Cancer Pain Management by Nurses at a Cancer Hospital in Dhaka

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Abstract
Background: *Cancer pain is a serious and feared consequence syndrome in cancer patients. Appropriate cancer pain management is the cornerstone of symptom management for patient with cancer. Nurses are the professional who spend more time with patient than others health care team and has a vital role on assessment and practice of cancer pain management.*

Objective: *The main objective of this study was to assess cancer pain management by nurses at a cancer hospital in Dhaka, Bangladesh.*

Methods: *A descriptive study design was carried out among conveniently selected sample of 120 registered nurses. The data was collected by using Cancer Pain Management Questionnaire (17items) in 5 point (0-4) rating scale with Cronbach's Alpha was .70. Data were analyzed by both descriptive and inferential such as t test, Correlation and ANOVA statistics.*

Result: *The mean age of the nurse participants was 29.67(±5.343) years and most of them (90.8%) were between 24-36 years. Most of the nurses had ≤ 2 years duration of service (75%) and working experience in oncology (84.2%).The average pain management score of nurse's was 3.14 (SD=.354). Nurses pain management score had significantly negative correlationship with duration of service (r = -.223, p =.014) and working experience in oncology (r = -.185, p=.043). Cancer pain management score was also significantly higher among the nurses working in palliative care unit (F=6.794, p=.000) than nurses working in other cancer unit.*

Conclusion: *This study showed the nearly high level of cancer pain management by nurses at cancer hospital, but there were also some barriers that impedes the nurse's pain management practice. Since cancer pain management remains a challenge in spite of improved pain medications, multidisciplinary treatments, so authority should take initiative to reduce barriers and improving nursing practice.*

Keywords: *Cancer Pain, Pain Management, Oncology Nurses, Nursing Practice, Barriers.*

I. Introduction

Appropriate cancer pain management is the cornerstone of symptom management for patient with cancer[1].Cancer pain is a multi-dimensional syndrome with a combination of acute and chronic pain that causes, physical, psycho-social , behavioral, emotional and spiritual problems, resulting in adverse effects on patient' quality of life [1,2] . Nurses need to be well prepared with Knowledge on assessment and practice of pain management technique in oncology unit, due to their vital role in decision making process regarding pain management[2].

Cancer pain is a serious and feared consequence syndrome in cancer patients at the early stage of cancer[3] that affects the quality of life of patients, families, and caregivers [4, 5].The World Health Organization (WHO) and international pain community have acknowledged cancer pain as global health concern[6]. The prevalence of cancer pain is high in developing countries due to late diagnosis of disease and major impairments to opioids success. A current population -based study that explored cancer pain prevalence in 11 European countries and Israel found that 56% of patients suffered from moderate to severe pain, and 69% reported pain related problems with normal activities[7].

Pain management refers to the alleviation of pain or a reduction in pain to a level that is acceptable to the patient[8]and is an important aspect in the care of cancer patient[9]. Various method such as pharmacological,

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non-pharmacological and other interventional therapies were used in the management of cancer pain [10]. Nurses are the professionals who spend more time with patient than any other member of the healthcare team and has a central role on assessment and practice of cancer pain management. Effective pain management is an integral part of nursing care and nurses have an important role in cancer pain management as they deliver direct patient care on a 24-hour basis[11].

Inadequate pain management can be attributed to barriers related to health care professionals, patients, and the health care system. Poor pain assessment, lack of knowledge and skill, the reluctance of physicians to prescribe opioids, limited stock of analgesic regimens are major barriers that hinders nurses in effective management of cancer pain[1,4].

The current study assesses the cancer pain management by nurses at a selected hospital in Bangladesh. Many studies have described about nurse knowledge, attitude and awareness of cancer pain management [12-16], but there is scanty of study have examined the management and barriers of cancer pain management by nurses. Therefore this is necessary to identify how nurse manage cancer pain of their patient in cancer unit.

