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**COLLEGE OF HEALTH SCIENCES
FACULTY OF ALLIED HEALTH SCIENCES
DEPARTMENT OF NURSING**



**KNOWLEDGE, ATTITUDE AND PRACTICE OF NURSES IN PAEDIATRIC UNITS
ON PAIN ASSESSMENT AND MANAGEMENT IN SELECTED FACILITIES
IN KUMASI AND PRAMSO**

**A THESIS SUBMITTED TO THE DEPARTMENT OF NURSING, FACULTY OF
ALLIED HEALTH SCIENCES, COLLEGE OF HEALTH SCIENCES, IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF
MASTER OF PHILOSOPHY IN NURSING**

BY

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DECLARATION

The work described in this thesis was carried out at the Department of Nursing, Faculty of Allied Health. I declare that, except for references to other people's work, which I have duly acknowledged, this thesis is original to me. This work has not been submitted either completely or in part for the award of any other degree in this or any other university.

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ABSTRACT

Adequate knowledge and attitude of nurses towards paediatric pain has a positive patient outcome during their hospitalization. However the knowledge, attitude and practices of assessment and management of children's pain by nurses in Ghana have been explored to a limited extent. The study sought to describe the Knowledge and Attitude of nurses and also examine their practices in assessment and management of pain in Paediatric Units. A concurrent mixed method study was adopted to achieve the objective of the study. The paediatric pain knowledge and attitude questionnaire (PPKAQ) was used as survey instrument among 65 conveniently sampled nurses to measure their knowledge and attitude. Using participatory observation, the practices of pain assessment and management of 40 nurses were also assessed with the aid of a checklist. The findings from the quantitative study indicated that the nurses' knowledge and attitude towards pain was not adequate (56.28%). The participants had the highest mean percentage of 59.15% in the domain of Non-Drug Pain Relief Methods and the lowest mean of 50.00% in the domain of Using Drugs to Relief Pain. These was notably below the 80% benchmark acceptable for nurses to deliver appropriate care to patients who are experiencing pain. There was a moderate, positive correlation between knowledge and attitude items ($r=0.424$, $p<.001$) on the PPKAQ instrument. An inductive analyses of the qualitative data indicated that the nurses' practices on pain assessment and management were below the optimum, where they cited several personal and organizational cultural factors that hindered their provision of effective pain management in children. The findings of this study provide an insight to the knowledge and attitude as well as the practices of nurses for paediatric pain assessment and management. We recommend stakeholders to provide needed resources and regular training for the nurses to ensure they improve pain care for children and their families.

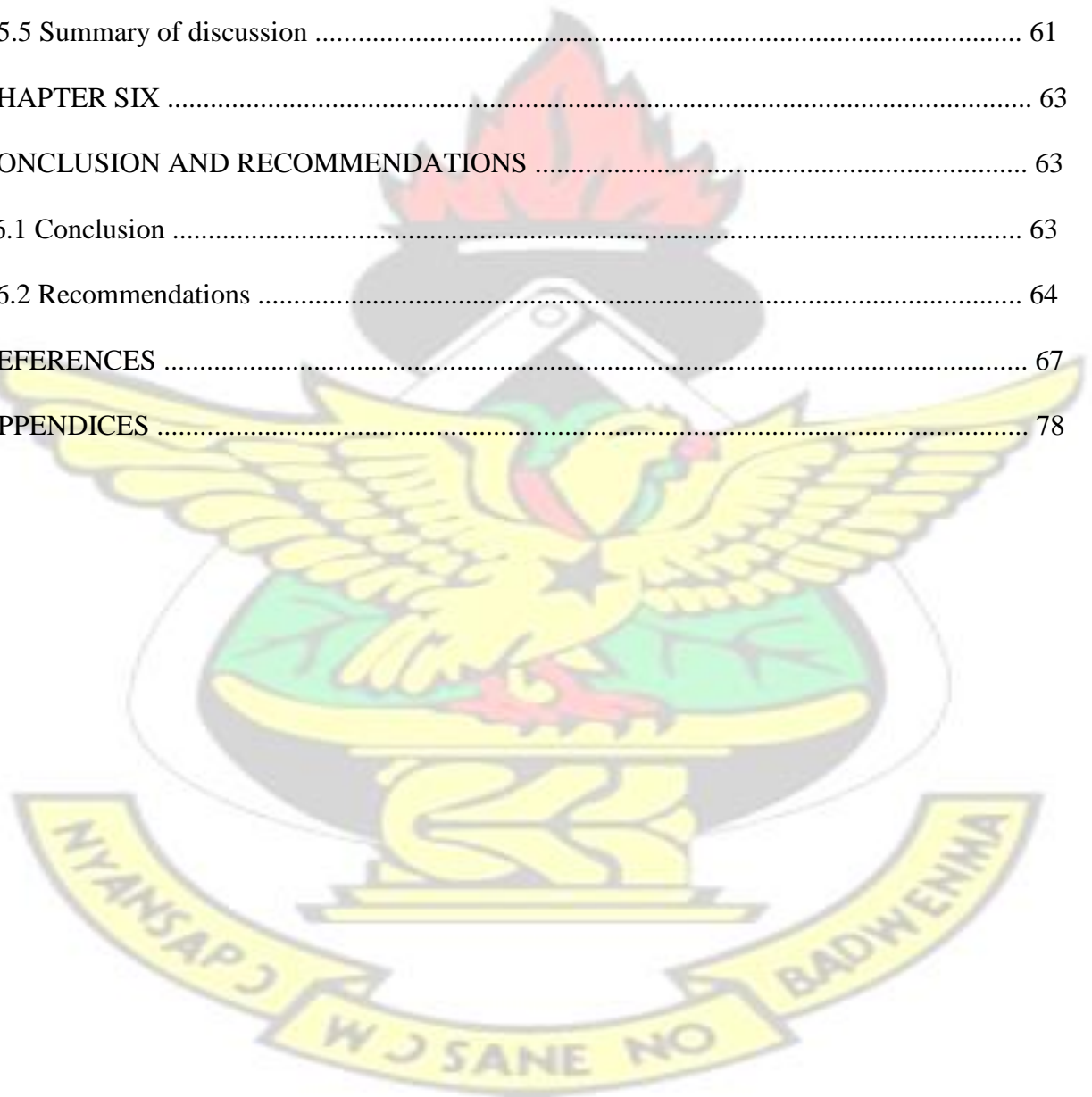
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OPERATIONAL DEFINITION OF TERMS

Operational Definitions

Validated Tool- refers to those with published evidence of reliability and validity for the populations to which it was designed.

Pain – A stimulus that a patient says leads to discomfort

Assessment- screening for the presence, or risk of, any type of pain

Practice- pain assessment and management approaches in paediatric settings based on their experience.

Non-pharmacological methods –techniques different from drugs used to relieve pains.

Attitude: unconscious behaviors of the nurses' and their way of acting towards effective pain assessment and management.

Nurse- all certificate and registered nurses.

Children –four weeks of birth to twelve years of age.

Pain management- activities that should be provided by nurses to manage the patients' pain effectively.

LIST OF ABBREVIATIONS

CHRPE	Committee on Human Research Publication and Ethics
NSAIDs	Non - Steroidal Anti Inflammatory Drugs
WHO	World Health Organization
PPKAQ	Paediatric Pain Knowledge and Attitude Questionnaire
PNKAS	Paediatric Nurses Knowledge and Attitude Scale
NKASRP	Nurses Knowledge and Attitude Survey Regarding Pain
ACH	Asokwa Children's Hospital
KSH	Kumasi South Regional Hospital
SGH	Suntreso Government Hospital
SMH	St Michaels Hospital
MCHH	Maternal and Child Health Hospital
MGH	Manshyia Government Hospital
PTH	Poku Transport Hospital
SMS	School Of Medical Sciences

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DEDICATION

I dedicate this work to my husband, Dr Richard Torgbor and my kids: Rachelle, Richelle, Ryan and Rona.

KNUST



CHAPTER ONE

INTRODUCTION

1.0 Background

Effective pain management is every child's right and therefore proper assessment of pain, appropriate intervention to ease it, subsequent monitoring and prevention of this subjective stimuli should be the top priorities of nurses who care for these vulnerable population. This is more important because majority of these children might not have matured developmental capabilities to explain nor describe the pain they are experiencing. (Pfannenstein, 2013).

Persistent pain has been shown to interfere with children's activities of daily living, mood and sleep, leading to negative effects ranging from depression, anxiety and developmental problems (American Medical Directors Association, 2012; Scottish Intercollegiate Guidelines Network, 2008; von Baeyer, 2011).

Pain is experienced by many people in several forms once in a while due to varying reasons. Pain unfortunately is part of the human experience, as most people will experience it in several forms once in a while due to varying reasons. In children, pain is not a strange phenomenon and studies have revealed that, children experience moderate to severe pain (Twycross and Finley, 2013; Smeland *et al.*, 2018) ranging from their experience during vaccination in their early days of their births to severe pain after surgery.

Steven *et al.* (2012) revealed that, in spite of the abundance of knowledge on age-appropriate pain guidelines for its routine measurement, to the extent of even considering pain as the fifth vital sign (Ortiz, 2015), there are still several published reports of inadequate knowledge and attitude leading to infrequent pain assessment, management and practice among hospitalized children by nurses. (Neimaer and Ghareyed 2017; Yava *et al.*, 2013; Al-Shaer *et al.*, 2011; Wysong, 2012).

Nurses have always acted as advocates and coordinators between the patients and other care givers. The best information is therefore expected to be given by nurses in order to ensure proper

comprehension, resulting in the management of pain within the most preferred manner (Maryland Board of Nursing 2011; WHO 2007).

Surveys among nurses have revealed knowledge deficits in pain assessment as major contributing factor to its under-treatment worldwide. (Craig, 2014; Al-Shaer *et al.*, 2011; Wysong, 2012). As explained by literature, any positive experience of pain management during childhood can avert fear and anxiety associated with pain in the future (Noel, 2012).

This reemphasizes that nurses must strive to have adequate competencies to assess and manage pain in these children, who predominately may not be able to self-report their pain (Herr *et al.*, 2011; Wuhrman and Cooney, 2011).

Underestimating and undertreating pain in many children below ten years is very noticeable in under developed nations (Alhassan *et al.*, 2017). This was made evident in a study by Alhassan *et al.* (2017) where their study revealed 70% of the participants have not gotten any kind of education, learning session or training in management and assessment of paediatric pain, whilst 60% had no knowledge of any pain assessment scale for the paediatric population.

The situation of inadequate knowledge, attitude also persists in Ghana and this was affirmed by a study conducted at Korle-Bu Teaching Hospital in Accra. The researchers highlighted on the determinants of nurses' knowledge gap on pain management (Aziato and Adejumo, 2013). Their results explained that, the surveyed nurses' inadequate pain management knowledge resulted from factors like curriculum gaps during training, inadequate clinical supervision and shortage of funding for organizing regular workshops on pain. In their research, they reported negative attitudes of nurses in paediatric pain to non-application of new information learned at workshops in clinical practice. This claim has been supported by Han *et al.* (2016) where their research established that, nurses who have good knowledge do not always have good practice for pain management. Pain management is advocated as a principal quality indicator for quality care delivery and outcomes to patients. Therefore within the clinical settings, nurses have a vital role

in pain assessment and management, and must be knowledgeable regarding how best to assess and manage pain.

Adequate knowledge, attitude and practice of nurses working in the paediatric units on pain management are prudent and this study was undertaken to highlight the areas where there is a gap. The study intended to determine the knowledge, attitude and practice of paediatric pain management by nurses. More information on attitude, knowledge and practice of nurses in various paediatric units will assist in the development of educational and training programs that meet their professional expectations.

1.2 Problem Statement

Nurses encounter knowledgeable clients who do not compromise quality health services, hence claim accountability and competence from all health workers. Although research has shown that pain management should be an inter-professional team effort (Institute for Clinical Systems Improvement, ICSI, (2009) as cited in Registered Nurses' Association of Ontario, RNAO (2013), nurses are obligated to act within their scope of practice whenever pain is anticipated or self-reported by children by assessing and managing it appropriately. This prevents all the untoward emotional and psychological consequences they eventually associate with painful stimulus when hospitalized. Although several studies have been conducted on nurse's knowledge and attitude to pain practices in other geographical locations, less is known about it in Ghana. Meanwhile, adequate knowledge, attitude and practices eventually reflects positive care outcomes. A study by Aziato *et al.* (2015) in Ghana confirmed that 70% of patients admitted in Ghanaian hospital come with or experience pain which is not adequately assessed and managed. Though there has been a qualitative research on nurses' attitude and approaches to procedural pain management of children within Koforidua Regional Hospital in Ghana by Anim-Boamah and others (2015), there is limited literature on knowledge and attitude to pain assessment and management in Ghana. Moreover the knowledge and attitude as well as practice of nurses in the paediatric units using a mixed method

is not documented in Ghana. It is important to assess these nurses' level of knowledge, attitude and practices to pain among children in the Ghanaian context in order to generate evidence that will inform practice.

1.3 Purpose of the Study

Although researchers have attempted to measure nurses' knowledge and attitudes about pain, few scales investigate knowledge, attitudes, and reported practice of nurses towards pain assessment. (Siok *et al.*, 2014). Because of the difficulty in the detection and description of paediatric pain due to their inability to accurately verbalize it, there is a tendency for nurses' working at the paediatric units to resort to personal beliefs which is subjective. This may adversely influence their perception of both presence and intensity of pain by the paediatric population (Murdoch and Larsen, 2004). The stages of children's cognitive and physical development may have a lifelong impact on how they respond and understand painful experiences if it is not managed effectively from its onset. These children may eventually resort to self-medications and abuse drugs when their acute pain runs into chronicity. A search through literature revealed that, there is no studies conducted on assessing knowledge and attitude while using knowledge, attitude of paediatric pain questionnaire. However, an assessment on knowledge and attitudes amongst nurses on paediatric pain cannot be over looked for effective care delivery on children's pain (Al-Khawaldeh *et al.*, 2013). This thesis also sought to describe the pain assessment and management practices of nurses on pain management through an observational studies in four randomly selected hospitals.

1.4 Conceptual framework

A conceptual framework is regarded as a map for understanding the relationships between and among variables (LoBiondo-Wood and Haber, 2014: Polit and Beck, 2012). The conceptual framework used in this study was an adaptation from the Knowledge, Attitude and Practices (KAP) model. Launiala (2009) explains that, this model was first used in the middle of the nineteenth

century to measure family planning and population. The model proposes that any practice is determined by one's attitude towards that behaviour. Accordingly, this model suggested that, a person's attitude towards any behaviour is related to the knowledge about this practice. Fig 1.1 depicts the KAP model.



Figure 1.1 KAP model The Knowledge, Attitude and Practice (KAP) model as depicted in Alzghoul and Abdullah, (2015)

Linking to this agreement is a probability of people most likely to execute a practice when there is an adequate knowledge and a positive attitude towards phenomena studied.

According to this model Knowledge is a set of one's understanding and ways of perceiving. Despite the benefits of the presence of Knowledge in a health behaviour it does not mechanically mean it will be translated to usage. Surveys such as the current study helped to assess the extent of this knowledge in paediatric pain assessment and management to uncover areas where information and education needs to be buttressed.

Attitude is also explained as a way of being or a position. The attitude of the study population was assessed with a questionnaire since it couldn't be directly observed like practices. It must be noted that numerous studies have often shown a low and sometimes no connection between attitude and practices. Practices or behaviours are considered the observable actions of a person in a situation, and in this research, a participatory observation was undertaken.

Within the area of pain management, the KAP model was used to assess the relationship between knowledge, attitude and nurses' practices regarding pain management by Basak (2010) and Hossain, (2010) where they both indicated insignificant relation between the study variables. A limitation to this model is that it is concerned with only personal determinants (knowledge and attitude) leaving out environmental determinants (Jacobsen *et al.*, 2009).

The current study built upon the adapted framework to assess if nurses caring for children in the paediatric units have adequate knowledge and attitude, and if it was reflective in their practices.

