

# DEPRESSION AND QUALITY OF LIFE AMONG LEUKEMIA PATIENTS AT TEACHING HOSPITAL IN KELANTAN, MALAYSIA

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## ABSTRACT

**Introduction:** Leukemia is a cancer that begins to develop in blood cells, which is producing abnormal cells. Depression is the most common symptom encountered by leukemia patients. Depression experienced by leukemia patients is not the same as that experienced by normal people daily, and it affects different aspects of quality of life (QOL). **Aim:** This study is designed to determine the level of depression and quality of life among leukemia patients at a teaching university in Kelantan, Malaysia. **Methods:** A descriptive cross-sectional design was conducted among leukemia patients at a teaching hospital in Kelantan, Malaysia using self-administered questionnaires. A total of 40 patients were selected using a random sampling technique. **Results:** Most of the participants in this study had a higher level of depression (87.5%). However, the overall level of quality of life in this study was good with the highest mean of domain scales. **Conclusion:** The study results can be used as baseline information to determine the level of depression and level of quality of life among leukemia patients in Malaysia's health care settings. **Recommendations:** Nurses play an essential role in helping leukemia patients manage their depression not to affect their quality of life.

**Keywords:** *Depression; Quality of Life; Leukemia Patient; Teaching Hospital*

## INTRODUCTION

Leukemia is a cancer that begins to develop in blood cells, which is producing abnormal cells. The abnormal cell cannot produce white blood cells well. Leukemia cell begins to divide and produces copies of them. The leukemia cell did not die even they were old and damaged. The leukemia cells build up more and more, and they conquer the normal blood cells in the blood vessel. Therefore, the number of blood cells becomes low, making it harder for them to get oxygen and avoid infections. They also spread to other organs of the body, such as lymph nodes (Ray, 2012).

As the leukemia patient, prominently most patients complained of lack of energy, fever, loss of the sense of well-being, bone or joint pain, excessive night sweats, nosebleeds, bruising, infections, fatigue, and paleness, headaches, frequent infections, loss of appetite and weight loss, fevers and night sweats, and easily bleeding resulting from the disease treatment. Therefore, it can lead to depression because they have limited activities to do in their daily lives (Bseiso, & Thabet, 2017). When the

patients have long-term effects, the quality of life of the patient is diminished, especially during treatment, and reported an increased incidence of depression (Sertel *et al.*, 2017).

Many previous studies showed that patients with leukemia have significantly lower social, physical, emotional, and well-being. Some studies also mentioned that long-term survivors of leukemia patients experienced many problems with symptoms of depression compared to healthy people. They also reported that depression had remained significantly associated with low quality of life (Baytan *et al.*, 2016).

Some findings indicate that patients report the lowest functioning and highest levels of depression during hospitalization or upon discharge (Pillay *et al.*, 2015). This study showed the leukemia patients were experiencing emotional pre and post-treatment. The previous study showed that Sri Lankan populations have a negative impact on the nuclear family of leukemia patients and their quality of life. It provides useful evidence on this research to better identify the physical

and psychosocial needs of this highly vulnerable population to design and implement culturally sensitive interventions to provide psychosocial support (Pathirana, 2015).

The adverse effect of chemotherapy or radiotherapy commonly faced by the leukemia patient was nausea, vomiting, loss of appetite, hair loss, pain, weakness, fatigue, and infections. These effects impair patients' quality of life and induce psychological problems (Sertel *et al.*, 2017). Furthermore, another study also proved that leukemia patients taking medications experienced more depression, more fatigue, more significant symptom burden, and worse physical quality of life (Phillips *et al.*, 2013).

## METHODOLOGY

This study utilized a descriptive cross-sectional study design to assess the level of depression and quality of life among leukemia patients at a teaching hospital in Kelantan, Malaysia. Data in this study were collected from the participants using self-reported questionnaires. Respondents in this study were recruited using a simple random sampling method. The respondents were selected among those who fulfilled the inclusion criteria of the study.

A self-administered questionnaire was used in this study. The questionnaire was adapted using the Beck Depression and the quality of life core questionnaire, the WHOQOL-BREF (Hasanah, Naing & Rahman, 2003). The questionnaire consists of three main sections. Section one consists of socio-demographic data that include gender, race, education level, marital status, employment status, and leukemia type. Section two consists of items to measure the level of depression, and section three was measuring the quality of life of the patients.

The researchers obtained ethical permission to carry out the study. Prior to the study, all the participants are given adequate information about this study, the risk factor, their right to voluntary participation, and the right to discontinue the study at any time without penalty or loss of benefits to which participant was otherwise entitled. The participants were given written consent to participate in this research, and a signed research contract was confirmed.