II. Materials And Methods

1. Study design
This study used descriptive study design to assess the level of cancer pain management by nurses in a selected cancer hospital of Bangladesh.

2. Study participants
The participants of this study were registered nurses working at various department (i.e., general oncology, emergency, post-operative, ICU and palliative care unit) of National Institute of Cancer Research and Hospital (NICRH), Mohakhali Dhaka, Bangladesh. A convenient sampling technique was used to select the participants for data collection. The inclusion criteria of the participants were

    i.   Nurses having at least 1 year working experience in NICRH.
    ii.   Nurses who were agree to participate in this study.

3. Instruments
Questionnaire was developed by the researcher based on review of literature. The questionnaire consists of following 3 sections.

Section-1. Socio-Demographic Questionnaire (SDQ): It consists of 11 items including age, gender, religion, professional education, marital status, duration of service, monthly family income, working experience in oncology, department of cancer unit, cancer and/or pain related training, pain management education, and use of pain assessment tool.

Section-2. Cancer Pain Management Questionnaire: It consist of (17) items of question and participants were mark their performance. 5 point likert scale (0 =Never to 4 = Always) was used to measure the level of cancer pain management by nurse.

Section-3. Barriers of Cancer Pain Management Questionnaire: Barriers related to cancer pain management questionnaire comprising total 13 items of question and 5 point likert scale (0= strongly disagree to 4= strongly agree) scale was used to explore major barrier regarding cancer pain management .

4. Data collection
Data were collected from the subject of the selected cancer hospital by self-reported questionnaire from December 2018 to January 2019. Prior to data collection, the Institutional Review Board (IRB) of Bangabandhu Sheikh Mujib Medical University (BSMMU) and National Institute of Advanced Nursing Education and Research (NIANER) ,Dhaka, Bangladesh were approved the proposal . Permission was obtained from the selected hospital and inform consent also taken from the participant. All nurses were ensured that their participation had been voluntary. The subject's confidentiality and anonymity was firmly maintained with code numbers. All necessary information collected from the subject were kept confidential and destroyed after completion of the course.

5. Data analysis
Descriptive and inferential statistics were used. Socio demographic data were described by frequencies, percentages, mean, and standard deviation. Inferential statistics were used to examine relationship between demographic characteristic and management variables including, T test, Correlation and ANOVA.

III. Results

1. Socio-demographic Characteristics of the Nurse's Participants.

Table 1 describes the demographic characteristics of this study participants. The result revealed that participants involved in this study had an average age of 29.67± 5.343 years old and most of them 90.8% were in the age group of between 24-36 years. Among the 120 participants about 93.3% were female 80% married and 62.5% belonged to the Muslim religion. Professionally majority 83.3% of the participant's educational level was diploma in nursing, and rest of them 16.7% were BSc. in nursing and above. The average govt. nursing service experience of the participants as registered nurses was 3.98 ± 4.407 years ranged from 2 to 23 years. Their average working experience in oncology ward about 3.18 ± 3.777 years ranged from 1 to 22 years but most of them about 81.7% had 2 or less than 2 years' experience in oncology ward. The average monthly family income of the participants was 51508.33 ± 16562.079. Among the participants majority of them 62.5% working at general oncology ward, 12.5% at emergency, 11.7% at post-operative, 8.3% at ICU and 5.0% at palliative department. The study found that only 12.5 % participants had short course on cancer pain management. The nurses participants reported that 56.7% of them did not use to pain assessment tool, and rest of them 28.3% used verbal rating scale, 13.3% used visual analogue scale and only 1.7% used numeric rating scale.