1.5 Research Questions

The following research questions are designed to guide the researcher in the study:

1. What is the level of knowledge of the nurses on paediatric pain assessment and management?
2. What are the attitudes of nurses on paediatric pain assessment and management?
3. What is the relationship between knowledge and attitude of nurses in paediatric pain assessment and management?
4. What are the pain assessment and management practices of nurses working in paediatric units?

1.6 General Objective

To assess nurses' knowledge, attitude and practice of pain assessment and management in hospitalized children.

1.7 Specific Objectives of the Study

1. Assess the knowledge of nurses on paediatric pain assessment and management.
2. Examine the attitude of nurses on paediatric pain assessment and management
3. Provide description of pain management and assessment practices of nurses working in paediatric units
4. Determine the relationship between knowledge and attitude of nurses in paediatric pain assessment and management

1.8 Significance of Study

The research findings would help identify the level of knowledge and attitude and its relationship to practices on pain assessment and management among nurses in the paediatric units. The findings also uncovered the understanding of pain in children by nurses who care for them in the Ghanaian context.

The study was also essential as it will contribute and inform policy makers on the need to restructure the curriculum on pain assessment and management in the nursing profession to improve pain care for children and their families. It will also inform hospital managements to provide the necessary logistics for nurses to effectively care for children with pain. These will improve their pain management skills and eventually create an optimistic experience that may prevent fear and anxiety children associate with pain in the future (Noel, 2012).

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

There are several implications of unrelieved pain in children related to inadequate knowledge in its assessment and subsequent management by nurses during their period of hospitalization. A child may experience mild to moderate pain during development. According to Lewthwaite et al. (2011), pain is therefore among the prevalent health issues reported by nurses. A literature search was conducted using electronic databases: PubMed, CINAHL, and MEDLINE. The terms paediatric pain, pain assessment and management, paediatric nurses, knowledge, attitude and practice were included in the search.

The chapter has been organized as follows: Pain Definition and Ways of Assessment, the knowledge and attitude of nurses on paediatric pain assessment and management, the relationship between knowledge and attitude of nurses on pain assessment and management, pharmacological

management of pain by nurses in the paediatric units and the non-pharmacological practices of nurses in the paediatric units on pain assessment and management.

2.1 Pain Definition and Ways of Assessment

The International Association for the Study of Pain (IASP, 2012) explains pain as an unpleasant emotional or sensory experience associated with actual or potential damage to the tissues. Pain is considered as the condition which is interpreted as whatever it exists, it seems or that which the patient says it does (Lilley *et al.*, 2011). Paediatric is the field of medicine that sees to the health of infants, children, and adolescents as far as their growth and development are concerned (Medicine net, 2016). Thus, every child's ability to express or report pain depends on his/her physical and psychological developmental stage. Though a child may not be able to specify his/her feelings about the kind of pain being experienced, a report of it should never be underestimated by any health professional especially nurses who care for them. Wong *et al.* (2012) therefore reemphasized that, self-reporting is the hallmark for reporting pain.

The usage of any appropriate pain assessment tool for each pediatric case is important in terms of the proper outcome of pain assessment. According to Salanterä (1999), nurses cannot completely rely solely on these different pain tools when assessing pain. This is because, most of these tools are known to measure only one aspect of the pain such as its intensity. Instead, nurses are advised to use as many forms of assessment as possible in order to form the most accurate and comprehensive conception of the child's pain.

The health profession has been confronted with clients often complaining of receiving less assessment and management for their pain than they should, and this is seen as more challenging especially among children (Willems and Matthys, 2007). In the face of this challenge, Hockenberry and Wilson (2011) admonishes all care givers to assess pain by checking for

intensity, severity, location, duration, quality, timing and relieving factors before starting any form of treatment.

Within the past decades it has been observed that, great progress with validation and development to paediatric patients has been made with assessment and management practices of paediatric pain (Kahsay, 2017). For instance children who can speak could be assessed with the Wong-Baker (1988) FACES scale which is more subjective to the client. For an objective pain assessment, the nurse rather has to use cues and non-verbal maneuvers from the patient to interpret the level of pain experienced by children or infants who have not developed their communication skills. It includes the FLACC: Face, Leg, Activity, Consolability, Cry Scale by (Merkel et al., 1997) the Crying, Requiring O₂ Increased BP and HR, Expression, Sleeplessness (CRIES) by (Krenhel and Bildner 1995) and the Premature Infant Pain Profile (PIPP) by Steven *et al.*, (1985). It is however best for nurses to combine both the objective and subjective way of assessing pain since none of these tools is purported to be the best for any category of age.

2.3 Knowledge of Nurses on Paediatric Pain Assessment and Management.

Nurses' knowledge of pain mechanism, its assessment and management are essential components in promoting positive patient outcomes (Al Shaer *et al.*, 2011).

Knowledge of nurses grant them the ability to carry on with decisions concerning clinical challenges while providing the appropriate care possible. A Study by Aranha *et al.* (2015) in Mangalore- India, shows that, majority (53%) of participant nurses had insufficient knowledge, whilst 45% had moderately adequate and 2% with adequate knowledge regarding assessment and management of pain in children. They also established that knowledge about pain scales among the study respondents was scanty. Majority of their respondents believed that the best judge of intensity of pain is the child which affirms that the hallmark for pain assessment is by self-report. Van Niekerk and Martin (2001) also tested the knowledge of Tasmanian registered nurses in

relation to pain management issues such as addiction and the use of analgesics. The survey revealed inadequacies in knowledge especially in the pharmacological and non-pharmacologic management of pain. However, they displayed a more up to date knowledge concerning the effect of patient variables on pain perception.

Twycross and Dowden (2009) in their pain commentary concluded that the nurse's insufficient knowledge about managing pain in children could be the reason nurses do not manage pain effectively. When nurses completed the Paediatric Nurses Knowledge and Attitude Scale

(PNKAS) ($n=274$) in Manworren's, (2000) study, the mean score for the questionnaire was 66% (range: 31-98%). She reported that, Knowledge deficits were obvious in areas such as pain assessment, the pharmacology of analgesic drugs, and drug and non-drug treatment for pain.

A similar research by Vincent (2005) with a sample of 65 nurses, using an adapted version of the Nurses Knowledge and Attitude Regarding Pain Survey corroborated Manworren's findings.

A qualitative study by Kholwa and others (2017) on 17 nurses also identified inadequate knowledge of the WHO analgesic ladder and drugs to use at each step of the ladder by participants.

The participants in Kholwa *et al.* (2017) demonstrated knowledge of pharmacological methods of treating pain. Nonetheless, they had to be prompted before they mentioned the non-pharmacologic pain interventions.

Some studies have emphasized that education leading to subsequent knowledge and practices last for a short duration and declines if not sustained. (Ellis *et al.*, 2005; Howell *et al.*, 2000). With this assertion, Aranha *et al.* (2017) blamed it on the absence of demonstrations and support through effective supervision. Neimaer and Ghareyed (2017) corroborated this in a research among Palestinian nurses who had very poor knowledge about pain assessment and management with a percentage of 45.6%. This findings was not so different from Stanley and Pollard's (2013) studies among paediatric nurses in acute care in the United States. Twenty five (25) nurses working at the acute care unit completed the Paediatric Nurses' Knowledge and Attitude Survey Regarding Pain

(PNKASRP) The group's results ranged from 53% to 82%, meanwhile a level of knowledge of 85% or higher satisfies most nursing standards, hence their study suggested a need for increased pain management education for paediatric nurses.

In a descriptive and cross-sectional study by Yava *et al.* (2013) among Turkish nurses, the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) was used to determine the painrelated knowledge and attitude of the nurses. The participant nurses' average correct answer rate for the entire knowledge and attitude scale was 39.65% (range=7.7% to 80.1% for each item), signifying poor knowledge of pain management.

Ortiz research in 2015 with a similar tool, Paediatric Nurses Knowledge and Attitudes Survey Regarding Pain (PKNAS) among 111 nurses didn't report anything opposite to this claim. Lack of sufficient knowledge concerning pain management subsequently may affect nurse's ability to recognize the need to look up for extra materials on best practices for effective assessment and management of pain (Maryland Board of Nursing 2011.)

2.4 Attitude of Nurses in the Paediatric Units on Pain Assessment and Management.

Attitude is related to how a person views or behave towards something in an evaluative manner.

In 2017, Aranha *et al.* research disclosed that, majority (77%) of the nurses studied had satisfactory attitude whiles 23% had moderately favourable attitude towards assessment and management of pain in children. Their attitude was said to be influenced by their valuable judgment and misconceptions. One of these misconceptions was their attitude towards the administration of narcotic analgesics which they believe leads to addiction and respiratory problems in children.

Kholwa in 2017 found that, although most nurses had positive attitudes towards children's pain and use of morphine, negative attitudes were evident in some nurses regarding administration of morphine to neonates or acutely ill children. Unfortunately, a number of studies has indicated that

nurses have a knowledge deficit regarding pain, and may hold negative attitudes and misconceptions towards its assessment and management Abdalrahim *et al.* (2011). Huth *et al.* (2010) evaluated the effectiveness of a pain education intervention on Mexican nurses' knowledge and attitudes toward paediatric pain where their results displayed a knowledge dearth of pain and its management.

Among the One hundred twenty-nine nurses who completed the Nurses' Knowledge and Attitudes Survey Regarding Pain (NKASRP) in 10 separate nursing units in a mid-western hospital in the U.S, Al-Shaer *et al.* (2011) found that nurses continue to demonstrate inadequate knowledge of pain assessment and pain management interventions.

2.5 Pharmacological Practices of Nurses in the Paediatric Units on Pain.

Despite guidelines and pharmacological interventions that exist to manage pain, poor assessment and under-medication is well documented globally (Neimer and Ghareyb, 2017). One major challenge indicated by Willems and Matthys (2007) for the difficulty in usage of drugs especially Opioids' for paediatric patients is its comparatively slow or fast breakdown of these drugs. With this notion, most nurses therefore feared untoward effects like respiratory distress which is a known effect of these classes of drugs for pain although there are developed antidote for these reactions. Hasan *et al.* (2003) reported on accurate titration of dosage as one antidote in the prevention of this respiratory distress. Aziato and Adejumo, 2013; Rejeh *et al.*, 2009 in their researches also indicated the unwillingness of nurses to administer opioids' for fear of tolerance, physical dependence, and withdrawal which manifest in children, hence its inadequate prescription for administration. Health workers are admonished to educate parents and guardians on symptoms of withdrawal with the commencement of children on opioid treatment. Steven *et al*, 2012, ;Twycross *et al*, 2013, also enlightened that, pain relieving interventions was seldom recorded in children's medical records , leading to slight evidence of their effectiveness being evaluated.

Kahsay's work in 2017 also advocated for scientific studies purposely for paediatric analgesics since the protocol of existing drug treatment reduced from protocols of elderly people with little proof of value among such infants. A three stage analgesic ladder for treating pain subject to its severity in individuals. The Non-Opioids commonly prescribed for management of Pain in Paediatrics included acetaminophen, naproxen and ibuprofen. A study conducted in Sudan by (Alhassan *et al.*, 2017) showed that a third of the study participants were of the view that opioids contraindicate for pain that is chronic by relieving individuals of such pain since they can be addicted.

In the case of narcotic usage, (Kahsay, 2017) reported that Opioids like Morphine, Codeine, Fentanyl and Tramadol were the commonly drugs used for pain management which is however not recommended for paediatrics who are less than 11 years old. A survey results revealed a tendency for nurses' personal opinions and lack of understanding about the patients' pain, rather than their assessments, in influencing their use of adequate opioid doses in managing pain (Craig, 2014). These pain may eventually be undertreated as a result of inadequate assessment or the inappropriate use of analgesics, especially opioids (Al-Shaer *et al.*, 2011).

In a qualitative studies conducted by Cummings (2015), to examine the culture of pain in nonpaediatric emergency setting, although Participants stated the importance in the assessment of children's behaviour as an indication of pain, they confirmed nurses infrequently interpret overt pain behaviour's like Kicking, screaming, shouting, crying, and withdrawal from painful stimulus during procedures as their priority. Although other pain alleviation techniques are advocated for in treating paediatric patients, studies have recommended the Administration of pain medication as the most basic and effective means for relieving any presumed pain.

Despite guidelines and pharmacological interventions that exist to manage pain, poor assessment and under-medication is documented globally (Neimer and Ghareyb, 2017).

This Poor knowledge about pain mechanisms and in analgesics treatments may explain why nurses do not prefer to use pharmacologic and Non-pharmacologic therapies together (Alotaibi et al, 2018).

Apart from 59.3% nurses' refusal to administer opioid to children, in Alotaibi et al, (2018) were reported to have overestimated the incidence of respiratory depression related to opioid usage despite the availability of Naloxone as an antidote for these reactions.

Aziato and Adejumo, 2013; Rejeh *et al.*, 2009 in their research also brought to forefront, the unwillingness of nurse to administer opioids' for fear of tolerance, physical dependence, and withdrawal symptom, hence its uncommon prescription and unnecessary titration by most nurses during its administration. Peirce *et al.*, in (2018) in their studies mentioned other barriers to pharmacological management of pain in nurses as including ineffective communication among children coupled with their parents lack of expectation and distrust in nurses to adequately manage pain (Schiavenato and Craig, 2010; Simons, 2015). In their survey, Zinalpoor *et al.* (2017), revelation on the knowledge, practices, and attitude toward opioids by nurses was found to be woefully defective, reflecting the lack of sufficient education and general under practice of opioid prescription.

Further studies by Alhassan et al (2017) in Sudan confirmed majority of their participants agreed opioids were either under prescribed or given just occasionally. The authors sated certain difficulties such as inaccessible to cannulation and venepuncture in dark skinned children as reasons for avoiding opioids medications since they felt uncomfortable administering through the intramuscular route which is consider relatively painful compared to the two . The nurses in their study however saw no need to apply any topical anaesthesia before these procedures since they were not conversant to its usage as compared to participants in Ireland and the united states (Renaker et al., 2015 : Health Service Executive, 2010)

Cummings in his (2015) study concluded on the use of the Lidocaine, Epinephrine, and Tetracaine mixture gel as the most commonly used treatment preceding any suturing for a child who reported at the emergency department. This clearly indicates that, nurse are still unaware that the oral route has be recommended as the best for opioid administration for pain.

Documentation has been reported as being more focused on technical aspects such as the site, size of the cannula, amount of blood drawn, time of procedure than the presence and intensity of pain assessed or reported. Cummings (2015) commented that, apart from the nurses not using any pain scale they basically overlooked any reported pain. He went on to explain explaining the nurses were of the view that children do not understand the concept of assigning figures to reflect pain intensity. It was therefore reported that if documentation was ever provided by these nurses it was mainly sated as the child's response to a procedure was tolerated well.

Steven and others , 2012,in addition to Twycross with colleagues , 2013, enlightened that, pain reports and its relieving interventions is seldom recorded in children's medical records, leading to less evidence of their effectiveness being evaluated. The above literature shows a tendency for a nurse personal opinions and lack of understanding about the patients' pain influences pharmacological treatment choice. It is of concern that children's pain can be underrated due to lack of communication, improper utilisation of analgesics, insufficient assessment and lack of documentation on effects of pain drugs like opioids (Al-Shaer *et al.*, 2011).

2.6 Non-Pharmacological Practices Of Nurses in the Paediatric Units on Pain Management.

Nurses are expected to have extensive knowledge on utilisation of strategies that are not pharmacological like using cold and hot approaches, massages, measures of breathing and acupuncture in managing pain (Kipoirko, 2011). Studies have stressed that, analgesics alone may not effectively eliminate pain due to the complex and multidimensional nature of pain. This is because pain is not only attributed to physical causes but also an emotional stressful discomfort.

Schiavenato and Craig (2010) hypothesize that although these may not completely eliminate it, will improve in its management. Research has shown that, health-care professionals have knowledge shortfall and varying responses in non-pharmacological intervention to relieve pain.

