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Nurses' Knowledge and Practice of Cancer Pain Management in Adult Patients at Garissa County Referral Hospital, Kenya

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Abstract: ***Background: Cancer pain is inadequately managed in Kenya. Despite the development of WHO analgesic ladder since 1986 with the effective response of 80%- 90%, cancer pain at Garissa County Referral Hospital (GCRH) remains poorly managed. While cases of cancer patients have been on the increase at GCRH, no study has been done on assessment and management of cancer pain by clinical nurses. Clinical nurses are primary caregivers in Kenya,and knowledgeable clinical nurses will provide effective pain management, thus improving the quality of lives of cancer patients. Aim: The purpose of this study was to determine the clinical nurses' perspective of cancer pain management of adult patients at GCRH. Methods and Material: A total of 84 clinical nurses were administered with questionnaires to assess their knowledge on assessment and management of cancer pain based on utilisation of WHO analgesic ladder. Clinical nurses from various departments were purposively stratified and recruited using simple random sampling. Hospital based 94 cancer patients were also assessed for their frequency and level of pain management using MBPI (Modified Brief Pain Inventory). Cancer patients from outpatient and inpatient, aged 18 years and above, present during the study period of May 18th to November 17th were included in the study. Result: Majority of nurses 54 (64.3%) had a diploma level of training,and 37 (44%) had working experience of 1-3years. A total of 81% indicated they had no training on cancer pain management and 83.2% of them reported they had not utilisedWHO analgesic ladder for pain management. Majority 78 % (66) indicated they had no tool for pain assessment and 81.9% (77) of cancer patients incorrectly utilised WHO analgesic ladder. Mean age of cancer patients was 50years, composed of 42(44.7%) male and 52 (55.3%) female. Prevalence of cancer pain was 78% with majority reporting moderate to severe pain. A total of 91% male and 70% female were undertreated with PIM of (p value < 0.05). Majority of them 65% (61) and 77.6% (73) considered alternative therapy of Quran and Somali herbs respectively for pain management. Conclusion and Recommendation: This study found a high prevalence of cancer pain, knowledge deficit among nurses with a negative attitude and suboptimal cancer pain management. Thus recommend the capacity building of nurses caring for cancer patients and review of the curriculum of nursing training.***

Keywords:prevalence, cancer pain, clinical nurses

1. Introduction

Pain is a common symptom of cancer that is a concern to patients seeking health care services. Cancer pain is subjective and complex symptoms that result in a mixed mechanism of pain. Cancer pain involves inflammatory, ischemic, and neuropathic and compression mechanisms at multiple sites(ArmidaParala-Metz, 2013). However, Clinical nurses are expected to utilise appropriate, standardised pain assessment tool and pharmacological interventions therapies for pain management. Clinical nurses are expected to have knowledgeable (Theresa et al., 2014) on the administration of pain medication including the dosages, side effects, drug interactions to effectively manage cancer pain

Evidence revealed that the global prevalence of cancer pain is high.Prevalence of cancer painis estimated as 25% for newly diagnosed, 33% for those undergoing active treatment, 75% for those with advanced disease and about 33% for chronic survivors who completed treatment (Paice and Ferrell 2011). Systematic literature publications between September 2005 and January 2014, on 4117 titles and 122 studies found the prevalence of cancer pain as 39.3% after curative treatment, 55.0% during anticancer treatment and 66.4% in advanced disease. Moderate to severe pain (numerical rating scale score ≥5) was reported by 38.0% of all patients(van den Beuken-van Everdingen et al., 2016).Despite the increased attention on assessment and management of cancer pain, moderate to severe pain continues to be a prevalent symptom in cancer patients.

Presence, severity and management of cancerpain in520 ambulatory patients at oncology unit in Kenya had prevalence of pain at 38.5 %,and over 65% reported inadequate pain management of which 47% of these patients were on non-opioids, 13% were not on any analgesics,and only 10% were on strong opioid such as morphine (Ndegwa, 2013). In another study at Moi Referral Hospital, Kenya comprising of 400 hospitalised cancer and HIV/AIDS patients reported 66% undertreated of pain and a negative score of pain management index (Huang et al.,2013). Thus cancer pain is very common,and the management is suboptimal inKenya (Ndegwa, 2013, Huang et al., 2013). This pain is due to the limited treatment options for cancer, patients presenting in an advanced stage, limited choice and availability of analgesics and limited trained staff on pain management.

