'*XANNUN*' NURSING CARE MODEL FOR CANCER PAIN MANAGEMENT AMONG ADULT PATIENTS AT GARISSA COUNTY REFERRAL HOSPITAL (GCRH), KENYA

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Abstract

Nursing care models allows concept application of not only the physical treatment of pain but also synthesis the significance of social-cultural practices, psychological and spiritual pain relief. Cancer pain has high prevalence and negative impact on the quality of life of patients at Garissa County due to limited access to healthcare facilities and unique pastoral lifestyle of the community. This necessitated the development of 'Xannun' model of nursing care for holistic pain management that is clinically proficient and culturally competent.

Phase one of the utilised triangulation method approach to recruit 94 cancer patients, 84 clinical nurses and 15 key informants, while phase two was the actual development and testing of Xannun nursing care model. Various sampling procedures that included random, purposive and snowball and recruit participants voluntarily was done. Modified Brief Pain Inventory (MBPI) tool combined with focus group discussion and Eastern Cooperative Oncology Group (ECOG) performance status was used to obtain data from participants. The sample population was 188 participants. Cancer patients had a mean age of 51 years, with prevalence of pain at 78 % (73) that ranged from moderate to severe. A total of 78 % (66) of clinical nurses had no tool for pain assessment, 83.2 % (70) of them did not know how to utilise WHO analgesic ladder. Majority of patients 82 % (78) were on incorrect WHO analgesic ladder with negative PMI (p-value < 0.05) of under treatment. Majority of patients considered alternative treatment for cancer pain such as Quran recitation and Somali herbs accounting for 65% (61) and 77.6% (73) respectively. Almost all KI 93% (14) indicated the inadequate availability of pain medication.

Phase two, Delphi survey to gain expert opinion was used. Experts' opinion of 80% of respondents agreed that the 'Xannun' nursing model captured the challenges of cancer pain management and 60% of them predicted that the model could be utilised. However, 100% of the experts suggested that the model will bring a positive change, though 90% of them upheld that there will be potential challenges of implementing such a model. This study found high prevalence of cancer pain, suboptimal pain care, Knowledge deficit among nurses and inaccessibility of pain medication associated with the dynamic of a nomadic lifestyle. Thus, this study recommends the implementation of "Xannun" Nursing Care model at GCRH, for a better approach of cancer pain management.

Key words: prevalence, cancer pain, 'Xannun, nursing model

INTRODUCTION

Cancer pain is complex, subjective and it is associated with declines in human physical health and functional status coupled with lack of emotional well-being, and quality of life (Knudsenl, Klepstadl, et al., 2011). Uncontrolled chronic pain triggers the pituitary-adrenal axis and overwhelms the system that provides immunity, thus predisposing an individual to low immunity towards other diseases. Continuous, sympathetic activation by pain has adverse effects on important organs in the cardiovascular, gastrointestinal, and renal systems (Wells, Pasero and McCaffery, 2008). Cancer pain remains poorly managed in many developing countries due to limited resources, the paucity of literature on cancer pain management (Namukwaya et al., 2011) and lack of interventional nursing care models. Cancer patients require a model of care derived from palliative care services or hospice setting to manage their pain (WHO, 2014). It is even more necessary for the growing number of cancer cases with nomadic pastoralists' lifestyle with poor health seeking behaviour. These patients walk for a long distance to get to health facilities. It is upon this basis that necessitated the development of 'Xannun' nursing care model for adult cancer patients at Garissa County, Kenya. The word 'Xannun' is a Somali word that means pain or illness. The name 'Xannun' nursing model was adopted because the model was developed based on the needs of Garissa resident, predominately with high population of Somali ethnic origin.

Global systematic review of prevalence of cancer pain, found the rate of pain in cancer at 39.3% following curative therapy, 55.0% when on anticancer treatment and 66.4% in the late stage of cancer. This study also revealed that increasing cancer pain frequency at 38%, with moderate to severe pain and scoring above five at the scale of 5-10 points of pain assessment (Van den Beuken-van et al., 2016). Regardless of improved assessment and management of cancer pain, severe pain remains common symptoms in cancer patients. For instance, in a study done in Kenya on 400 HIV/AIDS and cancer patients at National Referral Hospital reported 66% of undertreatement of pain and negative scores of pain management index among the inpatients (Huang et al., 2013). High prevalence of cancer pain at 78% with moderate and severe intensity was also reported at GCRH (Affey et, al.2018). Thus, high prevalence of cancer pain seems everyday challenges of cancer in Kenya due to restricted treatment options of cancer, patients visiting at health facilities in an advanced stage (Ndegwa, 2013), inadequate availability or accessibility of analgesics (Affey et, al.2018), lack of standard validated assessment tool in Kenya. Thus, the need for model of care that is tailed for patient's needs.