(Alhassan *et al.*, 2017).

Brown *et al.*, 2005; AMDA, 2012) advocates that, nurses must consider the use of both conventional and non- conventional non-pharmacologic strategies to optimize the management of pain. Nurses were cautioned to desist from using placebo to establish absence, presence and treatment of pain (Lilley *et al.*, 2011). These none-drug interventions are grouped under physical and psychological interventions, where the former include acupuncture, hot and cold fomentation, massage repositioning and physiotherapy (Running and Turnbeaugh, 2011). The psychological techniques' ranges from interventions such as music, distractions (blowing bubbles, playing a game, watching television), non-nutritive sucking, to cognitive behaviour therapy (Pillai Riddell *et al.*, 2011; OCSMC, 2010; Eccleston *et al.*, 2013; Kahsay, 2014). It is vital for nurses to discuss with guardians these forms of interventions to elicit informed consent from clients on what they prefer, especially when a child cannot verbalize it. (Curry-Narayan, 2010)

In Aranha *et al.* (2017) almost two-thirds of their research participants asserted that, nonpharmacological measures were better to control pain. Contrary to this (RNAO, 2007), cautions that, non-pharmacological methods should not be used as a substitute for an acceptable pharmacological management. In a related study, Subhashini (2009) reported the use of music as the most common method of distraction in his study. In conjunction with the pharmacological options these interventions are known to help reduce the levels of anxiety, pain and distress among children.

These non-drug interventions are grouped under physical and psychological interventions. Under the physical intervention, (Running and Turnbeaugh, 2011) included manoeuvres such as acupuncture, hot and cold fomentation, massage repositioning and physiotherapy for instance

Participants in (Cummings, 2012) treated children who reported at the emergency department with physical treatments such as provision of ice packs, application of devices such as a sling or splint were also implemented. In Roth et al (2019), Music therapy was proven not only to reduce pain and anxiety but also improved patient satisfaction which had a positive impact in their quality of life during hospitalization.(Mandel and Davis 2014; Yinger, 2015). Despite (Yang *et al.*, 2015) reports on the adverse effect in the application of acupuncture,(Golianu et al, 2014) in their review on acupuncture literature suggested it is reliably safe when performed by a trained practitioner, reiterating a positive evidence supporting the use of acupuncture for both acute and chronic pain in the paediatric population.

Pillai Riddell *et al.*, 2011; OCSMC, 2010; Eccleston *et al.*, 2013 and Kahsay, 2014 also ranged psychological techniques' from interventions such as music, distractions (blowing bubbles, playing a game, watching television), non-nutritive sucking, to cognitive behaviour therapies. According to Curry-Narayan, (2010), it is vital for nurses to discuss with guardians these forms of interventions to elicit informed consent from clients on what they prefer, especially when a child cannot verbalize it. (Curry-Narayan, 2010). In a related study, Subhashini (2009) reported the use of music as the most common method of distraction in his study. Meanwhile, guided imagery and breathing maneuvers was recommended for school-age children and the adolescent since they were able to maintain prolonged attention to these techniques. A randomized control trial by (Kahsay, 2017) suggested virtual reality games are most effective in infants who have burn injuries that are not chronic whereas breast milk, Skin-to-Skin Contact and sucrose solution was commended the best alternative for neonates. Kuttner (2012) again indicated a very strong evidence for medical hypnosis as an equally suitable treatment for in the control pain in children.

The uses of such medical devices and methods are conceptualized to represent a more technical aspects of managing pain. Brown *et al.*, 2005; AMDA, 2012) therefore advocates that, nurses must consider the use of both conventional and non- conventional non-pharmacologic strategies to

optimize the management of pain. Although placebo could be used in some conditions (Alotaibi et al, 2018) nurses are advised to desist from its use in children since it results in deception and dishonesty (Clayton *et al.*, 2017; Kisaalita, *et al.*, 2014; Oakes, 2011; Yaqoob and Nasaif, 2015). Even with this knowledge out there, 53.9% of the nurses in Alotaibi et al. (2018) believed the use of sterile water for injection was acceptable in testing reported pain. Lilley *et al.*, and the Maryland board of nursing all in 2011 condemned placebo administration as neither for treatment option nor establishing the presence or absence of pain. Contrary to this RNAO, (2007), cautions that, nonpharmacological methods should not be used as a substitute for an acceptable pharmacological management, in Aranha *et al.* (2017) almost two-thirds of their research participants asserted that, non-pharmacological measures were better to control pain. In conjunction with the pharmacological options these interventions is known to help reduce the levels of anxiety, pain and distress among children

2.7 Relationship between knowledge and attitude of nurses in paediatric units on pain assessment and management

Steven *et al.* (2012) confirm that various acute paediatric pain assessment measures exist. However most nurses are known not to reflect these knowledge in their pain assessment as expected of them for hospitalized children. They explained that approximately two-thirds of hospitalized children in the Canadian paediatric hospitals had some form of pain assessment documented within a 24-hour period. Yet, the overall documented pain assessment was variable and inconsistent below the standard benchmark. (Stevens *et al.*, 2012; Twycross *et al.*, 2013). Perhaps the most conceivable factor for this infrequent documentation of pain could include nurse's lack of knowledge and strong evidential base connecting documentation of pain assessment to better quality patient outcomes.

The academic knowledge alone does not warrant information on the impact of knowledge on practice. This was captured in (Vincent and Denyes, 2004) survey on the relationship between knowledge and attitudes about children's pain relief and nurses' pain-relieving administration practices. They found out that, nurses with enhanced knowledge about pain were no more likely to administer analgesia.

In a related study, where Nurses ($n=12$) completed a revised pain management knowledge test there was no positive relationship between individual nurses' level of knowledge and how well they truly practiced pain management (Twycross and Dowden 2009).

Most nurses caring for children though will report adhering to current best practice guidelines may however reveal the opposite on their attitudinal close up in practices should they be closely observed.

In the face of all these evidence, nurses still harbor misbeliefs about paediatric pain which poses as barriers to practicing assessment and management of pain effectively.

A study that explored neonatal pain management found out that, Organizational context affected practices (Stevens *et al.*, 2011). Other common myth that prevent practice of paediatric pain assessment and management is not exclusive to selection of the best validated tool, fear of addiction, adverse reaction from drugs, and a parameter to evaluate patient's condition. These studies seemingly suggest that, nurses do not necessarily appear to apply their theoretical knowledge into practice due to some personal attitudes developed over a period of time.

2.8 Summary

In this chapter, a review of the literature on knowledge, attitude and practice of nurses working in the paediatric units on pain assessment and management was conducted. Literature was also reviewed on barriers to pain assessment and its subsequent management by nurses.

The literature search showed that even though some nurses have sufficient knowledge about children's pain, appreciable number of them lack knowledge in pain assessment and the management of it.

The literature search pointed out that nurses attitude towards pain management are mostly influenced by personal attributes as well as erroneous notion on the use of pain reliefs, especially on opioids.

In as much as some nurses may have adequate knowledge on children's pain, the literature review indicated that they do not put these into practice citing reasons like lack of effective supervision and institutional constraints.

Under pharmacological and none pharmacological practices to paediatric pain management, the literature revealed the essence of using the WHO pain ladder for pain management with drugs like NSAID, non-opioids and opioid whenever it becomes appropriate. However, studies confirmed that some nurses showed reservation when treating children with opioids for fear of addictions and respiratory distress in children. The non-pharmacological techniques to pain also ranged from massage, the use of music to distractions like watching television and playing games. It was however emphasized that nurses must not substitute non-drug methods to drugs where necessary.

Finally, there was noted barriers to the practice of pain assessment and management which includes decisions on validated paediatric pain tool to use, and fear of addiction to pain reliefs.

CHAPTER THREE

METHODOLOGY

3.0 Overview

The methods adopted in the current study is highlighted in this section. It comprises of design of the research, population employed for the study, sample size, methods used to collect data as well as techniques used to analyse data collected for further interpretation. Finally, reliability and

validity of results obtained as well as ethical considerations done and implemented before collecting data are also outlined in this section.

3.1 Study Design

The study used both quantitative and qualitative approaches since they both have their distinctive characteristics in meeting the objectives of the study. The quantitative aspect used a descriptive cross-sectional survey to assess the level of knowledge and attitude of participants regarding paediatric pain.

Participatory observation guided by a checklist was used to describe pain assessment and management practice of the nurses.

3.2 Study Setting

Eight hospitals within the Kumasi metropolis including the Kwame Nkrumah University of Science and Technology hospital,(KNUST) Asokwa Children's Hospital,(ACH) Kumasi South Regional Hospital, (KSH) Suntreso Government Hospital,(SGH) St Michaels Hospital,(SMH) Maternal and Child Health Hospital,(MCHH) Manshyia Government Hospital(MGH) and Poku Transport Hospital (PTH) was used for the research . These hospitals form a representative of the type of health facilities in Ghana, which are either Government owned, Private, those affiliated to the Christian Health Association of Ghana (CHAG) or Quasi Government facilities. They were all considered since they have separate units for paediatric patients. The facilities have bed capacities from 8 to 50 within the paediatric units with a range of 10 to 29 nurses. An average of 5 nurses were responsible for managing a three tier (morning, afternoon and night) shift, ranging from Enrolled Nurses (EN) to Principal Nursing Officers (PNO) according to ranks. The nurses perform variety of duties such as checking of vital signs, drug administration, tepid sponging, feeding, wound care, health education regarding children's health as well as pre/post-operative care and the use of medical

devices designed for paediatric patients. Although all facilities see to variety of paediatric medical and minor surgical conditions, Poku Transport hospital and Asokwa children's hospital undertake only medical cases.

3.3 Sampling Method

A Non-probability sampling method, specifically the convenience sampling was employed to select participants from the study sites. This was chosen because participants are accessible and readily available (Etikan *et al.*, 2016). However Lichtner (2014) stated the possibility of hidden biases as the most frequently cited drawback. The target population for this survey were all nurses working in the paediatric units of the chosen facilities. The span of facilities chosen also enhanced a wider representation of the population of nurses in the study areas. All full time nurses in the selected hospitals who were willing to take part in the study were included.

3.4 Inclusion Criteria

All nurses who were working full time in the paediatric units for at least 6 months to 1 year of the identified hospitals and were willing to participate voluntarily in the study.

3.5 Exclusion Criteria

All rotation as well as student nurses.

3.4 Sample Size

The sample size was determined by employing Yamane (1967) formula which is

$$n = \frac{N}{1 + N(e)^2}$$

Where n = sample size, α = confidence level (95%) n is the sample population N = is the total population = 82 e is the error of margin (0.05) with a confidence level of 95%.

$$n = \frac{N}{1 + N(e)^2}$$

$$n = \frac{82}{1 + 82(0.05)^2}$$

$$n = \frac{82}{1 + 82(0.0025)}$$

$$n = \frac{82}{1 + 0.21}$$

$$n = \frac{82}{1.21}$$

$$n = 67.76$$

Out of the estimated 67 estimated sample size, 2 of the nurses declined participation on the ground of disinterest. Hence a sample of 65 from a total population of 82 nurses in the eight chosen institutions eventually consented to be used for this study. The respondents were asked to complete a structured questionnaire Paediatric Pain Knowledge and Attitude Questionnaire (PPKAQ) developed by Twycross and Williams (2010). Data collection commenced from October 2018 upon ethical approval to February 2019.

3.5 Data Collection Procedure

Data collection refers to the systematic gathering of data from the sample applicable to the aims and objectives of the research study (Bryman, 2012:14, Burns and Grove, 2011: Creswell, 2010). The aim of data collection was to obtain information regarding the knowledge and attitude of nurses working at the paediatric units of selected hospitals using a structured questionnaire and an observational checklist to explore their practices of pain assessment and management.

Following institutional approval from the participating institutions and Ethical approval from the

Committee on Human Research Publication and Ethics (CHRPE), School of Medical Sciences (SMS) at KNUST, the questionnaire, in addition to the consent form was administered to the participants using convenient sampling. Once a participant read the consent form and agreed to participate in the research, she/he was directed to go ahead and complete the attached questionnaire. This was done in an average of 40 minutes, but instances where participants could not complete answering the questionnaire due to duty call, the researchers had to rearrange convenient times for participants to complete the questionnaire. Once a participant was done answering, the questionnaire was instantly verified for completeness.

The qualitative section of the study took place in four hospitals among the eight selected facilities within Kumasi and Pramso. The four facilities were Kwame Nkrumah Science and Technology hospital (KNUST), Asokwa Children's Hospital, (ACH) St Michaels Hospital, (SMH) and the Maternal and Child Health Hospital, (MCHH) which was randomly selected from the other four government owned hospitals to avoid bias. The observations were made by the researcher from the 22nd of December 2018 to the 11th of February 2019. The observations took place during six (6) morning shifts, four (4) afternoon shifts and two (2) evening shifts and always began with an orientation of the ward by a staff nurse on the first day of visit.

Their practices of pain assessment and management was examined by means of participatory observation, where the researcher spent four hours observing nurses on duty. This choice was based on Sangasubana (2011) eight distinct characteristics for observational studies. It included the fact that it allows for dialogue in the form of feedback from participants, it is done in a natural setting, and researcher becomes an observer and participant and also collects data in multiple ways which allows for triangulation. Twycross and Shorten (2016), reiterates that observations allow a first-hand account of behaviour and actual practice to be captured.

The participatory observation was done in a form of shadow nursing on the nurses' who had answered the PPKAQ and were on duty as at the time of observation.

In ensuring rigor of the results as far as Hawthorne effect could affect the data for practice, rapport was effectively established during the period of interaction with the (65) nurses in answering the questionnaire before subsequent observation was undertaken thrice (morning, afternoon and night shift) for (40) nurses at the four hospitals. According to Twycross and Shorten (2016) this allowed participants' to be familiarized with the researcher's presence, and also ensured a likely routine practices and behaviour from the nurses.

The focus of observation in the wards was on the availability of pain tool and its location, documentation of assessed pain by nurses, and drug and non –drug interventions for pain management, nurses-patients as well as guardians dynamism in communicating pain. Nurse – Nurse and Nurse with other health care provider's interactions were also observed.

Credibility was ensured by observing key principles of qualitative interviewing consistent with observation studies such as, follow-up on participants' comments, and asking for confirmation and clarifications from comments and observations gathered. The nurses were briefed of every observation made after every observation to ensure that comments had been captured accurately (member checking).

Transferability of the studies was also ensured by choosing four hospitals with the aim of maximizing the diversity among the study settings. It again ensured the findings depicted more than just an isolated description of the study population and phenomenon studied. In making sure the information gathered was consistent and dependable, two observers conducted the pilot studies with the same instrument (checklist) which was later used to gather information from all the four selected hospitals. The researcher started each observation by writing her expectations and assumptions (bracketing) for the day and ended it with reflections of the day when clarifications had been sought from participants to minimize observer biases whilst maximizing confirmability of results.

Detailed field notes were written daily after data collection to ensure all relevant key information were documented. Information collected was transcribed in word format. Coding was actively generated by 2 researchers, before being grouped into sub themes and then grand themes for analyses. Data collection of the observational aspects of the study occurred concurrently with the survey.

3.6 Ethical Considerations

Ethical approval for the study was obtained from the Committee on Human Research Publication and Ethics (CHRPE), School of Medical Sciences (SMS) at KNUST with reference number CHRPE/AP/574/18, as well as administrative approval from the facilities. Prior to commencement of the survey, each nurse was informed that the completion of the survey is considered as his or her consent to participate, and that participation is voluntary with the liberty to opt out of the study at any time they wish. No identifying data was placed on a completed survey, maintaining anonymity. Hence all questionnaires were coded with unique numbers and not by participant names and copies of the answered questionnaires were secured under lock and key to prevent unauthorized individuals from accessing participant information.

Data was analysed based on findings among the total number of participants. There was no risk neither a penalty associated with participation or refusal in this project. All information that was provided in the study was used for the purpose of the study.

