Patients' and Nurses' Barriers Regarding Cancer Pain Management: Strategies to Overcome

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Abstract

Background: Cancer pain affects millions of patients world-wide, according to the Egyptian National Cancer Institute, the prevalence of cancer-related pain is varied between 20% to 50% of patients. Barriers to effective pain control are related to the healthcare system, healthcare providers, and patients, although pain considered as the 5th vital sign, it is still has serious deficits in managing cancer pain related barriers overcoming barriers to effective cancer pain management calls for increased attention and strong efforts. **Aim:** The aim of this study was to: (1) identify patients' and nurses' barriers to cancer pain management and (2) develop and implement nursing strategies to overcome patients' and nurses' barriers to cancer pain management. **Methodology:** A quazi experimental design was utilized for conducting the study. A convenience sample of 100 adult cancer patients and 20 nurses working at nuclear medicine unit at kasr Al-Ani Educational Hospital. Data were collected through six tools; (1) A Self-Administered Questionnaire Format for Nurses, (2) An Observational Checklist Format, (3) A Self-Administered Questionnaire Format for Patients, (4) Numeric pain rating scale (NPRC) Cleland, Childs & Whitman (2007), (5) Patients' Barriers Questionnaire and (6) Patient educational interventions. **Results:** Patients' and nurses' barriers regarding cancer pain management improved after implementing nursing strategies. **Conclusion:** Implementation of nursing strategies was associated with reducing the patients' and nurses' barriers related to cancer pain management. **Recommendations:** Ongoing training and educational opportunities for both patients and nurse should be available to ensure implementation of nursing strategies to overcome barriers related to cancer pain management.

Keywords: Patients' and Nurses' Barriers, Cancer Pain Management, Strategies

1.   Introduction

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage. Worldwide, unrelieved or poorly managed pain places a physical, emotional and socioeconomic burden on the person, the health-care system and society, and pain is a concern throughout life **(International Association for the Study of Pain [IASP], 2012 and Pompili et al., 2012).**

According to **Marcus (2011),** cancer pain affects millions of patients world-wide, it has many physiological and psychological outcomes for cancer patients; the results of a systematic review showed that pain interact with activities of daily living, work efficiency, and reduced quality and quantity of life in cancer patients. On the other hand, effective pain therapy resulted in improvements in fatigue, sleep, depression, quality of life, and work in these patients **(Andrew et al., 2014)**

In this context, nurses are in a better position compared to other interdisciplinary team members in healthcare to manage pain due to their close relationship with patients. This is because they help to relieve pain and improve comfort by identifying those in pain, frequently assessing pain, offering treatment options, documentation and follow-up to discover if pain management strategies used are beneficial. From the administrative perspective, proper pain assessment documentation and implementation of pain management guidelines consider as an essential component of administrative system. Moreover, it serves as a communication tool between nurses and healthcare providers to facilitate effective pain management and better patient outcomes **(Birchenall & Adams 2011).**

A study conducted by **Nworah (2012)** showed that healthcare team considers pain related to any disease as marginal effect, regardless of the pain scores documented, no benefit of pain control was achieved. It is clear that it is not enough to simply ask patients about their pain and then record the findings in a chart but to take the next step which is effective pain management. Moreover, caregivers should refocus their efforts on pain control rather than consider documentation as the only outcome of interest.

Barriers to effective pain control are related to the healthcare system, healthcare providers, caregivers and patients. Nurses are in the frontline dealing with cancer pain. The barriers that impact nurses in effective cancer pain management, such as inadequate education about pain mechanisms, types of pain medications, the importance of a proper pain assessment, documentation, and absence of nurses who didn't follow hospital policy and procedures related to cancer pain management **(Kwon, 2014).**

Health care providers do not always have enough knowledge regarding cancer pain management and have various misconceptions about pain and pain treatment. Deficits in nursing knowledge of pain, assessment procedures and treatments are thought to contribute to inadequate pain management. Pain education during

nursing training is basic, a recent systematic review of eleven studies indicated that nurses worldwide had inadequate pain knowledge of and misconceptions about pain management **(Chow & Chan, 2014)**

Although pain considered as the 5th vital sign, it is still has serious deficits in identifying and managing cancer pain related barriers. Patients' barriers to effective cancer pain management can be categorized into cognitive and affective barriers that influence pain assessment and its related outcomes. One of the barriers is miscommunication with healthcare team; others are fear of adverse effects, addiction, tolerance and fatalistic belief. As a result, pain intensity increases and lead to a higher level of psychological distress including anxiety, mood disturbances and anger **(Kwon, 2014).**

