North American Academic Research

Journal homepage: http://twasp.info/journal/home

Research

Exploration of Pain Management Process among Health Care Providers Working in Surgical Units at Kibagabaga Hospital

***Munezero Patrick*[1,2], *Twagirayezu Innocent*[1], *Uwishimye Ernest*[1], *Nshimiyimana Eric*[1]**

[1]*College of Medicine and Health Sciences, University of Rwanda, Kigali, Rwanda*

[2]*Department of Public Health, Madison International Institute and Business School*

[*]***Corresponding author***

Tel:+250783878536 ***Email:*** *mupaji183@yahoo.fr*

Accepted*: 08 August, 2020;****Online****: 09 September,2020*

DOI *: https://doi.org/10.5281/zenodo.4020032*

Abstract: *Pain management is understood to be a fundamental human right, and has to be accomplished in steps such as pain assessment, identification of the cause, treatment, and monitoring. However, worldwide many patients are still suffering from unrelieved pain. This study is aimed to explore the process of pain management among health care provider working in surgical units at Kibagabaga Hospital. Descriptive cross-sectional design was used in this study where 40 health care providers working in surgical unit at Kibagabaga district hospital were selected purposively as the study participants. Self-administered questionnaire was used to collect data. Descriptive statistics was used in analysis by the use of SPSS version 16.0.Data analysis disclosed that 45% of participants fulfill all the steps for the process of pain management with a significant association to experience. Diclofenac was the analgesia most used (97.5%), and lack of clinical guidelines cited by 72.5% of participants, was the frequent challenge identified contributing to poor pain management.*

The findings of this study indicate that there gaps in respecting the process of pain management which may lead to inadequate pain management and continuous professional development was indicated to improve the process of pain management in surgical units at Kibagabaga hospital.

Keywords*:pain, process, pain management, health care providers*

1. Introduction

According to the International Association for the Study of Pain (Merskey, 2011), pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage. Similarly pain is whatever the experiencing person says it is, existing whenever she/he says it does (Keela et al, 2006). However, the inability to communicate verbally does not negate the possibility that an individual is experiencing pain and is in need of suitable pain-relieving treatment (Merskey, 2011).

Many patients attend health care settings because of pain; it is also the commonest symptom that hospitalized patients encounter in general and in surgical settings in particular. Inadequate pain control can lead to multiple adverse outcomes (Buckenmaier et al, 2010).Furthermore, many years ago the prevalent attitude towards pain was widespread acceptance as being inevitable and frequent indifference to its suboptimal management (Macintyre et al, 2010). The authors further stated that currently proper pain management is understood to be a fundamental human right and integral to the ethical, patient-centered and cost-effective practice of modern medicine. Likewise, Basbaum et al (2009) justified the need for more aggressive pain therapies to reduce surgical patients' pain severity and the likelihood for clients both short and long-term consequences of unrelieved pain. According to Yurdanur (2009), for effective pain management, health care provider should proceed from its assessment to the evaluation and research regarding pain management and updated pharmacological and non-pharmacological approaches regarding pain management should be followed. While medications are being used for treating the somatic (physiological and emotional) dimension of pain, non-pharmacological therapies aim to treat the affective, cognitive, behavioural and socio-cultural dimensions of pain Yavuz, (2006). Furthermore, Francesca et al (2007) stated, 'health care professionals should ask about pain, and the patient's self report should be the primary source of assessment'. In addition Francesca et al., (2007) stated that clinicians should assess pain with easily administered rating scales and should document the efficacy of pain relief at regular intervals after starting or changing treatment especially for surgical patients. However, Boezaart et al (2010) stated that even if pain is treatable with these currently available therapies and techniques, a large gap between evidence and practice results in widespread under-treatment. The author further confirmed that despite substantial advances in pain research in recent decades, inadequate pain management is still more the rule than the exception. Moreover, Land (2010) stated that despite the increase of

knowledge and availability of sophisticated technique and drug for pain management, many patients are still suffering unrelieved pain. Along with this same line of discussion, Subramanian's et al (2012) and IASP (2012) in their researches on barriers to pain management revealed challenges health care provider encounter in pain management.

In Rwanda, the pain society (RPS) has been formed with the mission of seeking to bring together health care providers, scientists and policy makers to support the study of pain because pain management continues to be a big challenge in the country. The organization seeks to provide a forum to share a breadth of knowledge, strategies and information on methods of pain relief (IASP, 2012). In addition, the Rwanda Ministry of Health emphasizes health services including pain control by increasing the level of education of health workers, making available pain management medication and training (MoH, 2011). Kibagabaga Hospital (KH) is one of the hospitals which primarily benefits from these services, however, during our clinical sessions, while assessing patients hospitalized in surgical units, it was discovered that common and most of their complaints were related to unrelieved pain. Furthermore, there was no identified research done regarding the process of pain management in Rwanda. This study explored the process of pain management among health care providers working in surgical units at Kibagabaga Hospital.