3.7 Study Instrument

The study made use of the PPKAQ. This instrument was developed based on Salanterä's questionnaire (Salanterä, 1999) and was revised based on feedback obtained from 30 paediatric nursing students, 5 paediatric pain management experts, domineering base of evidence as well as search for more relevant literature. The PPKAQ takes 25-40 minutes to complete and consists of

72 questions covering five main domains namely, pain physiology, pain relief in terms of nondrug techniques, pain sociology and psychology, and views on caring for children in pain.

Cronbach's alpha coefficients and test-retest reliability using 20 nursing students showed an acceptable level of stability ($r \geq 0.70$) (Twycross and Williams, 2013).

Respondents had to select either of them for the response they believed was appropriate from likert scale (Strongly Agree, Agree, Neutral Disagree and Strongly Agree) to each item in the questionnaire.

- First Domain: consisted of eighteen (18) statements about considerations on caring for infants in pain.
- Second Domain: had ten (10) statements about physiology of pain.
- Third Domain: was made of nine (9) statements on non- drug methods of pain relief views.
- Fourth Domain: contained twenty-two (22) statements on using drugs to relive pain.
- Fifth Domain: consisted of twelve (12) statements on sociology and psychology of pain.

3.8 Pilot Study

A pilot study was carried out in one of the selected hospitals (Kumasi south hospital) for familiarization to the observational guide and also to check whether it was suited for the research objectives before the actual field work was embarked on. Carrying out such a study makes it possible to identify questions that are not well interpreted. Similarly, minor mistakes may be identified (Jackson et al., 2014). As comprehension and clarity of laid down instructions were assured from another observer, it was clear that amendments were not necessary. Those nurses who took part in the pilot study were not included in the main study as information obtained from the pilot study was not included in the main study.

3.9 Data Analysis

Descriptive analyses was done, frequencies and percentages were used to summarize the categorical variables, whilst continuous variables were expressed in mean and medians as a measure of the central tendency. Correct responses percentage on PPKAQ instrument were calculated for 72 PPKAQ items where 1 was assigned to each correctly answered question and 0 for a wrong answer. Analyses of data took place by a completion of item by item analyses for five domains in PPKAQ tool in order to examine every single question on the instrument. The five domains were represented singularly in mean, percentages, and standard deviations for every commodity in different sessions. The questions which were answered correctly or incorrectly were arranged in ascending order.

In order to determine the relationship between the knowledge and attitude variables, a correlation was performed with a 95% confidence intervals (CI), where the p -value of <0.05 indicated statistical significance. The qualitative data was also analyzed and described after entering the information from the observational checklist and field notes in word. Data was first coded before it was grouped into sub-themes and then themes manually.

3.10 Limitation of the Studies

Although the qualitative study mainly focused on examining the practices of the nurses' through an observational studies, the opportunity cost was the loss of objective data of participants which could have possibly been rated with a questionnaire.

Pain management is thought to be multidisciplinary, however the study focused on only nurses during both quantitative and qualitative data gathering.

Another limitation was the use of a short observation period to study the nurses' culture of pain assessment and management practices, rather than a longitudinal approach. In spite of these

limitations, this study is thought to be providing a primary insight on weaknesses in knowledge, attitude and practices of pain among nurses working in the paediatric units in Ghana.

KNUST



CHAPTER FOUR

RESULTS

4.0 Introduction

This chapter begins with the demographic profile of the participants such as gender, educational qualification and number of years spent in paediatric nursing. This is followed by results from the analysis of the PPKAQ survey, where respondents' knowledge regarding pain assessment and management was assessed. Relationship between their educational qualification and knowledge on paediatric pain management was also considered. Findings from participatory observational studies aided by a checklist to evaluate nursing practices are also presented in this section.

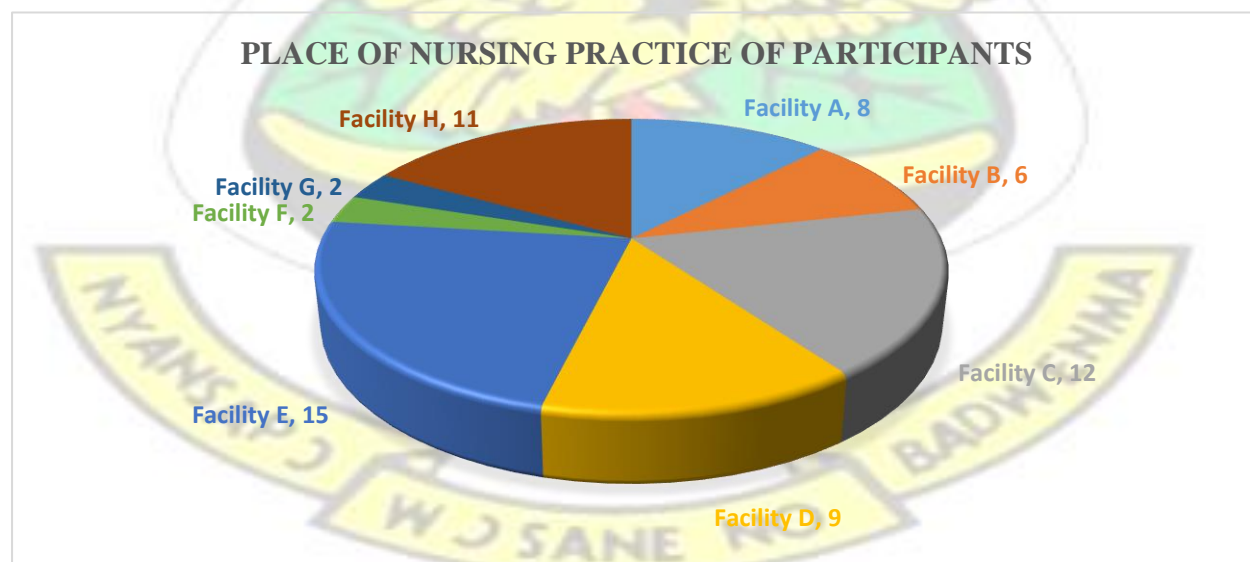
4.1. Demographic Characteristics of Participants

Majority of the respondents (53 nurses) were females representing 81.5 % and 12 (18.5%) were males. The mean age of respondents' was 29.37 years (range = 23-38; SD=3.8). The majority of the respondents had professional experience in nursing with mean years of practice being 4.89 (range 1-13; SD= 3.28) and respondents mean years of working in the paediatric units was 2.28 (range = 1-6; SD= 1.75). Post Graduate Degree was considered as the highest level of education among study participants (1.5%) whiles the lowest qualification was certificate in nursing (64.6%). Table 4.0 represents the demographic characteristics of the respondents. The two facilities with the least number of nurses working in the paediatric wards and the second lowest in average monthly admissions were facility B and H presented in Table 4.1. Meanwhile Facility E had the highest number of respondents (15) followed by Facility C in Figure 4.1.

Table 4.0: Demographic Characteristics of Participants (n=65)

Variable	Frequency (%)	Mean (SD)	Median (Range)
<i>Age</i>		29.37(3.8)	29.00(23-38)
<i>Gender</i>			
Male	12(18.5)		
Female	53(81.5)		
<i>Educational Qualification in Nursing</i>			
Certificate	13(20.0)		
Diploma	42(64.6)		
Bachelor of Science	9(13.8)		
Post Graduate degree	1(1.5)		
<i>Years of Service in Nursing/ Midwifery</i>		4.89(3.28)	4.00(1-13)
<i>Years of practice in Children's Unit</i>		2.28(1.75)	1.00(1-6)

Source: field data, 2018

**Figure 4.1**Place of nursing practice of participants

Source: field data, 2018

Table 4.1: Profile of Facilities

Facility	Average Monthly Admissions	Number of Nurses in Paediatric Ward	Number of Physicians	Number of Paediatricians
A	150	25	3	1
B	85	10	2	1
C	120	15	2	1
D	90	29	1	1
E	90	18	1	1
F	100	15	3	1
G	80	20	2	1
H	85	10	1	0

4.2 Knowledge and Attitude of Nurses

The participants were scored on their responses to questions that were presented to assess their knowledge and attitude. Therefore, an item by item analysis was performed to determine in rank which domain had questions that were answered correctly and incorrectly on the PPKAQ tool. The participants had the highest mean percentage of 59.15% in the domain of Non-Drug Pain Relief Methods, with a standard deviation of 19.16. However, they scored the lowest mean of 50.0% in the domain of Using Drugs to Relieve Pain, with a standard deviation of 14.39. The results are presented in Table 4.2 below.

Table 4.2: Participant PPKAQ Scores

Domain	<u>Mean</u>	<u>Standard Deviation</u>
Views on Children's Pain	55.98	16.93
Pain Physiology	58.00	15.43
Non-Drug Pain Relief Methods	59.15	19.16
Use of drug in pain relief	50.07	14.38
Pain sociology and psychology	56.28	15.66
Total Percentage Score	56.28	15.66

Source: field data, 2018

Overall, participants of Facility G demonstrated the highest mean knowledge and positive attitude about paediatric pain by scoring a mean of 69.03%, (± 4.91). Participants of Facility H recorded the lowest knowledge and attitude mean score of 43.37%, (± 5.81). Detailed results are presented in Table 4.3 below.

Table 4. 3: Overall facility score for PPKAQ

Facility	Mean	Standard Deviation
A	54.17	5.70
B	53.24	6.7
C	54.17	11.57
D	49.85	8.60
E	58.70	13.63
F	62.50	1.96
G	69.03	4.91
H	43.37	5.81

Source: field data, 2019

4.3 Most Correctly Answered Items on PPKAQ.

The survey data was analysed by arranging items in percentages from the most correctly and incorrectly answered item in each of the five domains of the PPKAQ instrument. For the purpose of this study, participants were considered to have positive attitude and knowledge when they scored 80% or more. Therefore a score of less than the required pass mark, in each of the domain was interpreted as a less than optimum capacity to care for a patient experiencing pain (McCaffery and Robinson 2002).

The most correctly answered items in the Views on care of children domain were questions based on the role of parents in the management of their children's pain and the aim of management in chronic pain where 95.4% of respondents correctly answered that *Parents should be involved in the management of their child's pain*. The other correctly answered items under views on care of children which represents the attitude section of the PPKAQ instrument is presented in table 4.5.

On the knowledge section which has four inter-domain items, 92.3% of respondents correctly identified that *acute pain is a warning that something is wrong* under Physiology of pain domain. The remaining domains and their three most correctly answered questions are summarized in table 4.4 below.

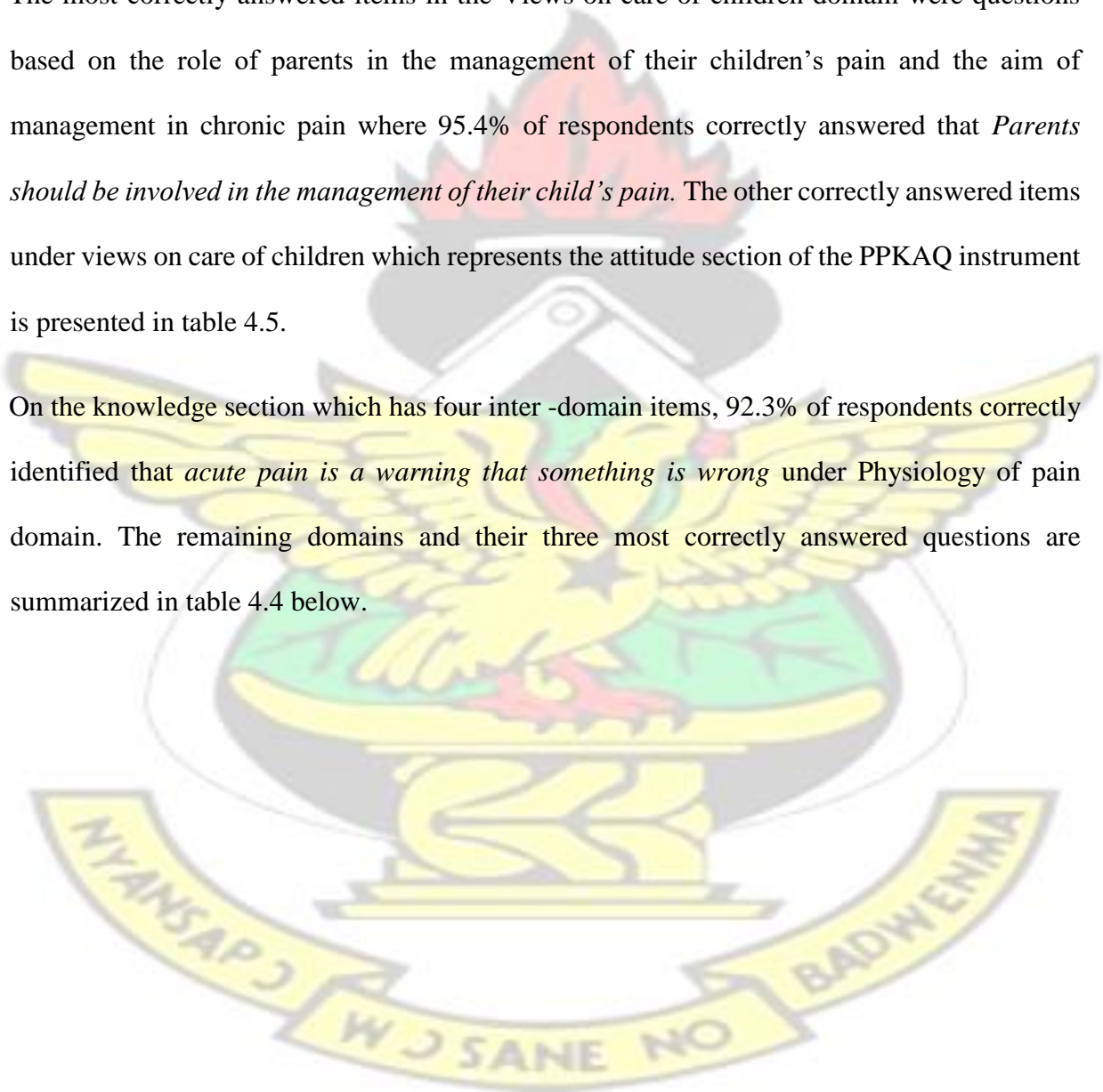


Table 4.4: Three most correctly answered items on the PPKAQ instrument

PPKAQ Domain	Statement	n (%) correct
Views On The Care Of Children In Pain	Guardians are entreated to involve themselves in managing the pain of their children	62(95.4)
	Guardians are entreated to prepare for their functions to support their children in times of procedures that are painful	59(90.8)
	In periods of chronic pain management in infants, the major goal of treating them is pain control	57(87.7)
Physiology of pain	Pain that is not chronic is a sign that something is not right.	60(92.3)
	Untreated pain prolongs recovery	56(86.2)
	Pain sensation is moved from the nervous system to the brain	52(80.0)
Non drug method of pain relief	Therapy for play is relevant to reduce pain that is mild in infants	57(87.7)
	Other pain reduction methods are required in addition to medicines that are analgesic	55(84.6)
	Parents presence reduces the pain experienced by children	49(75.4)
Use of drugs in pain relief	Paracetamol is utilised in treating pain that is mild for item	53(81.5)
	Long-term use of opioid analgesia (e.g. morphine) causes physiological dependence in children	49(75.4)
	Non-steroidal anti-inflammatory drugs (NSAIDs) can irritate children's digestive systems	44(67.7)
Pain psychology and sociology	Surroundings of infant directly influence their pain expressions	52(80.0)
	Child behaviour changes is used in their pain assessment	49(75.4)
	The cultural stance of a child influences the manner they show pain	45(69.2)

4.5 Most incorrectly answered items on the PPKAQ instrument.

Data analysis according to the five domains revealed that just 20.0% of respondents' indicated that *It is OK to carry out minor procedures, such as taking blood, without the use of analgesic drugs to item (3) under views on the care of children in pain* . It was closely followed by

(19.6%) response rate to item (6), *that Infants who are less than a month old may be intubated without pain medication* all under the views on the care of children in pain A low percentage of (15.4%) was also recorded for question (11), Parents may exaggerate their child's pain.

