PREDICTIVE FACTORS ASSOCIATED TOWARDS QUALITY OF LIFE IN PATIENTS WITH CANCER: A CROSS-SECTIONAL STUDY

By Rizka et al

WORD COUNT 4542
TIME SUBMITTED 25-NOV-2024 08:42AM
PAPER ID 113131764

Rizka, Y., et al. (2024). *Nurse and Health: Jurnal Keperawatan. 13 (2): Pages Number*
http://ejournal-kertacendekia.id/index.php/nhjk/index

Original Research Article

PREDICTIVE FACTORS ASSOCIATED TOWARDS QUALITY OF LIFE IN PATIENTS WITH CANCER: A CROSS-SECTIONAL STUDY

Yulia Rizka[1*], Hellena Deli[1], Wan Nishfa Dewi[1], Nila Putriana[2]

[1]Faculty of Nursing, Universitas Riau
[2]Arifin Achmad General Hospital, Pekanbaru, Riau

***Correspondence:**
Yulia Rizka
Faculty of Nursing, Universitas Riau
Pattimura Road, Cinta Raja, Sail, Pekanbaru, Riau Province, 28127
Indonesia
Email: yulia.rizka@lecturer.unri.ac.id

Article Info:
Received: September, 12th, 2024
Revised: November, 20th, 2024
Accepted: November, 21st, 2024

DOI:
https://doi.org/10.36720/nhjk.v13i2.676

Abstract

Background: Cancer patients face various symptoms and problems caused by the disease or cancer treatment. Physical and psychological symptoms worsen the patient's quality of life (QOL).
Objectives: To predict how age, gender, marital status, educational level, working status, type of cancer, stage of cancer, physical factors (pain, fatigue, nausea, lack of appetite, shortness of breath, constipation, drowsiness, well-being) and psychological factors (anxiety and depression) affect to quality of life in patients' cancer.
Methods: The study was quantitative research with a cross-sectional approach with purposive sampling. Ninety-nine cancer patients participated in this study. Data were collected in General Hospital, Pekanbaru, in October - November 2022. *The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire* (EORTC QLQ-C30) was used to assess patient's cancer quality of life. The Multivariate analysis uses the multiple linear regression.
Results: The EORTC QLQ-C30 mean scores for QoL (65,97±25,18), physical, emotional and cognitive functioning were high, at 60 or above. The score of most symptom scales in this study were reportedly good, at 37 or below. However, for pain and fatigue, the score was reportedly worse (range:45, 32±27,84 to 64,27±25,58). The results of multiple linear regression analysis showed that factors predictive of quality of life were pain (p=0,032), fatigue (p=0,004), shortness of breath (p=0,020), constipation (p=0,002) and depression (p=0,042). These factors together can cause quality of life problems in cancer patients by 55% (*adjusted* R^2 = 0.468).
Conclusion: The study finding indicate that QoL score were influenced with several symptoms (pain, fatigue, shortness of breath, constipation and depression) of the ESAS-r score. Healthcare professionals should properly address pain and fatigue, as patients in this patient group consistently report them.

Keywords: *Cancer Patients, Physical Symptoms, Psychological Symptoms, Quality of Life*

E-ISSN
2623-2448
P-ISSN
2088-9909

INTRODUCTION

Cancer is the second leading cause of death in the world, with around 10 million people dying from cancer in 2020 (World Health Organization, 2022). Based on data from the Ministry of Health in 2019, the prevalence of cancer in Indonesia was 1.79 per 1000 population, which means around 2 out of 1000 Indonesians suffer from cancer. Data from the Global Burden of Cancer Study (GLOBOCAN) shows that the total number of cancer cases in Indonesia in 2020 reached 396,914 cases, with a death rate of 234,511 cases (International Agency for Research on Cancer, 2020). Deaths from cancer are expected to continue to increase to more than 13.1 million by 2030 (Ministry of Health the Republic of Indonesia, 2019). The prevalence of cancer in Riau is around 0.7 per 1000 population, which means around 1 out of 1000 people in Riau suffer from cancer (Ministry of Health the Republic of Indonesia, 2019). The development of science and technology has made cancer treatable in various ways, including surgery, chemotherapy, radiotherapy, or a combination of the three types of treatment, immunotherapy and stem cell transplantation (National Cancer Institute, 2022). Some cancer treatments have side effects on patients that result in physical and psychological problems (Suwankhong & Liamputtong, 2018). Physical issues that arise in cancer patients undergoing cancer treatment include fatigue, pain, defecation problems, weight loss, nausea, vomiting, decreased appetite, and sleep disorders (Akhtari-Zavare et al., 2018; Campos et al., 2018; Matzka et al., 2018; Lewandowska et al., 2021). Psychological problems faced by cancer patients include anxiety, depression, hopelessness, feelings of helplessness, distrust of others, difficulty accepting negative information, anger, disappointment, and even indifference (Lewandowska et al., 2021). Physical symptoms and psychological symptoms experienced by cancer patients affect the patient's quality of life (Nayak et al., 2017).

