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## Assessment of Nurse's Knowledge About Management of Chemotherapy Side Effects in Al-Amal Center for Oncology-Taiz, Yemen

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### Abstract:

**The aim of study:** to assess nurse's knowledge about the management of chemotherapy side effects in Al-Amal Center for Oncology-Taiz, Yemen. **Method:** A descriptive cross-sectional study design with a total converge sampling method was used to assess 26 nurses at the selecting sitting. One tool was utilized for data collection: Structure interview questionnaire It consists of two parts: demographic characteristics and a knowledge questionnaire sheet. Data has been collected, computed, and statically analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0.0. **Results:** most (61. 5%) of nurses were male and belonged to the age group of 25–30 years (65.4%). More than a third (38.5%) of them had more than five years of experience in chemotherapy. Most (50%) of the nurses had good knowledge and (34.6%) of the nurses had moderate knowledge about the management of chemotherapy side effects.

**Consolation:** Half of nurses had good knowledge about the management of chemotherapy side effects.

**Keywords:** Nurse, Knowledge, Chemotherapy, Side effect.

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## Introduction

Presently, there are approximately 35,000 Yemenis suffering from cancer, and more than 11,000 are newly diagnosed with the disease annually, which means they receive chemotherapy to destroy cancer cells and inhibit the growth and spread of cancerous cells<sup>(1-3)</sup>.

Although chemotherapy is an essential treatment for cancer patients, it has so many disadvantages, which include hair loss, nausea, vomiting, fatigue, increased likelihood of bruising and bleeding, infections, and anemia, furthermore, these side effects depend on the type of drug, dose, frequency, and duration of chemotherapy, however, most chemotherapy side effects can be prevented or minimized<sup>(4-6)</sup>.

Nurses and health care providers are responsible for managing and relieving the chemotherapy adverse effects and promoting proper care for the patients, but a knowledge deficit about chemotherapy treatment and different procedures to manage associated adverse effects may increase the chance of hospital admissions, increased morbidity, and reduced quality of life among surviving patients<sup>(7-9)</sup>.

The knowledge of nurses about the management of chemotherapy side effects plays an important role in alleviating patient suffering and providing adequate informational support to the patient and family. Furthermore, no evaluation study of a nurse's knowledge about the management of chemotherapy side effects has been reported until date in Yemen. Thus, this study was conducted to assess the nurse's knowledge about the management of chemotherapy side effects.

## Aim of the study

To assess nurse's knowledge about the management of chemotherapy side effects in Al-Amal Center for Oncology-Taiz

## Research Questions

What is the knowledge level of nurses about the management of side effects of chemotherapy?

## Materials and Methods

### Study design and data sources

A descriptive cross-sectional study design was utilized. The study was conducted in Al-Amal Center for Oncology-Taiz City. The nurses were 26. Total

converge sampling method was used for selection. A structure interview questionnaire sheet was utilized for data collection. It consists of two parts:

Part I: Demographic Characteristics, which include: age (year), sex, department of work, educational level, years of experience and training courses toward chemotherapy.

Part II: The knowledge of nurses towards the management of chemotherapy side effects was designed by the researchers based on the literature review<sup>(2,10-12)</sup>. There were 43 questions, divided into the following: 7 questions regarding side effects of chemotherapy, 1 question regarding the interval between chemotherapy doses, 1 question regarding the onset of chemotherapy side effects, 5 questions regarding the management of diarrhea, 5 questions regarding the management of anemia, 5 questions regarding the management of alopecia, 6 questions regarding the management of nausea and vomiting, 7 questions regarding the management of thrombocytopenia, 5 questions regarding the management of mucositis, and 1 question regarding the importance of follow up after chemotherapy.

## Scoring system

The scores for knowledge regarding the management of chemotherapy side effects were given a score of 1 for right responses and a zero for wrong responses. The total scores for the knowledge regarding chemotherapy side effects management (43 scores) were classified into the following: the score (30-43) indicates a good level of knowledge; a score (20-29) means a participant has moderate knowledge; and a score (19 or less) reveals a poor level of knowledge.