Just (40%) again knew that *Applying heat to a painful area reduces a child's pain* to item (5).

Under nondrug methods of pain relief. Table 4.5 has the three most incorrectly answered items under the domains

Table 4.5: Three most incorrectly answered items on the PPKAQ instrument PPKAQ

Domain	Content on the PPKAQ scale	Percentage Of	Correct Answer
Views On The Care Children In Pain	It is OK to carry out minor procedures, such as Of	13(20.0)	
	taking blood, without the use of analgesic drugs		
	Infants who are less than a month old may be intubated without pain medication	11(19.6)	
Physiology of pain	Parents may exaggerate their child's pain	10(15.4)	
		29(44.6)	
	The gate control theory of pain suggests that there is a gating mechanism that can inhibit pain impulses from passing through		
Non drug method of pain relief	The most common reason for the need to increase the dose of analgesic drugs in cancer treatment is the progression of the illness	17(26.2)	
	A child's pulse rate will always be raised if they have acute pain	9(13.8)	
	Applying heat to a painful area reduces a child's pain	26(40.0)	
Use of medicine in pain relief	Approaches of relation are ineffective to reduce pain of children	24(36.9)	
	Utilising the imagination of a child is ineffective to manage pain procedures	9(13.8)	
	Opioids and Paracetamol should not be administered in the same period	20(30.8)	
Pain psychology and sociology	Non-steroidal anti-inflammatory drugs (NSAIDs) and opioids cannot be given at the same time	18(27.7)	
	Non-steroidal anti-inflammatory drugs (NSAIDs) increase the adverse respiratory effect of opioids	10(15.4)	
	School-aged children cannot learn how to use a patient-controlled analgesia pump	26(40.0)	
	Dynamics in children's behaviour is utilised in pain assessment	22(33.8)	
	Infants would have no memories of enduring pain.	12(18.5)	

ANALYSIS OF OBSERVATIONAL STUDIES

4.6 Introduction

The data was gathered from four hospitals designated as Facility A, Facility B, Facility C and Facility D. The number of nurses and patients on each visit are recorded in Table 4.6 below.

Table 4.6: Schedule of observations in the wards

Visits	Date	Facility	Time	Number of Nurses on Duty	Number of Patients on Admission
1 st	22/12/18	C	8:00am-11:00am	3	6
2 nd	25/12/18	D	8:45am-12:45am	3	9
3 rd	27/12/18	A	1:30pm-4:30pm	4	7
4 th	28/12/18	A	8:00am-12:00pm	5	8
5 th	31/12/18	C	6am-10am	5	12
6 th	31/12/18	D	1:30pm-5:30pm	4	6
7 th	02/01/19	A	6:00pm-10:00pm	3	8
8 th	05/01/19	D	7:30pm-10:30pm	2	5
9 th	09/01/19	B	12:45pm-4:45pm	3	4
10 th	06/02/19	B	6:30pm-9:30pm	3	6
11 TH	09/02/19	B	7:30am-11:30am	3	7
12 th	11/02/19	C	7:45pm-10:45pm	2	9

4.7 WARD ENVIRONMENT

4.7.1 Description of the Ward

Data from field observations and participant interviews revealed that the wards of the paediatric units had child friendly designs to distract children from painful and discomforting circumstances. Three of the four wards had walls painted with bright colours and designs and all of them had toys with which the patients played, as was observed at Facility A where some

children riding on wooden carved colourful animals on the corridors of the facility. At Facility C it was noted that the wards had several colourful cartoon paintings as well as inflated balloons hanging at entrance of each cubicle.

However, it was observed that the walls of Facility D were painted entirely with a creamy yellowish colour, creating a dull and unstimulating atmosphere. A Nurse had this to say for the choice of colour in that facility:

“Hhhmmmm.....compared to other facilities, I know the wall colour here is not appealing at all.” (Whiles shaking the head with a disappointed look on the face.) (Nursing Officer (NO), 1st year in the paediatric unit)

Even though all the wards had television sets for entertainment, only one facility had a television pre-set with programs specifically for paediatric patients such as cartoon shows, rhymes and children’s shows. A nurse said:

“We run just cartoons, kiddie care programs, rhymes and colours for their comfort and as a form of a diversion therapy”(Senior Nursing Officer(SNO) , 2nd year in the paediatric unit)

4.7.2 Amenities on the Ward

Three of the four wards had notice boards upon which hung various essential information which could be consulted when needed while the other had no such space. However at facility D, these ward protocols or information were posted on the entire wall of the ward. It was observed at Facility B that the wards treatment room had a notice board with several treatment and procedure protocols pasted on it”

A nurse commented at facility D:

“I know it makes the ward somehow disorganized so I have even reported to management to provide us a common notice board for display of such protocols” (N.O, 1st Year in the paediatric unit).

All the wards had toys which were observed to be used as play items for the patients, and some parents were seen at facility A taking pictures of their kids on the toys displayed in the compound of the hospital.

4.8 ASSESSMENT OF PAIN ON THE WARD

4.8.1 Availability of Pain Tool on the Ward

Only one facility (Facility C) had a pain assessment or management tool available on a notice board closer to the nurses' station. The Face Leg Activity Cry Consolability (FLACC) tool and a Pain Assessment Triangle were identified.

Generally, Pain assessment tools had either not been used before or were unavailable at the other three facilities. A request for one in one of the three facilities resulted in this comment from a nurse:

'I remember we had one ooooooh, but I don't know where it is kept now, its looks like it's been a while I saw it though' (SNO, 2nd year on the ward).

4.8.2 Assessment of Pain by Nurses

Pain was only assessed as part of admission process for only patients suffering from sickle cell crises. At facility A, it was observed that in the nurses' notes on the day of admission of sickle cell patient, the FLACC pain tool was stated to have been used 'FLACC scale rating indicated child was in severe pain'... A glance throughout the Subsequent days in the nurses' notes had no documentations of pain assessed or re-evaluated about that patient nor those on admission.

The nurses however assessed the level of pain after it has been reported by their guardian or when a patient had showed signs. For instance at Facility D it was observed that though there was no assessment of pain by either of the nurses, during an admission protocol for a 5 year old child, neither was there any documentation of it as at the time of observation, on checking from one of the nurses how she could pick up pain cues from her patients she responded:

"Usually the babies cry persistently and those who can speak will tell you or even direct your

hands to the part of the body that aches. At times too they become lethargic or weak when in pain” (NO, 2nd year in the paediatric unit).

Another nurse at Facility C commented:

“For me, most times I assume a child is in pain when they cry continuously.”(Staff Nurse, 1st Year in the paediatric unit).

4.8.3 Methods of Assessing Pain by Nurses

Throughout my observation the nurses confirmed that even though they did not routinely assess for pain, occasionally they do especially during procedures. However, none of the nurses was seen to be using a pain scale or for the assessment. They rather resorted to observing signs and symptoms. Facial expression was the most common sign used, followed by crying and verbalization when they had to assess pain. For example, a nurse at Facility B said:

“Most times we resort to facial expressions, verbalization from kids themselves, or guardians, or during our head to toe assessment” (Principal Nursing Officer (PNO), 2nd year in the paediatric unit)

Another Nurse at facility D said that:

“I assess for pain by doing light palpation all over the body, and they usually will withdraw or avoid you touching the part” (SNO, 1st year in the paediatric unit).

4.8.4 Pain Assessment during ward rounds/handling over

None of the nurses specifically assessed for pain during ward rounds/handling over. However, a few of them asked questions that were supposed to identify problems that patients had been diagnosed of. Basically, it was observed that they were interested in how the patients were responding to treatment according to their diagnosis. At facility D, It was observed on different occasions that, the Physician was reviewing patients with only the house officer without the nurses on duty. They (nurses) were only called in by the physician for clarifications on any

issue about a patients where necessary. Parents were asked if there was any complain from their kids and most of these parents rather reported on the rise in temperature.

However at facility A and B:

Almost all the nurses on duty took part in the ward reviews or rounds with the physicians or house officer on duty. One of the nurses' at facility A drew the doctor's attention to the posture in which a 6 year old child had assumed on his bed. She said *"doctor from the way he looks curdled up in his bed, it seems he's in pain"* (Staff Nurse, 3rd year in the paediatric unit). The child affirmed his body aches and he feels cold when he asked.

4.8.5 Identification of child's pain by Parents and Guardians

Most nurses confirmed that they sometimes relied on verbal report from parents and guardians to assess pain. However, some of the parents and guardians said they could not correctly assess for pain. A parent at Facility A commented:

"Hmmm madam he's been moaning and turning aaarrh... But I can't tell if he's feeling any pain though he cries intermittently too... but I have not informed any of the nurses though"

(Parent of 2 year old, 2nd day on admission).

Another parent at Facility C said:

"...at this her age, how will I even know. When she cries persistently it gives me a clue" (Parent of 11months old baby girl, 3rd day on admission)

4.9 PHARMACOLOGICAL MANAGEMENT OF PAIN

4.9.1 Frequently Used Medication

Para-Denk (Paracetamol suppository) and Primadol (Paracetamol syrup) was mostly observed on the ward and in patient's folders as the drug of choice for the management of paediatric pain. This was confirmed by a nurse at Facility C:

“We usually administer syrup or suppository Paracetamol...” (Senior Staff Nurse, 1st year in the paediatric unit)

Many of the nurses however were of the opinion that, Paracetamol was mostly used mainly for the added benefit of being an antipyretic, as was commented on by a nurse in Facility C:

“Ooh we administer the Paracetamol for its anti-pyretic characteristic and if there is any pain that the child cannot verbalize” (SNO, 2nd year in the paediatric unit).

Also, a majority of the nurses were familiar with Morphine and Pethidine as an effective medications for severe pain. However, it was not routinely administered mainly because of feared addiction by the patients. A nurse at Facility D said:

“I know we are to give Pethidine or morphine, though I have never administered some for any child. After surgery, they come with Pethidine to be given where necessary, but they even do well with ibuprofen and Paracetamol administered intermittently so most times we don't give. You know, it comes with its own issues.”(N.O, 1st year in the paediatric unit)

4.9.2 Rarely Used Pain Medications

Opioid analgesics were rarely used on the wards. The most usual reasons given was that the other medications were as effective as opioids. A nurse said in Facility D:

I know morphine too is good for severe pains, but since I came to the ward, I haven't seen one prescribed ... In cases of severe burns, the doctor may write IV Pethidine before dressing, but then we usually resort to syrup ibuprofen since they do well on that too”(Enrolled Nurse, 2nd year in the paediatric unit).

Another reason given was that patients did not seem to need it even though it was prescribed, and patients may become addicted to the medication.

4.9.3 Side Effects of Medications

No side effects of medications were seen during observations. Nurses also reported no side effects of pain medications verbally or in their documentations. A nurse in Facility B recalls:

“Though we have not encountered any side effects from the opioids, at a point we realized some children were becoming addictive to Pethidine so we stopped.” (P.N.O, 2nd year in the paediatric ward).

Another at Facility C said:

“No side effects of any pain relievers has been observed, at least not any that I know of, but we keep their drugs away from bedside for fear of abuse” (SNO, 2nd year in the paediatric ward)

4.10 NON-PHARMACOLOGICAL MANAGEMENT OF PAIN

Diversionary therapy was used in a form of television and toys. It was observed at facility

A that every corner within the facility was carved for children to play with or get entertained and noticed some children riding on wooden carved colourful animals on the corridors of the facility. The nurses affirmed that they are all purposely stationed to serve as a form of diversionary therapy to lessen pain or anxiety.

Other observed methods were the nurses talking to the patient during procedures, elevating the painful body part of the patient and ensuring bonding between parent and child. For example a nurse at Facility A said:

“You know, we appreciate how bonding between mothers or by a guardian is in minimizing a child’s pain, which is why we have changed all the cots to full beds so that the parents or guardians can even sleep on the same bed with them by cuddling them. I know it’s also a form of therapy to divert the children’s attention from the pain.” (SNO, 3rd year in the paediatric unit)

A nurse administering an injection at facility B was heard saying:

“oooooh you know I am your friend and I will do it fast for you so that you don’t feel the pain ok” (Staff Nurse, 1st year in the paediatric ward). The child was asked by the nurse to hold on tight to the mother whilst the procedure was executed.

Some nurses preferred to delegate the non-pharmacological management to the parent or guardian. A parent commented at Facility D:

“...the nurses asked me to ensure that he (a 2 year old) keeps his legs elevated to reduce the swelling which he complains is painful” (Parent of 2 year old girl, 4th day on admission).

4.11 Documentation of Pain Assessment and Management

Nurses did not routinely document assessment or non-pharmacological management of pain in their notes, as was noted at Facility D that both the nurses’ notes and the ward diary had no documentation of either assessed pain, managed or re-evaluated.

However, they all documented pharmacological prescriptions for pain management.

4.12 Relationship between knowledge and Attitude towards Paediatric Pain Assessment

The 18 items under the views on children’s pain (attitude) were converted into percentages. The other 4 domains comprising 53 knowledge items were also combined together and converted into percentages for standardization purposes. Pearson’s correlational analysis were run to compare the relationship between knowledge and attitude items. The results revealed a moderate positive and statistically significant relationship between pediatric pain knowledge and attitude ($r=0.424$, $p<.001$) as presented in Table 4.7.

Table 4.7: Correlation between attitude and knowledge scores of the PPKAQ instrument.

Variables		Attitude	Knowledge
Attitude	Correlations	1	.424
	Sig. (2- tailed)		P<.001

Knowledge	Correlation	.424	1
	Sig. (2 –tailed)	P<.001	

Statistically significant (p < .05).

Multiple correlational analysis of the total percentage score between the 18 item on attitude and 53 inter- domains questions under knowledge was done. Although there was a positive correlation between the variables mentioned, only Non-drug methods of pain relief interdomain under knowledge was found to have a strong positive ((r= .075) yet statistically insignificant (p=.550) difference with attitude. A weak but statistically significant correlation was also found between attitude and using drug to relieve pain scores (r=.347, p=.005). The results are presented in Table 4.8 below.

Table 4.8: Correlations between attitude and inter-domains under knowledge

Correlations between attitude and inter-domains under knowledge				
Views Pain_ Nondrug on	Using	Sociology		
Physiology pain relief	drugs to	and		
Children methods	relieve	psychology		
Pain	pain			

**Views on
Children
Pain**

Pearson
Correlation
Sig. (2-tailed)

**Pain_
Physiology**

Pearson
Correlation
Sig. (2-tailed)

.419**
.
.001

**Nondrug
pain relief
methods**

Pearson
Correlation
Sig. (2-tailed)

.075 -0.152
.
0.228

**Using drugs
to relieve
pain**

Pearson
Correlation
Sig. (2-tailed)

.347** 0.234 0.171
.
0.060 0.173

**Sociology
and
psychology of
pain**

Pearson
Correlation
Sig. (2-tailed)

.213 .276*
.
0.088 0.160 0.026
.
0.381** 0.203
.
0.002
on is significant at 1
(2
n is significant at th
(2
-tailed).
-tailed).

Population =65

Statistically significant (p < .05).

CHAPTER FIVE

DISCUSSION ON FINDINGS

5.1 Knowledge of nurses on paediatric pain assessment and management

Generally, participants were found to have inadequate knowledge regarding assessment and management of pain in paediatric patients based on the pass score of 80.0%. They scored the highest of 59.15% (± 19.16) in the domain of Non-drug relief methods. On the other hand, the lowest score was 50.0% (± 14.38) in the domain of using drugs to relieve pain. This is similar to findings by Aranha *et al.* (2015) where a majority (53%) of participant nurses had insufficient knowledge regarding assessment and management of pain in children. Their low level of knowledge may be attributed to the lack of in-service training and education, which was noted by Poggenpoel *et al.* (2011) to have a negative effect with regards to reducing the competence level of registered nurses. These inadequacies in knowledge by nurses on paediatric units in the long run lead to Children experiencing unrelieved moderate to severe pain during hospitalisation. Apart from its unpleasant nature, Pierce (2018) confirms that untreated pain in children can lead to increased inflammatory responses, increased recovery time and paediatric medical traumatic stress. Nimbalkar and others (2012) reaffirmed it could alter the growth and cognitive abilities of the child in a later stage of their life.