Thus, overcoming barriers to effective cancer pain management calls for increased attention and strong efforts. In a comprehensive review of barriers to pain management, **Fishman et al. (2013)** noted, that "inadequate education of health care professional is a major and persistent barrier to safe and effective pain management". Health professionals have inadequate education about for example how to manage different kinds of cancer pain, how to combine various pain medications and manage side effects such as constipation or nausea. Inadequate knowledge, negative attitudes, lack of specialists and poor behavior related to healthcare providers are recognized as significant barriers when dealing with cancer pain **(Kwon, 2014).**

1.1 Significance of the study:
Cancer causes a real and serious life threatening problem to both patients and families. Nowadays, cancer considers a growing problem all over the world. In Egypt, the latest year incidence of cancer is increasing. The estimated crude incidence of cancer for 2013 was 115.7/100,000 males and 110.3/100,000 females. According to the Egyptian National Cancer Institute, the prevalence of cancer-related pain is varied between 20% to 50% of patients (Ibrahim et al. 2014). Despite increasing interest in and efforts to improve its management, pain remains poorly controlled in nearly half of all patients with cancer. Therefore, identifying different barriers certainly is considered the roadmap to establish appropriate strategies for overcome. Breakthrough cancer pain can have a good outcome to set strategies for patients, healthcare team and organization to assess and manage cancer pain. A need for improved training in cancer pain management at all levels of professional education is indicated.

1.2 Aim
The current study aimed at:
1. Identify patients' and nurses' barriers to cancer pain management.
2. Develop and implement nursing strategies to overcome patients' and nurses' barriers to cancer pain management.

1.3 Research Hypothesis:
The following research hypothesis was postulated in relation to the aim of the study:
H_1: Patients' and nurses' barriers regarding cancer pain management will be reduced after implementing nursing strategies.

2. Material & Methods
2.1 Research Design
Quazi-experimental design was used to achieve the aim of the current study.

2.2 Setting
The current study was conducted at Nuclear Medicine unit at kasr Al-Ani Educational Hospital affiliated to Cairo University – Egypt.

2.3 Sample
A convenience sample of 100 adult cancer patients, conscious, oriented, were recruited for this study over 6 consecutive months. The inclusion criteria were as follow: 1) patients diagnosed with breast, gynecologic, lung, head and neck malignancies and started chemotherapy or radiotherapy. 2) Patients who rated their pain on pain intensity scale as moderate to severe level of pain. The size of the sample was calculated by power analysis of 95 (β = 1- 0.95 = 0.5) at alpha 0.05 (one-sided) with confident level 95% (Michael, et al., 2010). In addition to, a convenience sample of 20 nurses (18 staff nurse and 2 nurse supervisors) working at nuclear medicine unit with a bachelor degree of nursing.

2.4 Tools for Data Collection
Six tools were used for data collection in the present study:

1. **The First Tool:**

A Self-Administered Questionnaire Format for Nurses:

This tool consisted of two parts:

a. **The first part**: It was developed by the researchers based on literature review; it included nurses' demographic data regarding age, gender, educational level, years of experience, nurse position and work shit.

b. **The second part**: This format is developed by **Jho et al, (2014)** and adopted from guideline issued by the Korea's Ministry of Health and Welfare and the National Cancer Center to assess nurses' knowledge of cancer pain management. It consisted of (14) questions covering (11) true, false questions and (4) multiple choice questions regarding principles of cancer pain management, specific properties of analgesics, opioids dose calculation, the duration of reassessment after opioid administration and so on.

2. **The Second Tool:**

An Observational Checklist Format:

Practices of cancer pain management were measured by observational checklist as regards frequency of pain assessment, specific details of pain assessment and documentation following assessment.

Scoring System:

For knowledge and practices parts, scores of less than 6 = unsatisfactory, scores of 6 = satisfactory, scores of 7 = good, scores of 8 = very good and scores of 9-10 = excellent.

3. **The Third Tool:**

A Self-Administered Questionnaire Format for Patients:

This tool was developed by the researchers based on literature review consists of two parts:

c. **The first part**: It included patients' demographic data regarding age, gender, occupation, level of education.

d. **The second part**: This format contained items related to biomedical data as patients' diagnosis and line of treatment.

4. **The Fourth Tool:**

Numeric pain rating scale (NPRC) Cleland, Childs & Whitman (2007):

This tool was used to measure intensity of pain. Patients were instructed to select a value that is most in line with the intensity of pain that they experienced.