## Data collection

The data was collected during May to June 2022, where a good relationship was maintained throughout the data collection period. The questionnaire was prepared in English and translated from English to Arabic using translation. All nurses in Al-Amal Center for Oncology-Taiz received a questionnaire in Arabic. If some of the items in the questionnaire are unclear to a participant, the researcher clarifies the miss understand. The questionnaires were filled out in the presence of the researcher, and the participants were free to ask any questions or clarifications. All data collected by researcher was checked daily for completeness. A research panel (5 academic staff) reviewed the questionnaire, which was checked for

suitability, clarity, and understandable wording in the context. Cronbach's alpha coefficient was used to determine the reliability of the tool, and its values were (0.72). It was tested in a pilot study with 15 oncology nurses; the results were included in the main study.

### Ethics statement

The researchers obtained consent to conduct research from the faculty of Medical Sciences, Aljanad University for Science & Technology. Approval obtained from the health office in Taiz city and from the administration of Al-Amal Center for Oncology-Taiz as well. The purpose and objectives of the research were explained to the participants, and they have a right to withdraw at any time without affecting their job and without any deprivation. With informed oral consent obtained from each participant, the participant has a right to gain benefit from the author's knowledge and skills.

### Statistical analysis

Data has been collected, computed, and statically analyzed using the Statistical Package for Social Sciences (SPSS) version 21.0.0. Both descriptive and inferential statistics were used. The data is presented in the form of tables of frequencies, percentages, means, and standard deviations for quantitative variables. One sample t-test, and ANOVA t-test were used for the detection of significant differences among participants' demographic variables with regard to the total score of knowledge. The 0.05 level was used as the cut off value for statistical significance ( $p\text{-value} \leq 0.05$ ) at 95% CI.

## Results

### Sociodemographic data of nurses

A total of 26 nurses participated in the study. It appears that (61.5%) of participants were male, and (65.4%) of them were aged 25–30 years old. More than half (53.8%) of participants had bachelor's degrees in nursing, while 42.3% had a diploma as an educational level. The majority of nurses work in the chemotherapy department (88.5%), and nearly (38.5%) of nurses have more than five years of

experience in chemotherapy. Most (65.4%) nurses had received training on chemotherapy.

**Table 1.** Distribution of study group according demographic variables (n=26)

Demographic variables		Frequency	Percent
Gender	Male	16	61.5
	Female	10	38.5
	Total	26	100.0
Age	20-25 yrs	3	11.5
	25-30 yrs	17	65.4
	>30 yrs	6	23.1
	Total	26	100.0
Educational level	Diploma	11	42.3
	Bachelors	14	53.8
	Postgraduate	1	3.8
	Total	26	100.0
Experience	<2 years	7	26.9
	2-5 years	9	34.6
	>5 years	10	38.5
	Total	26	100.0
Receive training	Yes	17	65.4
	No	9	34.6
	Total	26	100.0
Department of work	Surgery	2	7.7
	Radiation	1	3.8
	Chemotherapy	23	88.5
	Total	26	100.0

### Knowledge of nurses

According to table 2, most (50%) of nurses had a good knowledge level about the management of chemotherapy side effects; (34.6%) of nurses had a moderate level of knowledge; and nearly 15.4% of nurses had a poor level of knowledge about the management of chemotherapy side effects.

**Table 2.** Distribution of study group according to level of nurse's knowledge about management of chemotherapy side effect (n=26)

Knowledge level	Frequency	Percent
Good	13	50.0
Moderate	9	34.6

Poor	4	15.4
Total	26	100.0

Table 3 showed the difference in a nurse's knowledge score about the management of chemotherapy side effects according to gender presentation. Females showed a higher score than males. This finding was statistically significant ( $p = 0.04$ ). There was a statistically significant difference between demographic variables regarding years of experience and knowledge level ( $p = 0.000$ ).

**Table 3.** The association between nurse's knowledge and demographic variables.

Demographic variables		N	Knowledge's Mean	Std. Deviation	P value
Gender	Male	16	26.25	$\pm 6.90$	0.04
	Female	10	31.20	$\pm 3.58$	
	Total	26	28.15	$\pm 6.27$	
Age	20-25 yrs	3	28.00	$\pm 8.19$	0.256
	25-30 yrs	17	29.47	$\pm 5.48$	
	>30 yrs	6	24.50	$\pm 7.18$	
	Total	26	28.15	$\pm 6.27$	
Educational level	Diploma	11	28.64	$\pm 6.62$	0.790
	Bachelors	14	28.07	$\pm 6.3$	
	Postgraduate	1	24.00	$\pm 7.08$	
	Total	26	28.15	$\pm 6.27$	
Experience	<2 years	7	22.00	$\pm 4.61$	0.000
	2-5 years	9	27.78	$\pm 4.68$	
	>5 years	10	32.80	$\pm 4.66$	
	Total	26	28.15	$\pm 6.27$	
Receive training	Yes	17	28.29	$\pm 6.79$	0.879
	No	9	27.89	$\pm 5.49$	
	Total	26	28.15	$\pm 6.27$	

## Discussion

Nurses, especially oncology nurses, play a critical role in the assessment and management of chemotherapy side effects. But they need the knowledge and skills to do that optimally. Taking that into account, the present study was conducted to assess the nurse's knowledge about the

management of chemotherapy side effects in Al-Amal Center for Oncology-Taiz.