2. Materials and methods

The study was conducted at Kibagabaga Hospital which is the district hospital located in Gasabo district, Kigali city, Rwanda. The hospital can accommodate more than 203 patients. It offers surgery, emergency, internal medicine, paediatric, ophthalmology, gyneco-obstetrics, physiotherapy, dentistry, radiology, and theatre services. The hospital has more than 270 staff personnel and more than 180 health professionals. The surgical units include the surgical hospitalization ward, main theatre, surgical emergency ward and post caesarean wards (MoH, 2011). A descriptive cross sectional design was used in this study to explore the process of pain management in surgical unit at Kibagabaga Hospital. Furthermore, a purposive sampling strategy was used and with this sampling method the units to be chosen for the study depend on its uniqueness or interest of the researcher (Polit and Beck, 2008). Data were collected from surgical wards known to accommodate patients with conditions producing pain with the expectation that health care providers working in these areas would be ready to manage that patient's pain. The population in this study comprised of 50 health care providers including General practitioner,

nurses, anaesthetists and physiotherapists working in surgical unities at Kibagabaga Hospital.Moreover, the sample size was 40 health care providers working in surgical units at Kibagabaga Hospital who were available and accepted to participate voluntarily as study participants. A semi-structured questionnaire for exploration of the process of pain management among health care providers working with surgical patients was used to collect the data. It was developed by the researchers and influenced by the work of Charles, (1991) and Margo and Betty, (2012). The questionnaire consisted of four sections, namely, the demographic characteristics of respondents, questions on steps for the process of pain management, questions on pain management interventions and other questions about challenges for the process of pain management.

Data collected were analyzed using Statistical Package for Social Sciences (SPSS) version 16.0. Demographic characteristics of respondents were analyzed by use of frequency distribution. Microsoft Excel 2007 was used for graphical presentation using frequency tables and histogram.

3. Results presentation

3.1. Demographic characteristics of participants

The table 3.1, below displays the demographic characteristics of respondents, the majority 23 (57.5%) were female. Among all respondents, 18 (45%) were aged between 20-30 years while 21 (52.5%) were aged between 31-41 years and only 1 (2.5%) were above 41 years of age. Regarding participants qualifications, 26 (65%) were nurses and among them, 17 (42.5%) were A2 nurses. Four (10%) were general practitioner, 4 (10%) were anaesthetists, 5 (12.5%) were midwives and only 1 (2.5%) was a physiotherapist. Regarding working experience in surgical units, 8 (20%) of respondents had less than 2 years, 19 (47.5%) ranged between 2-5 years and 13 (32.5%) had more than 5 years of working experience. This represents a fairly stable workforce, with 80 percent of participants being on location for more than 2 years.

Table 3. 1Demographic characteristics of participants (N=40)

Demographic characteristics		Frequency	Percentage
Age group	20-30	18	45
	31-40	21	52.5
	41+	1	2.5
	Total	**40**	**100**
Gender of participants	Male	17	42.5
	Female	23	57.5
	Total	**40**	**100**
Participants qualification	A2 Nurse	17	42.5
	A1 Nurse	7	17.5
	A0 Nurse	2	5.0
	General practitioner	4	10.0
	A1Anaesthetists	4	10.0
	A1Midwife	5	12.5
	A0Physiotherapist	1	2.5
	Total	**40**	**100**
Working experience in surgical unit	Under 2 years	8	20.0
	2-5years	19	47.5
	5year +	13	32.5
	Total	**40**	**100**

Table 3.2 Distribution of respondents according to how they proceed in pain management (N=40)

Process of pain management	Frequency	Percentage
Assess patient's pain and then give pain killers	14	35.0
Give pain killers and then monitoring	8	20.0
Assess pain, Identify cause, Give pain killers and then do a monitoring	18	45.0

The table 3.2 above demonstrates how respondents proceed while managing patient's pain. The majority of respondents 22 (55%) do not follow all steps of pain management which are Assess pain, Identify cause, Give pain killers and then do a monitoring, 14 (35%) of respondent

indicated that they do not identify pain causes and do monitoring, while 8 (20%) only give pain killers and then monitoring without assessment of pain and identification of causes. A minority of respondents 18 (45.0%) follow all the steps of the process of pain management which are assess pain, identify cause, and give pain killers and then do a monitoring.

