTION OF STUDIES

Inclusion Criteria

- Articles in peer-reviewed journals
- Articles authored in English language
- Databases with open-access theses
- Articles and dissertations published between 2016 and 2019
- Cancer patients
- Quantitative studies

Table 1: Characteristics of systematic review studies (2015–2019)

Sl. No.	Published year	Journal name	First author	Age range (years)	Sample size/research design	Setting	Data collection tool	Result
1.	2019	<i>Journal of Supportive Care in Cancer</i>	Berger ⁴	21–90	1,302/cross sectional study	Five states in Nebraska and South Dakota	<ul style="list-style-type: none"> Pittsburgh Sleep Quality Index Breast cancer collaborative Registry questionnaire 	Younger age, lower physical activity, and higher fatigue were strongly associated with poor sleep quality.
2.	2018	<i>NPI Breast Cancer</i>	Beverly ⁵	>45	12,098/linear mixed effect model	Women's health initiative	Women's Health Initiative Insomnia Rating Scale (WHIIRS)	Sleep quality and duration continue to worsen over time.
3.	2018	<i>Journal of Adolescent and Young Adult Oncology</i>	Fortmann ⁶	13–24	202/self-reported data	Teenage and young adult cancer survivors	<ul style="list-style-type: none"> Pittsburgh Sleep Quality Index Functional Assessment of Chronic Illness Therapy Fatigue Health-related quality of life 	Sleep quality and fatigue are potential modifiable factors associated with HRQOL.
4.	2018	<i>Journal of Psycho-oncology</i>	Henneghan ⁷	21–65 years	90/survey	Breast cancer survivors	Survey and neuro psychological testing	Supports link between sleep quality and perceived cognitive impairment in breast cancer survivors.
5.	2017	<i>Journal of Sleep Medicine</i>	Collins ⁸	51–75	292/prospective study	Advanced cancer patients	Questionnaire measuring sociodemographic, sleep, and depression	Curvilinear relationship between sleep duration and mortality was observed in advanced cancer patients.
6.	2017	<i>Revista latino-americana de enfermagem</i>	Mansano-Schlusser ⁹	25–55 years	114/longitudinal study	Hospital, Brazil	Pittsburgh Sleep Quality Index, Beck Depression Inventory, and Herth Hope Scale	Higher probability of poor clinical progression was verified in women.
7.	2016	<i>Journal of Cancer</i>	George ¹⁰	50–66	256/clinical trial	Advanced stage of cancer	Pittsburgh Sleep Quality Index (PSQI), the Brief Fatigue Inventory, the MD Anderson Symptom Inventory (MDASI), and the Brief Profile of Mood States, respectively; the Eastern Cooperative Oncology Group (ECOG) performance status (PS)	Poor sleep quality was significant associated with greater fatigue, symptom burden, and mood disturbance.
8.	2016	<i>Journal of Behavioral Neuroscience</i>	Hoyt ¹¹	—	66/—	Cancer survivors	Questionnaires to measure sleep quality and depressive symptoms	Results suggest that dysregulation in HPA activity acts as a neurobiological mechanism of the impact of sleep disruption on depressive symptoms in men with prostate cancer.
9.	2016	<i>Journal of Supportive Care in Cancer</i>	Innomnato Pasquale ¹²	—	32/	Cancer survivors	Actigraphy Diurnal patterns of serum cortisol	Bedtime melatonin was associated with a significant improvement in a marker of objective sleep quality, sleep fragmentation and quantity, subjective sleep, fatigue severity, global quality of life, and social and cognitive functioning scales.
10.	2016	<i>Journal of Psychosomatic Medicine</i>	Jung ¹³	20–50 years	198/prospective observational study	Postoperative ward	<ul style="list-style-type: none"> Pittsburgh Sleep Quality Index Insomnia Severity Index Epworth Sleepiness Scale Hospital Anxiety and Depression Scale 	Poor sleep quality increases risk of chemotherapy induced nausea and vomiting in patients with breast cancer.

(Contd...)

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11.	2015	Journal of Supportive care in Cancer	Beck ¹⁴	—	Randomized control trial	Cancer center	Pittsburgh Sleep Quality Index (PSQ)	A high percent of women with breast cancer begin chemotherapy with disturbed sleep and the initial nights after chemotherapy are characterized by sleep fragmentation that disrupts sleep maintenance. <i>B. pinnatum</i> may be a suitable treatment for sleep problems of cancer patients.
12.	2015	Journal of Integrative Cancer Therapies	Hassani ¹⁵	51–72 years	Prospective observational study	Cancer patients	Sleep quality [Pittsburgh Sleep Quality Index (PSQ)], daily sleepiness [Epworth Sleeping Scale (ESS)], and fatigue [Fatigue Severity Scale (FSS)]	Good sleep habits could be a protective factor for normal cortisol regulation, which likely helps to reduce early mortality in young breast cancer survivors.
13.	2015	Journal of Psychoneuro Endocrinology	Hsiao ¹⁶	40 years and below	62/longitudinal research	Cancer survivors	The Medical Outcomes Study Sleep scale; the Beck Depression Inventory-II, physical activity levels on a 10-point scale, time of going to bed, time of awakening, and total sleep hours.	Subjective sleep problems are associated with poor clinical outcomes. The prevalence of short sleep occurs at a high rate among the Korean cancer survivors.
14.	2015	Journal of Sleep Medicine	Speigel ¹⁷	—	361/randomized trial research	Chemo-naive patients	Multivariate Cox proportional hazard model	
15.	2015	Asian Pacific Journal of Cancer Prevention	Yoon ¹⁸	—	34,974/survey research	Fourth and fifth Korea National Health and Nutrition Examination Survey		

Exclusion Criteria

- Review articles
- Qualitative studies
- Pediatric cancer survivors

There were 110 articles found in the primary literature search. Duplicate and irrelevant information has been removed. A total of 33 articles were chosen for comprehensive and thorough reading. For this review, a total of 15 full-text articles were chosen.

RESULTS AND DISCUSSION

General Characteristics

The primary aim of the study was to figure out how different studies used different research methodologies. Table 1 shows the research approach employed by several investigators. Five articles were published in 2015, four in 2016, two in 2017, three in 2018, and one in 2019. Many articles have been published, and many studies have been conducted on breast cancer survivors. The mean age of the samples was in the range of 25–60 years. The studies used a mixed of randomized control, longitudinal, prospective, and survey research design.

Sleep Quality Assessment

The second aim was to discover how cancer survivors rate their sleep quality. Seven studies were chosen from a total of 15 that used PSQI and two studies that used the Epworth Sleepiness Scale.

Data Analysis Methods

The third aim of the study was to learn about the data analysis methodologies employed in the research. For continuous variables, the majority of the research utilized frequency, percentage, mean, and standard deviation, The Chi-square test was used for categorical variables and the *t*-test for comparison.

CONCLUSION

The majority of the issues highlighted in this assessment of the literature are cancer survivors have poor quality of sleep and have troubles in falling asleep. Sleep being an essential part in health and well-being of a person, sleep deprivation should be treated in persons suffering from cancer. In this systematic review, most of the studies used a large sample size to make generalizations, and the most of the studies used survey research as their research design. Despite the fact that quality of sleep is deprived in cancer survivors, there is currently a scarcity of high-quality material to interpret the findings. Therefore, studies using an experimental study design and a probability sampling technique should be carried out to better understand the impact of sleep deprivation in cancer survivors.

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