According to the World Health Organization (1996), quality of life is an individual's perception of their life position in the context of the culture and value system in which they live and its relationship to goals, standards, and concerns. Quality of life is divided into physical, psychological, social, and spiritual dimensions. The physical dimension includes physical symptoms such as fatigue/cancer-related fatigue, pain, and dyspnea. Psychological dimensions such as emotional problems, depression, and low self-esteem. Social dimensions such as relationships and roles become disrupted so that they can cause problems. Life depends on other people/ caregivers, so sometimes, it causes feelings of guilt and feelings of burdening others. The spiritual dimension includes religion and spirituality, which can affect the patient's well-being and can provide comfort to the patient and family members/ caregivers (Rego *et al.*, 2020).

The quality of life of cancer patients is influenced by several factors, such as gender, marital status, education level, occupation, type of cancer treatment, and type of cancer associated with low quality of life in cancer patients (Ustundag and Zencirci, 2015). Feelings of loneliness, anxiety, and depression can reduce the quality of life of cancer patients (Polanski *et al.*, 2022). Low quality of life in cancer patients will impact the patient's social function, such as fear, dissatisfaction with self-image, and decreased levels of well-being both physically and psychologically (Nayak et al., 2017; Ustundag & Zencirci, 2015).

According to previous study, the concept of a person's quality of life is influenced by several factors, namely sociodemographic factors, socioeconomic factors, and psychological or psychosocial factors. Sociodemographic factors include gender, marital status, age, comorbidity, and disease severity. Socioeconomic factors include education level, income, and occupation (Konieczny *et al.*,2019). For psychological or psychosocial factors, anxiety,

loss of control, body image, sexual problems, social support, spiritual level, and perceived burden are the most vital psychological or psychosocial factors that influence Quality of Life (Lewandowska et al., 2021).

Objective(s): This study aimed to predict how age, gender, marital status, educational level, working status, stage of cancer, physical factors (pain, fatigue, nausea, lack of appetite, shortness of breath, constipation, drowsiness, well-being) and psychological factors (anxiety and depression) associated to quality of life in patients' cancer.

METHODS

Study Design

The study was a quantitative study with a cross-sectional approach, and purposive sampling was performed in this study.

Setting

Data were collected from October-November 2022. The study was performed in general hospitals in Pekanbaru.

Research Subject

The number of independent factors in our study was 16. Based on "Green's rule of thumb," the sample size should be a minimum of 50 plus 8 times the number of predictors. The calculation of the total sample size in our study was 112, which would be appropriate. The calculation considered a significance level (α) of 0,05 and a desired power of 0,8 (Green, 1991). One hundred two cancer patients met the inclusion criteria, but only 99 cancer patients formed the final sample (2 cancer patients did not complete the instruments). The number of samples in this study was 99 cancer patients. The inclusion criteria for patients in this study were:1) Patient is diagnosed with cancer by a doctor that can be seen in the medical record; 2) Patient who is currently undergoing cancer treatment (chemotherapy, radiation, and surgery) at the hospital; 3) Cancer patients aged > 18 years; 4) Patients willing to be respondents. The exclusion criteria were: 1) Patients who experienced worsening conditions during data collection.

Instruments

The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) questionnaire, which assesses the quality of life in cancer patients, consists of 30 questions. Each question has answer choices, namely 1 (not at all), 2 (a little), 3 (quite), and 4 (very). Global health status and Quality of Life (QoL) scores range from 1-7. All scales and individual items are converted into scores from 0-100 from the sum of the item scores in each scale. The EORTC QLQ-C30 is available Indonesia version. It is validated and reliable tool for QoL assessment (Perwitasari *et al.*, 2011). The principles for scoring quality of life were used based on the manual scoring guidelines of EORTC QLQ-C30. All scales and single-item measures range in score from 0-100. A high score on the functional scale represents a healthy level of functioning. A high global health status /Quality of Life score represents a high QoL. A high score for a symptom scale/item represents a high level of problems (Fayers *et al.*, 2001).

The Edmonton Symptom Assessment System-revised (ESAS-r) is a modification of the ESAS first created by Bruera et al. (1999) to assess ten common symptoms in cancer patients, including pain, fatigue, drowsiness, nausea, decreased appetite, shortness of breath, depression, anxiety, feelings of well-being, and the option to add one specific symptom to the patient. ESAS-r is a self-report to assess the intensity of symptoms felt by cancer patients in the form of a Likert scale. Patients rate the intensity of each symptom using 11 numeric scales ranging from 0 (no symptoms) to 10 (symptoms felt extraordinary/very bad). Each item/symptom is interpreted separately, although it can be calculated into a total score of distress symptoms. The interpretation of each symptom is that the higher the score, the

greater the intensity of the symptoms (Watanabe et al., 2011).

Data Analysis

IBM SPSS Statistics Version 30 was used for the statistical analysis of the data. Univariate analysis was conducted to describe the characteristics of respondents. The normality of variable distributions was evaluated using the Kolmogorov-Smirnov test, accompanied by skewness and kurtosis indices. The continuous sociodemographic and clinical data results were expressed as mean and standard deviation (SD), while categorical variables were described with frequencies and percentages.

The bivariate analysis used a nonparametric *independent t-test* and *One Way ANOVA* to assess the difference between several sociodemographic and clinical variables (gender, marital status, educational level, working status, stage of cancer) on QoL scores on the EORTC QLQ-C30. The *Spearmen rank correlation* assessed the correlation between ages, symptoms on the ESAS-r and QoL score on the EORTC QLQ-C30.