World Health Organization developed cancer pain relief ladder based on the use of analgesics, adjuvants, education support and monitoring that is offered by a multidisciplinary team approach (Waweru, Reynolds and Buckner, 2008). This ladder is believed to relieve cancer pain and advance the quality of life for cancer patients (WHO, 1990) if appropriate model utilized to navigate. Various nursing care models developed are from developed countries and deliver home care, inpatient hospital care or outpatient follow up care of cancer patients. Such models have considerably enhanced positive outcomes of patients in the aspect of anxiety management, decreased hospital re-admission, pain control and alleviate the suffering of symptoms related to cancer pain (Vallerand, Musto and Polomano, 2011). Nursing care models are also tailored for

different settings of cancer patients and are part of care for cancer or oncology patients, though limited in developing countries. Models are useful as they allow the concepts in nursing theory to be successfully applied to nursing practice (Mwenda, 2015). For this reason, nursing care models are necessary when providing care to manage cancer pain and improve the quality of life of cancer patients. Nurses provide crucial services (MOH, 2012) and a significant role in monitoring and treatment of cancer patients. Moreover, there are various nursing care models designed for a specific population. However, factors like economic dynamics, leadership styles and the ability to recruit and retain staff will determine the development and operationalization of any model of care (Fahey and Miaskowski, 2008).

Models of cancer pain management are focused on addressing the various levels of health care delivery. Models on cancer pain are offered at the primary level by practitioners where routine assessment and screening of pain is done and subsequently managed or referrals (Dzau and Pizzo. 2014). Prevention of Cancer pain at primary level is focused on preventing environmental aspects that stimulates or increases the intensity of pain and further prevention of chronic cancer pain development. This can be done through a focus model of care that appraises the full range of biological, psychological, and social effects of pain on the individual. Pain prevention strategy includes improved self-management care, improved knowledge, skills, confidence, reduced and coping skill with cancer pain (Dzau and Pizzo. 2014). Thus, emphasising the utilisation of an appropriate assessment tool, that results in measurable outcomes. On the other continuum, a secondary level of pain management will focus on the provision of care by pain specialists who provide consultation that includes multidisciplinary team approach interventions, behavioural healthcare, and operational research. At the tertiary level of Cancer, pain care encourages advanced medical diagnostic and interventions based on rehabilitation therapy. Thus, nursing models are essential as they allow the concept in nursing theory to be applied in clinical practice for better patient care delivery (Musto and Polomano, 2011).

‘XANNUN’ NURSING CARE MODEL

Nursing care models are dynamic depending on the setting and context of the application and thus believed to improve healthcare delivery, and patients care outcomes. Comprehensive literature search on published nursing interventional models on pain management, revealed that an understanding on cancer pain interventions models enable to minimize the challenges of effective pain management and provide valuable information for nurse educators, nursing clinical practitioners, administrators and policyholders (Bartoszczyk and White, 2015) Unlike the other exiting nursing care models, ‘Xannun’ nursing care model is unique model which is based on the gaps identified in phase one of this study. These gaps are unique because they reflect the natural contextual needs of a nomadic pastoralist cancer patients, seeking health services for pain management. ‘Xannun’ model addresses the unique cultural beliefs of Somali patients seeking modern health services. This model considers the significance of spiritual practice in pain

management and the use of Somali herbs in alleviating cancer pain. The model also addresses the inaccessibility of modern pain medication to cancer patients who have to travel for long distance for palliative care services (Affey and Mwenda, 2019). Subsequently, Xannun nursing care model demonstrates the importance of nurses' knowledge and attitude in cancer pain management as primary health providers in rural Kenya and significance of community sensitisation on cancer pain management approaches.

