

Effect of Nursing Guideline on Nurses' Knowledge and Practices regarding Chemotherapy for Women with Reproductive Cancer

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Abstract

Background: Reproductive cancer is an important health problem since it leads to mortality and morbidity of women in all over the world. **Aim:** evaluate effect of nursing guideline on Nurses' knowledge and practices regarding chemotherapy for women with reproductive cancer. Setting: The study was conducted at Nasser institute hospital (at oncology department outpatient & inpatient department). **Study design:** a quasi-experimental design was utilized. **Sample:** All nurses (40) who were working in the pre mentioned study setting during the time of the study **Tools:** Tool 1 self- administered structured questionnaire sheet, Tool 2 observational checklist, and Tool 3 Women's satisfaction questionnaire sheets. **Results:** showed statistically significant improvement in nurses' knowledge and practical skills related to reproductive cancer and chemotherapy administration immediately post intervention and after three month follow up phase and increase Women's satisfaction level toward care provided by nurses, study confirmed statistically a highly significant positive relation between nurses' knowledge and nurses' practice and Women's satisfaction post guidelines intervention. **Conclusion:** nursing guideline had positive effect on nurses' knowledge and practices regarding chemotherapy which had direct effect on women's satisfaction with nursing care they received. **Recommendation:** Refreshing courses pre-service and in-services training programs to enhance nurse's practical skills at oncology units. **Further research** is recommended to identify factors that effect on nurse's knowledge and their practice related to oncology patient receiving chemotherapy.

Key words: Guideline, Nurse's knowledge, practical skills, Chemotherapy, Reproductive cancer.

Introduction

Reproductive cancer is a leading cause of morbidity and mortality in women and it constitutes a significant health issue worldwide. It affects the female reproductive system; breast, uterus (cervix, corpus) and ovarian cancers that considered the leading types of reproductive cancer. Vulvovagina, fallopian tubes cancers and chorion epithelium are less frequent sites for female genital cancer. (Rot, Ogah & Wassersug, 2015)

Additionally, the negative effects of being diagnosed with reproductive cancer on women health have many dimensions. The fear of being diagnosed with cancer, the complicated, long, invasive, and combined treatments, being under stress and the risk of complications depending on the duration of the treatment, concerns about the body shape, the sexual identity and the reproduction affect the standard of living of the woman, her partner and her family. (Bekar,etal, 2013)

Meanwhile, reproductive cancers are the uncontrolled growth and spread of abnormal cells originating in the female reproductive organs, including the breast, cervix, ovaries, uterus, fallopian tubes, vagina and vulva. (Foundation for Women's Cancer, 2018)

Also, there are many different types of cancer treatment, including surgery, radiation therapy, and/or systemic therapy (e.g., chemotherapy, hormonal therapy, immune therapy, and targeted therapy). Treatments may be used alone or in combination depending on the type and stage of cancer; tumor characteristics; and the patient's age, health, and preferences. Supportive therapies to reduce side effects and address other patient and family quality of life concerns may also be used. (ACS, 2017)

Chemotherapy is one of the most commonly prescribed cancer treatment modality which has complex treatment regimes with advanced technological devices. (Khan, Ali Khowaja & Ali, 2012)

The main role of nurses in the field of oncology is chemotherapy administration which is sensitive domain in oncology nursing where little negligence or mistake may lead to adverse consequences for patients, staff and environment. Literature reveals that, medication errors in chemotherapy are a common (44%) incidence due to lack of specific knowledge and training of the staff in chemotherapy, prescription, preparation and administration. (Polovich, 2012)

Significance of the study:

Worldwide incidence and mortality rates (per 100,000 women) of reproductive cancers are respectively as follows: breast cancer (235,030 and 40,420) uterine cancer (54,870 and 10,170), ovarian cancer (21,290 and 14,180), cervical cancer (12,340 and 4,030), vulvar cancer (5,150 and 1,080) and vaginal cancer (4,070 and 910). (American Cancer Society, 2015).