Clinical nurses are expected to possess adequate knowledge of cancer pain assessment and management (Theresa et al., 2014).Thisexpectation is based on the fact thatclinical nurses are active participants in the entire clinical processes of pain management and cancer pain care is an essential part of patients' care. However many studies report the deficit of nurses' knowledge of cancer pain management. Nurses' knowledge and attitude was assessed on cancer pain

management at government and private institutions in Ethiopia. This study found that 53.7% of nurses had negative attitude accounting for than half of the respondents. Likewise, 65.9% of nurse demonstrated inadequate on the practice of cancer pain management and absence of related course on pain management in undergraduate classes, poor continuous training on the same, confusion of roles, overwhelming work overload and poor remuneration was reported as main barriers for effective cancer pain management (Nega and Mulla 2013). Another study on nurses' attitude, belief and practice at a Sri Lankan government hospital found that nurses performed poorly in the management of cancer pain because of limitation of resources, poor workload allocation, and shortage of nurses and lack of autonomous in cancer pain management (De Silva and Rolls, 2011). Nurses' attitude and knowledge in pain management in Saudi Arabia was found that nurses have limited knowledge on pain care and require continuous education and review of nursing undergraduate curricula.Participants' respondent rate was 82% (240), Questions correctly answerer were 18.5 at the standard deviation of 4.7, out of 40 if all questions were answered as expected with a range of 3-37 (De Silva and Rolls,2011).

Nurses' skills, knowledge and attitude on pain management in Nigeria were assessed,anda deficit of knowledge and positive attitudes among nurses was reportedas a challenging factor in cancer pain management (Liza, Winnie andDaniel 2008). Nurses with a more extended period of experience in the clinical area had better knowledge than those who had a shorter period in clinical practice. This study concludes that nurses had advanced suitable attitudes towards cancer pain management, but there is exist contradictions between practice and attitudes. In another study, nurses demonstrated knowledgeable about cancer pain management guidelines but were ignorant of pharmacological approaches to cancer pain management and had negative attitudes toward opioids addiction and pain assessment. Knowledge and attitudes were higher among nurses who had earlier education programs ($P < .001$) and operated in a pain team ($P < .001$) (Abdulhaleem, 2018).).

Nurses in Kenya form the bulk of health workers and provide multiple health care services in rural Kenya that include pain management. Also, there has been increasing cases of cancer patients at GCRH (Hassan etal,.2013). Thus nurses' knowledge and practice are vital. This study, therefore, aimed toexamine the nurses' knowledge and practice of cancer pain management at GarissaCountyReferralHospital in Kenya.

2. Methods and Material

Study design:Descriptive cross sectional with both mix method approach was used.

Study area: Garissa County Referral Hospital (GCRH)is situated in Garissa County with anestimated population of 334, 99.00 persons (Kenya National Bureau of statistics, 2009), that is unevenly distributed in an area of 126,906 km^2 (Hassan et al. 2013).Garissa County is mostly inhabited by the pastoralist community of ethnic Somali origin and is categorised as a marginalised area in Kenya (Garissa, 2013).

Targeted population: Study targetedwere all nurses taking care of cancer patients and hospital based adult cancer,patients

Study population:Nurses are taking care of cancer patients and adult cancer patients at Garissa County Referral Hospital.

Sample size: A sample size of 84 Clinical nurses and 94 adult cancer patients from both inpatients and outpatient departments of GCRH

Data Collection: Clinical nurses working in all the departments of GCRH were administered with questionnaires to assess their knowledge on assessment and management of cancer pain based on utilisation of WHO analgesic ladder. These Clinicalnurses were from various departments of the hospital because they practice departmental rotational nature of working and at given time a clinical nurse will take care of a cancer patient in the medical-surgical wards or outpatient facilities. The participants were purposively stratified and were recruited using simple random sampling. They completed questionnaires containing both closed and opened ended questions to assess their knowledge and practice on cancer pain management. Hospital based 94 cancer patients were also assessed for their frequency and level of pain management using MBPI (Modified Brief Pain Inventory). Cancer patients from both outpatient and inpatient, aged 18 years and above present during the study period of 18/5/2017 to 17/11/2017 were included in the study.

Data analysis: Data analysis appliedwas a descriptive statistic and statistical techniques to determine the relationship between cancer pain management and independent variables such as the utilisation of WHO analgesic ladder medication of pain relief. Questionnaires were sorted, coded and entered in SPSS version 17. Prevalence of cancer pain was calculated using each subject response on the exponential scale rate.Linear regression was used to analyse the relationship between cancer pain management and its independent and intervening variables. To analyse whether the WHO cancer pain management tool was used, chi-square was applied. The desired level of accuracy was set to a confidence level of 95%,and significant levels were set at $P<0.05$ for all tests.

