Effectiveness of applying Pain Nursing Guidelines on cancer Patient Health Outcomes

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(Received 28 / 9 / 2021. Accepted 16 / 11 / 2021)

□ ABSTRACT □

Cancer-related pain is the most feared consequences of cancer and remains an important problem for cancer patient. Also, cancer patient having recurrent interaction with a variety of health providers, their pain is commonly uncontrolled. Cancer-related pain recognized as critical symptom that impact the quality of life of cancer patient. This study was conducted to evaluate the impact of Implementing Pain Nursing Intervention on cancer Patient health Outcomes. The study included 94-cancer patient with a pain rating of 4 or more. Patient received four educational sessions on pain assessment and management. Pain intensity, brief pain inventory, Pain management barriers management barriers were measured at baseline, one month, and three months post accrual. Patient experienced significant improvements in pain measures immediately post-intervention, and these improvements were sustained over time. Our study showed that the nursing intervention guideline was effective in reducing patient severity of pain barriers to pain management.

Key Words: cancer patient, pain nursing guidelines, health outcomes.

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تأثير تنفيذ إرشادات الرعاية التمريضية للألم على النتائج الصحية لمرضى الأورام

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(تاريخ الإيداع 28 / 9 / 2021. قُبِل للنشر في 16 / 11 / 2021)

□ ملخّص □

يعد الالم المرتبط بالسرطان أحد أكثر عواقب السرطان والتي تعتبر من أكبر المشاكل لمرضى السرطان. أيضا مرضى السرطان تستمر معاناتهم من الألم على الرغم من تقديم الرعاية الصحية لهم، وعادة ما يكون ألمهم خارج السيطرة. يعتبر الألم المرتبط بالسرطان من الأعراض الحرجة التي تؤثر على نوعية حياة مريض السرطان. أجريت هذه الدراسة لتقييم تأثير تنفيذ التداخل التمريضي للألم على النتائج الصحية لمرضى السرطان. اشتملت الدراسة على 94 مريضاً بالسرطان لديهم معدل الألم 4 أو أكثر. تلقى المريض أربع جلسات تثقيفية حول تقييم وتدبير الألم. تم قياس شدة الألم، وجرد الألم القصير، وعوائق تدبير الألم عند البدء، وبعد شهر واحد، وبعد ثلاثة أشهر. أظهر المريض تقدماً مهماً في تدبير الألم مباشرةً بعد التداخل، واستمرت هذه التحسينات مع مرور الوقت. أظهرت دراستنا أن إرشادات التداخل التمريضي كانت فعالة في تقليل شدة عوائق الألم التي يواجهها المريض في تدبير الألم.

الكلمات المفتاحية: مرضى السرطان إرشادات الرعاية التمريضية للألم، النتائج الصحية

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Introduction

In 2018, there were an estimated 18.1 million new cases of cancer and 9.6 million deaths. High-incidence diseases include cancers of the lungs, breast, colorectal and prostate. Current lifestyles and patterns of consumption, as poor nutrition, inactive lifestyle, smoking and population growth and aging, may increase risk of cancer, particularly in developed countries where 82% of the world's population lives [1].

Cancer incidence in Syria according to the World Health Organization (WHO), Age-standardized incidence rates per 100,000 were 166.6 both sexes [2].

Patient with cancer are often affected by remaining physical, psychological, and interpersonal difficulties that lead to longer-term survival. Such people must address specific disease issues such as fear of recurrence of cancer, body image and sexuality problems, and financial problems. As cancer survivors, number remains to rise, it is essential to identify the best ways to promote long-term survivors ' well-being.[3]

Cancer-related pain is one of cancer's most dreaded outcomes and remains a major concern for patient with cancer. Often, patient with cancer who have repeated experiences with a variety of health care providers are typically uncontrolled in their pain. Approximately 30-50 percent of patient receiving cancer treatment and 70 percent of advanced cancer patient suffer from chronic pain, while 33 percent of patient with chronic pain suffer from cancer. Unrelieved cancer pain has a detrimental effect on the quality of life of the patient and their daily activities [4].

Nurse's role in managing cancer pain involves believing the patient, evaluating pain, determining the cause of the problem, planning care, prescribing medication, assessing effectiveness, maintaining good pain management, and individualizing treatment. It also involves nursing services such as nursing care providing, pain management, awareness, advocacy, communication, comfort, encouragement, and patient's therapy. The nurse can relieve pain emotionally by encouraging relaxation, promoting painful areas, kindness in the patient's handling and using nursing management [5].