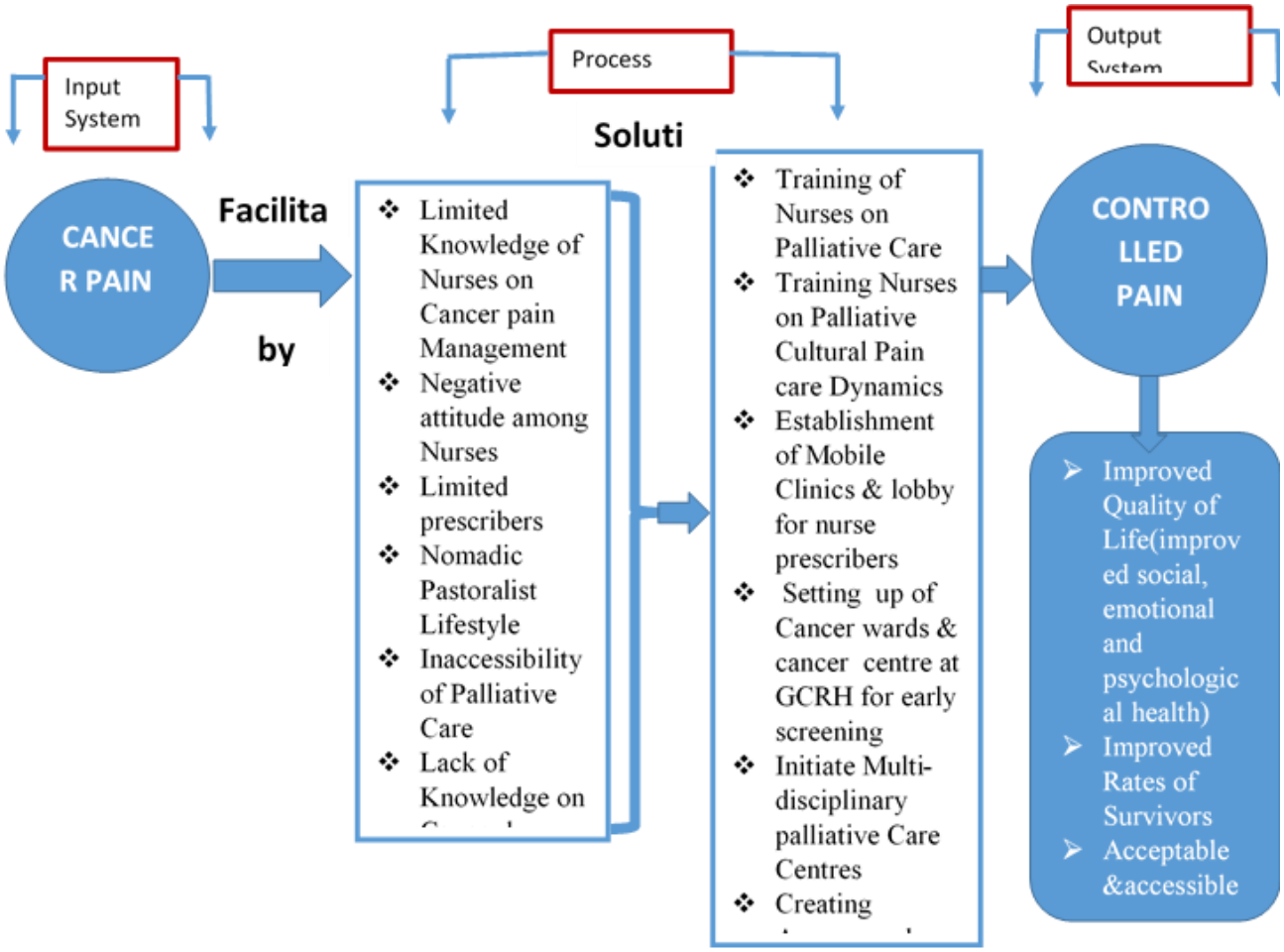


Figure 1-Xannun' Model of Nursing Care for Cancer Pain Management

Methods and Material

Study design:

The study was carried out into two phases.

Phase one: Phase one applied a descriptive exploratory, where data collection was in both qualitative and quantitative approach. This was done in order to gain a comprehensive and in-depth information from adult cancer patients, clinical nurses and key informants working at GCRH. Phase one also aimed to achieve accurate information from the ground in order to identify gaps in the practice of cancer pain management that subsequently enhance the development of the model of care ''Xannun''

Phase two: In this phase relevance and appropriateness of 'Xannun' nursing care model was tested. Nurse experts in model development and nurse managers' opinion were adopted in the care model so as to ascertain the appropriateness of the model before actual implementation on the ground. Delphi survey was utilised. Delphi is a method or technique for consensus building using a series of questionnaires for collection of data from selected participants (Habibi et al, .2014) although no clear definition of consensus. Delphi survey is qualitative study that consumes a lot of time and panelists may change their mind during the course of the study and this may pose challenge in the study (Shariffa, 2015). Thus, this study used only two rounds to gain reliable information to achieve consensus. Thangaratinam and WERedman (2005) argue that Delphi survey uses expert' opinions with minimum of two rounds, seems forced opinion and the sizes of panel can range from 4 to 3000 experts. Representation is the quality of information rather than the number of participants. Experts interpret complex scientific knowledge on a particular area of their specialty or experience. Expert opinion for this study was selected from nurses teaching from various universities in Kenya who are nurse consultants in the development of nursing care models. The nurse consultant (expert panelists) was selected randomly from the universities.