Table 3.3 Frequency of respondents according to the steps of pain management process

Steps	Responses	Frequency	Percentage
Assess patient's pain	**Yes**	**24**	**60.0**
	No	**16**	**40.0**
	Total	**40**	**100.0**
Use of pain scale	**Yes**	**20**	**50.0**
	No	**20**	**50.0**
	Total	**40**	**100.0**
Identify cause of pain	**Yes**	**31**	**77.5**
	No	**1**	**2.5**
	Sometimes	**8**	**20.0**
	Total	**40**	**100.0**
Monitor patient's pain	**Yes**	**35**	**87.5**
	No	**5**	**12.5**
	Total	**40**	**100.0**

For this section, each participant was asked to identify which of the components were completed as part of the respondent's management of pain. Regarding the table 3.3, above which shows the distribution of health care providers working in surgical units at Kibagabaga Hospital, considering each step as a unique element of the process of pain management, the majority 24 (60.0%) of all respondents reported that they complete a pain assessment, and of all participants, 20 (50.0%) report using a pain rating scale.

Among all respondents, a majority of 31 (77.5%) relate that they identify causes of pain and 35 (87.5%) indicate that they routinely monitor patient's pain status

Table 3.4 Relationship between participant qualification and how they proceed while managing patients pain (N=40)

Qualification	Process of pain management			Total
	Assess patients pain and then do a monitoring	Give pain killers and then monitoring	Assess pain, Identify cause, Give pain killers and then do a monitoring	
A2 Nurses	4 (23.5%)	4 (23.5%)	9 (53.0%)	**17 (100%)**
A1 Nurses	3 (43.0%)	2 (28.5%)	2 (28.5%)	**7 (100%)**
A0 Nurses	2 (100%)	0 (0.0%)	0 (0.0%)	**2 (100%)**
A1Anaesthetist	3 (75.0%)	1 (25.0%)	0 (0.0%)	**4 (100%)**
A1Midwife	2 (40.0%)	0 (0.0%)	3 (60.0%)	**5 (100%)**
A0Physiotherapist	0 (0.0%)	0 (0.0%)	1 (100.0%)	**1 (100%)**
General Practitioner	0 (0.0%)	1 (25.0%)	3 (75.0%)	**4 (100%)**

The table 3.4, above shows the relationship between participants' qualification and how they proceeded in managing patient's pain and of the 17 (100%) A2 nurses, 9 (53%) fulfilled all steps of the process of pain management while 7 (100%) A1 nurses and 2 (28.5%) fulfilled all steps of the process of pain management respectively. Regarding midwives, 3 (60%) out of 5 (100%) participants indicated to fulfil all steps of the process. Furthermore from 4 (100%) general practitioners that participated, 3 (75.0%) indicated to fulfil all steps of the process of pain management. And finally the results demonstrate that 100% (1) of physiotherapist participated all indicated to fulfil all steps of the process of pain management.

Table 3.5 Relationship between participants working experience and how they proceed while managing patients pain (N=40)

Working experience	Process of pain management			Total
	Assess patients pain and then do a monitoring	Give pain killers and then monitoring	Assess pain, Identify cause, Give pain killers and then do a monitoring	
Less than 2 years	1(2.5%)	4(10.0%)	3(7.5%)	**8(20.0%)**
2-5 years	10(25%	1(2.5%)	8(20.0)	**19(47.5%)**
5 years +	3(7.5%)	3(7.5%)	7(17.5%)	**17(32.5%)**
Total	**14 (35.0%)**	**8(20.0)**	**18 (45.0%)**	**40(100.0%)**

Regarding table 3.5, above concerning the relationship between participants working experience and how they proceed while managing patients' pain shows that within 18 (45.0%) who indicated to fulfil all steps of the process of pain management, 8 (20.0%) were those ranged between 2-5 years of working experience and 7 (17.5%) were above 5 years of working experience.