Patient awareness about pain is critical in alleviating the concern that this symptom Various organizations have disseminated recommendations on the treatment and control of cancer pain, including the World Health Organization (WHO), the Institute for Health Care Policy and Research, the American Pain Society, and the National Comprehensive Cancer Network (NCCN). The goal of all these recommendations is to reduce pain related cancer for patient and their families [6].

- **Importance of Research and Objectives :**

Importance of research:

Cancer pain is more common in patients with advanced or metastatic cancer as about 91% of cancer patients experienced pain with varying degree of severity.

Nearly 90% of cancer patients report interference in daily activity caused by pain. Pain, even when treated, is often severe enough to impair their ability to function. Research has shown that healthy behaviors such as successful self-management of symptoms can eliminate or reduce much of the cancer symptoms suffering. Oncology nurses play an important role in the creation of a symptom self-management plan that is crucial for improving the symptom self-management behaviors of a patient

Therefore, this study will evaluate the impact of implementing pain nursing intervention guidelines on cancer patient health outcome and determine barriers that could affect cancer patient response to nursing intervention. This intervention demonstrates modification by

translating the pain guidelines as developed by the National Comprehensive Cancer Network (NCCN) guideline into clinical practice).

➢ Aim of the research:

Evaluate the impact of Implementing Pain Nursing Intervention Guidelines on Cancer Patient health Outcomes.

➢ Specific objectives:

1. To assess level of cancer patient's Pain.
2. To identify barriers of pain management in cancer patients.
3. To adapt nursing care guidelines of pain for cancer patients.
4. To apply adapted pain nursing intervention guidelines for cancer patients.
5. To evaluate impact of applying pain nursing intervention guidelines on cancer patient's health outcome.

➢ Research hypotheses:

The pain nursing intervention guidelines will have a positive effect on oncology patient's health outcome.

❖ Research methods and materials:

Search Method:

A quasi-experimental research design was utilized in the conduction of the current study at Clinical Cancer and Nuclear Medicine Department at Tishreen University Hospital.

Subjects:

A purposive sample of 94 adult cancer patient with pain who were received care based on pain nursing guidelines.

Included criteria:

- Patients able to communicate verbally.
- Patients diagnosed with cancer minimum one month before study begin (to avoid patients suffering an early diagnosis distress, and to limit participants to those with solid tumors with certain degree of common treatment, also, who are treated as outpatients)
- Patients with a 6-month or more disease prognosis to assess patients over time and avoid burdening later-stage patients with rapid progression.

Excluded criteria:

- Late-stage disease patients with rapid progression
- Patients experience fatigue or pain assessments of ≤4 on a 0 to 10 numeric scale to target whose suffering from moderate to severe symptom severity as defined in the NCCN guidelines.

✓ Research materials

Tool I: Structured interview questionnaire sheet

This sheet was developed after the review of the literature by the researcher to collect the following:

Part 1: Personal characteristics of patient

Part 2: Treatment data this part was concerned with the patient's treatment background data.

Tool II: The pain Intensity Rating Scale

Is unidimensional tool consists of 11-item numeric rating scale that assess the subjective pain on a 0 (no pain) to 10 (worst pain) scale.

Tool III: Pain assessment scale. The Brief Pain Inventory (BPI) short form
This tool is used to assess the severity and impact of pain on daily functions.
Tool IV: The Pain Barriers Questionnaire (BQ II):
(BQ II) was developed by Gunnarsdottir, It consists of 27 questions about patients' barriers to pain management.
Guideline implementation:
The researcher validates innovation by translating the evidence-based guidelines for pain as developed by the National Comprehensive Cancer Network (NCCN) into clinical practice.
Data collection:
The study was conducted in four phases, which took a period of 12 months from August 2018- 2019. 1. Assessment phase. 2. Planning phase 3. Implementation phase 4. Evaluation phase

Results and Discussion:

Table (1): Personnel characteristics of the participants (n=94).