It is of concern that respondents had a general knowledge deficit in children's pain assessment and management because Ekim and Ocakcı (2013) opined the role that nurses play in the assessment and management of pain cannot be overemphasized. Nurses therefore have to equip themselves with evidence-based knowledge in addition to positive attitudes in ensuring effective paediatric pain management.

In using a similar paediatric pain assessment instrument (paediatric nurses knowledge and attitude scale, PNKAS) Smeland and her other researchers in 2018 reported most of the nurses wrongly asserted vital signs of child must be relied upon to verify the presence of severe pain. Similarly the majority of nurses in the current study using the PPKAQ incorrectly responded that a child's pulse rate will always be increased in the presence of pain. This is seen as a potential barrier to optimal pain assessment and management and therefore attributed this gap in knowledge on the over reliance on vital signs as compared to pain tools used in the paediatric

units. Pharmacologically, 81.5% believed Paracetamol is used for the treatment of mild pain as corroborated by Smeland *et al.*, (2018) where 85% of the children were given Paracetamol for pain during and after surgical interventions. Only a few participants however appreciated the combinatory effects of opioids with Paracetamol and opioids with NSAIDs. Ekim and Ocakci, (2013) re-affirmed there was a general deficit in knowledge on analgesic and opioids. It is considered that the challenges to knowledge on drugs for pain management by the nurses could be due to lack of information and access to paediatric appropriate analgesia as a result of inadequate research and education in advanced training for the nurses. Majority (42; 64.6%) of the respondents in the current study held diploma in nursing certificate and were just within their first year in the units, hence may not have been exposed to optimal knowledge about children pain. This was similar to the studies by Lusford (2014) in Mongolia which is also considered as developing country just like Ghana. Even though Alotaibi (2018) with his team conducted a similar studies in The Kingdom of Saudi Arabia which is considered a developing country they reported majority of the nurses having had a better professional qualifications and clinical expertise compared to nurses in the current studies with just (1.5%) having a post graduate degree. These findings therefore infer that a more positive attitude is associated with paediatric qualification, hence the need for nurses to hold a qualification on paediatric nursing when caring for these vulnerable population.

As stated earlier, though participants scored highest on non-drug methods of pain relief, it is of no coincidence that they had a corresponding higher percentage on items on parental role in pain management which was similar to those reported by Hovde *et al.*, (2012) and Manworren, (2000). It can be deduced that, the nurses were re-laying most of these non-pharmacological techniques to the parents to perform. According to Vincent (2005) the nurses in his studies however had an opposite scores on nondrug use as methods for management of severe pain.

A higher percentage (87.7%) of the respondent compared to those in Smeland's (2018), though with a different instrument (PNKAS) correctly that parents presence reduces their children. most of the nurses correctly answered that distraction and diversionary techniques is

useful in reducing pain for children . this findings were consistent with Ekim and Ocakci (2013).

Another encouraging findings on knowledge was where 80% of respondents knew the environment in which children grow has a major influence in the way they expresses pain. This coincides to that previously reported by (curry 2010; Wang and Tais 2010) where they ruled that diverse culture have influence in patients' pain perceptions and responses

Furthermore, the finding can also be explained by the observation that, majority of the nurses were diploma and certificate holders and had few years of experience in the paediatric ward on pain management. Knowledge and attitude is acquired through exposure either by mentoring, reading, or by constant application towards the phenomenon in question. This finding is important as it suggest the need to recruit, train and maintain more specialist paediatric nurses who understand the special needs of children. Wurjine *et al.* (2018) emphasises that, the more nurses increase their levels of education, the greater their knowledge towards pain management which is also aligned with (Kiwanuka and Mabasa 2018).

Another identified reason attributed to participants' poor knowledge and attitude was that, the current curriculum in the health training institutions for both degree and non-degree does not make sole provision for the study of pain, rather it is discussed under subjects like medicine, surgery and pharmacology. This scarce time given to pain in nursing training curricular does not only pertain in developing countries but in high income countries as reported by (Chiu *et al.*, 2003; Twycross and Roderique,2013; Ortiz, 2015) in their studies. Stakeholders such as Ghana health service, ministry of Health, Nursing and Midwifery Council of Ghana in collaboration with the management and administration of all health care facilities should encourage Continuous professional education for all nurses as a collective responsibility in upgrading their knowledge and practices of pain assessment and management. Appropriate strategies should therefore be established to boost nurses to pursue formal training in paediatric pain. These educational programmes should be flexible and subsidized to encourage the nurses

to fully patronise it. Furthermore, opportunities should be given to those who get the privileged to attend these trainings to disseminate the knowledge gained to their colleagues to ensure a total collective responsibility. Until this is achieved, Pain may continuously be seen as an unscripted symptom which is easily neglected without the needed priority to its existence.

5.2 Attitude of nurses on paediatric pain assessment and management

The participants in this study were found to have very positive attitudes towards the assessment and management of pain of paediatric patients. Many of them were of the view that parents should be involved in the management of their child's pain (95.4%) and that parents should be prepared for their role in supporting their child during a painful procedure (90.8%). This is consistent with observations by Smeland *et al.* (2017) where the researchers concluded that the constant presence of parents in the wards had a comforting role during the care of the children.

A large majority of the participants were found to favour the use of non-pharmacological methods in the management of the pain of their patients. For instance, 84.6% of the respondents were of the view that in the management of children's pain, other methods of reducing pain are needed in addition to analgesic drugs while 87.7% suggested that play therapy is a useful method for reducing mild pain in toddlers. This is supported by Macintyre and colleagues in (2016) who were of the view that, there is an increasing recognition of non-pharmacological interventions as the alternate treatment for pain management. However, Lui So and Fong (2008), Wang and Tais (2010) and Yildirim *et al.*, (2008) indicated that distraction could only be beneficial in mild pain and not in severe forms of pain, leaving patients in severe pain the need for medications. In their quest to assess the attitude of nurses in India, Nimbalka and team (2012) reported a larger percentage of the nurses relied on behavioural indicators such as facial expression (85%) and constant crying (90%) by children for pain presence and subsequent assessment and treatment. There was a disparity in the choice of views among the nurses in the current studies who rather rated a lower percentage on the attitude question that states that a child who is crying is likely to be in pain. Participants in the current exhibited a higher attitude

by correctly indication with the highest percentage score ((95.4%) the role parents play during the care for their children's pain. James and colleagues (2013) however were not so positive about the role parents play during the care of their kids' pain. They rather believed that a parent presence may hinder the pain assessment and management protocols of the child due to their beliefs misbeliefs. It is of this reason that nurses are admonished to have positive attitude to be champions and advocates for these children who may not have the communication or cognitive skills to adequately describe the presence, nature, location and intensity of their pain. By playing this advocacy role, there is the tendency of nurses gaining greater carrier satisfaction (Simons, 2015) as well as fostering trusting relationships among parents and the children they care for. Conversely, when the studies by Alotaibi and team (2018) attributed suboptimal pain management in children to attitudes like believing children over report pain, the nurses in current studies rather thought it was rather the parents who were likely to exaggerate their children's pain, the researcher presumed these parents could not differentiated other emotional behavioural state their children manifest from pain and so might have been reporting any discomfort as pain. (Majority of the nurses again indicated it was normal to carry out invasive procedures in children without administering analgesic similar to the nurse in studies by Ekim and Ocakci (2013) who erroneously believing children do not have lasting memories of pain. Strategies and intervention should be targeted to positively prepare nurses to ensure they own not only the knowledge but positive attitude to pain assessment and management for effective practices as underpinned by KAP model.

5.3 NURSES' PRACTICES ON PAIN ASSESSMENT AND MANAGEMENT

Best evidence on practices recommends a unified approach to pain management with an appropriate assessment combined with the utilisation of drug and non-drug treatments. This reinforces the need for nurses to have adequate knowledge in these areas though in the current study, the nurses demonstrated a general inadequate practices on pain assessment and management.

5.3.1 Assessment of Pain on the Ward.

Despite studies (Smeland et al 2018; Chou et al., 2016; Keels et al., 2016) reporting on either a behavioural, faces, or numerical pain assessment tools that can be used for children only one of the facilities had the FLACC tool seen displayed on the unit's notice board. The researcher interestingly observed none of the participating nurses in that ward putting it to use nor any other pain tool to assess for patients pain. Their lack of awareness to this pain tool in the ward could be compared to the findings reported by Smyth and colleagues (2011) where the nurses were basically unaware of the pain assessment tools used on children.

This finding is significant as it portray that, the presence of a tool(s) within a facility will not warrant its usage as expected if the users are not internally (self) or externally (institutionally) motivated to implement its. This was a stark contrast to the frequency of assessment by nurses reported in (Kiwanuka and Masaba 2018; Craig, 2014; Polkki *et al.*, 2010; Costa, 2016) with the use of a pain scale.

Though it has been documented that one tool cannot be largely suggested for assessment of pain in all children across all settings and ages (Smeland et al 2018), the researcher deduced that, even though the nurses weren't using a particular tool, it was of no coincidence that the FLACC tool was the common tool available in two facilities. This seem likely since (Ramira *et al.*, 2016; Kahsay, 2017) confirmed this tool as the most chosen in various settings in terms of sensibility qualities for the paediatric population. A contrast in the choice of a tool was reported in (Smeland *et al.*, 2018; kiwanuka and Mabasa 2018) where a lesser usage score for the FLACC tool was reported with other validate ones. Whilst majority of respondents Nimbalka and team members (2012) asserted they were doing a good job in paediatric pain management, the participants in the current study admitted on treating pain with the least of attention than it deserves. Although Most of the nurses disclosed they have not considered using any pain scale in assessing for the presence of pain almost half of the participants in Nimbalkar and others in 2012 stated they used a particular pain scale in their line of care and

affirmed that the paediatric pain scales are essential for efficient assessment and management of pain

In their concluding statement, Smeland and colleagues reported the on how Nurses have knowledge inadequacies about children's' pain Management, most especially on how they do not always use their knowledge, particularly in relation to pain assessment.

Comparatively to the nurses in (Polkki *et al.*, 2010), it was vividly notable in the current study that all the participants though did not routinely assessed for pain, they however occasionally resorted to assessing for pain by facial expressions and consistent cry of the children during painful procedures like setting up of intravenous lines, administration intramuscular injections and wound dressing which is in line with that of (Craig, 2014; Nimbalkar *et al.*, 2012).

The nurses' unwillingness to use the pain scales could be attributed to low confidence, lack of motivation to undertake the assessment, lack of awareness to the role and importance of pain tools to the nurses. Apart from these assumptions, the researcher agrees with Smeland and her research team in (2018) that the nurses were not using the pain tool because of its consistent absence in the wards. These reason were given by the researcher because, unlike(Kemp *et al.*, 2016 ; Angeletti *et al.*, 2018) who related inadequate pain assessment to workload and time constraint , the participants in the current study were not observed to be overwhelmed with workload as reported in the their studies.

Furthermore, apart from these personal factors by the nurses to ignore pain assessment, another reason was an institutional factor where there was confusion as to what stage within patients hospitalisation must pain assessment be performed, thus whose role it is. The nurses may have assumed that the pain assessments might have already be done with the patients first contact with physicians during consulting and so there need to re-invent the wheel when they are admitted in the ward.

Participants also attributed the problem to inadequate in-service training by their facilities on pain issues. This reflected in a generally poor communication about pain between the nursing staff and the patients since a query for pain from parents was hardly ascertained during ward

rounds and handing over. This finding is significant as it depicts an overwhelming silence on pain by nurses, hence the need for more sensitization. Although that was the situation in the current study, nurses in Uganda were reported to have better culture for pain assessment (Kiwanuka and Mabasa 2018).

In instances where the nurses discussed pain in the current study, it might have been picked up from an overt behaviour, particularly from either facial expressions (which is inconsiderate of its intensity as depicted by the FLACC tool) or by a cry from the patient during wound dressing, intravenous and intramuscular line procedures. These cues were in line with the research from (Nimbalkar *et al.*, 2012).

Just as Lui *et al.* (2008) reported that nurses prefer dedicating more time on assessing other haemodynamic status of patients, participants were observed meticulously measuring temperature, pulse respiration and blood pressure of the children either than pain, though it has been recommended as the fifth vital sign (Kiwanuka and Mabasa 2018).

This finding may suggest that nurses relied on assessing these vital signs as a measure for prognosis without the regard for pain presence. This observation could probably indicate that, the nurses were interested in seeing only more of the overt physical indicators (Smyth *et al.*, 2011) of a child in pain more than the combination of both subjective and objective assessments for pain presence. Thus more awareness must be created by stakeholders to promote pain as the fifth vital sign in Ghana.

5.3.3 Pharmacological Management of Pain

It is of no coincidence that the use of drug received the least percentage of scores in the findings of (Lewthwaite *et al.*, 2011; Rahimi-Madiseh *et al.*; 2010; Wang and Tsai; 2010).

Results from the observations on the use of pain relief before procedure was lacking in practices by the nurses. According to Al-Shaer *et al.* (2013), nurses promote positive outcomes for patients in pain if they have knowledge in all spheres of pain inclusive of pharmacological mechanisms. The Nurses erroneously believed that opioid administration had undesired side effects even though they religiously administered opioids (oral morphine) to patients admitted

on the account of vaso-occlusion from sickle cell disease during their first few days on admission. This seem probable since there is a general impression of incomparable severe pain exhibited by patients with sickle cell disease as replicated in the findings of (Kahsay, 2017) who opined that Opioids are indicated for children with postoperative, sickle cell and cancer pain.

This notwithstanding, the nurses will rather prefer to administer Ibuprofen and Paracetamol alone or intermittently to manage pain subsequently complementing with the findings of (Costa, 2016; Kahsay, 2017). This choice could be explained as due to its insignificant side effects and excellent safety profile coupled with its benefit to all levels of pain in children reiterated in (Kahsay, 2017).

Though they reported not given opioids for fear of its known side effects, almost all the nurses confirmed not witnessing any untoward effects of opioids administration among patients neither was there documentation of such during the period of data collection. It could be explained that, their reason for not giving were just unwillingness, more than the unavailability or side effects of opioids. Thus nurses concern for opioids addiction in patients are usually blown out of proportion. Wang and Tsai (2010) and Rahimi-Madiseh et al., (2010) in their studies reiterated their respondents' would rather give opioids though in a lower dose than it was recommended.

5.3.4 Non Pharmacological Management of Pain.

Participant demonstrated they will rather resort more to non-pharmacological treatment in any anticipated presence of pain to divert or manage it. A notable disclosure emerged in the study where participants believed parents must be involved in their children pain management as corroborated by (Hovde *et al.*, 2012). For instance, in case where a nurse had to perform any painful procedure, the parent were involved to either hold or cuddle the child throughout the process to offer some form of non-pharmacological pain relief. The findings is suggestive of

the nurses appreciating the potential role parents play during hospitalisation of their children, especially in pain management.

Generally, administration of analgesia did not precede any painful procedure, instead, emotional comforts in a form verbal cooing was the most predominant form of nonpharmacological technique used by the nurses. The researcher attributed it to the fact that they might not be privy to other methods generously given in (Craig, 2014; Costa *et al.*, 2016; Miftah *et al.*, 2017 Smeland *et al.*, 2018).

It could also be explained that, none of the participant confirmed of undergoing any formal training in pain management neither was it a routine policy within the four study settings.

Non pharmacological manoeuvres were mainly carried out by the parents as reported in ((Twycross and Collis, 2013) although (Simons, 2015) advocated for successful management through the interplay of parents and nurses who are confident in their knowledge and ability to care for children's pain.