Study area

This study was carried out at Garissa county in Kenya which has an overall estimate population of 2,385,572 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 Somali ethic origin. According to Kenya Commission for Revenue Allocation report (2013) Garissa County is categorised as a marginalised area in Kenya and has predominant residents that are nomadic pastoralists whose lifestyle demonstrates less health care seeking behaviour and late diagnosis of non-communicable disease

Study population

Phase one study population included all adult patients diagnosed with cancers irrespective of the type of cancers, period of hospital and presence of other comorbidities. Clinical care nurses and key informants such as medical doctors, clinical officers and pharmacists and hospital procurement officers participated in phase one of the study. This was in order to assess their understanding and ascertain the availability of pain medication in the institution.

Phase two study population included nurse consultants (experts in model developments) and nurse managers for their input and recommendations into the contextual 'Xannun' nursing care model for pain management before actual implantation on patients' care.

Sampling Procedure

Phase one: Various sampling procedure were employed to recruit the respondents. Patients in all adult wards and outpatient clinics in the hospital were purposely picked. Snowball and retrospective purposive filing sampling were carried out to identify respondents with the same condition who could be reached within the community and are on follow up from the palliative clinic. The desired sample was calculated using Yamane's formula of 1967 cited in Glenn (2013) to get the number of respondents required and Hassaan et al, 2013 population data was utilized. Any cancer patients who met the criteria received a MBPI questionnaire.

Stratified random sampling based departmental allocation was done to all nurses working at GCRH before random selection. A list of all nurses was accessed from the nursing officer in charge of the hospital and then strata according to departments before random. The desired sample was calculated using Yamane's formula of 1967 cited in Glenn (2013) to get the number of respondents required. Simple random sampling technique was applied to get the respondents in each department since they were a homogenous population. Respondents in each department were given pieces of paper with 'Yes' or 'No' to pick randomly, and those who picked 'yes' participated in the study. The exercise continued every day until the desired sample size was attained.

The other health workers such as Doctors, Clinical officers, pharmacists and procurement officers were invited into the study as key informants. Purposive sampling technique was applied to get the Key Informants who represented a small population.

Phases two: This phase of the study was derived from phase one results and a contextual 'Xannun' nursing care model was developed. Phase two of the study invited experts on nursing care models that gave in-depth data. This study recruited randomly five nurse managers working at GCRH and five nurse consultants from five major universities in Kenya that train nurses as participants. Qualitative study design is not a concern with sample size but rather with the depth of information gained from the participants (Rees, 2003)

The sampled experts' nurses were shared with a developed model of care and semi- structured questionnaires via email to give their input and recommendation for two rounds.) Experts are individuals with knowledge and experience utilized as a panel since they can produce technical information relevant to their area of expertise (Habibi *et al,* (2014).

Results

Phase one results

Table 1: Demographic information of cancer patients and clinical nurses

Patients demographic information	
Variable	**Frequency (%) n = 94**
Age	
<35 Years	4 (4.3%)
35-50Years	31 (33%)
51-65 Years	38 (40.4%)
>65 Years	21 (22.3%)
Mean Age (SD)	50.6 (0.833)
Min –Max	35 – 65
Gender	
Male	42(44.7%)
Female	52 (55.3%)
Education Level	
Primary	31 (33%)
Secondary	17 (18.1%)
Tertiary	4 (4.3%)
No formal education	42 (44.7%)
Ethnic Background	
Somali	64 (68.1%)
Non-Somali	30 (31.9%)
Income Level	
< Ksh. 23, 670	88 (93.6%)
Ksh. 23, 671 – 120, 000	4 (4.3%)
> Ksh. 120, 000	2 (2.1%)
Clinical Nurses Demographic	**frequency (%) N = 84**

Clinical Nurses Education Level	
Certificate	19 (22.6%)
Diploma	54 (64.3%)
Higher Diploma	8 (9.5%)
Degree	3 (3.6%)
Clinical Nurses Years of Service	
< 1year	4 (4.8%)
1-3 Years	37 (44%)
4-6 years	31 (36.9%
>6 Years	12 (14.3)

Cancer patients' participants composed of 44.7% (42) males and 55.3% (52) females. As presented in Table1: above, majority 40.4% (38) of the respondents were 51-65 years in age, followed by 35-50 years with 33% (31) then above 65 years were 23.4% (22) and least below 35 years with 3.2% (4).

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 in order 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, 36.9% (31) between 4-6 years and 14.3% (12) had served for over six years. Only 4.8% (4) less than one year. 81% (68) of them said they were not trained/ lack in-depth knowledge of cancer pain management

Key informants were assessed for their understanding of cancer pain and availability of pain medication in the hospital. Key informants included Medical doctors 34 % (n-5), Nurse Managers, 33 % (n-4) pharmacists 20% (n-3) and remaining 13%(n-2) were procurement officers indicated

Overall respondents for phase one study included 70.67% for cancer patients, 63.16% among clinical care nurse and 100% among the key informants.