Variable	No	%
Age		
20-35 years	23	24.5
36-50 years	22	23.4
51-65 years in years	32	34
> 65 years	17	18.1
Gender		
Male	42	44.7
Female	52	55.3
Level of education		
Illiterate	27	28.7
Read and write	10	10.6
Basic education	8	8.5
Secondary education	26	27.7
Bachelor	21	22.4
Master and Doctorate	2	2.1
Marital status		
Single	16	17
Divorced	3	3.2
Married	67	71.3
Widow/widower	8	8.5
Occupation		
Officer work	21	22.3
Manual work	20	21.3

House wife	40	42.6
not working	13	13.8
Income		
Not enough	68	72.3
Enough	26	27.7
Residence		
Urban	42	44.7
Rural	52	55.3

The age of the participants from age 20, with 34% of the participants between 51-65 years. Females constituted 55.3% of the participants. Regarding level of education, 28.7% of the participants were illiterate, basic education 27.7% of the participants. Most of the participants 71.3% were married. As for the type of occupation of the participants it appears from the table that, housewife was reported by 42.6% of the participants. According the household about 72.3% of the participants report obtained not enough household. Regarding living area, about 55.3% of the participants live in a rural area.

Table (2): Cancer history of the participants (n=94).

Variable	No	%
Site of cancer		
Lung	10	10.6
Colorectal	11	11.7
Liver	10	10.6
Breast	34	36.2
Brain	4	4.3
Lymphoma	9	9.6
Pancreas	5	5.3
Other	11	11.7
Disease Status		
Newly diagnosed, under treatment	72	76.6
Completed treatment, Cancer free	3	3.2
Recurrent, under treatment	19	20.2
Current treatment		
Surgery	4	4.2
Chemotherapy	56	59.6
Combined	34	36.2

Regarding to the diagnosis among the participants most common diagnosis s were breast cancer, followed by colorectal, lung cancer, liver cancer, lymphoma, pancreatic cancer and brain cancer. The disease status of the participants was newly diagnosed, under treatment

76.6% of the participants. According to the treatment, more than half of the participants 59.6% received chemotherapy treatment.

Table (3): Pain intensity scale among the participants at different assessment phases.

Scale	baseline and after 1 month		Paired t test (1)	P value	baseline and after 3 months			Paired t test (2)	P value
	Mean ±SD	Mean ±SD			Mean ±SD	Mean ±SD			
Pain Intensity Scale	7.45±1.66	5.5591±2.01	14.34	<0.001**	7.45±1.66	6.05±2.12		9.85	<0.001**

Table 3 showed that there were statistically significant relationship differences between pain and fatigue intensity at baseline assessment and both at one month and at three months from applying the guidelines P< 0.001.

Table (4): levels of pain among the participants in different assessment phases.

Scale	Times of assessment	Mild		Moderate		Sever		Chi square test	P value
		No	%	No	%	No	%		
Pain	Baseline	0	0.0%	31	33.3%	62	66.7%	37.93	<0.001**
	After 1 month	20	21.5%	45	48.4%	28	30.1%		
	After 3 months	12	12.9%	46	49.5%	35	37.6%		

Table 4 presents the level of pain reported by the subjective. There were statistically significant differences between pain intensity at the three assessment phases P< 0.001.

Table (5): pain intensity among the participants at different assessment phases.

variable	baseline and after 1 month		Paired t test (1)	P value	baseline and after 3 months		Paired t test (2)	P value
	Mean ±SD	Mean ±SD			Mean ±SD	Mean ±SD		
Worst pain	8.83±0.99	6.86±1.66	14.502	<0.001**	8.83±0.99	7.67±1.51	8.696	<0.001**
Lowest pain	6.08±1.75	4.56±1.84	8.393	<0.001**	6.07±1.75	5.47±1.90	3.521	<0.001**
Average pain	7.90±1.17	5.99±1.70	16.074	<0.001**	7.90±1.17	6.78±1.60	10.061	<0.001**
Pain now	7.35±1.7	5.56±2.01	11.655	<0.001**	7.35±1.70	6.05±2.12	7.499	<0.001**
Total (mean)	7.54±1.15	5.74±0.95	15.26	<0.001**	7.54±1.15	6.49±0.94	9.66	<0.001**

Table (5) present that at the baseline assessment, the total mean ±SD of the pain intensity was 7.54±1.15 and it decrease immediately after one month which was total mean ±SD 5.74±0.95. In addition, at three months assessment phase total mean ±SD slightly elevated to be 6.49±0.94. There were statistically significant differences between pain intensity at the three assessment phases P< 0.001.