A multivariate analysis was conducted using a linear regression to predict the associated variables with QoL. Variables with multiple categories (marital status, educational level, working status, cancer stage) were transformed into dummy variables. Age of respondents, physical symptoms (pain, fatigue, nausea, lack of appetite, shortness of breath, constipation, drowsiness, well-being), and psychological symptoms (anxiety and depression) were numerous variables. The total quality of life score served as the dependent variable. All the regression coefficients were tested for multicollinearity in the multivariable analysis to explore the degree of correlation between independent variables included in the models. The recommendation of the variance inflation factors more significant than ten was used for identifying potential multicollinearity (Kristanti et al., 2017).

Ethical Consideration

This study has been approved by the Faculty of Nursing Ethics Committee, University of Riau, with No. 513/UN.19.5.1.8/KEPK.FKp/2022. All respondents have signed an informed consent form to participate in the study.

RESULTS

Based on Table 1, the study's results showed that the average age of cancer patients was 45.

Table 1. Respondent Characteristics (n=99)

Variables	F	%	Mean±SD
Age			45,63±10,25
Gender			
Male	14	14,1	
Female	85	85,9	
Marital Status			
Single	5	5,1	
Married	83	83,8	
Widowed	11	11,1	
Educational Level			
Elementary school	3	3	
Junior high school	20	20,2	
Senior high school	51	51,5	
University	25	25,3	
Working status			
Unemployed	53	53,5	
Public servant	15	15,2	
Private sector	31	31,3	
Type of Cancer			
Breast	34	34,3	
Gynecology	42	42,4	
Lung	2	2	
Head and Neck	10	10,1	
Blood	7	7,1	
Pancreas	2	2	
Uterus	1	1	
Colon	1	1	
Stage of cancer			
I	11	11,1	
II	46	46,5	
III	36	36,4	
IV	6	6,1	

The majority of cancer patients in this study were women, with as many as 85 respondents (85.9%) because the type of cancer suffered by patients in this study was cancer experienced by women, namely gynaecological cancer (endometrium, cervix, ovary) as many as 42 people (42.4%). Most respondents were married, as many as 83 respondents (83.8%). The last education of the majority of respondents was high school, with as many as 51 respondents (51.5%). Most respondents were unemployed, as many as 53 people (53.5%). The majority of respondents had cancer in stage II, as many as 46 people (46.5%).

Table 2. Transformed Mean Scores of the QoL Scales (EORTC QLQ C-30) among Cancer Patients (n=99)

Scales	Mean±SD
Global Health Status	62,12±26,96
Quality of Life (QoL)	65,97±25,18
Functional scales	
Physical functioning (PF)	60,33±28,38
Role Functioning (RF)	55,70±27,99
Emotional Functioning (EF)	60,25±24,34
Cognitive Functioning (CF)	84,94±20,96
Social Functioning (SF)	53,86±26,36
Symptom scales	
Pain	45,32±27,84
Fatigue	64,27±25,58
Dyspnea	23,13±25,85
Insomnia	36,60±26,40
Appetite loss	32,90±27,63
Constipation	13,12±25,15
Diarrhea	2,01±9,28
Nausea	28,51±24,80
Vomiting	15,07±21,93
Financial Difficulties	37,65±24,27

The EORTC QLQ-C30 mean scores for QoL (65,97±25,18), physical, emotional, and cognitive functioning were high, at 60 or above (Table 3). The scores of most symptom scales in this study were reportedly good, at 37 or below. However, for pain and fatigue, the score was reportedly worse (range: 45, 32±27,84 to 64,27±25,58).

Table 3. Physical and Psychological Scores of The Cancer Patients (ESAS-r) (n=99)

Variables	F	%	Mean±SD
Pain			4,90±2,73
No	25	25,3	
Yes	74	74,7	
Fatigue			6,77±2,29
No	11	11,1	
Yes	88	88,9	
Drowsiness			3,01±2,87
No	56	56,6	
Yes	43	43,4	
Nausea			3,53±2,58
No	45	45,5	
Yes	54	54,5	
Lack of appetite			3,82±2,72
No	44	44,4	
Yes	55	55,6	
Shortness of breath			2,74±2,53
No	63	63,6	
Yes	36	36,4	
Depression			4,16±2,90
No	27	27,3	
Yes	72	72,7	
Anxiety			4,28±2,84
No	38	38,4	
Yes	61	61,6	
Well-being			5,73±1,97
No	11	11,1	
Yes	88	88,9	
Constipation			1,49±2,38
No	85	85,9	
Yes	14	14,1	

76

Based on Table 3, The majority of respondents experienced physical and psychological symptoms during their cancer. Physical symptoms experienced by respondents included pain in 74 people (74.7%), fatigue in 88 people (88.9%), nausea in 54 people (54.5%), and decreased appetite in 55 people (55.6%). Psychological symptoms experienced by respondents included depression in 72 people (72.7%) and anxiety in 61 people (61.6%).