Prevalence of Cancer pain

Patients were asked whether the pain they were experiencing was due to cancer. The majority (78%) noted this to be the case, while (22%) indicated their pain was not due to medical procedures as highlighted in Figure 1

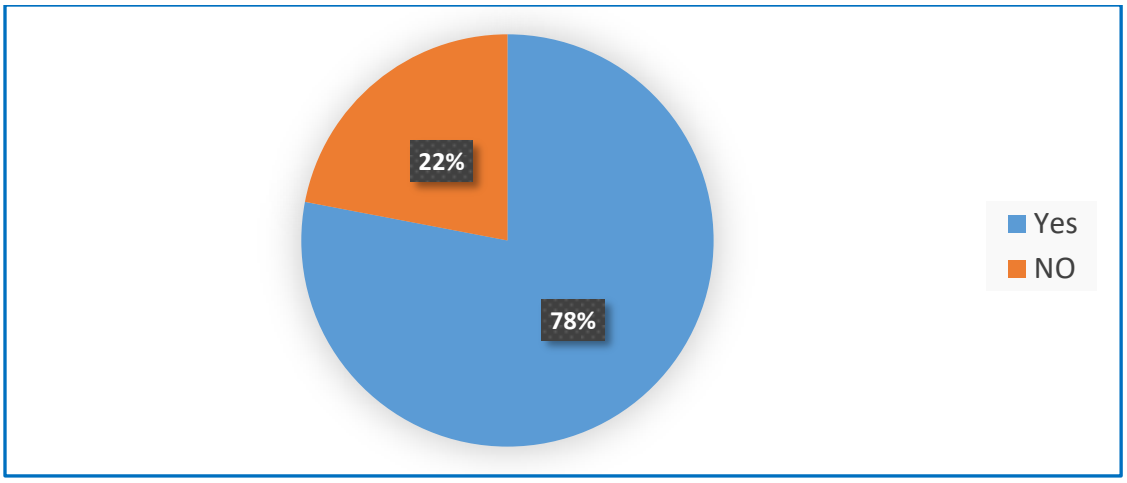


Figure2: prevalence of cancer pain

The analysis of the adequacy of pharmacological pain management (PMI > 0); and inadequacy (PMI ≤ 0) was calculated by using the pain management index. Pain management index is a comparison of the most potent analgesic used by patients in 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. The findings show that on average, (20%) of a patient of patients were on either on Nonopioids, Mild Opioid or Strong Opioid for pain management, $X2 = 16.747$; p-value < 0.05; which means that pain management index is PMI >0; and statistically significant.

At the worst pain, patients are supposed to be on the strongest Opioids, that is, Morphine/ hydromorphone /Methadone / Levorphanol / Fentanyl / Oxycodone &+Adjuvants. 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, we're 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 &+Adjuvants for severe pain management).

This study sought to establish whether cancer patients utilised any traditional or cultural mechanisms to manage their pain. The findings showed that patients relied on several mechanisms including religious practices such as reading the Quran and taking some herbal medication.

According to the analysis of cultural factors, (77.6%) of respondents indicated that in addition to medicine, they also use the Somali herbs for healing. Majority (65%) respondents use Quran in addition contemporary medication while 77.6% noted to use Herbs as indicated in Table 2, below.

Table 2: Most Prominent Cultural Factors

Cultural Factor	F	%
Quran	62	65%
Somali Herbs	73	77.6%

Clinical nurses are expected to provide effective cancer pain management. This study sorted to assess the capacity of clinical nurses in cancer pain management in order to enhance the development of cancer pain model known as the 'Xannun' nursing care model. This study finding, assessment of cancer pain lacks professional standardised assessment tool for proper pain management. This is because majority of clinical nurses , 78%(66) indicated they had no tool for cancer pain assessment, 6%(5) of them used verbal assessment, 5%(4) indicated they used numeric scale, 4%(3) use a pain scale and 7%(6) use their fingers. Clinical nurses were also asked to indict whether they had utilised WHO analgesic ladder for pain management. Majority of clinical nurses, (83.2%) indicated they didn't know how to use the WHO analgesic ladder; (40%) indicated they had inadequate information on the WHO analgesic ladder, while (33.3%) had adequate knowledge of the same