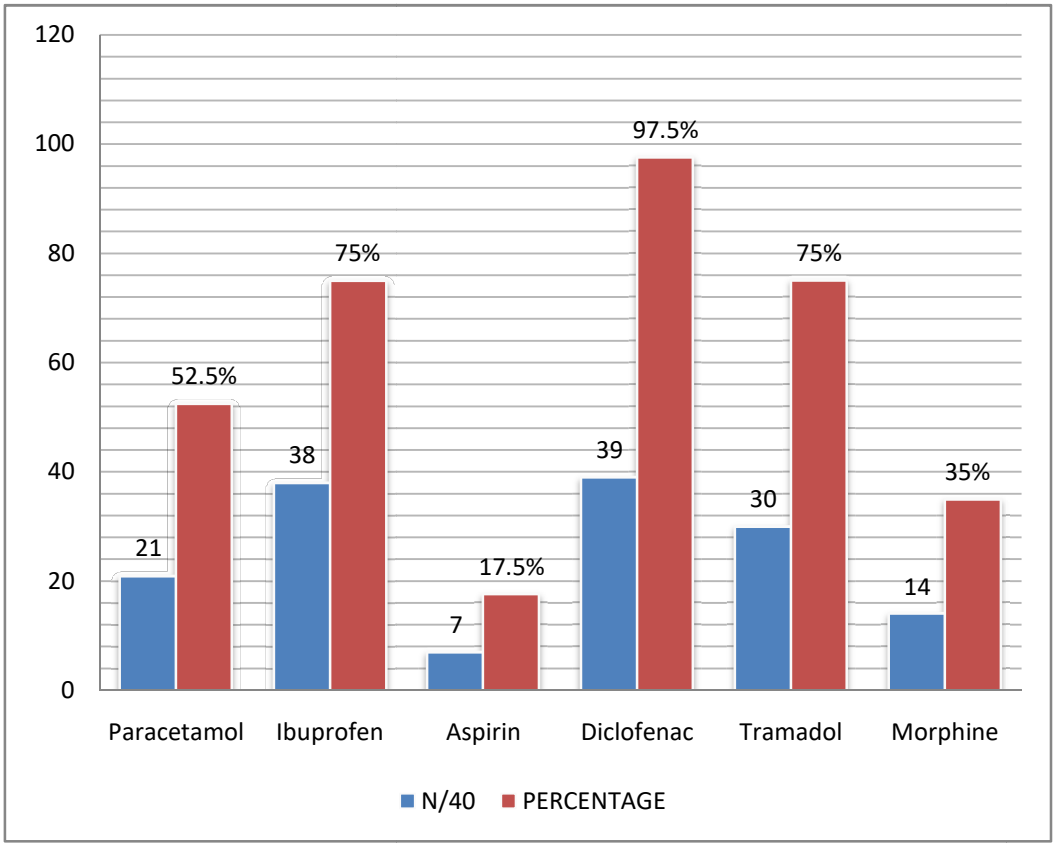

Figure 3. 1 Pain medications frequently used

According to the Figure 3.1 revealing pharmacological interventions for pain management frequently used in surgical units at Kibagabaga Hospital where participants allowed checking more than one choice within paracetamol, ibuprofen, diclofenac, tramadol, morphine, aspirin and pethidine. The most frequently used medications are diclofenac 39 (97.5%), tramadol 30 (75%) and ibuprofen 30 (75 %). Aspirin 7 (17.5) and morphine 14 (35%) were reported to be less frequently used.

Table 3. 6 Non pharmacological interventions (N=40)

Values	Frequency	Percentage
Cold packs	7	17.5
Relaxation	23	57.5
Massage	9	22.5
None	1	2.5
Total	40	100.0

The table 3.6 above exhibits non pharmacological interventions for pain management used in surgical units at Kibagabaga hospital. Only cold packs, relaxation and massage were used with relaxation techniques being by far the most commonly used intervention identified by a high percentage 23 (57.5%) of respondents.

Table 3.7 Level of pain often managed by participants (N= 40)

Levels of pain	Frequency	Percentage
Mild	2	5.0
Moderate	23	57.5
Severe	15	37.5
Total	**40**	**100.0**

Regarding the table 3.7 above, moderate pain is mostly identified as the level of pain managed in surgical units with reported frequency by 23 (57.5%) respondents whereas only 2 (5.0%) of respondents indicated mild pain.

Table 3.8 Distribution of respondents according to how they perceive patient's pain (N= 40)

Perceptions	Frequency	Percentage
As an emergency	34	85.0
Not an emergency	4	10.0
As normal to patient in surgical unit	2	5.0
Total	**40**	**100.0**

The table 3.8 above, concerns how health care providers working in surgical units at Kibagabaga hospital perceive patient's pain, display that the majority of respondents 34 (85.0%), consider pain as an emergency case to treat whereas a minority perceive it as normal to patient's experience in surgical units.

Table 3.9 Reason for evaluation or monitoring of pain

Reason	Frequency	Percentage
To check if pain has relieved or any need for changing drug	27	77.1
To check for side effect	7	20
For better pain managed	4	11.4

The table 3.9 above concerns reasons for pain management show that the majority 27 (77.1%) did pain evaluation to check if patient's pain has relieved by the selected intervention or if there is any need for changing drug.