Table 1. Socio-Demographic Characteristics of the Participants (N=120)

Variables	Categories	n	%	Mean±SD
Age(years				29.67 ± 5.343
	24-36	109	90.8	
	37-50	11	9.2	
Min.=24,Max.=50				
Gender				
	Female	112	93.3	
	Male	8	6.7	
Religion				
	Muslim	75	62.5	
	Non-Muslim	45	37.5	
Professional Education				
	Diploma in Nursing	100	83.3	
	BSc.in Nursing and above	20	16.7	
Marital Status				
	Married	96	80.0	
	Unmarried	24	20.0	
Duration of service (years)				3.98±4.407
	≤2	90	75.0	
	>2	30	25.0	
Min.=2 ,Max.=23				
Monthly Family income (BDT)				51508.33±16562.079
	<51000	75	62.6	
	51000-75000	35	29.2	
	>75000	10	8.3	
Min.=29000 ,Max.=10,0000				
Working experience in oncology ward (Years)				3.18±3.777
	≤2	101	84.2	
	>2	19	15.8	
Min.=1 ,Max.=2				
Department of working in Cancer unit				
	ICU	10	8.3	
	Emergency	15	12.5	
	General oncology	75	62.5	
	Post-operative	14	11.7	
	Palliative	6	5.0	
Short Course on Cancer Pain management				
	Yes	15	12.5	
	No	105	87.5	
Using assessment tool				
	Numeric rating scale	2	1.7	
	Verbal rating Scale	34	28.3	
	Visual analogue scale	16	13.3	
	None	68	56.7	

2. Frequency and Percentage of Cancer Pain Management by Nurses

The study revealed that the average pain management score was 3.1392 (±.35401) in the 5 point (0-4) rating scale. It was found that 100% of the nurses always apply prescribe pain medication in the management of cancer pain, followed by 96.7% nurses provides counseling/ education for patient and his family for pain management, 95% nurses put the patient in comfortable position, 92.5% nurses use comfort devices (special mattress, ring, and pillow), 81.7% nurses help the patient to pray and 74.2%, nurses ask the patient to describe their pain (onset, location, duration etc.) while assess pain. Whereas very few nurses 16.7% always apply hot and cold substances, and 15.8% nurses always encourage the patient to listen light music/watching TV for management of pain. It was also found that more than half of nurses sometimes use messaging 55.8 %., hot or cold substances 51.7%, breathing exercise 50.8%, assist patient to stay in rest without movement and encourage the patient to listen light music/watching TV 47.5%, and assess cancer pain and identify pain score45.0%, in the management of cancer pain. The most rarely used methods for cancer pain management were apply guided imagery/visualization technique 26.7%, and 40.8% participants responds that they never assist patient in hydrotherapy(Partial bath) (Table 2).

Table 2. Frequency and Percentage of Cancer Pain Management by Nurses (N=120)

Items	Never	Very rarely	Rarely	sometimes	Always	M ±SD
	n (%)	n (%)	n (%)	n (%)	n (%)	
1. Ask the patient to describe their pain (onset, location, duration….etc.) while assess pain.				31(25.8)	89(74.2)	3.74±.440
2. Assess cancer pain and identify pain score	7(5.8)	7(5.8)	24(20.0)	54(45.0)	28(23.3)	2.74±1.065
3. Apply prescribe pain medication					120(100)	4.00±.000
4. Reassess cancer pain after pain medication		3(2.5)	13(10.8)	47(39.2)	57(47.5)	3.32±.767
5.Record the activities regarding pain management (pain score, pain medication and result)	12(10)	7(5.8)	15(12.5)	35(29.2)	51(42.5)	2.88±1.298
6. Pain scores and pain management discussed during nurse –to-nurse report.	2(1.7)	3(2.5)	4(3.3)	39(32.5)	72(60)	3.47± .819
7. Put the patient in comfortable position			1(.8)	5(4.2)	114(95.0)	3.94± .269
8. Apply hot or cold substances in the pain area	5(4.2)	10(8.3)	23(19.2)	62(51.7)	20(16.7)	2.68±.987
9. Apply breathing exercise.	1(.80)	6(5.0)	16(13.3)	61(50.8)	36(30.0)	3.04± .844
10. Assist patient in hydrotherapy(Partial bath)	49(40.8)	17(14.2)	19(15.8)	22(18.3)	13(10.8)	1.44±1.448
11. Assist patient to stay in rest without movement if necessary.	1(.8)	4(3.3)	5(4.2)	57(47.5)	53(44.2)	3.31±.776
12. Apply messaging in the pain area while applicable.	4(3.3)	10(8.3)	15(12.5)	67(55.8)	24(20.0)	2.81±.964
13. Encourage the patient to listen light Music/watching TV	10(8.3)	9(7.5)	25(20.8)	57(47.5)	19(15.8)	2.55±1.107
14. Help the patient to pray	3(2.5)	2(1.7)	2(1.7)	15(12.5)	98(81.7)	3.69±.807
15. Apply guided imagery/visualization technique	22(18.3)	20(16.7)	32(26.7)	33(27.5)	13(10.8)	1.96± 1.273
16.Use comfort devices (special mattress, ring, pillow)	3(2.5)		1(.8)	5(4.2)	111(92.5)	3.84± .674
17.Counseling/provides education for patient and his family about pain management			2(1.7)	2(1.7)	116(96.7)	3.95± .286
Total mean(SD)						3.14±.354