Scoring System:

The NPRS scaled from 0 –10 whereas "0" means no pain & "10" mean the most intense pain.

5. **The Fifth Tool:**

Patients' Barriers Questionnaire:

This tool was developed by Gunnarsdottir (2002). These barriers are related to cognitive effects as fear of addiction, fear of side effects, fear to report pain in addition to communication barriers. Cronbach's alphas of this tool ranged from 0.78 to 0.90 and demonstrated good test-retest reliability

Scoring System:

It is a self-report instruments that measured patient' beliefs about cancer pain. Participants rate the response by choosing zero in case of disagree = an 1 in agree.

6. **The Sixth Tool:**

Patient educational interventions related to cancer pain management as one method of nursing strategies. It developed by the researchers and tailored its components according to perceived patients' barriers.

2.5 Ethical Consideration

An official permission was obtained from the director of the Nuclear Medicine Unit. Prior to conducting the study each potential participant was informed with the purpose and nature of the study, and then oral informed consent was taken from each participant. The researchers emphasized that participation in the study is entirely voluntary; anonymity and confidentiality were assured through coding of data, yet, withdrawal from the study is permitted at any time as it is one of their rights.

2.6 Pilot Study

A pilot study was conducted on 10% of the sample; to ensure objectivity and clarity, feasibility, and reliability of the study tool and determine the time required to fill the different data collection tools. So that necessary modifications will be done and to determine the time required fulfilling the sheet. According to the modifications required, pilot study sample will either included or excluded from actual study.

2.7 Field Work Procedures:

Once official permission was granted from the head of the department to precede the study, the researchers initiated data collection after describing the purpose of the study. Data collection spent six months started from

November, 2015 to May, 2016) to assess nurses and patients barriers regarding cancer pain management and the effect of nursing strategies to overcome these barriers.

Patients, who fulfilled the inclusion criteria, were interviewed individually. Oral consent from patients who accepted to participate in the study was taken. During the 1st interview demographic data sheets as well as biomedical data for all patients were completed. In addition to numeric pain rating scale and Patients' Barriers Questionnaire were filled to collect the needed information. After that, the first three barriers to cancer pain management were deduced from the analyzed data which were 1) Fear of stigma (using tramadol as a pain relief), 2) Fear of side effect, 3) Reluctance to report pain. There was a nursing strategies developed by the researchers for each deduced barrier. Regarding the pre-mentioned barriers the researchers and the nurses included in the current study implemented the following: Regarding 1st barriers, coordinate meetings for patients with tramadol-related stigma to attend counseling sessions of "Acceptance and Commitment Therapy" (ACT) via access to palliative pain care unit at nuclear medicine department el-Kasr Elani two times per week, in order to empower patient for self report his negative attitudes and poor motivation as a result of using tramadol. Regarding 2nd barrier, strategies taken which was encouraging patients to ask the health team about managing the common side effects of their treatment. The nurse in this instant play a crucial role in finding other patients who have recently gone through the same experience to act as a support mean. Regarding 3rd barrier, explain to patients' important facts about pain assessments which are essential to ascertain the best treatment and monitor any underlying causal condition emphasizing on pain severity which should be reported to track efficacy of treatments and interventions. At the beginning of baseline data collection patients' pre-tests were done, then patient educational interventions were taught individually for a session of 45-60 minutes. Post-tests were done for all patients individually in the 3rd & 6th weeks.

During the 1st interview for all nurses, demographic data sheet, and Nurses' Barriers Questionnaire were filled to collect the needed information. After that, the first three barriers to cancer pain management were deduced from the analyzed data which were 1) Lack of pain assessment, 2) Lack of pain documentation, 3) Lack of standard pain nursing recommendation then the related nursing strategies were tailored to help nurses to overcome these barriers. Regarding the pre-mentioned barriers the researchers do the following: Regarding 1st barrier: taught the nurses how to use the **Numeric pain rating scale** (NPRC) for assessing and monitoring pain intensity. As regard 2nd barrier: the researchers pinpoint on the role of nurse supervisor to follow the use of pain assessment format as a tool for assessing, monitoring the progress or deterioration of patient pain intensity in a daily base as a part of shift endorsement. Related to 3rd barrier: using WHO guidelines of cancer pain management and ongoing assessment of pain with regular re-assessment on daily base. At the beginning of baseline data collection nurses' pre-tests & pre-observational tests were done, then nurses' strategies were taught & trained nurses. The twenty nurses of the current study divided into four groups, each group consisted of five nurses, the training session conducted eight times two sessions per week, for 45-60 minutes for each. Post-tests and post-observational scores were done for all nurses individually in the 3rd & 6th weeks.