A nurse plays a vital role in care of women with reproductive cancer undergoing chemotherapy. She is one who spent most of the time with patient. Nurses should also have proper knowledge and practices to provide proper care to women's and prevent complications. Enhancing these knowledge and practices will help nurses to prepare a planned care plan for improving women's condition.

Therefore, improving nurses' performance to meet satisfaction of women's undergoing chemotherapy is deemed important in the ultimate goal of quality care.

Aim of the study:

To evaluate effect of nursing guideline on Nurses' knowledge and practices regarding chemotherapy for women with reproductive cancer.

Research hypothesis:

Nursing guideline has positive effect on Nurses' knowledge and practices regarding chemotherapy, which will be influence women's satisfaction receiving care.

Subjects and methods:

Research design:

A quasi- experimental design was utilized to conduct this study.

Setting:

The study was conducted at Nasser institute hospital (at oncology department outpatient & inpatient department).

Subject:

Sample type and size:

Convenient sample was obtained. All nurses (40) who were working in the pre mentioned study setting during the time of the study.

Tools of data collection:

Tool 1: Self- administered structured questionnaire sheet: which included two parts, the researcher developed questionnaire sheet after reviewing the current related literature. (Choenyi etal, 2016). (Le Borgne etal, 2015)

Part 1: General characteristics of the study sample.

Part 2: assessed nurses' knowledge regarding reproductive cancer and chemotherapy.

❖ Scoring system:

- Total answer was **satisfactory** if total score was $\geq 65\%$
- Total answer was **unsatisfactory** if total score was $< 65\%$
 - Complete correct answer scored as (2)
 - Incomplete correct answer scored as (1)
 - Incorrect answer& or did not know scored as (0)

Tool 2: Observational checklist; it was adapted from **Standardizing Assessment Competencies of Oncology Nurses Working in Ambulatory Care and Chemotherapy Order Assessment and Review (Beaver, etal, 2016)**. It was used to evaluate practices of nurses regarding chemotherapy for women with reproductive cancer.

❖ Scoring system:

The total practice was scored as $\geq 60\%$ was considered **competent practice** while total practice scored as $< 60\%$ was considered **incompetent practice**. Each item in the checklist was scored as:

Complete correct practice scored as (2), Incomplete correct practice scored as (1), Incorrect practice or note done scored as (0)

Tool 3: Women's Satisfaction with nursing care Scale (PSNCS)(Tang, Soong & Lim, 2013). It was used to determine their level of satisfaction regarding care they received (post test). **Scoring system:** Each item in the checklist was scored on a four points Likert Rating Scale as: Strongly agree scored as (4), Agree scored as (3), Disagree scored as (2), strongly disagree scored (1). The score was categorized into low, moderate and high level of satisfaction as follows:

- High level of satisfaction $\geq 70\%$
- Moderate level of satisfaction $60 - < 70\%$
- Low level of satisfaction $< 60\%$

Supportive educational material for reproductive cancer and chemotherapy, it contains knowledge and practical skills related to common reproductive cancer and chemotherapy. The content of the reproductive cancer and chemotherapy guideline was designed by researcher

Tool validity and reliability:

It was ascertained by a group of experts from maternal and gynecological nursing department. Professors were reviewing the instruments for clarity, relevance, comprehensiveness, understanding and applicability. Their opinions were elicited regarding the format, layout, consistency, accuracy and relevance of the tools and Reliability testing was done using Cronbach's alpha test that measures the degree of reliability for the entire form. Cronbach's alpha demonstrated good internal consistency for all five domains ranging from $\alpha = 0.731$ for spiritual needs domain to $\alpha = 0.865$ for psychological needs domain

Operational design:

The operational design was conducted through 4 phases included the preparatory, implemented, evaluation phase and dissemination phase:

Preparatory Phase:

It was started by reviewing of the related literatures and theoretical knowledge of various study aspects using books, articles, internet, periodicals and magazines to develop tools for data collection, then the form of proposed guidelines was revised by expertise in nursing and medical field. In the implementation stage, the researcher arranged schedule based on contents of the educational guidelines.