Table (6): Correlation between personal's characteristics and Factors associated with pain severity among the participants

Variable		pain severity	
	Baseline	After 1 month	After 3 months
	Mean ±SD	Mean ±SD	Mean ±SD
Age			
20-35 years	30.78±5.10	24.00±6.59	26.91±7.50
36-50 years	30.32±5.95	23.00±7.43	26.59±6.28
51-65 years in years	29.31±4.60	22.25±7.10	25.03±6.75
> 65 years	30.75±4.46	22.75±6.63	25.69±5.44
F test p value	0.997 >0.05	0.286 >0.05	0.442 >0.05
Gender			
Male	29.45±5.10	22.76±6.51	26.09±6.55
Female	30.75±4.91	23.10±7.26	25.88±6.67
Independent t test	1.23 >0.05	0.235 >0.05	1.55 >0.05
Level of education			
Illiterate	30.89±5.17	24.07±7.40	27.52±5.91
Read and write	29.30±3.74	20.60±6.67	23.70±5.58
Basic education	29.75±5.55	21.62±6.59	24.13±6.83
Secondary education	30.50±4.62	22.81±6.51	25.58±6.46
Bachelor	29.41±5.77	23.27±7.19	26.27±7.79
F test p value	0.373 >0.05	0.549 >0.05	0.858 >0.05
Marital status			
Single	30.44±5.55	23.56±6.14	26.50±6.94
Divorced	30.00±4.24	19.50±7.78	22.00±8.49
Married	30.07±5.12	23.01±7.26	26.09±6.72
Widow/widower	30.38±3.70	22.00±5.81	25.00±4.78
F test p value	0.028 >0.05	0.255 >0.05	0.335 >0.05
Occupation			
Officer work	29.81±5.36	22.90±6.67	25.57±7.201
Manual work	29.75±4.64	21.20±6.24	25.00±5.96
House wife	31.38±4.72	24.18±7.23	27.18±6.29
not working	27.70±5.28	22.00±7.23	24.54±7.40
F test p value	1.96 >0.05	0.922 >0.05	0.810 >0.05

Table (6): Correlation between personal's characteristics and Factors associated with pain severity among the participants cont.

Variable		pain severity	
	Baseline	After 1 month	After 3 months
	Mean ±SD	Mean ±SD	Mean ±SD

household income			
Not enough	30.47±4.92	23.28±6.82	26.56±6.30
Enough	29.32±5.26	22.04±7.16	24.40±7.17
Independent t test	0.952 >0.05	0.750 >0.05	1.32 >0.05
Residence			
Urban	29.71±5.13	23.10±6.65	26.07±6.83
Rural	30.50±4.97	22.84±7.22	25.78±6.44
Independent t test	0.742 >0.05	0.176 >0.05	0.209 >0.05

Table (6) None of the test results showed a significant difference when compared by pain severity at the three assessment phases of the study. Whoever result indicated that pain severity score was the higher in the age from 20 to 35 years old, among female, illiterate participants, the participants who reported not enough income were higher-level pain interference than who reported enough income. Finally, the participants from the rural area reported highly pain severity in all the assessment phases.

Table (7): Pain interference among the participants at different study phases.

	baseline and after 1 month		Paired t test (1)	P value	baseline and after 3 months		Paired t test (2)	P value
	Mean ±SD	Mean ±SD			Mean ±SD	Mean ±SD		
General activities	7.10±2.25	5.39±2.22	16.563	<0.001**	7.10±2.25	5.53±1.99	9.206	<0.001**
Mood	7.02±2.32	5.25±2.28	17.878	<0.001**	7.02±2.31	5.56±2.25	10.402	<0.001**
Walking ability	7.10±2.37	5.27±2.25	17.701	<0.001**	7.097±2.37	5.95±2.53	8.693	<0.001**
Normal work	7.31±2.31	5.31±2.14	14.908	<0.001**	7.31±2.31	6.08±2.41	9.377	<0.001**
Relation with other	6.35±2.33	4.98±2.23	12.260	<0.001**	6.35±2.33	5.77±2.20	4.238	<0.001**
Sleep	7.33±2.25	5.47±2.02	15.023	<0.001**	7.33±2.25	6.03±2.39	11.099	<0.001**
Life enjoyments	7.29±2.35	5.72±2.21	14.322	<0.001**	7.29±2.35	6.13±2.423	10.309	<0.001**
Total	7.07±0.33	5.34±0.23	22.33	<0.001**	7.07±0.34	5.86±0.24	10.08	<0.001**

Table (7) showed that there were statistically significant differences between pain interference at the three assessment phases P< 0.001.

Table (8): Correlation between personal's characteristics and Factors associated with pain interference among the participants.

