

# Application of Psychological Nursing Intervention to Patients with Leukemia Chemotherapy

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## To cite this article:

Kuangyi Song, Hong Xiao. Application of Psychological Nursing Intervention to Patients with Leukemia Chemotherapy. *American Journal of Nursing Science*. Vol. 10, No. 1, 2021, pp. 91-94. doi: 10.11648/j.ajns.20211001.27

**Received:** January 16, 2021; **Accepted:** February 15, 2021; **Published:** February 26, 2021

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**Abstract:** Background: In leukemia chemotherapy, leukemia is considered one of the most important diseases in medical field. Also, nursing intervention has been shown to be one of key factors as it can improve the mood of depression and anxiety of patients. Objective: To assess application of psychological nursing intervention to patients with leukemia chemotherapy. Methods: This study is a horizontal comparative, that we assess the application of psychological nursing intervention to patients with leukemia chemotherapy by comparison of mental status of patients and their satisfaction. we collected valid data from 138 patients with leukemia chemotherapy. We randomly assigned patients to two groups: the control group received conventional nursing intervention, and the intervention group received psychological nursing intervention on the basis of conventional nursing intervention. Besides, the data were collected from medical records of patient and some questionnaire, the questionnaire contrasted Self-Rating Anxiety Scale (SAS), Self-rating depression scale (SDS) and satisfaction assessment questionnaire. Result: In patient characteristics, there were no significant differences in age, gender and course factors between the two groups [ $38.69 \pm 15.21$  vs  $40.90 \pm 11.87$ , 26 (66.7%) vs 37 (94.9%),  $5.25 \pm 5.01$  vs  $6.05 \pm 5.26$ ,  $p > 0.05$ ]. Additionally, the intervention group had lower assessments of SDS and SAS compare with control group, it means that intervention group had better mental health after carrying out nursing intervention ( $41.5 \pm 8.82$  vs  $53.4 \pm 10.44$ ,  $49.65 \pm 9.45$  vs  $40.25 \pm 5.11$ ). base on satisfaction assessment, intervention group had 97.1% of satisfaction rate, it was significant differences for satisfaction rate of control group (97.1% vs 85.5%,  $p < 0.05$ ). Conclusion: psychological nursing intervention had better effect in improvement of mental health in treatment of the patients with leukemia chemotherapy.

**Keywords:** Leukemia, Chemotherapy, Nursing

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## 1. Introduction

Leukaemia is a heterogeneous group in blood-related cancers, that patients' blast cells of bone marrow were observed to abnormal proliferation. The cause of death in patients is usually replacement of normal cells and decrease of the three haematopoietic lines in peripheral blood [1, 2]. In some reports, leukemia is considered one of the most important diseases in medical field, because it ranks 11th in morbidity and 10th in mortality worldwide [3-5]. Base on the report, more than 300,000 people died of leukemia in 2018 [6]. Due to the patients' abnormal growth in white blood cells are not in control while these are crossover and multiply with each other in the blood, the patients with leukemia often received chemotherapy [7]. Therefore, the patients required nursing

intervention to improve their pain and mental health in chemotherapy process.

Some researchers think that nursing intervention can effectively improve the mental health of patients, especially during treatment [8, 9]. However, the results of some studies were inconsistent and there were significant differences in the data [10, 11]. In leukemia chemotherapy, nursing intervention has been shown to be one of key factors as it can improve the mood of depression and anxiety of patients. For instance, Zhang's report showed diversified nursing intervention effectively improved the assessment of depression and anxiety in patients with leukemia [12]. Therefore, the study of impact of psychological nursing intervention to patients with leukemia chemotherapy is necessary. The aim of this study was to evaluate application of psychological nursing

intervention to patients with leukemia chemotherapy.

## 2. Methods

### 2.1. Participants Enrollment and Survey Methods

The patients who were diagnosed as leukemia and will received chemotherapy were invited to join this study. This study is a horizontal comparative, that we assess the application of psychological nursing intervention to patients with leukemia chemotherapy by comparison of mental status of patients and their satisfaction. From July 2019 to January 2021, 160 patients who meet the criteria participate in study, but 22 patients lack necessary information, so we only collected valid data from 138 patients with leukemia chemotherapy. On the basis of voluntary in patients, participants were randomly assigned to either an intervention or a control group. We provide common nursing intervention to control group participants during chemotherapy. On the other hand, intervention group participants received psychological nursing intervention. The data were collected from medical records of patient and some questionnaire, the questionnaire contrasted Self-Rating Anxiety Scale (SAS), Self-rating depression scale (SDS) and satisfaction assessment questionnaire [13, 14].

In psychological nursing intervention, its specific nursing measures are as follows: First, we periodically monitor the patient's mental health. Second, we provide knowledge to patients to improve their understanding of leukemia and chemotherapy. Third, participants' families are encouraged to

communicate with them.

Inclusion criteria of this study include: (1) Patients were diagnosed as leukemia; (2) patients received chemotherapy treatment; (3) Patients underwent a full course of treatment and were willing to complete the questionnaire. The withdraw criteria of this study include: (1) The patient had severe complications; (2) The patient had a history of associated blood disorders; (3) The patient had other blood disorders, such as anemia; (4) Patients died during the study period.