Pilot study:

A pilot study was carried out on 10% of study subjects (4 nurses) from hospital under study for testing clarity and applicability of the data collection tools and then the necessary modifications were done according to the results of pilot study. The nurses recruited in the pilot study were excluded from the current study subjects.

Field work:

The actual fieldwork started at the beginning of April 2019 and was completed by the end of October 2019. The researcher visited the selected setting regularly for 3 days/week in morning and afternoon shifts for collecting the data. The time was consumed as follows: (2) months for assessment phase, (2) months for implementation phase and (3) months for each follow up phase. The total hours of the guidelines sessions were (30) hours for all groups (6 hours for each group was divided as 2 hours theory and 4 hours practices).

It was included the implementation of the study through incorporated the following phases as following:

- 1) Assessment phase
- 2) Implementation phase
- 3) Evaluation phase

1-Assessment phase:

This phase includes assessment of the knowledge and practices of the study nurses by using the pre- constructed tools.

Educational guidelines were designed based on analysis of the knowledge and practices of the study nurses by using the pre- constructed tools.

Firstly the researcher was introducing herself to the nurses and explains the aim of the study to gain the participants confidence and trust in order to obtain their consent to participate in the study.

nurses groups to collect personal data and assessing their knowledge regarding reproductive cancer and chemotherapy prior implementation of nursing guideline, questionnaire was taking approximately 20-30 minutes to complete.

Implementation & evaluation phase:

- The guideline for caring women with reproductive cancer receiving chemotherapy was developed and implemented.

- The content of the nursing guideline related to women with reproductive cancer receiving chemotherapy was designed by researcher to meet the general objective

- It was including three parts: the first concerned with providing the nurses with the essential knowledge about reproductive cancer, types, causes and treatment methods. The second part concerned with knowledge about chemotherapy's treatment as definition, aims, route of administration, the most common side effects of chemotherapy and nursing care measures to manage it. While the third part includes the nursing care related to chemotherapy administration which conforming to the checklist.

- At the beginning of first session an orientation to the guideline, general and specific objectives was explained to the nurses in the same time. Four sessions for theory, the duration of each session (45-60) minutes. Different methods of teaching strategies was used such as lecture, group discussion, using data show "power point presentation", Instructional media included, handout prepared by the researcher and distributed to the nurses in the first day of the program. After each session feedback was done.

- Then assessing their knowledge, immediately guideline implementation and three month after implementation the guideline.

- Sessions for practical part was (5) sessions, nurses was divided into 8 groups in each group about 5 nurses in each session and the content was implemented for each group separately. Practical part was conducted through demonstration, re demonstration, video and pictures. It was include: nursing care before, during and after administration of chemotherapy, the duration of each

practical session was ranged from 45-60 minutes including periods of discussion according to their achievement, progress and feedback.

- Different methods of teaching and training strategies was used

Evaluation Phase:

Evaluation of the educational guidelines was done using the pre constructed tools to measure the change in knowledge and practices of nurses as follow:

- Immediately after the educational guidelines (post test) and after 3 months later (follow – up test) and contact with nurses by phone for any instruction throughout the 3 months.

- Level of patients` satisfaction (80women) with nursing care was evaluated after implementation of nursing guideline

Statistical Design:

The appropriate statistical methods and tests were used.. Data were analyzed using Statistical Program for Social Science (SPSS) version 21.0. The following tests were done: Chi-square (X²) test, Pearson Correlation (R) and Alpha cronbach reliability analysis of used tool. Probability: P<0.05 significant differences< 0.01highly significant differences.

Results:

Table (1): shows that nurses age was range from 23 to 56 years with Mean (36.7±8.0) years). It also shows that (46.3%) of them had nursing diploma. In addition (55.0 %) of studied nurses had more than 15 years of work experience. Moreover (92.7%) of them were attending Training course.

Table (2): This table shows highly statistically significant between pre& post immediately, and post three months of intervention related to nurse's Knowledge about reproductive cancer and chemotherapy except factors that causes reproductive cancer was not significant.

Table (3): This table shows statistically significant between pre& post immediately and post three months of intervention related to total score of nurse's Knowledge about reproductive cancer and chemotherapy.