Variable		Pain interface	
	Baseline	After 1 month	After 3 months
	Mean ±SD	Mean ±SD	Mean ±SD
Age			
20-35 years	48.87±13.60	38.61±12.70	39.65±12.39
36-50 years	49.91±14.97	36.82±14.46	39.91±14.75
51-65 years in years	46.56±16.49	33.78±14.71	38.72±14.65
> 65 years	55.75±11.40	43.63±12.22	49.25±11.96
F test p value	1.41 >0.05	1.89 >0.05	2.34 >0.05
Gender			
Male	47.07±15.23	35.26±13.41	38.17±13.30
Female	51.51±14.21	39.14±14.31	43.41±14.26
Independent t test	1.44 >0.05	1.34 >0.05	1.83 >0.05
Level of education			
Illiterate	54.81±12.48	42.81±13.71	47.00±13.46
Read and write	51.00±15.23	37.40±15.28	42.00±13.65
Basic education	43.00±18.24	32.38±13.45	35.38±13.93
Secondary education	48.08±14.97	35.88±13.54	39.27±15.06
Bachelor	46.36±14.83	34.31±13.57	37.45±12.06
F test p value	1.63 >0.05	1.66 >0.05	2.12 >0.05
Marital status			
Single	47.75±15.08	37.56±14.71	37.50±14.96
Divorced	46.00±15.56	32.50±14.85	36.00±15.56
Married	49.03±15.18	36.64±14.23	41.03±13.91
Widow/widower	57.88±9.05	44.50±9.53	49.50±11.14
F test p value	0.992 >0.05	0.823 >0.05	1.41 >0.05
Occupation			
Officer work	46.48±15.53	33.67±13.28	37.14±13.64
Manual work	42.05±12.95	30.25±11.30	33.25±10.91
House wife	54.10±13.89	41.95±13.98	45.82±13.85
not working	52.08±14.50	40.69±13.91	45.00±13.42
F test p value	3.67 <0.05*	4.27 <0.05*	5.05* <0.05*

Table (8): Correlation between personal's characteristics and Factors associated with pain interference among the participants cont.

Variable		Pain interface	
	Baseline	After 1 month	After 3 months
	Mean ±SD	Mean ±SD	Mean ±SD
household income			
Not enough	50.32±14.44	38.79±14.32	41.66±13.94
Enough	47.28±15.73	33.56±12.46	39.36±14.35
Independent t test	0.845 >0.05	1.72 >0.05	0.691 >0.05
Residence			
Urban	47.45±14.58	34.98±12.64	38.19±13.71
Rural	51.18±15.01	39.50±14.93	43.52±14.06
Independent t test	1.20 >0.05	1.57 >0.05	1.83 >0.05

table(8) None of the test results showed a significant difference except for occupation (p = <0.05) when compared by pain interference in three assessment phases.

Table (9): Distribution of mean score of the pain barriers questionnaire different assessment phases among the participants cont.

Variable	baseline and after 1 month		Paired t test (1)	P value	baseline and after 3 months		Paired t test (2)	P value
	Mean ±SD	Mean ±SD			Mean ±SD	Mean ±SD		
Harmful effect								
There is a danger of								
becoming addicted to pain medicine.	3.04±1.22	2.61±1.11	4.728	<0.001**	3.04±1.22	2.30±1.00	7.242	<0.001**
Pain medicine weakens the immune system.	3.11±1.29	2.76±1.08	3.783	<0.001**	3.11±1.29	2.33±1.00	6.099	<0.001**
Many people with cancer								
get addicted to pain medicine.	3.06±1.21	2.44±0.99	6.625	<0.001**	3.06±1.21	2.11±0.91	8.721	<0.001**
Using pain medicine can harm your immune system.	2.77±1.13	2.43±0.88	3.832	<0.001**	2.77±1.13	1.97±0.80	7.096	<0.001**
Pain medicine can hurt your immune system.	2.94±1.12	2.42±0.86	5.504	<0.001**	2.94±1.12	2.02±0.85	7.552	<0.001**
Pain medicine is very addictive.	3.03±1.12	2.63±1.06	5.296	<0.001**	3.03±1.12	2.28±1.01	7.131	<0.001**
Total	83.60±22.03	69.42±18.23	14.36	<0.001**	83.60±22.03	58.4±16.78	16.30	<0.001**

Regarding the baseline assessment, most items got a mean score >2.77, at one-month assessment, most items got a mean score >2.37 and after three months assessment most items got a mean score > 1.9.