### 2.2. Statistical Analysis

We used SPSS 22.0 software to perform statistical analyses. In this study, we described continuous variables accord with normal distribution by the means with standard deviation (SD). The t-test and chi-squared test was applied to compare the categorical variables. Of those, alpha level of 0.05 was used to consider statistically significant in result of this study.

## 3. Result

During this study, 138 patients with leukemia chemotherapy provide their information to us. Their average ages were  $38.69 \pm 15.21$ , and  $40.90 \pm 11.87$  years old in control group participants, intervention group participants, but their ages were no significant differences ( $p > 0.05$ ). besides, there were no significant differences in gender and course factors between the two groups [ $26 (66.7\%)$  vs  $37 (94.9\%)$ ,  $5.25 \pm 5.01$  vs  $6.05 \pm 5.26$ ,  $p > 0.05$ ].

Table 1. Patient characteristics (Mean $\pm$ SD).

Item	Age (year)	Gender (female)	Course of the disease (year)
Control group (n = 69)	$38.69 \pm 15.21$	26 (66.7%)	$5.25 \pm 5.01$
Intervention group (n = 69)	$40.90 \pm 11.87$	37 (94.9%)	$6.05 \pm 5.26$
t	0.755	6.56	0.857
P value	> 0.05	> 0.05	> 0.05

In Table 2, the assessments of SDS and SAS had downward trend during nursing intervention, the intervention group had lower assessments of SDS and SAS compare with control group, it means that intervention group had better mental health after carrying out nursing intervention ( $41.5 \pm 8.82$  vs  $53.4 \pm 10.44$ ,  $49.65 \pm 9.45$  vs  $40.25 \pm 5.11$ ).

Table 2. The score of anxiety and depression from SDS and SAS (Mean  $\pm$  SD).

Item	SAS		SDS	
	BN	AN	BN	AN
Control Group (n = 69)	$65.375 \pm 5.67$	$53.4 \pm 10.44$	$61.4 \pm 8.28$	$49.65 \pm 9.45$
Intervention Group (n = 69)	$64.625 \pm 8.03$	$41.5 \pm 8.82$	$62.125 \pm 6.17$	$40.25 \pm 5.11$
P Value	> 0.05	< 0.05	> 0.05	< 0.005

Before nursing intervention = BN

After nursing intervention = AN

The Table 3 blew shows the satisfaction assessment of patients after carrying out nursing intervention. Most satisfaction assessments were great satisfaction in both of groups, but intervention group participants provide more great satisfaction assessment in this study than those with control group (38 vs 45,  $p < 0.005$ ). In general satisfaction

assessment, control group had 21 cases, that was more than that of intervention, and they were significant differences (21 vs 12,  $p < 0.005$ ). As for satisfaction rate, intervention group had 97.1% of satisfaction rate, it was significant differences for satisfaction rate of control group (97.1% vs 85.5%,  $p < 0.05$ ).

Table 3. Satisfaction assessment of patients.

	great satisfaction (case)	general satisfaction (case)	Dissatisfaction (case)	Satisfaction rate (%)
Control group (n = 69)	38	21	10	85.5%
Intervention group (n = 69)	45	12	2	97.1%
t	19.454	12.673	24.912	7.915
P value	< 0.005	< 0.005	< 0.005	< 0.05

## 4. Discussion

Base on the valid data of this study, we observed the patients with leukemia chemotherapy who were no significant differences in characteristics, and  $53.4 \pm 10.44$  of anxiety assessment,  $41.5 \pm 8.82$  of anxiety assessment,  $49.65 \pm 9.45$  of depression assessment,  $40.25 \pm 5.11$  of depression assessment in control group and intervention group. Of those, although common nursing intervention provide improvement effect in anxiety and depression of patients with leukemia chemotherapy, the participants still had risks of mental health. Moreover, the participants who received psychological nursing intervention had better performance in mental health compare with control group participants as psychological nursing intervention provide more psychological intervention measures in treatment. Because patients can relieve their own pressure in communication or pouring out with others. This result was similar to Cha's report, the report indicated proper communication can reduce the psychological pressure of patients by WeChat [15]. In addition, psychological nursing intervention also improved patients' satisfaction. Although participants who received common nursing intervention provide 85.5% of satisfaction rate, 10 participants still were not satisfied with nursing interventions. The participants who received psychological nursing intervention had 97.1% of satisfaction rate, only 2 participants were not satisfied with nursing interventions, and most participants were very satisfied with this nursing intervention. It means that patients with leukemia chemotherapy prefer psychological nursing interventions.

In limitation, although the results of this study are robust, we lack other kinds of data to further analyze the impact of psychological care on patient recovery and treatment outcomes.

## 5. Conclusion

In conclusion, psychological nursing intervention had better effect in improvement of mental health in treatment of the patients with leukemia chemotherapy. Although common nursing intervention also provide help to the patients in mental health, mental health of the patients still had risk in treatment. psychological nursing intervention provide better help to the patients compare with common nursing intervention.

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