Table (4): reveals that there was a highly statistical significant difference between pre& post

intervention related to Nursing preparation before chemotherapy administration, Steps of chemotherapy administration, Safety measures regarding chemotherapy preparation and administration& Management of extravasation and documentation while there was statistical significant difference between pre& post intervention related to Discard equipment after chemotherapy administration, Emergency care (management of hypersensitive reaction) and Management of localized hypersensitivity reaction.

Table (5): This table shows that statistically significant difference between pre& post immediately,

Table (1): Distribution of the general characteristics of studied nurses (n=40).

Items	No.	%
Age:		
< 35 years.	13	32.5
≥ 35 years.	27	67.5
Mean±SD		36.7±8.0
Range		23-56
Gender:		
Female.	40	100.0
Qualifications:		
Nursing diploma.	19	46.3
Special diploma.	1	2.4
Tech. institute.	12	29.3
Bach. Nursing.	8	19.5
Years of experience:		
< 15 years.	18	45.0
≥ 15 years.	22	55.0
Sources of information:		
Work.	40	100.0
Training course:		
Yes.	38	92.7
No.	2	4.9

and post three months of intervention related to total score of nurse's practice (P value <0.05).

Table (6): shows that 56.7% of patients were agree with profession – technical competencies& 55.04% of them were agree with health information also 51.02% of them agree with Affective support and 53.04% agree with decisional control.

Figure (1): shows that 55% of patients were moderately satisfied and 30% of them were highly satisfied while 15% of patients were low satisfied with nursing care they received

Table (2): Distribution of the studied nurses' knowledge about reproductive cancer and chemotherapy pre/post guidelines intervention (n=40).

Items	Nurses' knowledge						χ ²	p-value
	Pre		Post immediately		Follow- up after three month			
	Correct %	Incorrect %	Correct %	Incorrect %	Correct %	Incorrect %		
1. Definition of cancer.	9.8	90.2	90.2	9.8	86.1	13.9	28.90	.000**
2. Types of reproductive system cancer	2.4	97.6	75.6	24.4	76.1	23.9	24.10	.001**
3. Factors that causes reproductive system cancer.	53.7	46.7	78.0	22.0	75.9	24.1	14.200	.0527
4. Methods of treatment.	82.9	17.1	97.6	2.4	97.6	2.4	12.521	.012*
5. Definition of chemotherapy.	7.3	92.7	78.0	22.0	76.3	23.7	21.650	.000**
6. Aim of chemotherapy.	12.2	87.8	87.8	12.2	86.1	13.9	23.600	.000**
7. Methods of chemotherapy administration.	75.6	24.4	95.1	4.9	97.6	2.4	24.100	.001**
8. Side effects of chemotherapy.	68.3	31.7	95.1	4.9	95.1	4.9	21.250	.011*
9. Precautions that nurses must do during chemotherapy administration.	80.5	19.5	95.1	4.9	97.6	2.4	26.500	.000**

Table (3): Distribution of studied nurses' total knowledge pre/ post guidelines intervention (n=40).

Total score of nurse's Knowledge about reproductive cancer and chemotherapy	pre intervention		post intervention immediately		Follow up after three months		Chi-square test	
	N o.	%	N o.	%	N o.	%	x2	p-value
Unsatisfactory	21	53.	4	10.	1	2.4	7.0	.023
Satisfactory	19	46.	36	90.	39	97.	18	*

Table (4): Distribution of studied nurses' practice pre/ post guidelines intervention regarding chemotherapy (n=40).