The process of analyzing the data contained in the questionnaire begins with the preparation of the completed questionnaires. Questionnaires that have been completed were encoded and entered in the Statistical

Package for Social Science (SPSS, Version 24) for analysis. Descriptive statistics such as frequency and percentage were used to determine the level of depression and level of quality of life among patients with leukemia at the teaching hospital in Kelantan, Malaysia. Meanwhile, Pearson's Chi-Square test was carried out to analyze the relationship between the level of depression and the quality of life among patients with leukemia at the teaching hospital in Kelantan, Malaysia. The significance level was set at a  $p$ -value  $\leq 0.05$  for all statistical analyses.

## RESULTS

### Socio-Demographic Characteristics

A total of 40 patients with leukemia at a teaching hospital in Kelantan, Malaysia were recruited into this study. Table 1 illustrates the socio-demographic characteristics of the participants in terms of frequency and percentage distribution. In this study, majority of the participants were older ( $n=29$ , 72.5%), female ( $n=26$ , 65%) and have low education ( $n=30$ , 75%). Most of the participants were Malaysian ( $n=39$ , 97.5%), with spouse ( $n=24$ , 60%), and have unemployed ( $n=27$ , 67.5%).

**Table 1: Socio-Demographic Characteristics of Participants ( $n=40$ )**

Socio-Demographic	n	%
<b>Age</b>		
Young	11	27.5
Older	29	72.5
<b>Race</b>		
Malay	39	97.5
Chinese	1	2.5
<b>Gender</b>		
Male	14	35
Female	26	65
<b>Marital Status</b>		
Without spouse	16	40
Spouse	24	60
<b>Education Level</b>		
High education	10	25
Low education	30	75
<b>Employment Status</b>		
Employed	13	32.5
Unemployed	27	67.5

### Level of Depression among Leukemia Patients

Table 2 shows the level of depression among the patient with leukemia at a teaching hospital in Kelantan, Malaysia. Most of the participants ( $n=35$ , 87.5%) have a high level of depression, with only 12.5% experienced a low level of depression. The mean level of depression in

this study is 46.1 (S.D 4.65).

**Table 2: Level of Depression among Leukemia Patients (n=40)**

Level of depression	n	%	Mean (SD)
Low depression	5	12.5	46.1 (4.65)
High depression	35	87.5	

**Level of Quality of Life among Leukemia Patients**

The results for the quality of life among leukemia patients are presented in Table 3. The level of quality of life is measured based on domain scales, which consist of physical health, psychological, social relationships, and environment.

The result showed that the level of quality of life was poor in domain three scales where the participants scored low in social relationships (n= 40, 100%). On the other domain scales, most participants scored higher in physical health and psychological (n=38, 95%). The last scale was domain four that measured the quality of life in terms of environment, and the result also scored higher (n=39, 97.5%).

However, the overall level of quality of life in this study is good, with the highest mean recorded by WHOQOL-BREF 96.1 (SD 19.6).

**Table 3: Level of Quality of Life among Leukemia Patients (n=40)**

Variables	Level of QOL, n (%)		Mean (SD)
	Good QOL ≥ 60 %	Poor QOL ≤ 60 %	
Physical Health	38 (95)	2 (5.0)	85.8 (14.11)
Psychological	38 (95)	2 (5.0)	76.9 (10.23)
Social Relationships	0 (0)	40 (100)	36.7 (7.73)
Environment	39 (97.5)	1 (2.5)	96.1 (19.6)

**Association between Level of Depression and Level of Quality of Life**

There was no significant association between the level of depression and the level of QOL (p=0.609). The associations are tabulated in table 4 below.

**Table 4: Association between the Level of Depression and Level of QOL (n=40)**

Variables	n (%) Level of depression		P values*
	High	Low	
<b>Level of QOL</b>			
Good	34(85.0)	5(12.5)	0.609
Poor	1(2.5)	0(0)	

\*Pearson Chi-Square

**DISCUSSION**

**Level of Depression among Leukemia Patients**

The level of depression in this study showed that more participants experienced a high level of depression with a mean of 46.08 (SD 4.65). The participants of 35 (87.5%) have a higher level of depression. These findings are in accordance with many studies conducted on leukemia patients that experienced depression, where the level of depression was found to be higher and more severe (Rivas-Molina *et al.*, 2015).

According to Gheihman *et al.*, (2015), they found clinically significant depressive symptoms in 17.8% of the sample. In 40.4% of these depressed individuals, the symptoms were moderate to severe in intensity. However, after the completion of chemotherapy, the frequency of at-risk or clinically significant depression scores was greater than the frequency expected based on children's normative population (15%). Specifically, approximately 24% of survivors demonstrated 29% displayed clinically significant elevations in depression (P=0.001) (Kunin-batson *et al.*, 2016).