Table 3. 10 Challenges of pain management

Challenges related to clients	Frequency	Percentage
Patient cooperation in taking medications	14	35.0
Patient's condition itself	23	57.5
Patient's culture	4	10.0
Patient's attitude	19	47.5
Challenges related to working environment	**N**	**Percentage**
Health care providers' time	15	37.5
Lack of clinical guidelines	29	72.5
Inadequate medications available	18	45.0
Lack of structured pain assessment tool	27	67.5
Health care provider's cooperation	7	17.5
Limited autonomy in decision making	18	45.0

Regarding the table 3.10, above, health care providers working in surgical units at Kibagabaga Hospital indicate that they face challenges, related both to patients and to working environment. The most frequent challenges identified related to health care environment that respondents identified were; lack of clinical guidelines cited by 29 (72.5%) of respondents and lack of structured assessment tool 27 (67.5%). Whereas of the challenges related to patients, a majority 23 (57.5%) reported patient condition as a challenge to adequate pain control.

Table 3. 11 Participants suggestions for effective pain management in surgical units

Suggestions	Frequency	Percentage
Making accessible structured pain assessment tool	10	25
Supply pain management guidelines	8	20
Increase the number of health care provider	9	22.5
Regular continuous professional development on pain management	12	30
Making accessible all kind of pain medication	12	30
Support vulnerable patient who cannot afford themselves pain medication	3	7.5
Balance autonomy in decision making to manage pain	8	20

For this category on the questionnaire, participants were able to identify multiple factors as they relate to effective pain management. The table 3.11 above shows the distribution of findings concerning participants suggestions for effective pain management in surgical units and displays that large percentage 12 (30%) suggest the need for regular continuous professional development on pain management and making accessible all kind of pain medication while a minority of respondents 3 (7.5%) suggested to support vulnerable patient who cannot afford themselves pain medication.

4. Discussion

4.1 Steps of pain management process

Pain management has been studied worldwide and found to be accomplished using a process composed by different steps (Yurdanur, 2009), the results of this study as displayed in table 3.2, participants following all steps of the process of pain management were 45% . This result differs to those of a similar study done in Bangladesh where the process of pain management was followed by 78.1%, (Wantanee et al, 2010, Alam et al, 2008). This point out that health care provider working in surgical units needs improvement to fulfill all the steps for pain management.

Regarding, analysis of the ranking of how each step is followed. Our findings in table 3.3 indicated that 60% of respondents report conducting a pain assessment. This implies that for all patients experiencing pain in surgical units only slightly over a half of them are appropriately assessed. The result is comparable to the result of another study where 50% reported using pain rating scale as instrument for pain assessment which are unidimensional scales for pain assessment grouping Numeric rating scale (NRS), Visual analogue scale (VAS), and Categorical scales in pain assessment (Maha et al, 2011). Similarly in the study done in Canada among 140 critical care nurses and only 50% assessed pain before any procedure (Kizza, 2012). In additional, Nancy et al (2007) stipulated that poor pain assessment can lead to poor pain management. Results from the table 3.10 reveals challenges encountered by participants in pain management which included lack of clinical guidelines on pain management identified by 72.5% of participants, lack of structured pain assessment tools cited by 67.5% of respondents and limited autonomy in decision making regarding pain management identified by 45.0% of participants. These may be contributing factors to the moderate practice of the assessment of pain.

Findings in table 3.7 displays levels of pain managed in surgical units and moderate pain is mostly (57.5%) identified as the level of pain managed in surgical units. In their study, Francesca et al (2007) commended that systematic assessment of the pain involves measuring its severity. Moreover, Cole (2002) reported that all health care providers should identify cause of pain for its proper management. In the same perspective, 77.5% of participants reported that they consistently identify causes of pain.

4.2 Pain management interventions

Interventions for pain include both pharmacological and non pharmacological. (Figure 3.1 and table 3.6).Treatment for pain is a paramount element in the process of pain management and results from this study in Figure 3.1, revealed that the most frequently utilized pharmacological interventions were Diclofenac (97.5%), Tramadol (75%), and Ibuprofen (75%). Furthermore as results from figure 3.1 reveals, Non steroidal anti inflammatory drugs (NSAIDs) including Diclofenac and Ibuprofen were the most pharmacological interventions used to manage pain in surgical units at Kibagabaga Hospital and is one of three approaches recommended by WHO for the management of mild to moderate pain (Barry, 2011).

Further result stipulated in table 1.7 supporting the frequent use of diclofenac and ibuprofen in this study, is that the majority of participants (57.5%) cited to manage moderate pain, therefore the usage of NSAIDs at Kibagabaga hospital respect the WHO guidelines on pain management (Barry, 2011 and WHO, 2011).