Ethical consideration: The proposal for this study was submitted for ethical approval and approval was gained from the relevant authorities before data collection. Participants also voluntarily joined the study and we had dropout rate of 6% cancer patients.

3. Results

Majority of the nurses had a Diploma at 64.3% (54) followed certificate holders at 22.6 % (19) while only 3.6% (11) had degrees. It was essential to establish the number of years the respondents had served as a nurse to ascertain if they were equipped with relevant knowledge and skills in cancer pain management. The findings show that majority of clinical nurses 44 % (37) had served between 1-3 years,

followed by 36.9% (31) who worked between 4-6 years, 14.3%(12) had served for over six years and only 4.8% (4) less served than one year.

A total of 81% indicated they had no training/ lack in-depth knowledge on cancer pain management and 83.2% of them reported they had not utilised WHO analgesic ladder for pain management. Majority 78 % (66) indicated they had no tool for pain assessment and 81.9% (77) of cancer patients incorrectly utilised WHO analgesic ladder.

The mean age of cancer patients was 50years, composed of 42(44.7%) male and 52 (55.3%) female patients. Prevalence of cancer pain was 78% ranging from moderate to severe. Majority of the respondents 91% male and 70% female were undertreated with negative PMI (p value < 0.05). At the worst pain, patients are supposed to be on the strongest Opioids, that is, Morphine/hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjavants. However, when the respondents of this study were asked to indicate their pain management at their worst, the majority were using the wrong drug level to manage pain. For instance, the findings show that (57.1%) of male respondents, and (73.3%) of female respondents who were experiencing severe pain and were still using level 1 drug (Aspirin/Paracetamol/ Acetaminophen, NSAD's & Adjuvants) contrary to WHO level 3 pain management guidelines. Similarly, (91%) of male respondents and (70%) of female respondents were still using Codeine / Hydrocodone / Oxycodone / Dihydrocodeine/tramadol& Adjuvants, which are level 2 pain management drugs, not recommended for severe pain management. Only (29%) of men and (12%) of women were using the right medication for the right level of pain, thus utilised medication such (Morphine/hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjavants for severe pain management).

Table 1: Demographic information of nurses

Clinical Nurses Demographic Information	Frequency (%) N = 84
Nurses Education Level	
Certificate	19 (22.6%)
Diploma	54 (64.3%)
Higher Diploma	8 (9.5%)
Degree	3 (3.6%)
Nurses Years of Service	
< 1 Year	4 (4.8%)
1-3 Years	37 (44%)
4-6 Years	31 (36.9%)
< 6 Years	12 (14.3%)

Cancer pain management

Pain Management Index (PMI) was calculated to analyze the intensity of pain experienced by cancer patients. This is explained as a way to quantify how pain is adequately managed with pharmacological intervention, as demonstrated in Figure 1 below. The analysis of the adequacy of pharmacological pain management (PMI > 0); and inadequacy (PMI ≤ 0) was calculated using the pain management index. Pain management index is a comparison of the most potent analgesic used by patients on the worst pain. For this study, the level of pain was scored as follows: level 1 for mild pain (1-3 NRS), level 2 for moderate pain (4-6 NRS) and 3 for severe pain (7-10 NRS). The comparative level of analgesic used was graded as follows: 0 for no analgesic; 1 for non-opioids analgesic used, two was used for mild opioids, for moderate pain, while 3 for strong opioids for severe pain.

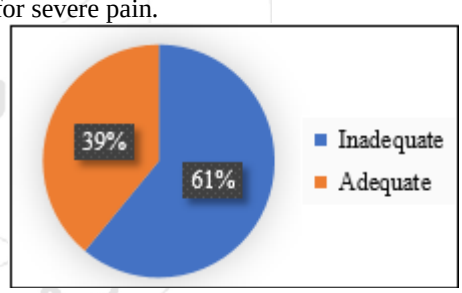


Figure1: Adequacy of pain management.