2.8 Statistical Design:

Descriptive statistics were used to summarize demographic characteristics of the study participants. Data were revised, coded analyzed and tabulated using number and percentage distribution and carried out using the statistical package for social science (SPSS) version22. The statistical test repeated measures ANOVA was used. A value of $p < 0.05$ was considered to be statistically significant.

Results:

Table (1): Frequency Distribution of the Demographic Data among the Study Participants (Patients) (n=100).

Variables	The Study Participants n=100	
	No.	%
Age:		
20->35	30	30%
35->50	60	60%
50 –	10	10%
Mean ± SD	41.13 ± 8.31	
Gender:		
Male	55	55%
Female	45	45%
Occupation:		
Office work	30	30%
Free work	47	47%
Unemployed	23	23%
Level of education:		
Illiterate	30	30%
Read and write	27	27%
Secondary	24	24%
Higher	19	19%

Table (1) illustrates frequency distribution of the demographic data among the study participants, it shows that 60% of patients aged between 35 to 50 years old, their mean age were 41.13 ± 8.31, 55% of the study group was males, regarding occupation 47% were free work and 30% was Illiterate.

Table (2): Frequency Distribution of the Demographic Data among the Study Participants (nurses) (n=20).

Variables	The Study Participants n=20	
	No.	%
Age:		
20>35	15	75%
35>50	5	25%
Mean ± SD	36.55 ± 6.8	
Gender:		
Male	4	20%
Female	16	80%
Education Level:		
Bachelor	20	100%
Years of Experience:		
<5	10	50%
5>10	7	35%
10>15	3	15%
Mean ± SD	5.95 ± 1.35	
Nurse Position:		
Nurse Specialists	18	90%
Nurse supervisors	2	10%
Work Shift:		
Day (12 Hours)	17	85%
Night (12 Hours)	3	15%

Table (2) shows that 75% of nurses were between 20 to 35 years old their mean score was 36.55 ± 6.8, most of the nurses 80% were female, as regard to years of experience 50% were less than 5 years their mean score was 5.95 ± 1.35. One hundred percent had bachelor degree in nursing, 90% of them were nurse specialists, where 10% were nurse supervisors.

Figure (1): Frequency Distribution of the Study Participants regarding Medical Diagnoses (n=100)
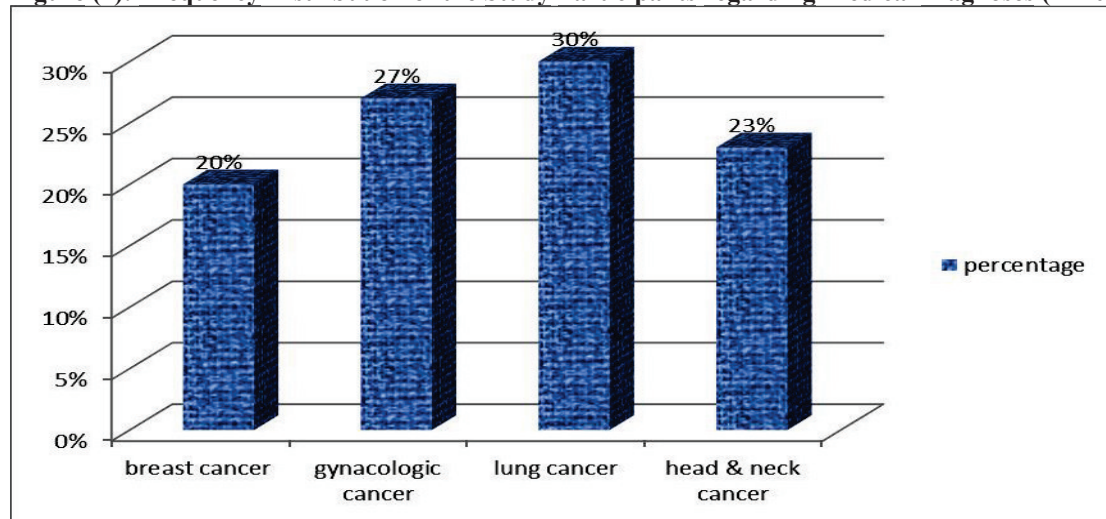

Figure (1) demonstrates frequency distribution of the study participants regarding medical diagnoses; it showed that lung cancer and gynecologic cancer were the highest percentage among other medical diagnosis (30% and 27% respectively).