3. Frequency and Percentage of Barriers of Cancer Pain Management by Nurses

This section shows the nurses barriers in the management of cancer pain as reported by nurses. It was found that more than 90% nurses were agreed or strongly agreed with 6 major barriers that may affect their abilities in the management of cancer pain , such as 99.2% nurses agreed with 'patient inability to pay for pain medication', followed by 95.8% with fear of drug addiction of patient's , 95.0% with fear of drug adverse effects such as constipation, nausea and vomiting, 91.7% with inadequate pain assessment tool ,90.8% with fear of legal /administrative constraints ,and lack of equipment s like mattress, pillow etc. respectively (Table 3).

Table 3. Distribution of Frequency and Percentage of barriers of cancer pain management by Nurses (N=120)

	Items	Strongly disagree	Disagree	Undec-ided	Agree	Strongly agree	M ±SD
		n (%)	n (%)	n (%)	n (%)	n (%)	
1	Inadequate Pain assessment tool.	1(.8)	8(6.7)	1(.8)	85(70.8)	25(20.8)	3.04 ± .749
2	Insufficient Knowledge and experience of cancer pain management.	28(23.3)	49(40.8)	2(1.7)	29(24.2)	12(10)	1.57±1.346
3	Reluctance to use prescribe opioids	8(6.7)	73(60.8)	8(6.7)	27(225)	3(2.5)	1.53 ± .999
4	Fear of drug adverse effects such as constipation, nausea and vomiting.		4(3.3)	(1.7)	23(19.2)	91(75.8)	3.68 ± .676
5	Fear of drug addiction of patients.	2(1.7)	2(1.7)	1(.8)	24(20.0)	91(75.8)	3.67 ± .737
6	Limited stock of analgesics	3(2.5)	50(41.7)	3(2.5)	51(42.5)	13(10.8)	2.18±1.164
7	Fear of legal /administrative constraints.	2(1.7)	6(5.0)	3(2.5)	23(19.2)	86(71.7)	3.54 ± .897
8	Patient reluctance to report pain	12(10.0)	64(53.3)	1(.8)	38(31.7)	4(3.3)	1.65±1.132
9	Patient reluctance to take opioids	9(7.5)	73(60.8)	2(1.7)	31(25.8)	5(4.2)	1.58±1.081
10	Patient inability to pay for pain medication		1(.8)		10(8.3)	109(90.8)	3.89 ± .384
11	Insufficient communication with patient.	5(4.2)	43(35.8)		57(47.5)	15(12.5)	2.28±1.197
12	Lack of equipment s of like mattress, pillow etc.		11(9.2)		20(16.7)	89(74.2)	3.56 ± .896
13	Lack of time due to work load	6 (5.0)	56(46.7)	3(2.5)	31(25.8)	24(20.0)	2.09±1.316
	Total mean (SD)						2.63 ± .289