The total mean score of pain Barrier questionnaire in baseline assessment was 83.60, which the mean score at one-month assessment was 69.42 and after three months, assessment was the lowest mean score as 58.40. There highly significant relationship between the baseline assessment phase and after one-month assessment phase also, between the baseline and after three months assessment phases.

Table (10): Correlation between personal's characteristics and pain management barriers at the three assessment phases among the participants.

Variable		Total pain management barriers		
	Baseline		After 1 month	After 3 months
	Mean ±SD		Mean ±SD	Mean ±SD
Age				
20-35 years	76.22±21.02		53.78±17.92	44.70±15.71
36-50 years	82.91±24.68		71.91±21.17	61.68±21.46
51-65 years in years	82.78±20.75		67.91±15.04	57.41±11.84
> 65 years	96.81±17.78		77.13±18.62	61.19±19.59
F test p value	2.98 -- p<0.05*		3.57 ----p<0.05*	4.32 ---- p<0.05*
Gender				
Male	81.88±21.11		67.74±16.39	56.98±14.82
Female	85.02±22.88		70.80±19.67	59.57±18.31
Independent t test	0.682 ---> 0.05		0.806 ---> 0.05	0.755 ---> 0.05
Level of education				
Illiterate	92.74±18.93		77.11±18.15	63.59±17.35
Read and write	82.90±23.29		66.30±16.21	54.20±11.07
Basic education	71.50±26.90		67.13±21.73	60.38±20.52
Secondary education	79.88±24.05		66.62±18.08	56.85±18.36
Bachelor	81.50±18.35		65.55±16.76	55.05±14.40
F test p value	2.09 ---> 0.05		1.76 ---> 0.05	1.11 ---> 0.05
Marital status				
Single	72.94±17.37		61.94±14.64	54.00±11.36
Divorced	76.50±26.16		68.00±15.56	56.50±10.61
Married	85.12±22.84		71.33±19.50	60.01±18.55
Widow/widower	94.00±17.37		68.75±11.13	54.13±8.68
F test p value	2.08 ---> 0.05		1.15 ---> 0.05	0.749 ---> 0.05
Occupation				
Officer work	83.81±18.29		66.52±14.71	56.24±14.25
Manual work	80.60±22.77		68.85±15.77	55.80±12.47

House wife	86.87±24.32		73.44±21.16	61.87±19.75
not working	78.08±19.75		62.92±16.20	55.46±16.48
F test p value	0.676 ---> 0.05		1.38 ---> 0.05	0.964 ---> 0.05

Table (10): Correlation between personal's characteristics and pain management barriers at the three assessment phases among the participants cont.

Variable		Total pain management barriers		
	Baseline		After 1 month	After 3 months
	Mean ±SD		Mean ±SD	Mean ±SD
household income				
Not enough	85.52±20.92		69.76±18.73	59.07±17.77
Enough	82.90±22.54		68.48±17.12	56.56±13.90
Independent t test	0.525 ---> 0.05		0.313 ---> 0.05	0.715 ---> 0.05
Residence				
Urban	84.50±21.24		70.40±19.61	59.38±18.93
Rural	82.98±23.07		68.66±17.34	57.62±15.08
Independent t test	0.329 ---> 0.05		0.448 ---> 0.05	0.715 ---> 0.05

Table (10) were compared with total pain management barriers: age, gender, education level, marital status, occupation income and residence among the different assessment phases. The table showed a significant difference between age and total pain management barriers in the three assessment phases

Concerning the personal characteristics of the studied participants, most of them their age falls between 51 to less than 65 years, as for gender, females were more prevalent than males. This finding is in accordance with Ahmed (2017) who mentioned that, women report lower pain thresholds and increased pain prevalence than men [7]. This might be due to that women are more likely to speak and express about pain and fatigue feeling freely than men.

Regarding residence area, more than half patients were from rural area. This could be because of the setting, where the study was done is nearest for participants living in rural area, in addition, the effect of low socio-economic status and lack of health awareness may lead to increase cancer incidence in rural areas than urban areas. Additionally, most of the participants were married and were housewife. Regarding the level of education, more than quarter of the participants are illiterate and it unfortunately corresponding with Central Agency for Public Mobilization and Statistics in Syria which reported that about quarter of Syrian population were illiterate in 2019. Regarding household income, most of the participants had not enough income as most of them as housewife and did not cover by the health insurance umbrella [8].

The study finding revealed that more than third of the participants suffering from breast cancer, and this matching with that women is more than men and the breast cancer is the highly incidence cancer among the women and this matching with Ibrahim and Khaled (2014) who mention that the commonest cancer site regarding female was breast cancer[9].