In exploring the paediatric pain practices of the nurses, the findings from the study at all the four facility suggested that the nurses appreciated the essence of ensuring an appealing and welcoming environment for the children in their care. Almost all the wards visited had colourful walls cartoon paintings and other playful items like inflated balloons, cars and dolls for the kids to interact with. The participants argued that it had an immeasurable impact in distracting the children from both pain and anxiety. These findings corroborates that of (Kahsay, 2017; Smeland *et al.*, 2018) who confirmed the use of guided imagery and virtual reality games as an effective means of distraction for children in pain. Thus no matter their inadequacies in resources to ensure minimal paediatric pain, the nurses will not compromise a soothing and appealing environment to care and distract the children in their care from pain. My attention was however drawn to the fact that though the nurses claimed the television in the wards were meant for a similar purpose , the programs that were mostly running during my visits to all but one facility were not child oriented programs so the children hardly showed any

interest to its presence in the ward. This may indicate the need to ensure the presence and purpose of the television in the paediatric ward is supported to benefit the children on admission

5.4.5 Documentation of Pain Assessment and Management.

According to Lippert *et al.* (2012) documentation is the noted as the ultimate and essential step of pain assessment. This may be the reason why an appreciable number of the nurses in (Miftah *et al.*, 2017; Costa *et al.*, 2016; Kiwanuka and Mabasa, 2018) documented assessed and managed pain contrary to those in current study who rarely discussed nor documented pain in their reports. Apart from its importance as a legal evidence to care rendered, the primary purpose of documentation seeks to enhance communication between nurses and other health care team members.

Whilst documentation on patient condition, response to treatment in relation to improved vital signs was meticulously observed and documented, participants saw no need to document pain though it is commended to have a positive reflection on patient outcome, practices and even for research. It was deduced from the study that, nurses did document on pain mainly because they have never been queried for it. A number of participants disclosed their attention has not been drawn as to why they don't document any assessed or managed pain though they were willing to start without any hesitation. Pain Management Standards emphasizes on the need to document pain during pain-producing procedures, admission, new complaints of pain and regularly. This therefore necessitate the need for constant supervision and motivation from stakeholders about issues of pain so that nurses would rally and really appreciate the rationale for documentation as best practice.

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5.4 Relationship between Knowledge and Attitude on Pain Assessment and Management

The relationships between these two variables (knowledge and attitude) have already been described by Vincent and Denyes (2004) as cited in Van Hule (2005) and the purpose of this objective, knowledge and attitudes were distinguished and analyzed in accordance with the authors' approach ((Twycross and Williams, 2013). In relation to the study findings and the KAP model that guided this study the researcher could infer that the nurses inadequacies in their practices of pain assessment and management was due to the fact that they lacked the sufficient attitude and knowledge towards paediatric pain. A moderate positive correlation was found between participants' knowledge on pain assessment, management and their attitude towards the practice. This finding is in contrast to findings by Stevens and colleagues (2012) who concluded after surveying Canadian nurses that, most of the nurses do not reflect their

knowledge and attitude on pain assessment and management. The attitudes held by their participants were higher than their level of knowledge, which was suggestive that the more knowledgeable the participants were on pain assessment and management, the less their attitudes towards the practice. Their findings again corroborated that of Vincent and Denyes (2004) survey on the relationship between knowledge and attitudes about children's pain relief and nurses' pain-relieving administration practices. They concluded that, nurses with enhanced knowledge about pain were no more likely to administer analgesia. This proves that academic knowledge alone does not warrant information on the impact of knowledge on practice. It is this view that Gagnon and colleagues (2016) systematic review confirmed an increase in knowledge and attitudes on pain also occur through face to- face and in-service education.

Attitude of the nurses may therefore be influenced by their experience in the practice of nursing as well as their personal experiences. This might have been the reason why Twycross and Dowden (2009) found no positive relationship between individual nurses' level of knowledge and how well they truly practiced pain assessment and management. A careful observation of nurses in practice may therefore reveal that even though most nurses report adhering to current best practice guidelines, they may however reveal the opposite on their attitudes during practice. Because nurses form the largest group of health care providers, their knowledge and attitudes baseline values for pain in children is vital. This was corroborated in a Mongolian studies by Huth and colleagues (2010). The general findings of the nurses in the current studies revealed a deficit in both their attitude and knowledge similar to that of Hovde et al., 2012; Smeland et al, 2018) when the PNAKS instrument was used to assess them. Their reported scores were however higher (77%-81%) than current findings. Lusford (2014) reported differences of scores existing between lower and high income countries Meanwhile Manworren, 2000; Rieman and Gordon, 2007) results in the United States also reported a deficit of the nurses knowledge and attitude towards children pain. This discrepancy may result from lack of a good validated tool, fear of addiction, adverse reaction from drugs, and a parameter to evaluate patient's condition (Stevens et al., 2012).

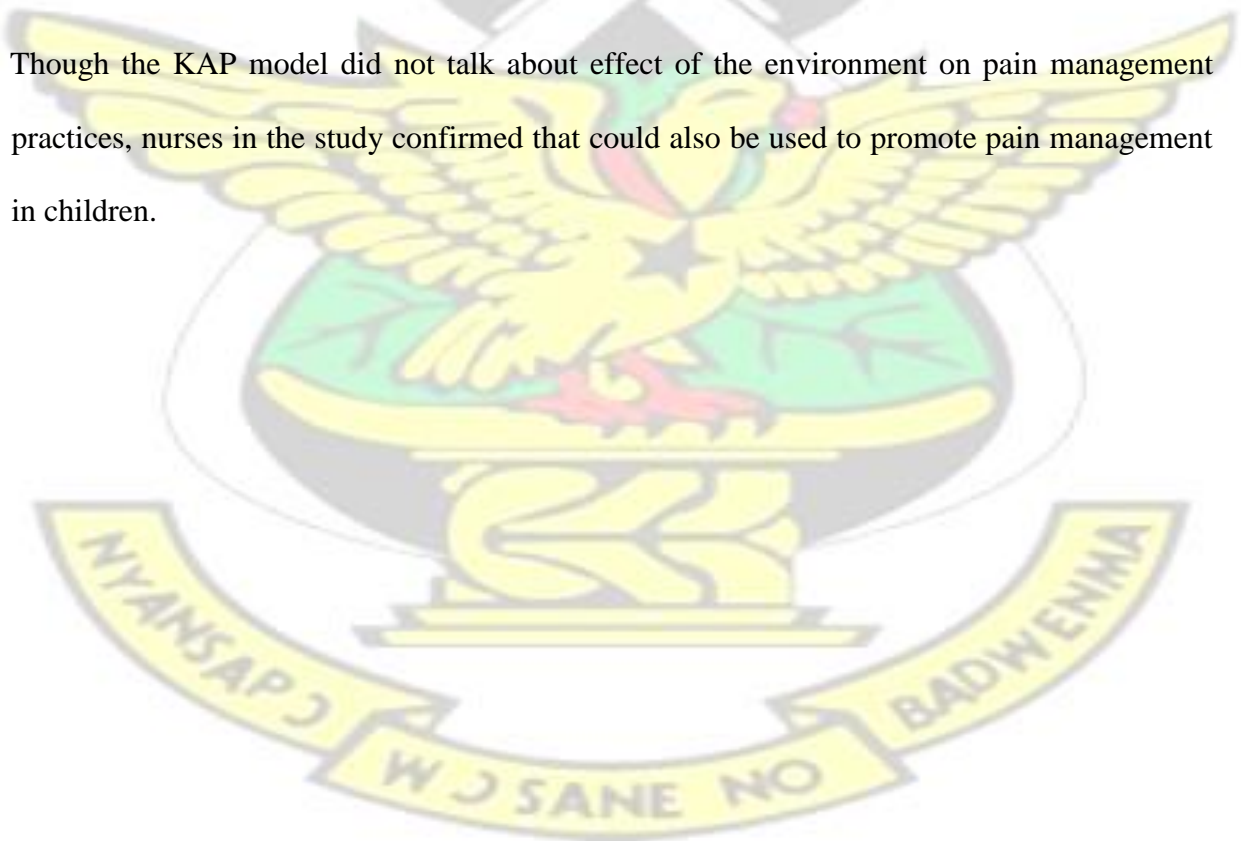
5.5 Summary of discussion

In summary, the study found that nurses working at the paediatric units of some selected hospitals had knowledge deficit on pain assessment and management which reflected in their practices.

The study found that, pain assessment and management was relatively lower than the expected benchmark. Some barriers that came up include lack of personal and institutional motivation on issues of pain which was coordinated with previous studies in other countries.

The KAP conceptual framework guided the study in answering the research questions. As the study has revealed, since the nurses have inadequate knowledge and attitude about paediatric pain, it had a negative impact on their practices. The participants believed that enrolling in in-service training and availing themselves to other educational interventions on pain would enable them to acquire more knowledge to improve their pain management delivery skills.

Though the KAP model did not talk about effect of the environment on pain management practices, nurses in the study confirmed that could also be used to promote pain management in children.



CHAPTER SIX

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

This study provided an insight into the knowledge, attitude and practices of Nurses in Paediatric Units on Pain Assessment and Management from eight selected hospitals within Kumasi and Pramso –Ghana. Regardless of pain being described as a private subjective experience, it usually require a public therapeutic intervention to obtain optimum relief. As a result, when caring for children who are considered vulnerable population, the communication dynamism between nurses and these patients is most challenging due to immaturity and ambiguity in their verbal development. Overall, the quantitative findings have revealed an extensive deficit in knowledge coupled with an incorrect attitude of nurses in pain assessment and management amongst children.

Respondents' knowledge and attitude recorded a highest mean correct score of 59.15% which is significantly below the acceptable benchmark in achieving optimal pain management in the paediatric population. The present studies found inadequacy and weaknesses in knowledge and attitudes basically centring on: (a) using drugs to relieve pain (b) views on children pain (c) sociology and psychology of pain (d) pain physiology. Pearson's correlation analyses revealed a moderate positive and statistically relationship between knowledge (53) and attitude (18) items on the PPKAQ instrument.

A qualitative descriptive design was also used to explore the pharmacological and nonpharmacological pain assessment and management practices. Because pain assessment and management mechanisms is quite complex, it came out in the current study that, pain assessment is not delivered in a standardized manner across four selected hospitals out of the eight facilities. This findings mirrors what has been cited in numerous literature worldwide. Few interesting revelations in this study was an observation that almost all participant had rarely used any pain

tool in assessing paediatric pain and that fact that they had hardly had any continuous educational development on paediatric pain assessment and management

The study adds to existing evidence that, pain documentation in paediatric units are inconsistent and woefully inadequate despite its association to better quality of life, and appreciation for recreation which all adds to improved patient outcomes. Participants in the current study not only did not exhibit the culture of assessing pain, but also rarely document any issue of the children's pain since it was not one of the focus of optimum care measurements. Though they were not the focus, parents and guardians observed and interviewed generally could only relate persistent crying from a child to pain presence.

This outcomes of the study emphasises the magnitude of insufficient practices of pain, and that there is the need for improvement by nurses who render care during hospitalisation of children. It is encouraging to note that the nurses in the current study acknowledged their shortfalls and were willing to enrol in any optional pain training to improve their pain assessment and managing skills.

6.2 Recommendations

These recommendations are proposed based on the knowledge acquired through this study: **The Nurses**

1. A mandatory continuous professional education (CPD) as well as quality-improvement programmes for these nurses to expand their knowledge and attitude regarding pain is recommended.
2. Because pain assessment and management is multidisciplinary, it is prudent for both nurses and other health care professional to have periodic interactions to update their knowledge on pain management since they all aim to relieve children's pain experience during hospitalisation.

The Hospitals

1. The facilities should also maintain nurse with long years of experience in the paediatric ward so that they mentor these new recruits who will emulate their exemplary skills on pain management practices. In line with this, Nurse Managers must also undertake periodic audits on documented pain assessed, managed and re-evaluated on patients which is in line with international best practice standards.
2. Management of all health care facilities with special units for children should ensure there are adequate logistics that will facilitate an incorporation of pain assessment as part of the wards protocols and routines for every hospitalised child. It is important for professional nurses to realize the ever changing dynamic nature within the health sector with the advent of technology for assessing and managing children's pain. These will assist them to meet up the challenges of clients and guardians who patronize healthcare services demanding quality and competent care. Ensuring these will eventually uplift the images of nurses who will unrelentlessly seek to ensure positive care outcomes and client satisfaction

6.3 Implication for research.

Further researches are needed to explore the facilitating and inhibiting factors underlying nurses' decision to either assess or not to assess pain.

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APPENDICES

APPENDIX 1

SAMPLE OBSERVATIONAL CHART

Background Information

Name of Facility Status: Government/Private/CHAG/ Quasi Govt.
 Observer..... Date /Time of Observation
 Duration of Observation..... Number of Nurses on Duty.....
 Number of Beds Number of Patients on Admission.....

Patients' Bio data.

Age Gender.....
 Date of admission Admitting diagnosis
 Surgery..... Planned /emergency.....

Objectives	Focus of observation	Yes	No	Comments
Pain Tool	Presence of Pain tool Type of tool Location of tool Movability of the tool			
Pain Assessment	Verbalization of pain by child Verbalization of pain by guardian Nurses assessed pain a by tool Type of pain tool used The period when pain was assessed Pain was assessed by cues from patient			
	Documentation of assessed pain by nurses			

Pharmacological Interventions	medications for pain administered dosage of pain medication Drug dosage according to pain score Side effects of drugs observed Any interruptions that delays pain medications? Documentation of administered pain medications Re-evaluation of pain after drug administration			
Non-Pharmacological Interventions	Common non- drug intervention used Participation of nurses in non-drug intervention's Nonverbal expressions by nurses during procedures Re-evaluation of pain after intervention Documentation of intervention used			
Nurse –parent – child interactions	Dynamics in communication about pain Parents partake in pain management			
Nurse –nurse interactions	Pain prompts during ward rounds Pain prompts during handing over			
Nurse and other health care providers interactions	Nurses and Doctors partake in ward rounds Is pain discussed during ward rounds?			

Self-reflections of the day

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Atmosphere /description of the ward

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Other relevant observations

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.....

PEDIATRIC PAIN KNOWLEDGE AND ATTITUDES QUESTIONNAIRE

For each statement, please tick (✓) the box that most accurately describe your views, where:

SA – Strongly Agree; A – Agree; N – Neutral; D – Disagree; SD – Strongly Disagree

VIEWS ON THE CARE OF CHILDREN IN PAIN	SA	A	N	D	SD
Children tolerate pain better than adults do.					
A calm child who says they are experiencing pain is likely to be in pain.					
It is OK to carry out minor procedures, such as taking bloods, without the use of analgesic drugs.					
Children under 2 years of age feel less pain than older children in similar situations.					
A child who is crying and who says they are experiencing pain is likely to be in pain.					
Infants who are less than a month old may be intubated without pain medication.					
Parents should be involved in the management of their child's pain.					
When a child can talk, they should be asked to rate their own pain intensity.					
Postoperative pain in children should be eliminated.					
When managing chronic pain in children, the main goal of treatment is to control the pain.					
Parents may exaggerate their child's pain.					
Children do not need analgesic drugs before having burn dressings changed.					
Infants who are less than a month old can be intubated without sedation.					
School-age children should only be given analgesic drugs if they ask for them.					
Procedural pain should be eliminated.					
The level of pain suffered by a child can be established by giving him placebo medication.					
Pain is to be expected if a child is in hospital.					
Parents should be prepared for their role in supporting their child during a painful procedure.					

Untreated pain prolongs recovery.					
Acute pain is a warning that something is wrong.					
The sensation of pain is transmitted to the brain via the nervous system.					
Chronic pain in children is not easy to assess on the basis of changes in vital functions (e.g., pulse, respiratory rate).					
The most common reason for the need to increase the dose of analgesic drugs in cancer treatment is the progression of the illness.					
The neurological development of infants under a month of age is still incomplete and this means they cannot feel pain.					
The gate control theory of pain suggests that there is a gating mechanism that can inhibit pain impulses from passing through.					
School-age children are not able to identify the exact location of their pain.					
A child's pulse rate will always be raised if they have acute pain.					
The gate control theory suggests that the degree to which the gate is opened or closed determines whether impulses are inhibited or allowed to proceed.					