The findings of the socio-demographic profile of the participants indicate that 61.5 percent of the participants were male, while females made up 38.5%. The findings of the socio-demographic profile of the participants indicate that 61.5 percent of the participants were male, while females made up

38.5%. This result disagrees with previous studies conducted in Ethiopia and Jordan, which revealed that female nurses were (60.8% and 62.9%), respectively <sup>(13,14)</sup>. It could be due to cultural issues. Yemeni women frequently drop out of school early in compliance with social norms.

On the other hand, 65.4% of participants aged 25–30 years old and 23.1% of participants aged 20–25 years old were absent. With regard to experience, this study showed that 38.5% of nurses had more than five years of experience in chemotherapy, and 34.6% of nurses had from 2–5 years of experience in chemotherapy. In addition, the study findings showed that 64.4% of nurses had received training on chemotherapy. The results of another study revealed that 52% of nurses reported that they received a training program on chemotherapy <sup>(15)</sup>. Similar results were found in a study conducted in Jordan, where most nurses received training in the handling of chemotherapy <sup>(16)</sup>. Chemotherapy is a complex treatment that needs to be prepared and administered carefully. Additionally, it is important to practice safe and efficient chemotherapy administration, which improves patient and staff satisfaction.

The result of the present study showed that 46.2% of nurses reported that side effects of chemotherapy occur according to immunity and 38.5% of nurses reported that side effects of chemotherapy occur gradually. The result of a previous study conducted in Hadhramout to assess the pattern of side effects post chemotherapy treatment among cancer patients revealed that 34.7% of patients stated that they suffer from the side effects after 1–3 days, and 28% of the patients after hours up to 24 hours <sup>(17)</sup>.

The present study found that knowledge of nurses about the management of chemotherapy side effects varied; 50% of nurses had a good level of knowledge; 34.6% of them had a moderate level of knowledge; and 15.4% of nurses had poor knowledge. Another study conducted in Jordan stated that most oncology nurses have a low level of knowledge about CINV and only 13.1% passed the knowledge test <sup>(14)</sup>. Overall, oncology nurses tend to consider their knowledge of chemotherapy side effects management not enough; due to work overload, they do not find the time to assess and manage the side effects <sup>(18)</sup>. Furthermore, lack of knowledge is a major cause of treatment failure <sup>(19)</sup>. Oncology nurses should, however, make sure that they remain

updated with trends and adapt their skills to stay relevant to chemotherapy side effects and related management to successfully carry out the mission of enhancing cancer patient care.

Despite the equal educational opportunities between females and male nurses, there was a difference in nurses' knowledge scores about the management of chemotherapy side effects, where females showed a higher score than males. This finding was statistically significant ( $p = 0.04$ ). <sup>(20)</sup>. This could be due to the fact that women are more welcoming to the professions (nursing) and therefore get trained faster <sup>(20)</sup>.

Knowledge and experience share many similarities. Facts and abilities acquired through education or experience are referred to as "knowledge." Like knowledge, experience is characterized by the abilities attained through repeated application. In addition, the study findings showed statistical significance ( $p = 0.000$ ). in nurses' knowledge score about the management of chemotherapy side effects and experience.

## Conclusion

Based on study results, the study concluded that half of the study participants have good knowledge about the management of chemotherapy side effects, and about a third of nurses have moderate knowledge.

## Recommendations

- Continues participation of nurses in specialized training programs in chemotherapy side effects management to increase knowledge and the competence of nurses.
- Nursing schools should pay more attention to cancer and chemotherapy management and its side effects in the curriculum subjects.
- A graduate course dedicated to oncology nursing should be established for oncology nurses.
- A similar study is recommended to include a large sample size of nurses in the multi oncology centers in Yemen.



- Further studies to assess the knowledge, attitudes, and practice of nurses regarding the safe management and preparation of chemotherapy.

### Conflict of interest

No conflict of interest is associated with this work.

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