Comparing the use of Tramadol cited by 75.0% of respondents, similar study in Thailand revealed almost the same 82.0% (Kwanjit, 2007). And it has shown that this pharmaceutical intervention is mostly used after surgery in Thailand. Diclofenac (97.5%) has found to be the most used in this study and similar study done by Gan (2010), revealed that globally, diclofenac is the most prescribed NSAIDs to manage pain, and ranks as the eighth largest selling drug in the world. Furthermore, According to Ramirez et al (2005), diclofenac is the most used drug in pain management because it has analgesic, anti-inflammatory and antipyretic properties and conditions effectively treated by diclofenac include arthritis, musculoskeletal injuries, migraines and postsurgical analgesia and inflammation.

On the other hand, table 3.6 displays that a significant percentage of respondents (52.5%) identified that relaxation was the most non pharmacological intervention used. However, Roykulcharoen (2004) and Anderson (2006) research results from a randomized clinical trials on the effectiveness of relaxation as a pain reliever have revealed this inconsistency. Therefore, this could be one the cause of unrelieved pain from Kibagabaga hospital surgical patients as the current evidence does not support a consistent, predictable effect of relaxation on pain.

Monitoring or follow up of pain is one of the steps of the process of pain management, findings from table 3.3 in this study revealed that the majority 87.5% of health care provider working with surgical patient at Kibagabaga hospital do the follow up after any intervention. When asked how they value patient's pain, results from table 3.8 displays that 85.0% valued pain as an emergency case to treat. In addition, when asked why they did monitoring of pain, 77.1% of respondents reported checking if pain has relieved or if there was any need for strong analgesia as reasons. In the same line of discussion Nancy et al (2010) stated that to assure optimal pain management, monitoring and documenting efficacy of medication and treatment should be developed at least every four hours or after every medication.

4.3 Challenges of pain management process

Results from table 3.9 also reveals that within the process for pain management, health care providers participated in this study acknowledged different challenges with some compromising good pain management and the fulfillment of all the steps such as lack of clinical guidelines (72.5%), lack of structured assessment tool (67.5%) and Patient condition (57. 5%).These results are similar to those of a study done by Subramanian et al, (2012) on crisis in pain management where lack of clinical guidelines and lack of structured pain assessment tools were the most identified. Furthermore, the results espouse those of a study of Anderson et al (2006), which revealed that limited autonomy in decision making and lack of pain assessment tools might be barriers for effective pain management. In additional, table 3.10 reveals that 37.5% of participants have stated that their time and number of patient to take care for is not comparable as challenges. This is supported by a survey completed by MoH (2011), citing that in Rwanda the ratio of nurse to patient is 1/1475 and ratio of one general practitioner to patient is 1/18000. Furthermore, the results are similar to those of another study which included shortage of staff and lack of pain education plans and programs within institution among challenges for pain management (Kam, 2007). One interpretation of these findings is that health care provider's work overload may be the fact of not fulfilling well all the steps of the process of pain management.

Furthermore, when participants were asked suggestions on how to improve patients' pain management, results from table 3.11, indicated that 30% of participants suggested regular continuous professional development on pain management and accessibility of all kind of pain medication. The American Pain Society argued this and stated that in any setting, the quality of pain control is influenced by the training, expertise, and experience of clinicians (Roger C. and Laurie H., 2007). In addition 25% suggested to make accessible structured pain assessment tool, and to supply pain management guidelines, whereas, 22.5% suggested increasing the number of health care providers. An empowerment of social affair to support vulnerable patients who cannot afford themselves pain medication was also suggested by participants. The implication of these findings is that many reflected to identified challenges and its resolution will contribute to effective fulfillment of steps of pain management process.

4.4 Implication of experience on pain management process

Findings from table 3.5 showed that from 45% participants indicated to fulfil all steps of the process of pain management, that the majority 37.5% (20.0% +17.5%) were those with working experience of above 2 years in surgical units. This reveals an implication of working experience on the fulfilment of all the steps of the process of pain management. Similarly, Dimitrios, (2010) in his research on the influence of health care professional's personal experience on the management of pain found that health care providers with experience are more sensitive to the problem of pain and more aware of the patients' needs.

5. Conclusion

The main objective of this study was to explore the process of pain management among health care provider working in surgical units at Kibagabaga Hospital. The results from this study revealed that steps for the process of pain management among health care providers working with surgical unit at Kibagabaga hospital were not followed by the majority of participants. Working experience was a factor of the fulfilment of all steps of the process of pain management. Regarding interventions for pain management, main drugs frequently used in surgical units at Kibagabaga hospital was appropriate to the type of pain as WHO recommends. Further research may be conducted for generalisation in the country. Furthermore, Kibagabaga hospital health care providers working in surgical units reported different challenges such as lack of clinical guidelines on pain management, lack of structured pain assessment tools and patients condition which may cause some gaps in fulfillment of the process of pain management. Moreover, participants suggested regular continuous professional development on pain management and accessibility of all kind of pain medication, accessible structured pain assessment tools, and supply of pain management guidelines as well as increasing the number of health care providers as means of improving pain management and patients' care in general.