Figure (2): Rating of Barriers related to Cancer Pain Management as reported by the Patients of the Study Participants (n=100).
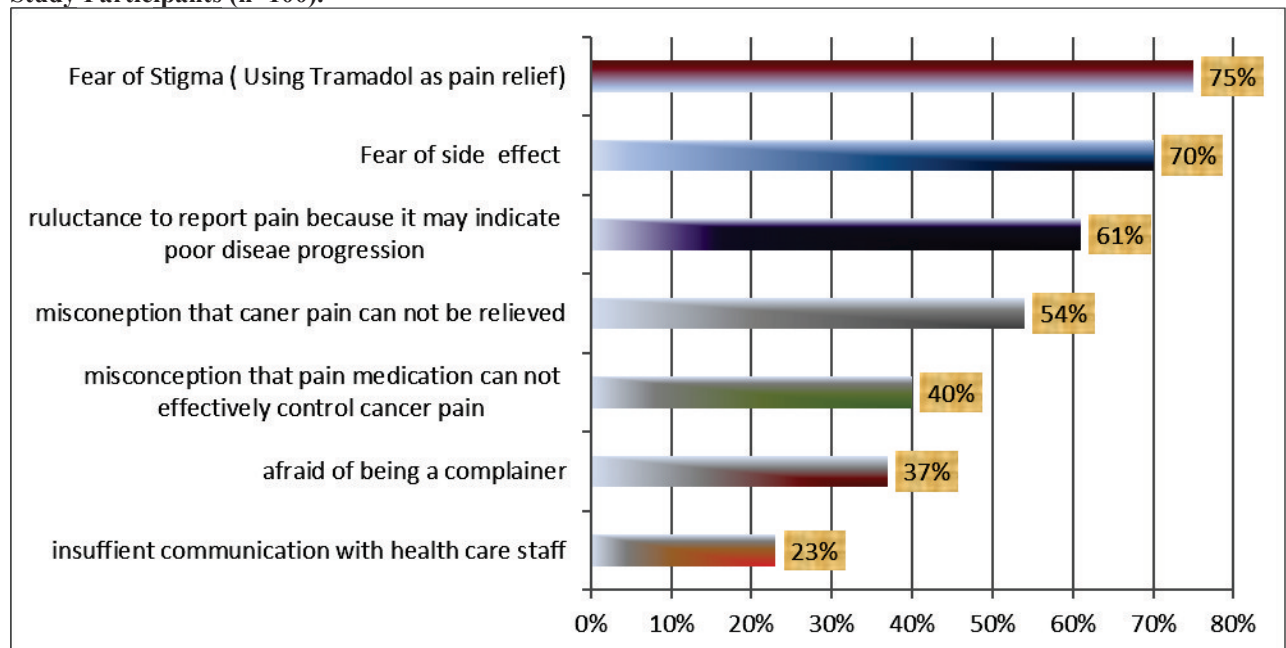

Figure (2) displays barriers to manage cancer pain among studied patients; it showed that fear of stigma as patients' used Tramadol as pain relief was the highest percentage 75%, while insufficient communication with health care staff had the least 23%.

Figure (3): Rating of Barriers regarding Cancer Pain Management as reported by the Nurses of the Study Participants (n=20).
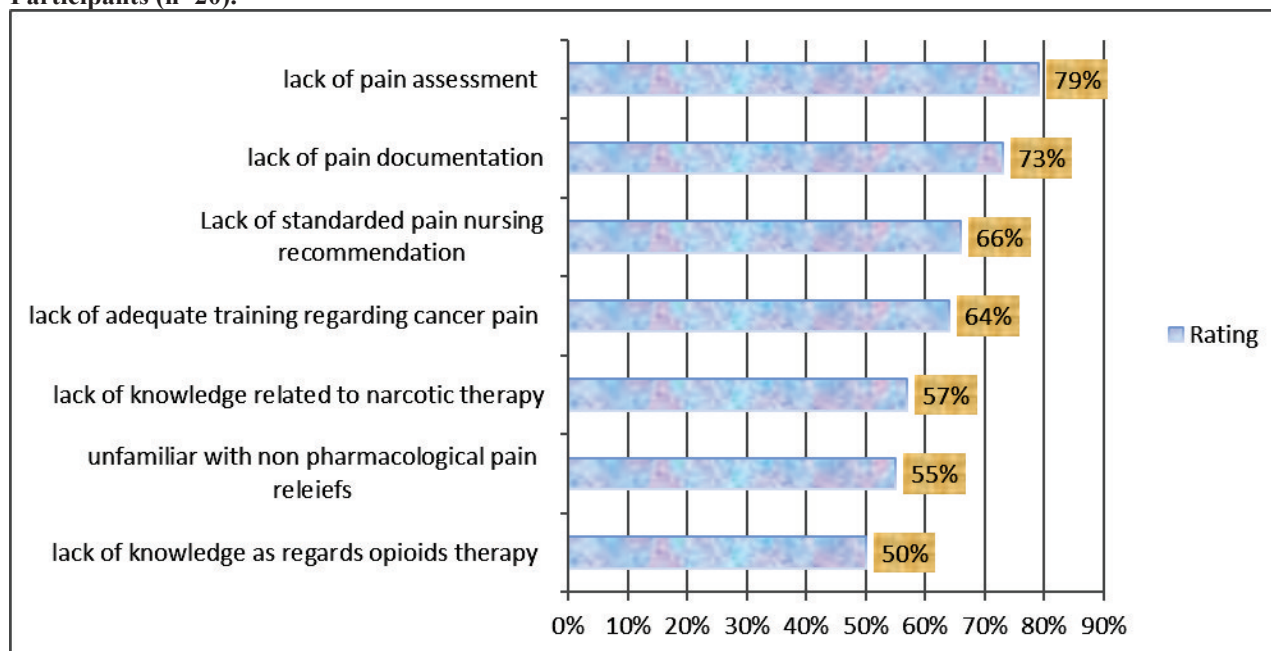

