



## Pain, stress, and sleep quality in chronic wound patients

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### KEYWORDS

Discomfort;  
Sleep quality;  
Pain;  
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Cancer

### Abstract

Chronic wounds are one impact of cancer cell growth that may cause discomforts or pain. This study aimed to identify the relationship between pain, stress, and sleep quality in cancer patients with a chronic wound. We used a cross-sectional design with 76 patients from a cancer hospital in Jakarta, Indonesia. The instruments used were the Numeric Rating Scale, the Questionnaire on Stress in Cancer Patients, Revised 23, and the Pittsburgh Sleep Quality Index. The results of this study showed that moderate-severe pain produced a higher than average amount of stress (58.86), while patients with no pain or only mild pain had a lower than average stress level (52.3). The results indicated that there was a relationship between pain before analgesic usage, pain during bandage replacement, pain that occurred at night, and stress ( $p = 0.003$ ,  $0.007$ , and  $0.002$ , respectively;  $\alpha = 0.05$ ). Patients who had poor sleep quality experienced above average stress (56.3), while those with good sleep quality reported below average stress levels (45.6). These results indicated that there was a relationship between stress and sleep quality ( $p = 0.033$ ;  $\alpha = 0.05$ ). Poor quality sleep is more common in patients with a moderate to severe pain scale rating (93.1%). However, Fisher's exact test results found that there was no relationship between pain and sleep quality ( $p = 0.301$ ;  $\alpha = 0.05$ ). The results of this study concluded that stress can affect pain and sleep quality, but the pain did not have a direct effect on sleep quality in chronic wound patients.

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### Introduction

There were 300 of 100,000 new cancer cases around the world and 195 of 100,000 deaths due to cancer<sup>1</sup>. Ineffective cancer treatment often leads to complications, including wounds due to the rupture of a cancerous mass. Cancer wounds may produce physical complaints, such as pain, odors, inflammation, edema, and an irregular shape of the wound<sup>2</sup>. Pain causes physical discomfort and psychological

disorders, such as sleep disturbances, a decreased appetite; a lack of concentration, impaired interpersonal relationships, anxiety, depression, and decreased activities of daily living<sup>3</sup>. Research that focuses on cancer wounds is still limited in Indonesia.

Therefore, this study set out to determine the association between physical and psychological discomfort: pain and stress with sleep quality in malignant wound patients at the Dharmais Cancer Hospital in Jakarta, Indonesia.

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## Method

This study used a cross-sectional design with a sample of 76 patients and was conducted at Dharmais Cancer Hospital. The respondents were chosen using a consecutive sampling method; the main inclusion criteria were people over the age of 20 who had a cancerous wound. The data collection procedure began with an explanation about the purpose of the study and a request for the respondent's participation in the study. This investigation used the Numeric Rating Scale (NRS) of pain intensity to determine the severity of their pain, the Questionnaire on Stress in Cancer Patients, Revised 23 (QSC-R23) to assess patients' stress level, and the Pittsburgh Sleep Quality Index (PSQI) to measure their sleep quality.

## Results

Our results (Tables 1 to 3) revealed that the average stress score of respondents who suffered from moderate to severe pain was high at 58.86 (SD: 13.74). However, the analysis showed that there was no significant relationship between pain and stress ( $p = 0.065$ ;  $\alpha = 0.05$ ).

For participants with moderate to severe pain, the average stress score was higher during wound care activities (60.32; SD: 13:09). There was a significant relationship between pain during wound care and the patient's stress level ( $p = 0.007$ ;  $\alpha = 0.05$ ).

In regards to the relationship between pain following wound care and stress level, respondents reported a moderate to severe pain score (57.72, SD: 12.62). However, the analysis showed that there was no significant relationship between pain after wound care and stress level ( $p = 0.243$ ;  $\alpha = 0.05$ ).

The average stress score of respondents who reported moderate to severe pain was higher at night (60.22, SD: 14.06). The analysis showed that there was a significant relationship between pain at night and stress level ( $p = 0.002$ ;  $\alpha = 0.05$ ).

Our investigation revealed that the average stress score of respondents with poor sleep quality was high (56.3, SD: 14.9) here was a significant association between stress level and sleep quality ( $p = 0.033$ ;  $\alpha = 0.05$ ).

Poor sleep quality was more frequently experienced by the respondents who suffered from moderate to severe pain. The percentage of participants with poor sleep quality, who also reported moderate to severe pain, was 93.1%. Only 6.9% of the respondents reported moderate to severe pain but still experienced good sleep quality. There was no significant relationship between pain and sleep quality ( $p = 0.301$ ;  $\alpha = 0.05$ ).

Before taking pain medication, 92.7% of the respondents who suffered from moderate to severe pain experienced poor sleep quality. Only 7.3% of the participants with moderate to severe pain still had good sleep quality. Our analysis indicated that there was no significant relationship between pain and sleep quality ( $p = 0.172$ ;  $\alpha = 0.05$ ).

**Table 1** Association between pain and stress

Stress	Mean	SD	No.	MD (95%CI)	p-value
<i>Pain</i>					
No-mild	52.36	15.29	10	-6.5 (-3.4 to 0.43)	0.065
Moderate-severe	58.86	13.74	66		
<i>Pain before medication</i>					
No-mild	49.46	13.75	10	-9.98 (-16.5 to -3.47)	0.003*
Moderate-severe	59.44	14.56	66		
<i>Pain with wound dressing</i>					
No-mild	51.07	15.14	10	-9.256 (-15.9 to -2.59)	0.007*
Moderate-severe	60.32	13.09	66		
<i>Pain after wound dressing</i>					
No-mild	53.43	15.92	10	-4.29 (-11.6 to 2.97)	0.243
Moderate-severe	57.72	12.62	66		
<i>Pain at night</i>					
No-mild	50	14.23	10	-10.222 (-16.7 to -3.75)	0.002*
Moderate-severe	60.22	14.06	66		

**Table 2** Association between stress and sleep quality

Sleep quality	Mean	SD	No.	MD (95%CI)	p-value
<i>Stress</i>					
Good	45.6	10.9	10	-10.7 (-20.5 to -0.9)	0.033*
Poor	56.3	14.9	66		

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