References

1. Alam S., Waliwllah A., Shamsuddin A., (2008), Post-operative analgesic in children. *Bangladesh Medical Research Council Bulletin, volume*34, page 109-112.

2. Anderson K., Cohen M., Mendoza T., (2006), Brief cognitive-behavior audiotapes interventions for cancer-related pain .*Cancer*, volume.2000, N°: 88, page1929-1938. Retrieved from: *www.ahrq.gov /professionals.pdf* on 20th December 2012

3. Barry E., Eliot B., (2011). *Treating mild to moderate acute pain with oral diclofenac potassium*, McMahon Publishing, Xanodyne. Retrieved from www.painmedicinenews.com *on the 23rd, February 2013.*

4. Basbaum A., Bautista D., Gregory S., and Julius D., (2009), *Cellular and Molecular Mechanisms of Pain*, Volume 139, Issue 2, page 267-284

5. Betty R., McCaffeery Margo, Rhiner M., (2012), Pain and addiction: An urgent need for change in nursing education, *Journal of Pain and Symptom Management*, volume.7 NO 2, page117-124.

6. Boezaart André Pierre and Barys Ihnatsenka , (2010), *Ultrasound: Basic understanding and learning the language*, Int J Shoulder Surg . 2010 Jul; 4(3):55-62. doi: 10.4103/0973-6042.76960.

7. *Buckenmaier C.*, Bleckner L., (2010), Pain medicine, Military *Advanced Regional Anesthesia and Analgesia Handbook*, Volume 11, Issue 4 ,Pages 477–633.

8. Charles S. Cleeland, PhD, (1991), Brief Pain Inventory (Short Form),

9. Dimitrios T., (2010), Research on the Influence of Health Care Professional's Personal Experience of Pain on the Management of Pain, International *Journal of Caring Sciences*, Volume 3 Issue 1, page 1-5

10. Eliot Cole B. (2002*),Pain Management: Classifying, Understanding and Treating Pain*, Turner White Communications Inc., Wayne, page 2 3 - 3 0

11. Francesca F., Bader P., Echtle D., Giunta F., Williams J., (2007), *Guidelines on Pain Management*, European Association of Urology, page 42-17. Retrieved from www.ebookbrowse.com

12. Gan TJ., (2010). *Diclofenac: an update on its mechanism of action and safety profile*. Curr Med Res Opin, University *Medical* Center, Durham, North Carolina, USA. Retrieved from: www.ncbi.nlm.nih.gov */pubmed* [Accessed 25, April, 2013]

13. IASP (2012), Five Crises in Pain Management, *Pain clinical updates,* editor Ballantyne, Volume. 20, Issue 1, page 1-4

14. Kam, Yuen Ching (2007). Medical Nurses' knowledge, attitudes and barriers in pain management. Submitted for degree of Master of Nursing Studies at The University of Hong Kong (September). Page: 1-53. http://hdl.handle.net/10722/131384.

15. Kam, Yuen Ching (2007). *Medical Nurses' knowledge, attitudes and barriers in pain management*. Submitted for degree of Master of Nursing Studies at The University of Hong Kong (September). Page: 1-53. http://hdl.handle.net/10722/131384.

16. Keela H., Patrick J., Coyne, Tonya K., Manworren R., Margo M., Merkel S., (2006), *Pain Assessment in the Nonverbal Patient: Position Statement with Clinical Practice Recommendations.* Retrieved on*www.*elsevier.com.

17. Kizza, I. B., & Sciences, A. (2012). Nurses' knowledge and practices related to pain assessment in critically ill patients at Mulago Hospital, Uganda, (November), page:1-53.

18. Kwanjit P., (2007), *Pain, pain management and satisfaction with pain management in total abdominal hysterectomy patients*. Mahidol University, page 70-80.

19. Nancy E. L., M.D., Thomas J. S., M.D., Ph.D., Charles A. B., M.D., Masoud Mokhtarani, M.D., David L. Shelton, Ph.D., Mike D. Smith, Ph.D., and Mark T. Brown, M.D. (2010),*Anezumab for the Treatment of Pain from Osteoarthritis of the Knee***,** N Engl J Med 2010; 363:1521-1531DOI: 10.1056/NEJMoa0901510

20. Land C., (2010). N*urses' knowledge on pain management practices and organizational pain management policy*, college of applied sciences and technology, Muncie, Indiana, page1-4

21. Macintyre P., Schug S., Scott D., Visser E., Walker S., (2010), *Acute Pain Management: Scientific Evidence* ,3rd edition, ANZCA & FPM, Melbourne. Page 1-34

22. Maha P., Wasiak J., Christopher J., Nicholas C., Carolyn A., Anneliese B., Stefan D., (2011), *Frequency and use of pain assessment tools implemented in randomized controlled trials in the adult burns population: A systematic review*, Melbourne, Victoria, Australia, Elsevier

23. Merskey H. and Bogduk N. (2011), *Pain Terms, A Current List with Definitions* ,Classification of Chronic Pain, 2nd Edition, IASP , Seattle, pp 209-214

24. *Nancy W., Pasero C., Mccaffery,* (*2007*), Improving Pain Management through Policy Making and Education for Medical Regulators, *the Journal of Law, Medicine & Ethics*, Volume 24 ,Issue 4 ,page344-347.