Table 4. Sociodemographic and Clinical Difference Score (n=99)

Variables	Mean±SD	*p value*
Gender [a]		0,690
Male	71,50±25,61	
Female	65,06±25,15	
Marital Status [b]		0,432
Single	76,60±25,25	
Married	66,23±25,36	
Widowed	59,18±24,03	
Educational Level [b]		0,480
Elementary school	50,00±17,00	
Junior high school	60,90±24,91	
Senior high school	67,61±24,36	
University	68,60±27,79	
Working status [b]		0,044*
Unemployed	61,32±25,49	
Public servant	63,27±24,62	
Private sector	75,23±23,08	
Stage of cancer [b]		0,004*
I	86,45±19,36	
II	68,43±22,82	
III	59,25±24,70	
IV	49,83±33,30	

** Significance p value <0.05*
[a] *Independet t-test*
[b] *One Way ANOVA*

There were differences in the QoL score of cancer patients across working status and stage of cancer (Table 4). As expected, age pain, fatigue, drowsiness, nausea, lack of appetite, shortness of breath, depression, anxiety, and constipation were negatively correlated with the QoL score, and well-being scores were positively correlated with the QoL score (Table 5).

Table 5. Correlation of Independent Variable and Dependent Variables (n=99)

Variables	*Coefficient correlation* (r)	*p value*
Age	-0,230	0,011*
Pain[a]	-0,497	<0,001*
Fatigue[a]	-0,404	<0,001*
Drowsiness[a]	-0,185	0,033*
Nausea[a]	-0,438	<0,001*
Lack of appetite[a]	-0,532	<0,001*
Shortness of breath[a]	-0,458	<0,001*
Depression[a]	-0,281	0,002*
Anxiety[a]	-0,379	<0,001*
Well-being[a]	0,497	<0,001*
Constipation[a]	-0,427	<0,001*

Significance p value <0.05
[a] *Spearman rank correlation*

Based on Table. 6, The results of multiple linear regression analysis showed that factors predictive of quality of life were pain (p=0,032), fatigue (p=0,004), shortness of breath (p=0,020), constipation (p=0,002) and depression (p=0,042). These factors together can cause quality of life problems in cancer patients by 55% (*adjusted* $R^2 = 0.468$).

Table 6. Results of Multiple Regression for Quality of Life (EORTC QLQ-C30) (n=99)

Variables	β (95% CI)	Beta[a]	*P value*
Pain	-1,978(-3,786 to -0,171)	-0,215	0,032*
Fatigue	-3,328(-5,589 to -1,066)	-0,302	0,004*
Shortness of breath	-2,523(-4,637 to -0,410)	-0,253	0,020*
Constipation	-3,733(-6,065 to -1,400)	-0,353	0,002*
Depression	2,662(0,098 to 5,226)	0,307	0,042*

** Significance p value <0.05*
[a] Standardized beta coefficient
R^2 : 0,550 (adjusted R^2 : 0,468)

DISCUSSION

Physical and physiological problems can influence the quality of life of cancer patients (Rifda *et al.*, 2023). Pain experience and insufficient relief can be devasting and negatively affect a patient's quality of life. Increased attention to the assessment and management of pain might have fostered a decline in the severity of pain (Snijders *et al.*, 2023). A comprehensive pain assessment, including existence, intensity, location, description, and duration of pain, is essential to

evaluate the need and significance of treatment adequacy. The management of pain includes appropriate pharmacological and nonpharmacological pain approaches as well as addressing psychological issues (Dabbous *et al.*, 2017).

Fatigue is a subjective feeling that is different for each individual. It is an unpleasant health illness that ranges from body weakness to exhaustion and affects the quality of life (Ream & Richardson, 1996; Muthanna *et al.*, 2022). Cancer Related Fatigue (CRF) can occur because of the cancer disease and increase during the cancer treatment (Muthanna *et al.*, 2022). It can arise from treatment, symptom distress, the impact of emotion, or physical imbalance (Arizona *et al.*, 2019). Nurses should pay attention to CRF in cancer patients to explore the mechanism of interaction between symptoms and carry out symptomatic intervention to improve quality of life more effectively (Liu *et al.*, 2023).

Shortness of breath in cancer patients is associated with multiple symptoms and affects QoL. Shortness of breath is higher in patients with comorbidities, such as lung cancer, metastasis cancer (liver, lung, and lymph), advanced cancer, a history of respiratory conditions, and worsening status performance (McKenzie *et al.*, 2018; Damani *et al.*, 2018).

Constipation is considered one of the most common bothering symptoms in cancer patients and decreases cancer patients' quality of life (Varrassi *et al.*, 2021). Constipation in cancer patients due to the effect of cancer treatment, such as chemotherapy and opioids (Daoust *et al.*, 2020; Chen *et al.*, 2021). Chemotherapy may cause damage to enteric neurons and gastrointestinal dysfunction (Escalante *et al.*, 2017). Opioids are used for the relief of pain in cancer patients and have adverse effects on gastrointestinal such as opioid-induced constipation (OIC) (Davies *et al.*,2021). However, constipation is usually considered a private matter and rarely discussed by patients, so it is easy to be neglected (Meinds *et al.*, 2017).

Depression is widespread among patients with cancer and affects their quality of life. Nevertheless, depression in cancer patients does not receive any treatment (Alwhaibi *et al.*, 2023). In Indonesia, depression is experienced in cancer patients due to anxiety and fear (Solikhah *et al.*, 2023). However, the cultural aspect plays a key role in affecting the QoL of cancer patients. Strong family bonds and family involvement in cancer patients' care are considered an obligation and responsibility in Asian culture (Effendy *et al.*, 2015). Social and psychological support positively influence patients' QoL/QoL domains. Last, spirituality and religiosity are critical components of Indonesian culture and influence cancer patients' ability to cope (Gayatri *et al.*, 2021).