4. Relationship of the Socio-Demographic Characteristics of Nurses with Cancer Pain Management and Barriers to Cancer Pain Management

Table 4 shows the relationship between socio-demographic characteristics and cancer pain management of the nurses. This study found that duration of service ($r = -.223$, $p =.014$) and working experience in oncology ($r = -.185$, $p=.043$) have significantly negative correlationship with cancer pain management score. Moreover it was also found that cancer pain management score was significantly ($F=6.794$, $p=.000$) different with nurse working in different cancer unit. Nurses working in Palliative care unit has significantly higher score ($3.32\pm .12198$) in cancer pain management than working in other units. Other variables did not show any statistical significant difference with the cancer pain management.

Table 4. Relationship of the Socio-Demographic Characteristics of Nurses with Cancer Pain Management and Barriers to Cancer Pain Management (N= 120)

Variables	Categories	Cancer pain management		Barriers of Cancer Pain Management	
		Mean(SD)	t/F/r(p	Mean (SD)	t/F/r(p)
Age (years)			-.110(.232)		-.075(.416)
Gender			-.542(.589)		1.673(.097)
	Male	3.07 (.221)		2.80(.260)	
	Female	3.14 (.362)		2.62 (.289)	
Religion			.612(.542)		-1.060(.292)
	Muslim	3.16(.329)		2.61(.309)	
	Non-Muslim	3.11(.394)		2.67 (.253)	
Professional Education			-1.376(.176)		-.696(.493)
	Diploma in Nursing	3.12 (.373)		2.63(.287)	
	BSc. in nursing and above	3.21(.229)		2.68(.305)	
Marital status			-1.055(.294)		1.290(.200)
	Single	3.07 (.390)		2.70 (.364)	
	Married	3.16(.344)		2.62(.267)	
Duration of service(years			-.223(.014)		.014(.883)
Monthly family income			.112(.224)		.038(.682)
Working experience in oncology			-.185(.043)		-.021(.816)
Department of working in cancer unit			6.794(.000)		5.402(.001)
	ICU	3.24 (.181)a	e>a,c,b,d & d	2.78(.169)a	a & e> c,b & d
	Emergency	2.93(.241)b		2.55 (.376)b	
	General oncology	3.21 (.368)c		2.67(.274)c	
	Post-operative	2.82(.255)d		2.36(.172)d	
	Palliative	3.32 (.122)e		2.78(.203)e	
Short Course on Cancer pain Management			-.816(.420)		-.175(.862)
	Yes	3.10(.173)		2.63(.177)	
	No	3.15(.372)		2.64(.303)	
Assessment Tool used			.230(.875)		2.127(.101)
	Numeric rating scale	3.00 (.083)		2.58(.272)	
	Verbal rating scale	3.14 (.338)		2.53 (.250)	
	Visual analogue scale	3.19 (.170)		2.66 (.194)	
	None	3.13(.398)		2.68(.317)	
Barriers of Cancer Pain Management			.038(.677)		

IV. Discussion

The current study assesses the cancer pain management by nurses at selected hospital in Bangladesh. In This study the average cancer pain management score was 3.14 (± .354) which indicate nearly high level of cancer pain management by nurses in Bangladesh. Researcher did not get similar study to support this findings of the study and it could be due to limited study on cancer pain management in Bangladesh and other countries. However researcher found others study on overall pain management which findings are consistent to the present study.[8, 17]. A Malaysian study carried out by[18] found that nurses tended to have a moderate level of pain management practice (mean =4.968; SD=1.310). These findings are contrast with the present study. This study found that nurse mostly manage cancer pain by applying prescribing pain medication (100%) this indicate that nurses prepare pharmacological approach than non-pharmacological this because of in the perspective of our country nurses mostly carry out the doctors order although many non-pharmacological approach are available and effective for cancer pain management. Similar result also found the study conducted by[19] showed that majority of nurses did not use non-pharmacological pain management method. These findings are consistent with the present study.