Items	Practice				Follow-up After three months		p-value	
	Pre		Post immediately		Competent	Incompetent		
	Competent	Incompetent	Competent	Incompetent	Competent	Incompetent	x2	
1. Nursing preparation before chemotherapy administration	53.9	46.1	94.3	5.7	82.4	17.6	1.9	.16
2. Steps of chemotherapy administration	65.4	34.6	91.4	8.6	92.2	7.8	1.5	.21
3. Discard equipment after chemotherapy administration	76.4	23.6	97.1	2.9	87.8	12.2	1.6	.20

4. Safety measures regarding chemotherapy preparation and administration	56.0	44.0	96.7	3.3	90.2	9.8	1.8	.18
5. Emergency care (management of hypersensitive reaction)	64.9	35.1	93.4	6.6	94.6	5.4	1.6	.20
6. Management of localized hypersensitivity reaction.	82.5	17.5	96.7	3.3	95.5	4.5	1.5	.22
7. Management of extravasation	46.7	53.3	68.0	32.0	65.1	34.9	1.4	.23
8. Documentation	65.5	34.5	93.5	6.5	93.0	7.0	1.7	.19

Table (5): Distribution of studied nurses' total practice pre/ post guidelines intervention (n=40).

Nurse's total practice	pre intervention		Post intervention immediately		Follow up after three months of intervention		Chi-square test	
	N o.	%	N o.	%	N o.	%	x2	p-value
Incompetent	23	57.5	6	15.0	7	17.5	25.200	.03
Competent	17	42.5	34	85.0	33	82.5		3*

Table (6): Distribution of studied patients' satisfaction post guidelines intervention (n=80).

Items	Strongly disagree		Disagree		Agree		Strongly agree	
	N	%	N	%	n	%	n	%
Profession – technical competencies:								
1. Nurses are professional when rendering services	0	0	0	0	4	5	37	46.3
2. Nurses deliver care competently	0	0	0	0	4	5	37	46.3
3. Nurses are skillful in performing nursing procedures	0	0	0	0	4	5	37	46.3
4. Nurses render nursing services without delay	0	0	0	0	4	5	33	41.3
5. I feel safe when receiving nursing care from nurses.	0	0	0	0	5	6	29	36.3
Total	0	0	0	0	4	5	35	43.2
Health information:								
6. Nurses can answer my questions correctly	0	0	0	0	4	5	33	41.3
7. Nurses provide me with important information during hospitalization.	0	0	3	3.8	4	5	34	42.5
8. I receive useful information	0	0	1	1.25	3	4	48	31.3

about my condition	0	0	5	9	8	8	8
9. I receive useful information during discharge planning	0	0	0	0	4	56	35
10. Nurses explain procedure clearly before performing it	0	0	6	7.5	4	57	28
Total	0	0	4	4	55	32	40
Affective support:							
11. Nurses treat me with respect.	0	0	6	7.5	4	53	31
12. Nurses smile whenever they approach me.	0	0	1	1.25	4	53	36
13. Nurses give encouragement to me.	0	0	1	1.25	4	50	39
14. Nurses use physical touch in supporting me.	0	0	3	3.75	3	47	39
15. Nurses are caring.	0	0	8	10	4	50	32
Total	0	0	4	4	51	35	44
Decisional control:							
16. Nurses involve me in hospital care.	0	0	1	1.25	4	52	28
17. Nurses involve my family in hospital care.	0	0	1	1.25	4	56	25
18. Nurses ask permission before performing procedures.	0	0	0	0	4	53	37
19. I can make own decision when being cared by nurses.	0	0	0	0	4	51	39
20. I have been given privacy from nurses.	0	0	0	0	4	51	39
Total	0	0	4	5	4	53	34