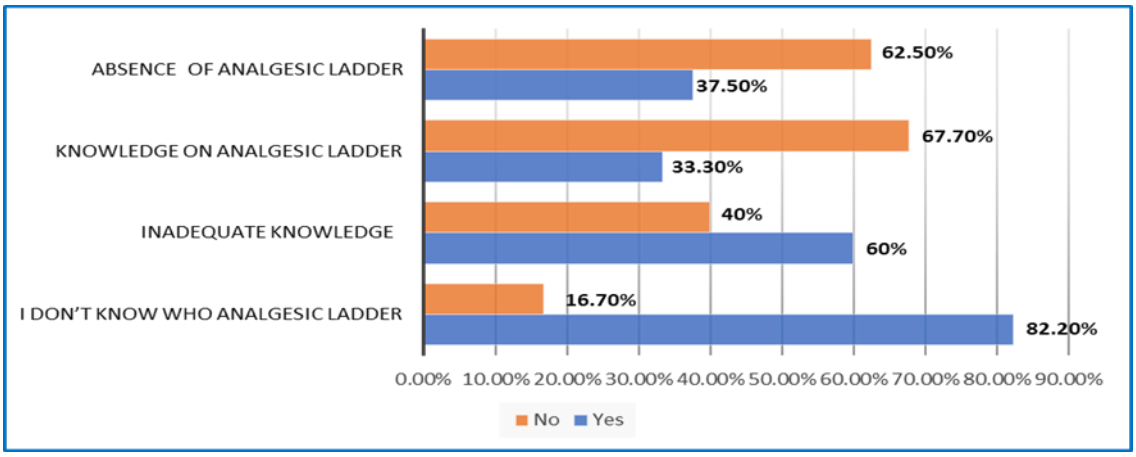


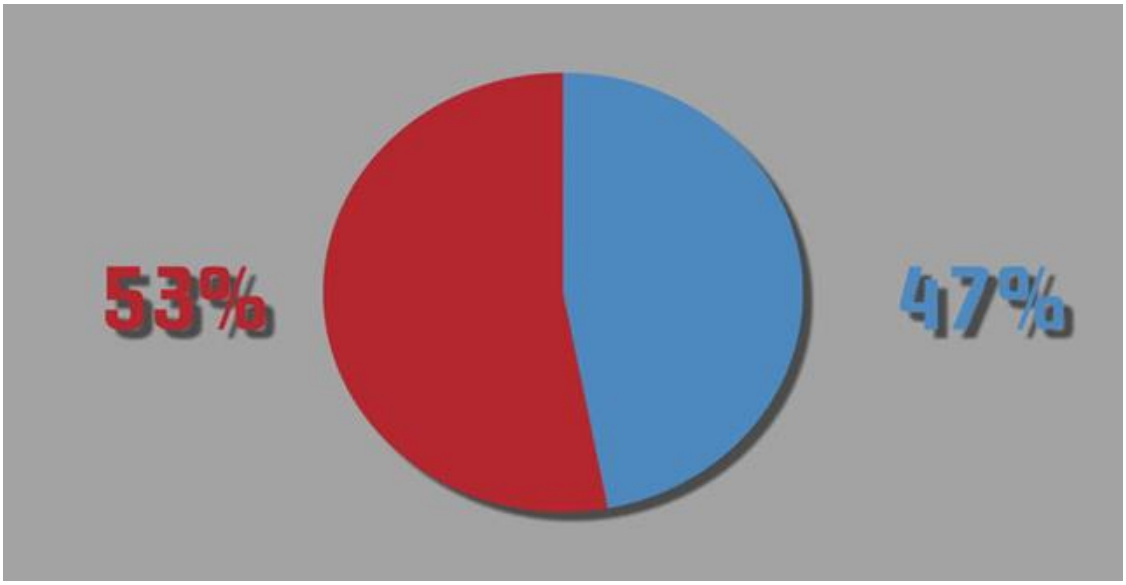
Figure 3: Use of WHO ladder for Pain Management

This study sought to determine the level of pain care awareness and practice among other healthcare workers at the management level of the hospital. The Key informants were fifteen health care workers that included Nurse Managers who order the pain medications in wards, doctors who made the prescription of pain medication, pharmacists who stock and supply pain medication in the hospital and drug procurement officers who are part of the supply chain in pain medications from the national level. The KI comprised of 34 % (5) Medical doctors, 33 % (4) Nurse Managers, 20% (3) were pharmacists and 13 % (2) were procurement officers. Almost all

KI indicated the inadequate availability of pain medication at GCRH. Majority of KI 93 % (14) indicated that this medication is sometimes available, while 7% (1) indicated that this medication is never available. KI were also asked whether they had an awareness of WHO pain management guidelines, (53%) indicated they were not aware, while (47%) indicated they were aware of the guidelines as highlighted in Figure 3 below.