Figure (3) summarizes barriers regarding cancer pain management in descending order; it shows that 79% of the studied group reported that lack of pain assessment was the main barrier to manage pain of cancer patients, while 50% stated that lack of knowledge as regards opioids therapy was the least barriers.

Table (3): Comparison of different Pain Intensity Mean Scores among the Study Participants throughout the Observational Periods Using One Way Repeated Measures ANOVA (n=100).

Observational Periods	Base line X ± SD	After 3 weeks X ± SD	After 6 weeks X ± SD	F ratio / p-value
Mean Scores	7.60±0.66	6.98±0.63	6.89±0.70	61.92* 0.000

Table (3) shows that there was a statistical significant difference among the study group (F ratio: 61.92*, p-value: 0.000) throughout the observational period of study. The highest mean score was shown at base line 7.60±0.66, while the mean score of pain intensity decline three weeks and six weeks 6.98±0.63 and 6.89±0.70 respectively.

Table 4: Comparison of Difference regarding Mean Scores of Patients' Knowledge throughout the Study Periods Using One Way Repeated Measures ANOVA (n=100).

Study Periods	Base line X ± SD	After 3 weeks X ± SD	After 6 weeks X ± SD	F ratio / p-value
Mean Scores	3.76±2.06	6.99±1.13	6.95±1.34	217.78* 0.000

Table (4) represents different mean scores of patients' knowledge, findings revealed that there was a statistical significant difference among the study participants (F ratio: 217.78*, p-value: 0.000). The lowest mean score was shown at base line 3.76±2.06, while the mean score become higher three weeks and six weeks 6.99±1.13 and 6.95±1.34 respectively.

Table 5: Comparison of Difference regarding Mean Scores of Nurses' Knowledge throughout the Study Periods Using One Way Repeated Measures ANOVA (n=20).

Study Periods	Base line X ± SD	After 3 weeks X ± SD	After 6 weeks X ± SD	F ratio / p-value
Mean scores	5.55±1.93	7.20±0.83	7.45±2.08	153.36* 0.000

Table (5) illustrates different mean scores of nurses' knowledge, findings showed that there was a statistical significant difference among the study participants (F ratio: 153.36*, p-value: 0.000). The lowest mean score was shown at base line 5.55±1.93, while the mean score become higher three weeks 7.20±0.83 and decline six

weeks after program implementation 7.45±2.08.

Table 6: Comparison of Difference regarding Mean Scores of Nurses' Practice throughout the Study Observational Periods Using One Way Repeated Measures ANOVA (n=20).

Observational Periods	Base line X ±SD	After 3 weeks X ±SD	After 6 weeks X ±SD	F ratio / p-value
Mean scores	6.10 ± 1.37	7.55 ± 0.68	7.50 ± 0.60	57.00* 0.000

Table (6) displays different nurses' practice mean scores, results pinpoint that there was a statistical significant difference among the study participants (F ratio: 57.00*, p-value: 0.000). The lowest mean score was shown at base line 6.10 ± 1.37, while the mean score become higher three weeks and six weeks 7.55 ± 0.68 and 7.50 ± 0.60 respectively.