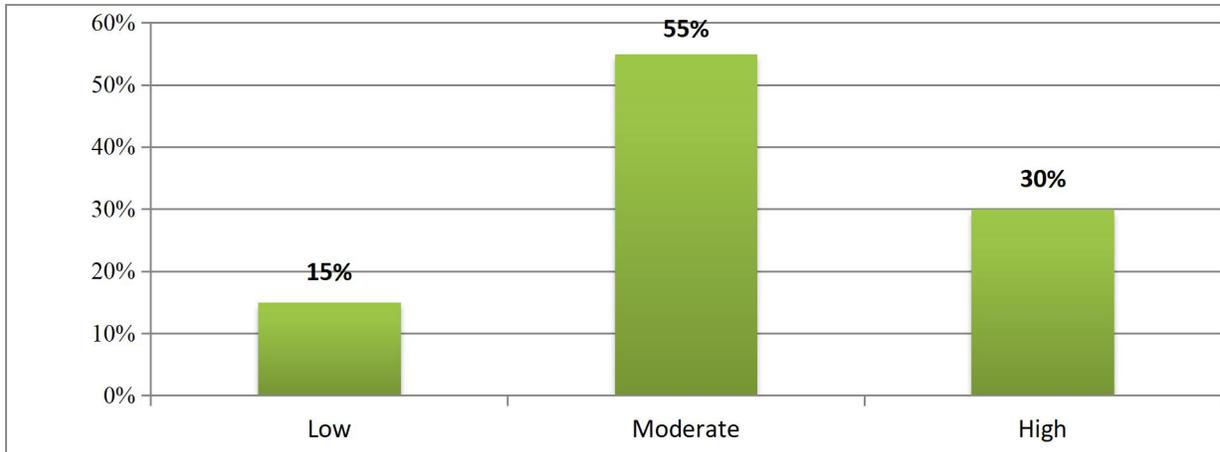


Figure (1): Distribution of total Patients' satisfaction levels post guidelines intervention (n=80).

Discussion:

The present study showed that, more than half of studied nurses had work experience more than 15 years. These findings were supported by **Mohamed, 2015** who found that, the majority of studied nurses had work experiences more than 10 years.

In relation to nursing qualifications, less than half of studied nurses had nursing diploma. These findings were in accordance with **Abdullah and Rasheed, 2018** who reported that about three fifth of their studied nurses had nursing school graduate, the majority of studied nurse had attending training courses. This finding was disagree with **Hosen, et al, 2019** who found that, more than two third of studied nurses had not attending any training.

Focusing on the findings of the present study indicated that more than half of the studied Nurses' had unsatisfactory level of knowledge regarding reproductive cancer and chemotherapy before implementation of the protocol.

The present study was agreed with **(Shokier,Shaban,Gadiry&SeifEldin,2012)**who reported that pre-program implementation assessment data revealed that nurses had poor knowledge about management of patient undergoing chemotherapy. This showed low level of nurses knowledge about aspects of management of chemotherapeutic patients including; patient counseling, health care maintenance, primary care, patient education, therapeutic care, normative care, communication and documentation. This fact reflects lack provision of inservice refreshing education or training

opportunities that expend the staff knowledge and skills.

The reason of low level of nurses' knowledge could be the lack of refreshing of nurses' knowledge at the oncology unit pre intervention compare post intervention. This similarity may be due to analogous level of education among the study group of both studies although different culture between both studies subjects.

Meanwhile, the majority of Nurses' had satisfactory level of knowledge immediately post and the most had satisfactory level of knowledge in follow up phase after implementation of the protocol.

This result supported by **(Abd-Allah, 2007)** who documented that the in-service training program has a beneficial effect in improving the nurse's knowledge and skills. They also recommended that educational programs should be organized according to the needs of nurses with continuous evaluation.

The previous result was in the same line with **(Ceber et al. 2010)** who reported that educational intervention had a positive impact on nurses' knowledge of reproductive cancer. In the researcher point of view, this similarity may be due to the general characteristics and work circumferences of both studies are nearly the same.

Also **(Karayurt et al. 2010)** stated that reproductive cancer programs have enabled nurses to increase their awareness of reproductive cancer, more cognizant of their professional roles, update and increase their knowledge and set new goals in their own practices.

Additionally, this improvement post protocol could be assigned to one or more rationales, which include the comprehensive content of the educational training protocol, the written handout of the program which serves as ongoing reference, also, nurses' interest and take care to know and change. Encouragements of questions, interactive talk with the utilization of multimedia and repetition of the knowledge. As well the nurses' were satisfied with the content of the protocol and they endeavor to apply what learn in protocol.

Also, the present study revealed that there was statistically significant between pre& post immediately and post three months of intervention related to total score of nurse's Knowledge about reproductive cancer and chemotherapy. This significant improvement means that the intervention of protocol had a positive impact on nurses' knowledge about reproductive cancer and chemotherapy.