B. PHYSIOLOGY OF PAIN	SA	A	N	D	SD
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NONDRUG METHODS OF PAIN RELIEF	SA	A	N	D	SD
Using a child's imagination is not an effective way of managing procedural pain.					

Massage is a method of relieving pain in children.					
Play therapy is a useful method for reducing mild pain in toddlers.					
In the management of children's pain, other methods of reducing pain are needed in addition to analgesic drugs.					
Applying heat to a painful area reduces a child's pain.					
Rocking a young child in one's arms reduces pain.					
Relaxation strategies are not effective in reducing a child's pain.					
Parents presence reduces the pain experienced by children.					
A good way of reducing pain in children is to distract them from the pain.					

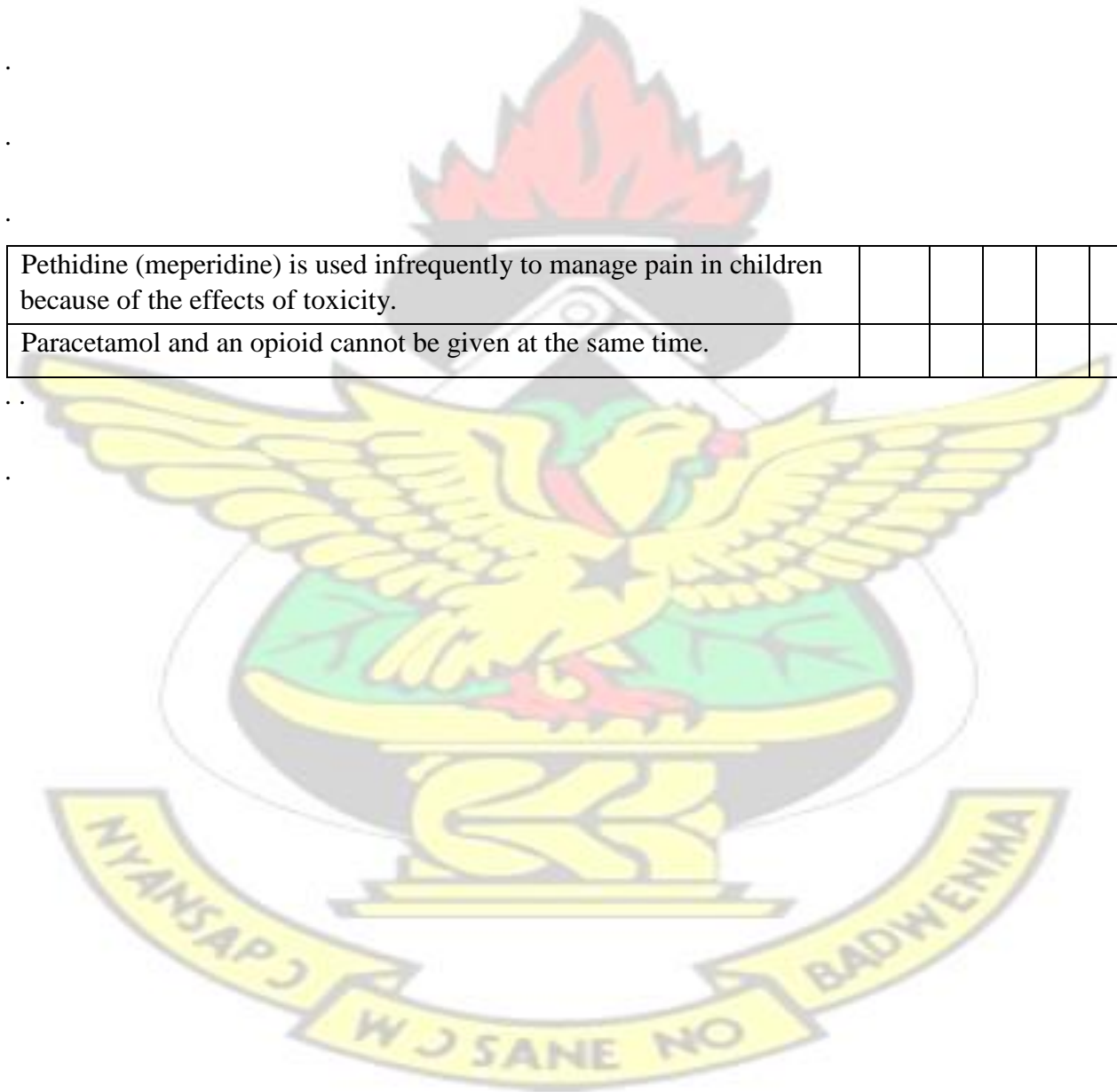
D. USING DRUGS TO RELIEVE PAIN	SA	A	N	D	SD
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In treating pain in children, only one class of analgesic drug should be used at a time.					
Postoperatively, analgesic drugs should be given regularly.					
The side effects of nonsteroidal antiinflammatory drugs (NSAIDs), e.g., diclofenac or ibuprofen, only occur when the drug is given orally.					
Nonsteroidal antiinflammatory drugs (NSAIDs) are unsuitable for use with some children who have asthma.					
Paracetamol (acetaminophen) is used for the treatment of mild pain.					
Long-term use of opioid analgesia (e.g. morphine) causes physiological dependence in children.					
Nonsteroidal antiinflammatory drugs (NSAIDs) can irritate children's digestive systems.					
The risk of respiratory depression in children following the administration of opioids is no more likely than in adults, provided that the correct dosage is given.					
The most common reason for the increased need for analgesic drugs in the treatment of children with cancer is the child's increasing tolerance to the drugs.					
Opioid medication given to manage chronic pain in children should be given on a regular basis.					
The use of sedative drugs is an effective way of eliminating pain in children.					
Postoperatively, children should not be given analgesic drugs until they ask for them.					
Non-steroidal anti-inflammatory drugs (NSAIDs) and opioids cannot be given at the same time.					
Respiratory depression is rare in children who are receiving long-term opioid analgesia.					
Non-steroidal anti-inflammatory drugs (NSAIDs) increase the adverse respiratory effect of opioids.					
Paracetamol (acetaminophen) is unsuitable for use with children who have asthma.					
There is an antagonist (antidote) to the adverse effect of respiratory depression caused by opioids.					
Non-steroidal anti-inflammatory drugs (NSAIDs) and opioid medication given together provide better analgesia.					
Aspirin is used routinely to treat mild to moderate pain in children.					
Regional (e.g. epidural or caudal infiltration) anaesthesia is a good method of pain management after surgery.					

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Pethidine (meperidine) is used infrequently to manage pain in children because of the effects of toxicity.

Paracetamol and an opioid cannot be given at the same time.



E. SOCIOLOGY AND PSYCHOLOGY OF PAIN	SA	A	N	D	SD
The environment in which children grow up has a major influence on the way they express pain.					
School-aged children cannot learn how to use a patient-controlled analgesia pump.					
A child's cultural background affects the way they experience pain.					
The way that children express pain is affected by their temperament.					
Changes in a child's behaviour can be used to assess their pain.					
It is difficult to make a distinction between pain and fear in children.					
Chronic pain in children does not usually cause mood changes.					
When assessing a child's pain, it is important to first ascertain their stage of cognitive development.					
The way that children experience pain is influenced by their parents' behavior.					
Letting a child know what to expect before a painful procedure will mean that the child experiences less pain than a child who has not been given this information.					
Children can sleep even if they are in pain.					
Children between the ages of 6 to 12 months will have no lasting memories of painful procedures.					

Thank you for your time!

© Twycross & Williams, 2010 **CONSENT FORM**

Statement of person obtaining informed consent:

I have fully explained this research to _____ and have given sufficient information about the study, including that on procedures, risks and benefits, to enable the prospective participant make an informed decision to or not to participate.

DATE: _____ NAME: _____

Statement of person giving consent:

I have read the information on this study/research or have had it translated into a language I understand. I have also talked it over with the interviewer to my satisfaction.

I understand that my participation is voluntary (not compulsory).

I know enough about the purpose, methods, risks and benefits of the research study to decide that I want to take part in it.

I understand that I may freely stop being part of this study at any time without having to explain myself.

I have received a copy of this information leaflet and consent form to keep for myself.

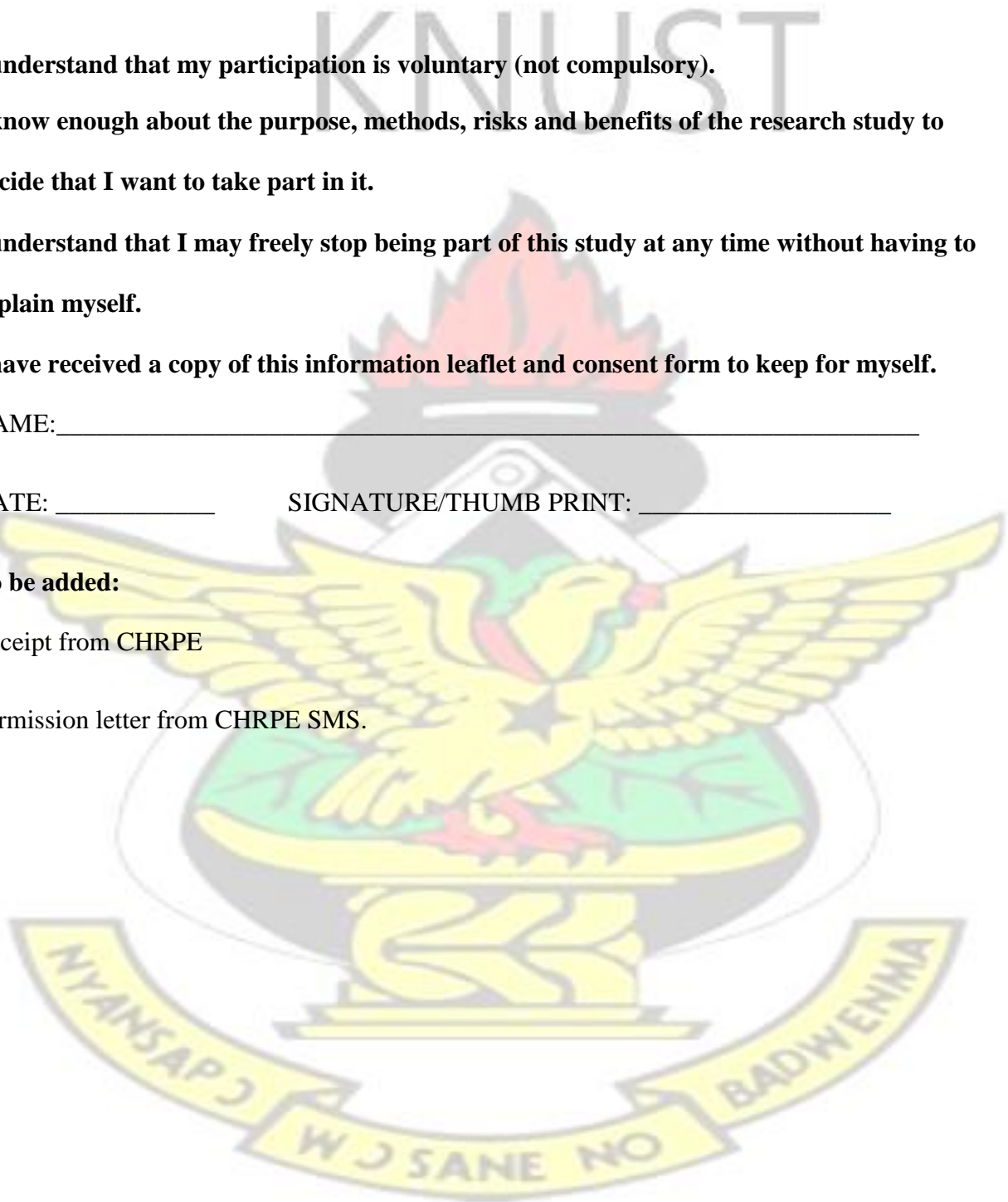
NAME: _____

DATE: _____ SIGNATURE/THUMB PRINT: _____

To be added:

Receipt from CHRPE

Permission letter from CHRPE SMS.



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APPENDIX 2





KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
COLLEGE OF HEALTH SCIENCES



SCHOOL OF MEDICAL SCIENCES / KOMFO ANOKYE TEACHING HOSPITAL
COMMITTEE ON HUMAN RESEARCH, PUBLICATION AND ETHICS

Ref: CHRPE/AP/574/18

17th October, 2018.

Ms. Abigail Kusi Amponsah
Department of Nursing
Faculty of Allied Health Sciences
KNUST-KUMASI.

Dear Madam,

LETTER OF APPROVAL

Protocol Title: "Educational Needs on Pediatric Pain Assessment and Management."

Proposed Site: *Hospitals: Asokwa Children's Hospital, Poku Transport Children's Hospital, Maternal and Child Health Hospital, Kumasi South Hospital, Suntreso Government Hospital, Manhyia Government Hospital, St. Michael & KNUST Hospital;*
Educational Institutions: Kwame Nkrumah University of Science and Technology, Garden City University College, Kumasi Nursing and Midwifery College & Kwadaso Nursing and Midwifery Training College.

Sponsor: *Faculty of Allied Health Funds.*

Your submission to the Committee on Human Research, Publications and Ethics on the above-named protocol refers.

The Committee reviewed the following documents:

- Notification letters from the Department of Nursing, KNUST seeking permission to conduct the study at the Selected Institutions (study sites) and was approved.
- A Completed CHRPE Application Form.
- Participant Information Leaflet and Consent Form.
- Research Protocol.
- Questionnaire and Interview Guide.

The Committee has considered the ethical merit of your submission and approved the protocol. The approval is for a fixed period of one year, beginning 17th October, 2018 to 16th October, 2019 renewable thereafter. The Committee may however, suspend or withdraw ethical approval at any time if your study is found to contravene the approved protocol.

Data gathered for the study should be used for the approved purposes only. Permission should be sought from the Committee if any amendment to the protocol or use, other than submitted, is made of your research data.

The Committee should be notified of the actual start date of the project and would expect a report on your study, annually or at the close of the project, whichever one comes first. It should also be informed of any publication arising from the study.

Yours faithfully,


Rev. Prof. John Appiah-Poku,
Honorary Secretary
FOR: CHAIRMAN

Room 7 Block J, School of Medical Sciences, KNUST, University Post Office, Kumasi, Ghana
Phone: +233 3220 63248 Mobile: +233 20 5453785 Email: chrpe.knust.kath@gmail.com / chrpe@knust.edu.gh

APPENDIX 3



Kwame Nkrumah
University of Science
and Technology, Kumasi

College of Health Sciences

DEPARTMENT OF NURSING

07/8/19

DEAN
SCHOOL OF GRADUATE STUDIES
KNUST

Dear Sir,

ETHICAL APPROVAL FOR POSTGRADUATE RESEARCH – JOANA KYEI-DOMPIM

I write to inform you about the ethical approval obtained for the MPhil. (Nursing) research of Joana Kyei-Dompim with PG Number 9452817 whom I supervise. I am also the local supervisor of Miss Abigail Kusi-Amponsah, a lecturer at the Department of Nursing who is currently pursuing her doctoral studies at the Department of Nursing Sciences, University of Turku, Finland. They are both working on a project that seeks to examine the educational needs on pediatric pain management. Miss Kyei-Dompim's research forms part of the project. Her work specifically focuses on "Assessing nurses' knowledge, attitudes and practices on pediatric pain assessment and management".

The ethical approval was obtained for the entire project and addressed to Miss Abigail Kusi-Amponsah with reference number CHRPE/AP/574/18 which covers the research of Miss Kyei-Dompim.

Please, find attached the CHRPE letter.

Thanks you.

Yours sincerely,

A handwritten signature in blue ink, appearing to be 'V. Bam', is written over a horizontal line.

Dr (Mrs) Victoria Bam
(Supervisor)