More than half of the participants were under chemotherapeutic treatment as the data collected from chemotherapeutic clinics and from the inpatient subjects who most of them treated by chemotherapy as well as more than third of the participants treated by combined therapy as surgical and chemotherapeutic treatments or radiotherapy and chemotherapy treatments. The findings of this study demonstrate also, that about three quadrants of the study subjects newly diagnosed and under cancer treatment.

Concerning pain intensity, the current study results revealed that the mean of both decreased at the one-month assessment than the baseline assessment and elevated again at the three-months assessment, even the mean at the three-months assessment still less than the baseline assessment. This is consistence with Mearis, Shega, and Knoebel, (2014) who reported that average pain scores for cancer patient across the 24-hour period were lower in the adherent to NCCN pain guideline [10]. A significant difference was obtained between the baselin assessment and at the one-month assessment and between the baseline assessment and at the three-month assessment regarding pain.

The current study data collected from the cancer patients who suffering from moderate to severe pain regarding the numeric screening scale and the pain intensity decreased from severe pain intensity before applying the guidelines to be moderate intensity for pain after applying the guidelines. The current findings corresponding with Borneman (2010) which reported that pain among cancer patients decrease after intervention developed based on NCCN guidelines even the mean of pain within moderate level after interventions[11].

Two factors were analyzed as conducting factor affecting on the participants: one associated to pain severity, and the other correlated to pain interference with life activity. The study did not find any statistically significant relationship between pain intensity and participants characteristics such as age, gender, level of education, marital status, occupation, household income and residence. This finding is consistent with Hashemi and Momenzadeh (2016) who mentioned that there was no significant relationship between pain intensity and sociodemographic characteristics in cancer patient [12]. However, the finding is not corresponding with Dorner and Freidl, (2011) who found highly significant correlation between pain severity and the educational status, the income and occupation [13].

Concerning the impact of pain on the daily activities the current study found that pain interfered with all activities almost equally in each study phase, pain interfered with sleep and normal work was highest interfere at baseline assessment and at one-month assessment. Pain interference with life enjoyment was the higher even the interference with general activities was higher after three-months assessment. This finding is not congruent with Ferreira (2015) who find that the highest scores were found for interference with mood [14].

Moreover, highly significant relationship was found between the baseline assessment and at the one-months assessment and between the baseline assessment and at the three-months assessment also the total mean of the daily activity interference decreased at the one-months assessment and at the three-months assessment than the baseline assessment, these finding is corresponding with Wood (2017) which found a Significant correlations between pain and health status, with elevated severity of pain and pain interference correlated with deteriorating health utility and general health status. This may be attributed to pain severity correlation with pain interference with daily activities [15].

One of the noticeable findings regarding pain management barriers in this study is that the fatalism and communication barriers aspect were the higher pain management barriers

toward the study participants in all study phases. This finding is disagreed with the study done in Texas by Kwon, Hui (2013) which reported that the physiological barriers subscale was the higher pain management barriers. Alterations in these studies might be due to cultural differences, differences in the healthcare system, and cancer pain treatment. The different cultural backgrounds can affect the participants ' approach related to their disease and its treatment.

This finding is important because it suggests that participants' personal characteristics, except age differences, might not be strong determinants of their perceptions of barriers to pain management. This result is nearly corresponding with Kwon, Hui (2013) who stated that only racial differences which were correlated with high total pain management barriers score although, Kwon et al. did not find statistically significant correlation between age and total pain management barriers score [16].

Finally, the current study results concluded that nursing intervention was effective in reducing severity of pain also, as well as reducing patient barriers to pain management. This intervention demonstrates innovation by translating the evidence-based guidelines for pain as developed by the National Comprehensive Cancer Network into practice.

Conclusions:

Before applying the nursing care, the study found that most of the patients suffering from severe pain identified several patient related barriers to pain management that continue to hinder the efforts to provide optimal symptoms management. Nursing intervention validates the pain evidence-based guidelines that developed by the National Comprehensive Cancer Network into practice, which at one-month assessment and three-months assessment phases

Clarify that it was effective in reducing severity of pain also, as well as reducing patient's barriers to pain and fatigue management.