According to Nurse's practice skills regarding chemotherapy preparation and administration, management of hypersensitive reaction& Management of extravasation; the present study finding showed that there were significant improvement post intervention compared to pre-intervention with slight decrease after three months. This may be due to nurses need continues observation and follow up.

This present study finding was agreed with study finding by **(Mohamed, 2015)** were found that there was significant improvement of nurses practice post intervention than pre intervention regarding chemotherapy administration. This is consistent with **(Mohsen & Fareed, 2013)**, who reported that there was statistical significant improvement of total nurses' practice score after educating them the chemotherapy safety protocol.

This was in the same line with **(Rizalar et al, 2016)** who stated that significant differences were found between the mean knowledge and practices scores of nurses who had participated in an educational program compared with the groups who had no formal education about nurses' protective measures during chemotherapy preparation and administration.

Furthermore, this result is supported by **(Mahdy et al, 2017)** who studied Cytotoxic Drugs Safety Guidelines: Its Effect on Awareness and Safe Handling Practices of Oncology Nurses, who founded

that There were highly statistically significant differences between mean scores of the pre and post guidelines intervention of nurses' knowledge, practices and attitude regarding safe handling of cytotoxic drugs .

Additionally, this result agrees with **(Abd El-hamed et al, 2017)** who studied Effect of Intervention Guidelines on Nurses' Performance Regarding Prevention and Management of Intravenous Extravasation Chemotherapy, who founded that The total score of practice for three quarter of nurses' performances were poor before the guidelines application while immediately and after one month from the guidelines application the nurses' performances improved and three quarter of nurses and more than half of them obtained good scores respectively.

The present study result denotes the importance of providing those nurses with refreshment courses and in-service education program on basic nursing knowledge needed for oncology department patient. There is apparent need for developing such programs as well as implementing comprehensive pre-service orientation education program to safe the quality of the future ambulatory oncology patient nursing care.

Women's satisfaction related nursing care provided by studied sample:

Satisfied patients are more likely to comply with treatment, take an active role in their own care, continue using health care services and stay within a health provider. In the researcher point of view, quality of care can be assessed by mapping patient satisfaction with nursing care; it is a major indicator of quality care.

The current results clarified that more than half of studied patients were moderate satisfied and more than one quarter were highly satisfied with nursing care they received by studied nurses, This finding was supported by **(Karim et al, 2016)** reported that, a vast majority of the respondents had good level of satisfaction toward nursing care.

In line with the foregoing study **(Tang et al., 2016)** who studied patient satisfaction with nursing care: a descriptive study using interaction model of client health behavior. Who stated that the patients rated their satisfaction of nursing care as the majority of the patients were highly satisfied with the care

provided by nurses meanwhile, the minority were dissatisfied.

Additionally, this result agrees with (Karaca&Durna, 2019) who studied Patient satisfaction with the quality of nursing care who found Patients were more satisfied with the “Concern and Caring by Nurses” and less satisfied with the “Information Were Given.” Patients described nursing care offered during hospitalization as excellent.

Also, this current study disagreed with (Khan et al., 2017) who studies patient satisfaction with nursing Care from department of Community Medicine, Gomal Medical College, who reported that more than half of patients were dissatisfied with care rendered and less than half of patients were satisfied.

To sum up; The present study directed our attention and an important of an instruction guideline to be utilized and distributed among all oncology nurses at Cairo governate to enhance Egyptian nurse’s practical skills at oncology unit.

Conclusion:

In conclusion, the present study findings showed that nursing guideline had positive effect on nurses' knowledge and practices regarding chemotherapy which had direct effect on women’s satisfaction with nursing care they received.

Recommendations:

- Refreshing courses pre-service and in-services training programs to enhance nurse’s practical skills at oncology units.
- Nurses should be updated on their knowledge through attending seminars, workshops, lectures and reviewing researches.
- An orientation program for newly graduated nurses in oncology unit should be prepared.
- Further research is recommended to identify factors that effect on nurse’s knowledge and their practice related to oncology patient receiving chemotherapy.

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