The recommendation from Klepin *et al.*, (2011) also highlights that depression among leukemia patients should be assessed with geriatric assessment measures included cognitive function, psychological function, and physical function. The acute and aggressive nature of Acute Myeloid Leukemia (AML) and intense treatments can profoundly stress older adults' reserve capacity. Due to poor treatment outcomes in older adults, there is no consensus regarding optimal treatment.

**Level of Quality of Life among Leukemia Patients**

Leukemia patients in this study mostly showed a good level of quality of life, with the highest mean recorded for domain scales/QOL being 77.73 (SD 11.90). The score obtained is similar in previous studies. But the difference to this study, the deficit in HRQL during active treatment was equivalent to losing approximately two months of life in perfect health, with 86% of the loss during intensification and continuation phases. The patients with a low functional quality of life but favorable in the Eastern Cooperative Oncology Group (ECOG) performance group have shorter survival compared to the patient with a good functional quality of life and even have the same treatment (Furlong *et al.*, 2012).

The poorer quality of life because of the patients

mostly undergoing the treatment were fatigued (Oliva *et al.*, 2011). Another study found that a poorer quality of life because of depression, anxiety, and fatigue. A previous study said that treated patients were found to have lower physical and functional well-being than untreated patients and more fatigue, but higher social/family and emotional well-being, with a similar overall quality of life (Allart, Soubeyran & Cousson-gélie, 2013).

The patient has a good quality of life because of the health care services offered that ensured compliance and follow-up among leukemia patients. Then, the health care systems also provided the treatments to all patients with chronic diseases, and completion of the treatment was a significant predictive for a better quality of life (Ramadas *et al.*, 2015).

#### **Association between the Level of Depression and level of Quality of Life**

The association between the level of depression and quality of life in this study was not significant ( $p=0.609$ ). This finding is in contrast to the study conducted by Dujmović *et al.*, (2017). For leukemia patients, changes in depression level will affect their physical health, psychological, social relationships, environment and interfere with their daily activities. A study by Castro-Marrero *et al.*, (2018) showed that more exhausted patients reported significantly higher levels of depression, pain, sleep disturbance, and low level of quality of life.

Most of the participants in this study have a low level of functional scale. The inverse association occurs because patients in this study received treatment like chemotherapy and radiotherapy. As a result, the patients felt pain, fatigue, and depression after the treatment and showed a poorer quality of life. The environment also played an essential role in changing the patient's level of quality of life, whether the patient has a positive perception during the treatment. For example, they accepted their physical appearance after chemotherapy, such as hair loss. They also believed that if they continuously received treatment, they are likely to have a better level of quality of life despite having multiple symptoms, like pain can be effectively managed (Yoon, 2015).

#### **CONCLUSION**

In this study, majority of the participants are female (n=26, 65.0%), older age (n= 29, 72.5 %), unemployed

(n= 27, 67.5%). Most of the participants are Malaysian (n= 39, 97.5%), have low education (n= 30, 75.0%) and with spouse (n=24, 60.0 %).

Most of the study participants have a higher level of depression (n=35, 87.5%). The level of quality of life is also poor in third domain scales, which is a social relationship involving all participants (n=40, 100%). The other domain scales are scored higher level such as physical health (n=38, 95%), psychological (n= 38, 95%) and environment (n= 39, 97.5%). However, the overalls level of quality of life in this study is good, with the highest mean of domain scales / QOL 77.73 (SD 11.90).

The finding of this study has an important implication in nursing practice. Nurses play an essential role in ensuring that leukemia patients' level of depression will not interfere with their daily activities. Nurses also play an essential role in helping cancer leukemia patients manage their depression not to affect their quality of life. They also need to equip themselves with the knowledge and the tools available to measure depression. Determining the level of depression is important, as depression is the most common symptom experienced by leukemia patients because prompt management can be taken when depression is detected. Quick assessment and evaluation of depression will provide leukemia patients the chance to manage their depression and a better quality of life.

Educating the patients on how effectively to manage their depression is important to prevent the symptoms from worsening and affecting the quality of life because severe depressions have been shown to cause disabilities among leukemia patients. Besides, education on depression to the caregivers, such as family members and friends, is as important as educating the patients because caregivers' roles in helping leukemia patients cope with the disease and the symptoms are apparent.

#### **Conflict of Interests**

The authors declare that they have no conflict of interests.

#### **Authors' Contributions**

Nur Fakhriyah Razali conceived the idea, design, data collection, data analysis, and writing. Nur Adibah Solihin Sulaiman did the writing, review the study, drafting the manuscript and revising it critically for important intellectual content, and give final approval of

the version to be published.

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