Recommendations:

Based on the results of this study, and in order to improve the standard of nursing care toward cancer related pain, the following recommendations are suggested:

1. Pain assessment should be applied in all cancer units as the fifth vital sign at least twice per day. And reassess it every 15 minutes if the patient take pain medication.
2. The nurse should ask about the pain, not wait for patient to reported its, as nurse should act not react
3. To overcome these barriers toward the pain, the nurses should assess its before the patient meets the oncologist.
4. Patient should encourage to use daily diary for assessing the severity of pain as it helps the health care providers to determine effective management.
5. Informing cancer patient that pain can be managed, just need to set realistic outcomes.
6. Health care provider should ensure that the patient and their care giver receive appropriate educational materials for symptoms management and reducing the barriers.

References:

1. Torre, L. A., Bray, F., Siegel, R. L., Ferlay, J., Lortet-Tieulent, J., & Jemal, A. (2015). Global cancer statistics, 2012. CA: a cancer journal for clinicians, 65(2), 87-108.
2. World Health Organization. Fact sheet detail, Cancer. Available at: https://www.who.int/news-room/fact-sheets/detail/cancer. Accessed 30 December, 2018
3. Corbett, T., Devane, D., Walsh, J. C., Groarke, A., & McGuire, B. E. (2015). Protocol for a systematic review of psychological interventions for cancer-related fatigue in post-treatment cancer survivors. Systematic reviews, 4(1), 174.
4. Phillips, J. L., Lovell, M., Luckett, T., Agar, M., Green, A., & Davidson, P. (2015). Australian survey of current practice and guideline use in adult cancer pain assessment and management: the community nurse perspective. Collegian, 22(1), 33-41.
5. Mahfudh, S. S. (2011). Nurse's role in controlling cancer pain. Journal of pediatric hematology/oncology, 33(2), S146-S148.
6. National Comprehensive Cancer Network, 2016. NCCN Clinical Practice Guidelines in Oncology: Cancer-related Fatigue.
7. Ahmed, Y., Popovic, M., Wan, B. A., Lam, M., Lam, H., Ganesh, V., ... & Chow, E. (2017). Does gender affect self-perceived pain in cancer patients? A meta-analysis. *Annals of palliative medicine*, *6*(2), S177-S184.
8. National Comprehensive Cancer Network, 2019. NCCN Clinical Practice Guidelines in Oncology: Cancer-related pain.
9.Ibrahim, A. S., Khaled, H. M., Mikhail, N. N., Baraka, H., & Kamel, H. (2014). Cancer incidence in Egypt: results of the national population-based cancer registry program. *Journal of cancer epidemiology*, *2014*.
10. Mearis, M., Shega, J. W., & Knoebel, R. W. (2014). Does adherence to National Comprehensive Cancer Network guidelines improve pain-related outcomes? An evaluation of inpatient cancer pain management at an academic medical center. *Journal of pain and symptom management*, *48*(3), 451-458.
11. Borneman, T., Koczywas, M., Sun, V., Piper, B., Uman, G., & Ferrell, B. (2010). Reducing Patient Barriers to Pain and Fatigue Management. *J Pain Symptom Manage, 39*(3), 486–501.
12. Hashemi, S. M., Rohanifar, R., Azarfarin, R., Razavi, S. S., & Momenzadeh, S. (2016). A Comparison of the Sociodemographic and Clinical Characteristics of Patients Referring to a Pain Clinic with Subacute and Chronic Pain. *Anesthesiology and pain medicine*, *6*(6), e39373.
13.Dorner, T. E., Muckenhuber, J., Stronegger, W. J., Ràsky, É., Gustorff, B., & Freidl, W. (2011). The impact of socio-economic status on pain and the perception of disability due to pain. *European journal of pain*, *15*(1), 103-109.
14.Ferreira, V. T., Dibai-Filho, A. V., Kelly de Oliveira, A., Gomes, C. A., Melo, E. S., & Maria de Almeida, A. (2015). Assessing the impact of pain on the life of breast cancer survivors using the Brief Pain Inventory. *Journal of physical therapy science*, *27*(5), 1361–1363. doi:10.1589/jpts.27.1361
15. Wood, R., Mitra, D., de Courcy, J., & Iyer, S. (2017). Patient-reported pain severity, pain interference and health status in HR+/HER2− advanced/metastatic breast cancer. *ESMO open*, *2*(3), e000227.
16. Kwon, J. H., Hui, D., Chisholm, G., Hong, W. T., Nguyen, L., & Bruera, E. (2013). Experience of barriers to pain management in patients receiving outpatient palliative care. *Journal of palliative medicine*, *16*(8), 908-914.