Figure 4: Comparison regarding Cancer Pain Management before and after implementing Nursing Strategies as reported by Patients (n=100):
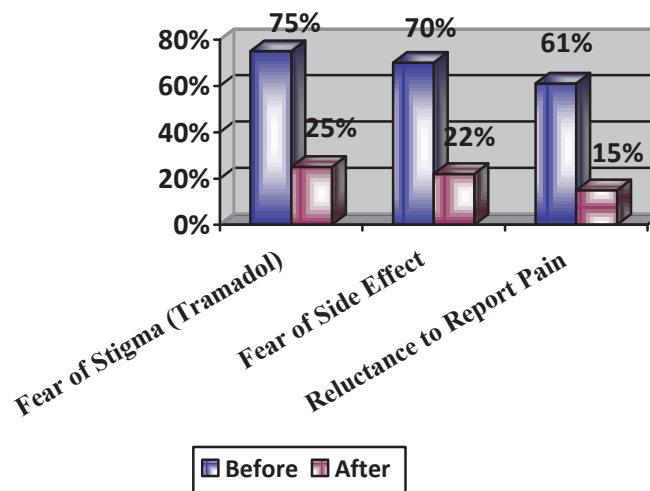

Figure (4) illustrates that fear of stigma as patients' used Tramadol, fear of side effect and reluctance to report pain had highest percentage before implementing nursing strategies (75%, 70% and 61% respectively), while, there were marked decline after implementing nursing strategies (25%, 22% and 15% respectively).

Figure 5: Comparison regarding Cancer Pain Management before and after implementing Nursing Strategies as reported by Nurses (n=20):
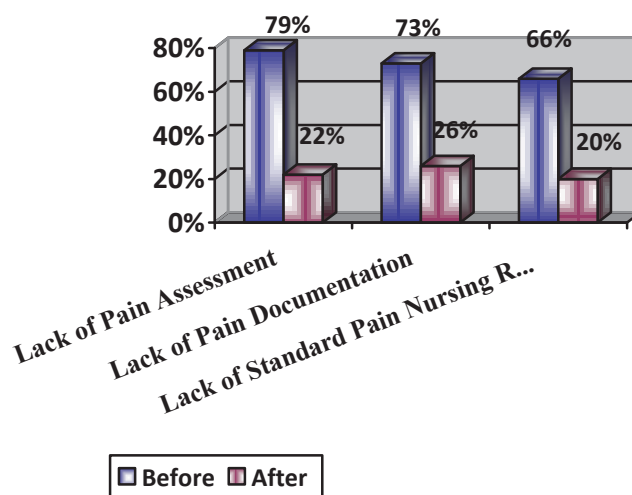

Figure (5) illustrates comparison regarding cancer pain management before and after implementing nursing strategies, it showed that lack of pain assessment, lack of pain documentation and lack of standard pain nursing recommendation had highest percentage before implementing nursing strategies (79%, 73% and 66% respectively), while, there were marked decline after implementing nursing strategies (22%, 26% and 20% respectively).

Discussion

In Egypt, there are many obstacles that face the attainment of effective care, better diagnosis and early detection of cancer pain management. One of the main obstacles is the inadequate education for both health care providers and the patients as well. Therefore, all activities taken to meet the purposes of the cancer management strategies must work within the framework of the strategic national plan of the Ministry of Health, that ensure equitable care among all patients using an evidence based approach **(Ibrahim and Mikhail (2015).**

Concerning demographic characteristics related to nurses, findings revealed that three quarter of them were less than thirty five years old, the majority of study nurses were female, half of them were less than 5 years experience, all of them had bachelor degree. Regarding position, the majority was staff nurses working twelve hours morning shift. This <u>figure</u> of the demographic data can explain the findings; despite all nurses had bachelor degree the mean scores of their knowledge and practice before program education was unsatisfactory, this could be due to some of the nurses were newcomers in the unit, some others claimed that the inadequacies of pain management with the unwillingness to raise pain as a priority is other issue, in addition to the deficits identified regarding lack of assessment, and lack of documentation in addition to absence of guidelines as well as nurses didn't provide a holistic care for patients like medication, education, communication and non pharmacological therapies as a result of work overload and burnout. This findings is in contrast with **Berragan, (2013)** who mentioned that many nurses prefer to acquire and develop their practice knowledge of patient care through personal work experience, rather than through formal training and educational interventions and in congruent with **Macintyre et al., (2010),** who strengthening on the role of non-pharmacological therapies, such relaxation techniques, information provision, distraction, and cognitive behavioural interventions which have gained value in managing cancer pain.