CONCLUSION

The study finding indicate that QoL score were influenced with several symptoms (pain, fatigue, shortness of breath, constipation and depression) of the ESAS-r score.

SUGGESTIONS

Pain and fatigue should be given proper attention by healthcare; patients in this patient group consistently report them.

ACKNOWLEDGMENT

The authors thank the Faculty of Nursing Universitas Riau and General Hospital Arifin Achmad, Pekanbaru, for supporting this study.

DECLARATION OF CONFLICTING INTEREST

The authors declare that there is no conflict of interest in this study.

FUNDING

This study has been funded by Faculty of Nursing, Universitas Riau

AUTHOR CONTRIBUTION

Yulia Rizka: The main conceptual ideas and proof outline wrote the manuscript

Hellena Deli: The conceptual of manuscript and prepare research report

Wan Nishfa Dewi: Helping to prepare the manuscript and research report

Nila Putriana: Data collection, helped prepare and research

ORCID
Yulia Rizka: None

Hellena Deli: https://orcid.org/0000-0002-5924-9447

Wan Nishfa Dewi: https://orcid.org/0000-0001-7569-2994

Nila Putriana: None

REFERENCES

Akhtari-Zavare, M., Mohd-Sidik, S., Mahmud, R. (2018). Determinants of Quality of Life Among Malaysian Cancer Patients : A Cross-Sectional Study. *Health and Quality of Life Outcomes* 16: 163. Doi : https://doi.org/10.1186/s12955-018-0989-5

Alwhaibi, M., AlRuthia, Y., Sales, I., (2023). The impact of depression and anxiety on adult cancer patients' health-related quality of life. *J Clin Med* 12: 1-11. Doi: https://doi.org/10.3390/jcm12062196

Arizona, I, K.L.T., Sukartini, T., Efendi, F., Estiadewi, P.S., Anggraeni, P.D.A., (2019). The experience of cancer-related fatigue among adult cancer patients : A systematic review. *Jurnal Ners* 14(3). 35-44. Doi :http://dx.doi.org/10.20473/jn.v14i3(si).16973

Bruera, E., Kuehn, N., Miller, M. J., Selmer, P., Macmillan, K., (1999). The Edmonton Symptom Assessment System (ESAS): a Simple Method for the Assessment of Palliative Care Patients. *J Palliat Care* 6-9. https://www.ncbi.nlm.nih.gov/pubmed/1714502

Campos, A.D.B., Silva, W. R., Maroco, J. (2018). Clinical, Dietary and Demographic Characteristics Interfering On Quality Of Life Of Cancer Patients. *Einstein* 16: 4. Doi : 10.31744/einstein_journal/2018AO4368

Chen, H., Gu, X., Zhang, Y., Feng, J., Gu, Y., (2021). Associated factors with constipation and health-related quality of life lung cancer patients with platinum-based chemotherapy: a cross-sectional study. *Medicine* 100(30): 1-6. Doi : 10.1097/MD.0000000000026547

Dabbous, M.K., Sakr, F.R., Bouraad, E.P., Safwan, J.H., Akel, M.G., Cherfan, M.M., (2017). Pain assessment and management in cancer patients. *Journal of Health Research and Reviews* 4(1): 8-12. Doi : 10.4103/2394-2010.199324

Damani, A., Ghoshal, A., Salins, N., Deodhar, J., Muckaden, M., (2018). Prevalence and intensity of dyspnea in advanced cancer and its impact on Quality of life. *Indian Journal of Palliative Care* 24: 44-50. Doi :10.4103/IJPC.IJPC_114_17

Daoust, R., Paquet, J., Cournoyer, A., et al (2020). Side effects from opioids used for acute pain after emergency department discharges. *Am J Emergeny Med* 38: 695-701.

Davies, A., Leach, C., Butler, C., Gregory, A., Henshaw, S., Minton, O., et al. (2021). Opioid-induced constipation in patients with cancer: a "real world", multicentre, observational study of diagnostic criteria and clinical features. *Pain* 162(1): 309-18. Doi :https://doi.org/10.1097/j.pain.0000000000002024.

Effendy, C., Vernooij-Dassen, M., Setiyarini,

S, et al. (2015). Family Caregivers' involvement in caring for a hospitalized patient with cancer and the quality of life in a country with strong family bonds. *Psycho- Oncology* 24(5): 585-591. Doi: 10.1002/pon.3701

Escalante, J., McQuade, R.M., Stojanovska, V., Nurgali, K., (2017). Impact of chemotherapy on gastrointestinal functions and the enteric nervous system. *Maturitas* 105: 23

Fayers, PM., Aaronson, NK., Bjordal, K., Groenvold, M., Curran, D., Bottomley, A. et al. (2001). *The EORTC QLQ-C30 scoring manual*. 3rd ed. Brussels, Belgium; European Organization for Research and Treatment of Cancer: 1-67.

Gayatri, D., Efremov, L., Mikolajczyk, R., Kantelhardt, E. J., (2021). Quality of life assessment and pain severity in breast cancer patients prior to palliative oncology treatment in Indonesia: A cross-sectional study. *Patients Preference and Adherence* 15: 2017-2026.

Green, S.B., (1991). How many subjects does it take to do a regression analysis. *Multivariate Behav Res* 26: 499-510.