Table 2: Medication Taken by Cancer Patients

What Medication do you use for pain relief?			Rate Your Pain at its Least		
			Mild pain Level 1	Moderate Pain Level 2	Severe Pain Level 3
Aspirin/Paracetamol/Acetaminophen, NSAD's &+Adjavants	Gender	Male	5 (62.5%)	5 (37.5%)	4 (57.1%)
		Female	3 (37.5%)	9 (64.3%)	3(42.9%)
Codine / Hydrocodone / Oxycodone / Dihydrocodine / tramadol &+Adjavants	Gender	Male	2 (25.0%)	8(36.4%)	11(35.5%)
		Female	6 (75.0%)	14 (63.6%)	20(64.5%)
Morphine / hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjavants	Gender	Male	9(50.0%)	7 (46.7%)	1(100%)
		Female	9(50.0%)	8 (53.3%)	0(0.0%)

What Medication do you use for pain relief?			Rate your Pain at its Worst		
			Mild pain	Moderate Pain	Severe Pain
Aspirin/Paracetamol/ Acetaminophen, NSAD's &+Adjavants	Gender	Male	2 (14.3%)	4(28.6%)	8(57.1%)
		Female	0(0.0%)	4(26.7%)	11(73.3%)
Codine / Hydrocodone / Oxycodone / Dihydrocodine / tramadol &+Adjavants	Gender	Male		1(9.1%)	10(90.9%)
		Female		6(30.0%)	14(70.0%)
Morphine / hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjavants	Gender	Male	2(11.8%)	10(58.8%)	5(29.4%)
		Female	3(17.6%)	12(70.6%)	2(11.8%)

At the worst pain, patients are supposed to be on the strongest Opioids, that is, (Morphine/hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjavants). However, when the respondents of this study were asked to indicate their pain management at their worst, the majority were using the wrong drug level to manage pain. For instance, the findings show that (57.1%) of male respondents, and (73.3%) of female respondents who were experiencing severe pain, were still using level 1 drug (Aspirin/Paracetamol/ Acetaminophen, NSAD's & Adjuvants) contrary to WHO level 3 pain management guidelines. Similarly, (91%) of male respondents and (70%) of female respondents were still using Codeine / Hydrocodone / Oxycodone / Dihydrocodeine/tramadol& Adjuvants, which are level 2 pain management drugs, not recommended for severe pain management. Only (29%) of men and (12%) of women were using the right medication for the right level of pain, thus utilised medication such (Morphine/hydromorphone /Methadone / Levorphanol / Fentanyl/ Oxycodone &+Adjavants for severe pain management)

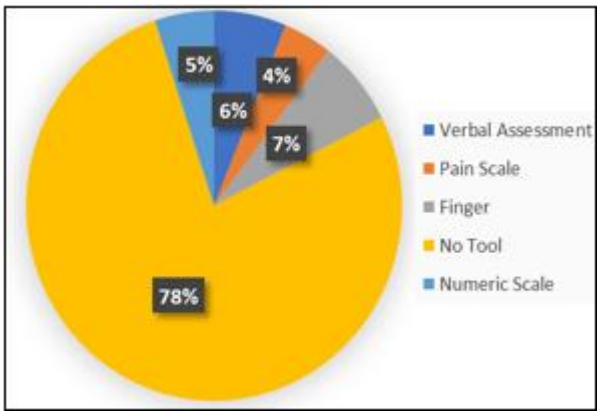
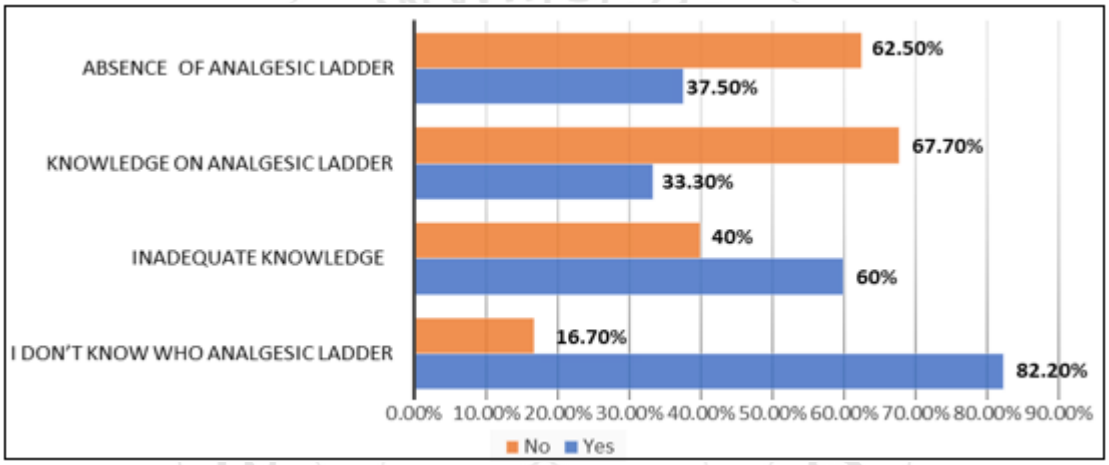