Regarding demographic characteristics of the patients, the present study findings revealed that more than two third of them aged between thirty five to fifty years old, about half of them were male and more than third were free work occupation, third of them were illiterate. Researches correlate the frequency distribution of the study participants regarding medical diagnosis and the demographic characteristics with the finding related to their knowledge about cancer pain to assess causes of disease and barriers that hinder their progress, findings showed that distribution of medical diagnosis seems to be close in the current study, but the highest which were third of patients found regarding lung cancer and within the sector of illiterate in education and free work. This result can be interpreted that through patients' interview, researchers found that the mean score of their knowledge were low at the beginning of the study, as a result of the impact of economic status on individuals and families' burden considered the main causes of seeking such behaviors as smoking as a way to flee from reality and to be a mean of enjoyment and stress relief. This is in agreement with a study conducted by the **American Cancer Society (2014)** which revealed that one cause of lung cancer as a result of smoking is being related to educational status which occurs most common among the least educated individuals.

Concerning patients' barriers regarding cancer pain management, findings pinpoint that three fourth of the study patients believe that using Tramadol as pain relief is a stigma, in spite of the fact that Tramadol considered effective and safe medication in the treatment of cancer pain. This result is in agreement with a study published by **Bilen A et al., (2013),** which concluded that the efficacy of tramadol usage in patients with cancer pain considered a weak opiods when use it alone.

While looking at the mean score of their pain intensity, it was high at baseline, and then reduced three week and six weeks, this reduction in pain intensity can be due to nursing strategies. This finding force the researchers to observe the study participants of nurses about the implementation of different educated/suggested strategies related to cancer pain management. There was a statistical significant improvement three and six weeks on nurses' knowledge and practice regarding care provision marked by improvement in mean score of patients' knowledge and pain intensity. The <u>low</u> result found at the baseline due lack of courses related to pain in their under graduate classes, lack of continuing training, work overload, inadequate knowledge or information gap, were the identified barriers that hold back nurses to deal with adequate cancer pain management effectively. Similar findings were also observed in studies conducted in Sirilanka, by **Kipkorir, (2011)** and the study of **Peterson and co-workers, (2017)** who confirmed that pain management practices can be improved, but that it takes time and effort to change clinical practice.

As regards to the other subsequent barriers, the three selected barriers that researchers work on it varied between more than two third to half of patients who reported that fear of stigma by using Tramadol, fear of side effect and reluctance to report pain were the most barriers. This may be due to many factors that hinder patients reporting their pain, one of them is anxiety and pain experience, impact of disease on patients' general condition, being unproductive lead to lessen his income, the advanced psychosocial status make him start to loose their willingness to seek for medical advice in early stages. This finding was in the same context of **Curry (2010)** who believed that nurses should have a role and be aware of individuals' typical cultural and psychological perspectives that may influence pain management process and its outcomes on patients' rehabilitation.

In addition, the study results supported the hypothesis as, findings denoted improvement of rating

percentages regarding patients' and nurses' barriers after implementing nursing strategies. It was remarked that more than fifty percent of barriers rating was decline. This is may be due to the positive response of both patients' and nurses' after implementing nursing strategies; this was evidenced by reduction in rating percentages of related barriers. This is in agreement with **Adam et al. (2016)** whom conducted systematic review and Meta analysis study; they concluded those interventions that eliminate cancer pain related barriers to patients, nurses and other health professionals led to modest reduction in the overall percentage of cancer pain management barriers.

Conclusion

The study findings supported the hypothesis; it indicated an improvement of patients' pain intensity. In addition to significant improvement of knowledge mean scores regarding patients and nurses as well as nurses' practice mean score after implementing nursing strategies. It was remarked that more than fifty percent of barriers rating was decline for both patients and nurses.

Recommendations

1. Ongoing training and educational opportunities for both patients and nurse should be available to ensure implementation of nursing strategies to overcome barriers related to cancer pain management.
2. Replicate the study on a larger study sample in different settings to generalize the results.
3. Further studies may be needed to investigate further roots of pain to set other nursing strategies to overcome cancer related pain management.
4. Effective and efficient models of care should be investigated, updated and implemented as evidenced by the results from the researches across the entire system.
5. Policy, procedures and clinical guidelines regarding cancer pain management should be established to overcome such barriers.
6. Workload management system should be established and periodically reviewed to assess the acuity of patients' conditions for proper management.
7. Nurse Managers should review the work environment to enable nurses meet the highest professional standards of care provided.
8. All activities should be taken to meet the purposes of the cancer management strategies to work within the framework of the Egyptian national plan of the Ministry of Health through using evidence based approach.

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