International Agency for Research on Cancer, (2020). Globocan 2020: Estimated cancer incidence, mortality, and prevalence worldwide in 2020. Indonesia fact sheets. Available from: https://gco.iarc.fr/today/data/factsheets/populations/360-indonesia-fact -sheets.pdf

Konieczny, M., Cipora, E., Sygit, K., Fal,A., (2019). Quality of life of women with breast cancer and socio-demographic factors. *Asian Pacific Journal of Cancer Prevention* 21: 185-193. Doi : 10.31557/APJCP.2020.21.1.185

Kristanti M.S., Setiyarini, S., Effendy, C., (2017). Enhancing the quality of life for palliative care cancer patients in Indonesia through family caregivers: a pilot study of basic skills training. *BMC Palliat Care* 16(1 Doi :10.1186/s12904-016-0178-4

Lewandowska, A., Rudzki, G., Lewandowski, T., Rudzki, S. (2021). Problems and Needs of Patients Diagnosed with Cancer and Their Caregivers. *Int J Environ Res Public Health* 18(87): Doi : https://doi.org/10.3390/ijerph18010087

Liu, D., Weng, J. e, c., Wu, X., Huang, S., (2023). The relationship between cancer-related fatigue, quality of life d pain among cancer patients. *International Journal of Nursing Sciences* 10: 111-116. Doi : https://doi.org/10.1016/j.ijnss.2022.12.006

Matzka, M., Kock- Hodi, S., Mayer, H. (2018). Relationship among Symptom Clusters, Quality Of Life, and Treatment-Specific Optimism in Patients with Cancer. *Supportive Care in Cancer* 26: 2685-2693. Doi : https://doi.org/10.1007/s00520-018-4102-8

McKenzie, E., Hwang, M.K., Chan, S., Zhang, L., Zaki, P., Tsao, M. et al. (2018). Predictors of dyspnea in patients with advanced cancer. *Ann Palliat Med* 7(4): 427-436.

Meinds, R.J., van Meegdenburg, M.M., Trzpis, M, et al. (2017). On the prevalence of constipation and fecal incontinence, and their co-occurrence, in the Netherlands. *Int J Colorectal Dis* 32: 475-83.

Ministry of Health Republic of Indonesia. (2019). *Laporan Nasional R Kesehatan Dasar 2018 (National Report of Basic Health Survey 2019)*. Jakarta, Indonesi: National Institute of Health Research and Development, Ministry of Health, Republic of Indonesia.

Muthanna, F.M.S., Hassan, B.A.R., Karuppannan, M., Ibrahim, H.K., Mohammed, A.H., Abdulrahman, E.,

(2022). Prevalence and Impact of Fatigue on Quality of life (QOL) of Cancer Patients Undergoing Chemotherapy: A systematic review and mate-analysis. *Asian Pac J Cancer Prev* 24(3): 769-781. Doi: 10.31557/APJCP.2023.24.3.769

National Cancer Institute. (2022). Types of Cancer Treatment. From : https://www.cancer.gov/about-cancer/treatment/types

Nayak, M. G., George, A., Kamath, A. (2017). Quality of Life Among Cancer Patients. *Indian Journal of Palliative Care* 23(4): 445-450. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5661349/

Perwitasari, D.A., Atthobari, J., Dwiprahasto, I. (2011). Translation and validation of EORTC QLQ-C30 into Indonesiaon version for cancer patients in Indonesia. *Japanese Journal of Clinical Oncology* 41(1): 139-145.

Polanski, J., Misiag, W., Chabowski, M., (2022). Impact of loneliness on functioning in lung cancer patients. *Int J Environ Res Public Health* 19(23): 1-11. Doi :https://doi.org/10.3390/ijerph19231579 3

Ream E., Richardson, A., (1996). Fatigue: A Concept Analysis. *International Journal of Nursing Studies* 33(5): 519-529.

Rego, F., Goncalves, F., Moutinho, S., Castro, L., Nunes, R., (2020). The influence of spirituality on decision-making in palliative care outpatients: a cross-sectional stu *BMC Palliative* 19(22): 1-14. Doi : https://doi.org/10.1186/s12904-020-0525-

Rifda, D.Z., Shaluhiyah, Z., Surjoputro, A., (2023). Studi fenomenologi pasien kanker payudara dalam upaya meningkatkan kualitas hidup: literature review. *The Indonesian Journal of Health Promotion* 6(8): 1495-1500. Doi : https://doi.org/10.56338/mppki.v6i8.3513

Snijders, R. A., Brom, L., Theunissen, M., Everdingen, M.H.J. B., (2023). Update on prevalence of pain in patients with cancer 2022: A systematic literature review and Meta-Analysis. *Cancers* 15(3): 59. Doi:10.3390/cancers15030591

Solikhah, S., Ruliyandari, R., Ramdani, W., Nuraisyah, F. (2023). Identifying mental health factors of cancer patients in hospital x. *Jurnal Berkala Epidemiologi* 11(1): 92-100. Doi :https://dx.doi.org/10.20473/jbe.11i12023. 92-100

Suwonkhong, D., Liamputtong, P., (2018). Physical and Emotional Experiences of Chemotherapy: a Qualitative Study among Women with Breast Cancer in Southern Thailand. *Asian Pac J Cancer Prev* 19(2): 521-528. Doi : 10.22034/APJCP.2018.19.2.52

Ustundag, S., Zencirci, A. D. (2015). Factors affecting the quality of life of cancer patients undergoing chemotherapy: A questionnaire study. *Asian-Pacific Journal of Oncology Nursing* 2(1): 17-25. Doi: https://doi.org/10.4103/2347-5625.152402

Varrassi, G., Banerji, V., Gianni, W., Marinangeli, F., Pinto, C., (2021). Impact and consequences of opiod-induced constipation. *Surv Patients* 10: 1139-1153.