25. Polit D., Beck C., (2008). Nursing research: Generating and Assessing Evidence for Nursing Practice.8th ed. Lippincott, Williams & Wilkins. Great Britain

26. Ramirez V., Castaneda G., Rampy B., Aronson J., and Treinen M., (2005), *Attenuated gastropathy but not enteropathy of diclofenac colestyramine complex in rats*, retrieved from www.*medind.nic.in /iaa/t12/i5/iaat12i5p627.pdf*

27. Roger Chou, MD and Laurie Hoyt Huffman, MS (2007), *Medications for Acute and Chronic Low Back Pain: A Review of the Evidence for an American Pain Society/American College of Physicians Clinical Practice Guideline,* https://doi.org/10.7326/0003-4819-147-7-200710020-00008

28. Roykulcharoen V., Good M., (2004) Systematic relaxation to relieve postoperative pain. *Journal of Advanced Nursing*. Volume 48, No2, page140–8

29. Rwanda Ministry of Health, (2011), Ministry of Health Annual Report 2010-2011, Ministry of Health, Kigali,page20-67 retrieved on www.moh.gov.rw on 12th January 2013

30. RWANDA MINISTRY OF HEALTH, (2011), *RWANDA HEALTH SERVICE COSTING HOSPITAL ANALYSIS*

31. Subramanian P., Allcock N., James V., Lathlean J., (2012) Challenges faced by nurses in managing pain in a critical care setting. *Journal of clinical nursing*, Volume 21, Issue 9-10Pages 1197-1495.

32. Wantanee W. , Sazzad H., and Rachtawon O., (2010),*Nurses' Knowledge and Attitudes, and Pain Management Practice of Post-Operative Children in Bangladesh,* The 2nd International Conference on Humanities and Social Sciences April 10th, 2010 Faculty of Liberal Arts, Prince of Songkla University Health – Development_010

33. WHO (2011), *WHO guidelines on the pharmacological treatment of persisting pain in children with medical*, World Health Organization, Geneva 27, page17-38 retrieved from www.who.int on 15th January 2013

34. Yavuz M., (2006), Non-pharmacological methods used in pain, In: The Nature and Control of Pain, F.E., Aslan (Editor), Volume 42, page.135-147

35. Yurdanur D., (2012), *Non-Pharmacological Therapies in Pain Management, Pain Managemen*t *Current Issues and Opinions*, Dr. Gabor Racz (Ed.), In Tech, Retrieved from: http:/www.intechopen.com /*download/pdf/26152* on 4th, November 2012

Add your text here.

MUNEZERO Patrick, BScN, RN, MPH
Masters of Public Health option of International Public Health
Madison International Institute and Business School, Bachelor Degree in Nursing Sciences, University of Rwanda, College of Medicine and Health Sciences
Emai: mupaji183@yahoo.fr

TWAGIRAYEZU Innocent, BScN, RN, MScN,
Master of Science in Nursing option of Critical Care and Trauma.
Assistant Lecturer at the University of Rwanda, College of Medicine and Health Sciences, School of Nursing and Midwifery
Email: twagiracent@gmail.com

UWISHIMYE Ernest, BScN, RN, MScN
Master's of Science in Nursing Education Leadership and Management (ELM), University of Rwanda, College of Medicine and Health Science, School of Nursing and Midwifery, Assistant Lecturer at UR-CMHS, SoNM
General Nursing Department
Email: uwishimyeernest01@gmail.com

NSHIMIYIMANA Eric, BScN,RN, MScN
Bachelor Degree in Nursing Sciences, University of Rwanda, College of Medicine and Health Sciences,
School of Nursing and Midwifery

Email: nshimiyimanaeric624@gmail.com

Acknowledgments
All praises and thanks be to the Lord Jesus Christ. We wish to express our thanks and appreciations to the University of Rwanda and Kibagabaga Hospital for their support to this research.

Dedication
We sincerely dedicate this work to our families who have always given us the endless love, support and encouragement.

Conflicts of Interest
There are no conflicts to declare.