Awareness of WHO Pain Management Guidelines

Health care workers were asked whether they had awareness of WHO pain management guidelines, (53%) indicated they were not aware, while (47%) indicated they were aware of the guidelines as highlighted in Figure 3 below



53% of health worker were not aware of the WHO guideline of pain management
-47% of health workers were aware of WHO guidelines of pain management

Figure 3 - Health care awareness of WHO Pain Management Guidelines

Focus group discussion

This study used content analysis to examine data from focus group discussions A total of 15 (5participants in each group) participants attended the face-to-face focus group discussion of this study, comprising of 6 men and 9 females. Drafted notes and audio recordings transcription were used to capture the data for analysis. The topic of discussion was cancer pain management and we divided the subtopics in to a) patient awareness of their condition b) participants experience of pain and its intensity, c) intervention they carried out to manage their pain and d) what can be done to improve their pain control. Table 3: below demonstrates the emerged themes from the focus discussion sessions.

Table 3: Focus Group analysis (Emerging Themes from Qualitative Analysis)

Question posed	Emerging Themes	Categories
Patient own cancer pain assessment	• Moderate to severe pain	• High level of pain
Patient perception of their pain	• Cancer Pain has robbed of the simplest of tasks of walking and pleasure • Feeling desperation • Fatigue/sleep disturbances • The feeling of anger and mood disturbance • Pain is in control of their life • Feel they have inadequate information regarding their condition	• Pain has control over patients' life physically, socially and psychologically.
Patients' perception of nursing and institutional pain control	• Found difficult to express their expectations of nursing and institutional pain management • Found difficulty to express nursing in cancer pain management competencies • Feel it is not good to always complain and report of pain, healthcare workers will see as a' bad patient.' • Feel they have less support from the nurses and other medical personnel • Feel their pain is not well controlled in the institution • Expressed inaccessibility of pain medication • Expressed the shortage of palliative care nurses at the palliative clinic (one nurse) one patient A said '' *when the one nurse is on leave from palliative clinic no hope of getting medicine or other support. '*	• Poor interaction between patients and nurse • The negative attitude towards health care workers especially the nurses • Poor palliative care services and inaccessible analgesic.
Patients pain control methods	• Reading/ recitation of Quran (Most effective and frequently used) • Pain medication from the hospital • Use of herbal medicine such as Malmal' (comiphoramyrra) 'huruud' Turmeric,	• Social cultural practices such various traditional herbs for cancer pain management

	‘qorfe’ (Cinnamon) ‘hulbad’ (Fenugreek), ‘sinjibiil’ (Ginger), ‘filfil’ (Black pepper), ‘Likke/ Diinsi • Burning at the site of pain with hot metal • Heat and cold therapy massage	• Spiritual therapy using Quran is believed as a method of cancer pain management.
Challenges in pain management (patients’ perspectives)	• inaccessible pain medications since the most patients were travelling from far in order to get to analgesics • Not to disturb the nurses or health workers / to be a ‘good patient.’ • Doctors might find it annoying to be told about the pain that persistent • Reports of pain could distract a doctor from curing the cancer • If I talk about pain, people will think I am a complainer • Limited staff in the palliative clinic • Negative attitudes among health workers	• Negative attitudes by nurses and other health workers • Poor communication between nurses and cancer patients
How to overcome challenges in pain management of cancer	• They feel the healthcare workers/nurses and institution know better • The need for more trained staff in the palliative clinic • inaccessibility of pain medication in many centres of Garissa County	• Belief health worker can solve their challenges • pain control medication is inaccessible at GCRH

Phase Two

Model Results

Round 1: The panel experts were requested to provide their input of 'Xannun' model before and the following themes in Table obtained in round one of the study and adapted in the model. This round was just for broad introduction of the subject matter.

Table 4.1: Delphi Survey, Round One Results

Question Posed	Emerging Themes
Please state your input or comment about this 'Xannun 'model for cancer pain management to be implemented by nurses at GCRH (attached is a copy of model)	1. The need for cancer center for early screening 2. Training of nurses to prescribers, who cultural sensitive to pain care 3. The need for funds to implement the model that will improve pain care

Round 2: In round two of this phase, a detailed questionnaire was presented to the expert panellists. On the question of whether the Xannun Model captures the challenge of cancer pain management, the majority (80%) noted this to be the case, while (20%) indicated that the model does not capture cancer pain management as summarised in Table 4.21

Table 4.2: Xannun Model Captures Challenge of Cancer Pain

Scale	Frequency	Per cent
Yes	8	80.0
No	2	20.0
Total	10	100.0

Respondents who indicated the model did not capture pain management notes this reason as follows:

"…the model does not provide the degree of pain" (Expert 6)

"…Nurses have not been sensitised to the model" (Expert 4)

On the question on whether nurses were able to understand how to use the Xannun Model, the majority (60%) of respondents noted that nurses can understand the model, while (40%) felt that more clarity is required. The question on whether respondents the model will bring any change to the care of cancer pain, all the ten respondents (100%) felt that the model was enough to bring change in cancer pain management. When asked whether the Xannun Model would be implemented in Garissa County Referral Hospital, all the respondents (100%) felt that given a chance, Garissa County Referral Hospital should implement the model as shown **figure 1**