Watanabe, S. M., Nekolaichuk, C., Beaumont, C., Johnson, L., Myers, J., Strasser, F., (2011). A Multicenter Study Comparing Two Numerical Version of the Edmonton Symptom Assessment System in Palliative Care Patients. *Journal of Pain and Symptom Management* 41(2):456-468. DOI : 10.1016/j.jpainsymman.2010.04.020

World Health Organization. (2017). World

Health Organization : Cancer. Available from: http://www.who.int/mediacentre/factsheets/fs297/en/

Cite this article as: Rizka, Y., et al. (2024). Predict[49] Factors Associated Towards Quality of Life in Patients with [49]ncer: A Cross-Sectional Study. Nurse and Health: Jurnal Keperawatan, 13 (2), Pages Number. https://doi.org/10.36720/nhjk.v13i2.676

PREDICTIVE FACTORS ASSOCIATED TOWARDS QUALITY OF LIFE IN PATIENTS WITH CANCER: A CROSS-SECTIONAL STUDY

ORIGINALITY REPORT

24%
SIMILARITY INDEX

PRIMARY SOURCES

1	fis.fhwn.ac.at Internet	38 words — 1%
2	I. Vincent, D. D Herouville, P. Moulin, C. Bugler, J. Fraval, D. Mallet, M. H. Salamagne, J-L. Vilde, D. Jodelet, C. Leport. "Modalities of palliative care in hospitalized patients with advanced AIDS", AIDS Care, 2010 Crossref	30 words — 1%
3	www.acarindex.com Internet	30 words — 1%
4	5n1quality.com Internet	29 words — 1%
5	Fatma Al-Zahraa Sayed, Ayman S Mohamed, Heba Mohamed Fahmy. "Doxorubicin-loaded methoxy-intercalated kaolinite as a repackaging of doxorubicin for an enhanced breast cancer treatment: in vitro and in vivo investigation", Nanotechnology, 2024 Crossref	29 words — 1%
6	vital.seals.ac.za:8080 Internet	29 words — 1%

www.zxyjhhl.cn

7	Internet	29 words — 1%
8	Downing, G. Michael, and Theresa Downing. "ESAS, CABG, and the Personal Experience of Two Palliative Clinicians", Journal of Palliative Medicine, 2012. Crossref	28 words — 1%
9	Grace H. Wang, Casey Nesbit, Sally Rankin. "Voices of home-based palliative care community health workers in rural Malawi: A mixed methods study on factors affecting role and sustainability", Progress in Palliative Care, 2020 Crossref	28 words — 1%
10	studyexcell.com Internet	28 words — 1%
11	journal.universitaspahlawan.ac.id Internet	26 words — < 1%
12	scirp.org Internet	26 words — < 1%
13	Linda H. Eaton, Min Kyeong Jang, Mark P. Jensen, Margaret M. Heitkemper, Ardith Z. Doorenbos. "Perceptions of the effects of recorded hypnosis and relaxation interventions for cancer survivors with chronic pain", Complementary Therapies in Clinical Practice, 2024 Crossref	24 words — < 1%
14	ijstr.org Internet	24 words — < 1%
15	www.bensnaturalhealth.com Internet	24 words — < 1%

16	www.ijbel.com Internet	23 words — < 1%
17	www.jstage.jst.go.jp Internet	23 words — < 1%
18	journal.china-pharmacy.com Internet	22 words — < 1%
19	journals.uran.ua Internet	22 words — < 1%
20	media.neliti.com Internet	22 words — < 1%
21	www.world-today-news.com Internet	22 words — < 1%
22	etheses.whiterose.ac.uk Internet	21 words — < 1%
23	nlist.inflibnet.ac.in Internet	21 words — < 1%
24	erl.ucc.edu.gh:8080 Internet	20 words — < 1%
25	www.pacificorp.com Internet	20 words — < 1%
26	coek.info Internet	18 words — < 1%
27	iris.unige.it Internet	18 words — < 1%
	www.db-thueringen.de	

28	Internet	18 words — < 1%
29	www.yasuda-u.ac.jp Internet	18 words — < 1%
30	conference.unri.ac.id Internet	17 words — < 1%
31	hub.hku.hk Internet	17 words — < 1%
32	journal.ipm2kpe.or.id Internet	17 words — < 1%
33	Xuan Wang, Huiling Zeng, Li Li, Lihua Xu, Jianxin Li, Wenchao Gu, Chuyue Shen, Xiang Li, Weijun Shi, Li Xie. "Nutritional guidance needs and influence factors for gastric cancer survivors in primary healthcare setting: a cross-sectional survey", Supportive Care in Cancer, 2024 Crossref	16 words — < 1%
34	journals.rcni.com Internet	16 words — < 1%
35	www.herminahospitals.com Internet	16 words — < 1%
36	www.memesita.com Internet	16 words — < 1%
37	Yeon Hee Park, Se-Hoon Lee, Won Seog Kim, Soo-Mee Bang et al. "CHOP followed by involved field radiotherapy for localized primary gastric diffuse large B-cell lymphoma: Results of a multi center phase II study and quality of life evaluation", Leukemia & Lymphoma, 2009 Crossref	15 words — < 1%