Figure 2: Utilisation of pain assessment tool by Clinical nurses

Nurses were asked what tool they use to assess cancer patients pain, a majority 78%(66) indicated they had no tool; 6%(5) indicated they use verbal assessment, 5%(4) indicated they use numeric scale, 4%(3) use a pain scale and 7%(6) use of fingers as summarized in Figure 2 above



Figures 3: Utilisation of WHO analgesic ladder by Nurses

Nurses were asked to indict whether they had utilised WHO analgesic ladder for pain management. (83.2%) Indicated they still didn't know how to use the WHO analgesic ladder; (40%) indicated they had inadequate information on theWHO analgesic ladder, while (33.3%) had adequate knowledge of the same. As for this study finding, assessment of cancer pain lacks professional standardised assessment for proper pain management.In addition to smallstandardised pain assessment tools, this study also reveals poor knowledge and awareness of nurses on the use of WHO analgesic ladder.

When Nurses who deal with cancer patients were asked whether they had received any short-term training in pain management, (81%) indicated they had not received such training, while (19%) noted that they had received short-term training in pain.

4. Discussion

Majority of nurses at GCRH hadDiploma level of training(64.3%) and served few years as a clinical nurse that is (44 %) worked less than 3years. Due to short period clinical practice, GCRH nurses may not be equipped with relevant knowledge and skills in cancer pain management. In agreement this study is, Liza, Winnie andDaniel (2008) study that found clinical experience contribution to knowledge and skills in nursing practice. Liza, Winnie andDaniel (2008) revealed that nurses with long period of experience in the clinical area had better knowledge than those who had a shorter period in clinical practice. Furthermore, 81% of nurses in our study indicated that they had no training/ lack in-depth knowledge of cancer pain management. Our study also reveals there is a deficit of knowledge among nurses on cancer pain management that led to high prevalence cancer pain among patients at GCRH. Similarly, Abdulhaleem, (2018) found that knowledge and attitudes were higher among nurses who had earlier education programs ($P < .001$) and operated in a pain team ($P < .001$). Thus training on cancer pain management and working with the team on pain care will better patient management.

Our study found that majority of nurses, 83.2% reported they had not utilised WHO analgesic ladder for pain management and 78 % (66) of them had no standard tool for pain assessment. Majority 81.9% (77) of cancer patients were taking the incorrect medication in line with WHO

analgesic ladder. Thus, there is a relationship between a deficit of knowledge on cancer pain management among clinical nurses and poor uptake of WHO analgesic ladder and standardised tool for pain assessment. During the assessment of pain, to ascertain the prevalence of cancer pain, patients were involved as a participant in this study. This study found the mean age of cancer patients as 50years, comprising of 42(44.7%) male and 52 (55.3%) female. Their prevalence was determined and found to 78%, ranging from moderate to severe. Similar to our study is (Huang et al., 2013) and (Ndegwa, 2013) studies in Kenya that revealed the high prevalence of cancer pain and suboptimal management of the same. The study also found that majority of cancer patients in the study 91% male and 70% female were undertreated with negative PMI (p value < 0.05), similar to (Huang et al., 2013). For instance, at the worst pain, patients are supposed to be on the strongest Opioids, that is, Morphine/ hydromorphone /Methadone/ Levorphanol/ Fentanyl/ Oxycodone &+Adjavants. However, when the respondents of this study were asked to indicate their pain medications at their worst pain, the majority were using the wrong drug level to manage pain. The findings also show that (57.1%) of male respondents, and (73.3%) of female respondents who were experiencing severe pain and were still using level 1 drug (Aspirin/Paracetamol/ Acetaminophen, NSAD's & Adjuvants) contrary to WHO level 3 pain management guidelines. Thus only (29%) of men and (12%) of women were using the right medication for the right level of pain.

5. Conclusion and Recommendation

This study revealed a deficit in nurses' knowledge and practice on the utilisation of WHO analgesic. This study also revealed a high prevalence of cancer pain and suboptimal cancer pain management. Thus poor utilisation of WHO analgesic ladder is associated with poor nurses' knowledge and patients dynamics. Improvement of cancer pain management will require the improved approach of nursing knowledge and skills in pain management, development of institutional standardised pain assessment tools and policy for pain management.

6. Financial support and sponsorship

Nil

7. Conflict of interest

There is no conflict of interest

8. Acknowledgement

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