Phase two: Summary

The majority of experts (80%) supported that 'Xannun' nursing care model captured the challenges of cancer pain management. Very few participants, 20% felt that the model did not capture the challenges. The majority of expert panel (60%) noted that nurses can understand the model and 80% agreed that the language used on the model was clear and communicates to the nurses. On whether the model will change to the care of cancer pain, all respondents (100%) agreed that the model would bring change in cancer pain and 100% of the respondents felt that the model should be implemented at Garissa County Referral Hospital. Subsequently, the majority (90%) of respondents noted that the model was well-designed to bring positive change in palliative care, 90% of suggested that the model will face changes during implantation at GCRH. Experts in this study suggested the challenges associated with the implantation of Xannun nursing care model for cancer pain management as language barrier, inadequate capacity of health care workers, inhibitive community cultural practices, limited or shortage of resources for cancer pain management, inadequate model knowledge and inadequate staffing and Lack of equipment necessary for the mobile palliative care. The experts further suggested, concrete implementation of the model requires:

i. Palliative care that of a multidisciplinary approach to cancer pain care
ii. Sensitising, creating awareness and educating the community on the importance of palliative care and prevention strategy through community mobilisation.
iii. Lobbying for funds for implementation from county government, National government, and development partners,
iv. involvement of nurses in decisions towards implementation of Xannun Nursing Care Model, or any other matter concerning cancer pain management

Conclusion and Recommendation

This study (phase one) has established the high prevalence of cancer pain of 78 %, with intensity ranging from moderate to severe. Overall, this study concludes that women above the age of 65 years experiences more pain from breast cancer, while more men above 65 years' more pain from prostate cancer than any other cancer. Men were more likely to experience physical social and psychological pain than female. The variability between men and female was however not statistically significant. Cancers of breast, stomach and prostate were found to be the most prevalent and other prominent types of cancer such as Oesophagus, cervical, Kaposi Sarcoma and liver. This study (phase one)found that patients at GCRH do not receive adequate and efficient palliative care due to both patient-related factors such as long distances that patient to travel to access medicine, lack of transport for patient, cost of drugs and accessibility, negative attitude towards treatment, poor transport system, nomadic lifestyle, cultural attitudes towards

(health worker and patient), inconsistency of pain medicine intake, and not following pain management instructions provided by the caregivers. Institution-related factors were also identified such as the inadequate supply of pain management medication, lack of pain assessment tools for nurses, lack of pain management guidelines and policies and limited trained nurses on palliative care. Cancer patients at GCRH are also nursed in general wards, and there are no special wards for cancer patients, thus less focus on cancer pain management and cancer disease.

This study (phase one) also revealed that Quran reading, *Ruqyah* and taking some herbal medication, including the use Somali herbs, cold and hot therapy were some of the pain management mechanisms adopted by patients. The use of Quran for healing cancer pain is grounded from Islamic beliefs. The Quran can be used to treat all manner of ailment. Quran recitation or Quran reading is believed to control pain as most patients' belief that Quran is the word of Allah. Equally, the provision of duas in the Quran provides the patients with the words of the prophet that they can pray for healing. Therefore, the use of alternative palliative care is not out of arrogant ignorance, but out of cultural beliefs that healing can be divine intervention.

This study sought to establish the practices among nursing workforce utilizing recommended WHO pain management and found that the majority of nurses do not have pain assessment tool for to evaluate patients' pain. Majority of the nurses do not know how to use the WHO analgesic ladder. The study revealed deficit of knowledge on cancer pain management in line with WHO recommendations. Thus, nurses did not use standard tool for pain assessment, and they demonstrated limited training on pain assessment and management of cancer patients.

This study subsequently developed a model of pain care known as 'Xannun' nursing care model for cancer pain management obtained from the gaps identified in phase one of this study. This model was then subjected to test in phase two of this study. Using Delphi technique expert opinion was sorted from five nurse experts/consultants from various universities and five nurse managers from Garissa county referral hospital regarding the implementation of the model. According to participants 'Xannun', the nursing care model will provide a positive impact or effect on cancer pain care however it may face some potential challenges. The experts further suggested the possible solutions to these challenges that may emerge for the implementation of the model that includes:

i. Translation of the model into the local language for better community participation

ii. Training of many health care workers on the model,

iii. Equipping GCRH with necessary oncology and palliative care equipment,

iv. Setting up a multidisciplinary team approach to cancer pain care

v. Educating the community on the importance of palliative care and early screening of cancer disease.

vi. Lobbying for funds from County and National government and development partners to implement the model

vii. Actively involve nurses in decisions making towards implementation of Xannunn Nursing Care Model for cancer pain management.

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