38	banglajol.info Internet	15 words — < 1%
39	ksascholar.dri.sa Internet	15 words — < 1%
40	sapientia.ualg.pt Internet	15 words — < 1%
41	lumsa.it Internet	14 words — < 1%
42	www.grafiati.com Internet	14 words — < 1%
43	www.scilit.net Internet	14 words — < 1%
44	Chika Yamada, Youdiil Ophinni, Hervita Diatri. "Chapter 56-1 Social Exclusion Among People with Mental Health Conditions in Indonesia", Springer Science and Business Media LLC, 2021 Crossref	13 words — < 1%
45	digitalcommons.fiu.edu Internet	13 words — < 1%
46	kjcn.or.kr Internet	13 words — < 1%
47	pasadena.edu Internet	13 words — < 1%
48	Jing Han, Li Zhang, Yao Zhang, Ruijin Tang. "The Mediating Effect of Positive Illness Cognitions on Experiential Avoidance and Quality of Life in Breast Cancer Patients", Asia-Pacific Journal of Oncology Nursing, 2021	12 words — < 1%

Crossref

49	Sulthan Alvin Faiz Bara Mentari. "Faktor Risiko Demam Berdarah di Indonesia", Jurnal Manajemen Kesehatan Yayasan RS.Dr. Soetomo, 2023 Crossref	12 words — < 1%
50	addictionresource.com Internet	12 words — < 1%
51	www.gastrohep.net Internet	12 words — < 1%
52	www.pfizer.com Internet	12 words — < 1%
53	balimedicaljournal.org Internet	11 words — < 1%
54	ejournal.unsrat.ac.id Internet	11 words — < 1%
55	prin.or.id Internet	11 words — < 1%
56	ricerca.univaq.it Internet	11 words — < 1%
57	www.books.aisc.ucla.edu Internet	11 words — < 1%
58	Arthur G. Lipman. "Evidence Based Symptom Control in Palliative Care - Systemic Reviews and Validated Clinical Practice Guidelines for 15 Common Problems in Patients with", CRC Press, 2019 Publications	10 words — < 1%

jip.polinema.ac.id

59	Internet	10 words — < 1%
60	journalofsocialsciences.org Internet	10 words — < 1%
61	koomeshjournal.semums.ac.ir Internet	10 words — < 1%
62	scholarhub.uny.ac.id Internet	10 words — < 1%
63	Casey Burkholder, Jennifer A. Thompson. "Fieldnotes in Qualitative Education and Social Science Research - Approaches, Practices and Ethical Considerations", Routledge, 2020 Publications	9 words — < 1%
64	Kersti Theander, Christina Cliffordson, Olof Torstensson, Per Jakobsson, Mitra Unosson. "Fatigue Impact Scale: Its validation in patients with chronic obstructive pulmonary disease", Psychology, Health & Medicine, 2007 Crossref	9 words — < 1%
65	Markku T. Hillilä, Matti T. Siivola, Martti A. Färkkilä. "Comorbidity and use of health-care services among irritable bowel syndrome sufferers", Scandinavian Journal of Gastroenterology, 2009 Crossref	9 words — < 1%
66	journal.ipb.ac.id Internet	9 words — < 1%
67	komunitassehat.com Internet	9 words — < 1%

68	periodicos.unisa.br Internet	9 words — < 1%
69	pure.ulster.ac.uk Internet	9 words — < 1%
70	wjcmpr.com Internet	9 words — < 1%
71	www.tobaccoinaustralia.org.au Internet	9 words — < 1%
72	api.repository.cam.ac.uk Internet	8 words — < 1%
73	johe.rums.ac.ir Internet	8 words — < 1%
74	jurcon.ums.edu.my Internet	8 words — < 1%
75	mji.ui.ac.id Internet	8 words — < 1%
76	repositori.stikes-ppni.ac.id:8080 Internet	8 words — < 1%
77	repository.library.noaa.gov Internet	8 words — < 1%
78	www.diva-portal.se Internet	8 words — < 1%
79	www.journals.aserspublishing.eu Internet	8 words — < 1%

80 Judi Byrne, Penny McNamara, Jane Seymour, Pam McClinton. "Palliative Care in Neurological Disease - A Team Approach", CRC Press, 2021 — 7 words — < 1%
Publications

81 Garry Tew, Laura Wiley, Lesley Ward, Jess Hugill-Jones et al. "Effectiveness and cost-effectiveness of offering a chair-based yoga programme in addition to usual care in older adults with multiple long-term conditions: a pragmatic, parallel group, open label, randomised controlled trial", NIHR Open Research, 2024 — 6 words — < 1%
Crossref

82 Maria Wysocka, Anna Kieszkowska-Grudny, Jakub Klimkiewicz, Jerzy Jarosz et al. "Between “opioidophobia” and the opioid crisis: a cross-sectional comparison of opinions on opioid analgesic treatment between palliative care patients with cancer and physicians in Poland", Oncology in Clinical Practice, 2023 — 6 words — < 1%
Crossref

EXCLUDE QUOTES	OFF	EXCLUDE SOURCES	OFF
EXCLUDE BIBLIOGRAPHY	OFF	EXCLUDE MATCHES	OFF