Other common items that nurses always applied for cancer pain management were, put the patient comfortable position, providing counseling/education and providing comfort devices like mattress or pillows, which are similar to the study findings done by[19]. Study performed by [20] found that major approach of pediatric cancer pain management were patients comfort, and drugs, other approach were pain evaluation, heat, message, psychological support and environmental changes which strongly support the present study. Similar findings also were observed in study conducted [8, 21].

Barriers play an important role in the successful management of cancer pain and nurses faced these barriers in their daily practice of assessment and management of patient[1]. In this study nurses also agreed or strongly agreed with several barriers that affects the nurses in the adequate cancer pain management. Present

study identified that major barriers were patient inability to pay for pain medication, fear of drug addiction of patients, fear of drug adverse effect such as constipation, nausea, and vomiting, inadequate pain assessment tool, fear of legal/administrative constraint, and lack equipment's like mattress, pillow etc. Similar findings were also found in the study conducted by [22] . except fear of legal/administrative constraint, and lack of equipment's like mattress, pillow etc. One of the most common barriers was patient inability to pay for pain medication 99.2%. Similar barriers were also identified in the study conducted by [23]. Insufficient knowledge and experience of cancer pain management was indicated as a pain management barrier by only (34.2%) of nurse's participants. Although present study did not evaluate the nurse's knowledge and attitude on pain management, many studies has identified lack of knowledge and experience are most important barriers that affects health care professional in effective pain management [24]. Similar result also found in the study of [23]identified only a small percentage of the nurses agreed that nurses 'inadequate knowledge of pain management (10%) was barriers to pain management.

There are many variables and factors that may be closely related to cancer pain management such as age, professional education, duration of service years and years of experience, income, department of working and use of assessment tool. However this study findings unexpectedly revealed that nurse's age, income, and professional education use of assessment tool showed no statistically significant association with cancer pain management. Nurses' duration of service years and working experience in oncology unit showed statistically significant negative correlation with cancer pain management. This because majority of the nurses length of service years and working experience was ≤ 2 years. Researcher also assumed that though nurses service and working experience was low but perform better practice because they are young energetic, less fatigue, had upgraded knowledge on cancer pain , and learned from seniors and others health care professionals.

Nurses working in different cancer unit also showed significant relationship with cancer pain management and barriers of cancer pain management. It means barriers prevent nurses to manage cancer pain effectively. This findings is contradicted with Ali' study [19] who revealed that work experience, and the unit which they worked showed no statistically association with pain management. However this findings are consistent with study of [25, 26]who identified that nurse's educational level, work experience and the unit which they worked showed statistically significant relation with pain management although there is no significance association with education and pain management in the present study.

V. Conclusion

The study revealed that the level of cancer pain management by nurses was nearly high**.** The most common cancer pain management were applying prescribed pain medication, put the patient in comfortable position, provide counseling/education, use comfort devices (special mattress, ring, and pillow) and encourage to listen music /watching TV. This study result also identified moderate level of barriers that impedes the nurse's in their daily pain management practice. Patient inability to pay for pain medication, fear of drug addiction of patients, fear of drug adverse effects, inadequate pain assessment tool, fear of legal /administrative constraints, and lack of equipment s like mattress, pillow etc. were major barriers .

The major limitation was use of self-developed instrument in this study and the reliability was done by Cronbach's (alpha) instead of test-retest reliability. Secondly, the participants of this study were from a single regional cancer institute. The participants were nurses working at cancer hospital. Therefore, this study findings cannot be generalized to a wider population of registered nurses of all the country and other cancer hospital in Bangladesh.

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Jannat Ara Begum, et. al. *"Cancer Pain Management by Nurses at a Cancer Hospital."IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 9(6), 2020, pp. 47-54.