Spousal presence during childbirth in most developing countries is still an evolving issue. This study examined the use and barriers of spousal presence as a non-pharmacological pain relief method for childbirth pain management in Nigeria from a tripartite perspective. Results showed that even though spousal presence was underutilized as a pain relief method by midwives, it was perceived to be an important contributor to childbirth pain relief by the midwives, women, and spouses. This study revealed spousal willingness to be part of childbirth and pain relief.
Spousal Presence in Childbirth Pain Relief
ABIGAIL UCHENNA EMELONYE

Spousal Presence in Childbirth Pain Relief

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ABSTRACT:

The purpose of this study was to examine the use of spousal presence as a non-pharmacological pain relief method for managing childbirth pain in Nigeria. It was also aimed at ascertaining the prevailing perceptions and barriers of spousal presence in childbirth pain relief from the viewpoints of the midwives, women, and their spouses. The study was a descriptive cross-sectional study in four hospitals in Nigeria from June to December 2014 of midwives (n=100), women (n=142) and spouses (n=142). The data were collected using three pretested questionnaires: a self-administered questionnaire for the midwives and interview-administered questionnaires for the women and spouses respectively. The data were analyzed using statistical methods, quantitative and qualitative content analysis.

Although spousal presence is underutilized as a pain relief method by midwives in Nigeria, more than half of the midwives, women and spouses who participated perceived spousal presence to be an important contributor to childbirth pain relief. Most of the women believed that spouses played an important role and provided emotional and psychological pain relief during childbirth. Even though spousal participation during childbirth in Nigeria was poor, this study showed a positive trend and willingness of spouses to participate in childbirth. This study also indicated that spouses wanted to share their partner’s pain and to be part of the pain relief. Despite the receptiveness of spousal presence as a useful non-pharmacological intervention in the management of childbirth pain in Nigeria, the practice is inhibited by numerous challenges including poor infrastructure, lack of spousal presence, inadequate institutional pain management policies, poor midwife attitude and negative perceptions of spousal participation during childbirth.

The study has contributed to fresh knowledge and has provided an insight into the extent to which spousal presence is poorly integrated into childbirth pain relief in Nigeria. Uniquely, this study filled a gap in related scholarly research by identifying the perceptions of tripartite stakeholders about spousal presence during childbirth and therefore recommended remedial policy and practice options to improve spousal presence as a non-pharmacological pain relief during childbirth.

National Library of Medicine Classification: WL 704.6, WQ 105, WQ 300
Medical Subject Headings: Maternal Health; Parturition; Labor Pain; Pain Management; Spouses; Women; Nurse Midwives; Hospitals; Cross-Sectional Studies; Surveys and Questionnaires; Nigeria
Yleinen suomalainen asiasanasto: äidit; terveis; synnytys; kipu; lääkkeetön hoito; puoliset; läsnäolo; naiset; käätilöt; sairaalat; poikittaistutkimus; kyselytutkimus; Nigeria
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I dedicate this thesis to Dr. Chinda Emelonye, who directed and encouraged my career path in Nursing Sciences.

April 18, 2017, Kuopio.

Abigail Uchenna Emelonye
LIST OF ORIGINAL PUBLICATIONS:

This dissertation is based on the following original publications:


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Contents

1. INTRODUCTION .................................................................................................................. 1

2. LITERATURE REVIEW ........................................................................................................ 3
   2.1 Definition of pain ........................................................................................................... 3
       2.1.1 Childbirth pain ...................................................................................................... 3
       2.1.2 Physiology of childbirth pain .............................................................................. 4
       2.1.3 Pain relief in childbirth ....................................................................................... 6
   2.2 Theories of natural pain management .......................................................................... 7
       2.2.1 Spousal presence and the Gate Control Theory of pain relief during childbirth ... 8
   2.3 Conceptual framework ................................................................................................ 9
   2.4 Review of spousal presence in childbirth .................................................................. 12
       2.4.1 Spousal participation in childbirth ..................................................................... 13
       2.4.2 Benefits of spousal presence in childbirth ......................................................... 14
       2.4.3 Perceptions and attitudes towards spousal presence in childbirth .................... 16
   2.5 Overview of Nigeria and maternal health ................................................................... 17
       2.5.1 Maternal health care professionals ................................................................. 19
       2.5.2 Maternal healthcare developments .................................................................... 20
   2.6 Summary and gaps in existing literature .................................................................... 21

3. PURPOSE OF STUDY AND RESEARCH QUESTIONS ............................................................. 23
   3.1 Purpose ......................................................................................................................... 23
   3.2 Research questions ...................................................................................................... 23

4. METHODS ............................................................................................................................ 24
   4.1 Overview of studies ..................................................................................................... 24
   4.2 Phase I: Development of questionnaire and pilot study ............................................. 24
       4.2.1. Development of the questionnaires ................................................................ 24
       4.2.2 Pilot study .......................................................................................................... 25
   4.3 Phase II: Studies .......................................................................................................... 26
       4.3.1 Research design ................................................................................................. 26
       4.3.2 Research sites ..................................................................................................... 27
       4.3.3 Research participants ......................................................................................... 27
       4.3.4 Data collection and analysis ............................................................................. 27
   4.4 Ethics of the study ........................................................................................................ 30

5. RESULTS ................................................................................................................................ 32
   5.1 Background information of midwives, women and spouses ........................................ 32
   5.2 Midwives perceptions of spousal presence during childbirth .................................... 32
   5.3 Women’s perceptions of spousal presence in childbirth pain relief ............................ 33
   5.4 Spouses’ views of their role in childbirth pain relief .................................................. 35
   5.5 Perceived barriers towards spousal presence during childbirth pain relief .................. 36

6. DISCUSSION .......................................................................................................................... 40
   6.1 Midwives’ pain relief practices and perception of spousal presence during childbirth ... 40
   6.2 Women’s views on the relevance of spousal presence in childbirth pain relief .......... 42
   6.3 Spousal perceptions towards their participation and role in childbirth pain relief ....... 43
   6.4 Barriers inhibiting the utilization of spousal presence during childbirth ....................... 45
   6.5 Summary of main findings ......................................................................................... 46
FIGURES

Figure 1. Physiology of pain during childbirth
Figure 2. The Gate Control Theory of pain relief during childbirth utilizing spousal presence
Figure 3. The Health promotion Model for perceptions of spousal presence in childbirth pain relief
Figure 4. Literature review articles
Figure 5. Map of Nigeria’s 36 states and the Federal Capital Territory (FCT) (World Gazette, 2015)
Figure 6. Overview of Study

TABLES

Table 1. Summary of literature review studies on spousal participation in childbirth
Table 2. Summary of literature on benefits of spousal presence in childbirth
Table 3. Reviewed literature on the perceptions towards spousal presence in childbirth
Table 4. Spearman rho Correlations on midwives’ demographics, beliefs and spousal intervention in childbirth pain relief
Table 5. Midwives’ perception of spousal presence; content analysis of midwives’ comments
Table 6. Women views on importance of pain relief, spousal’ presence and attitude during labor
Table 7. Spouse responses about their partner’s childbirth pain
**ABBREVIATIONS:**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AIM</td>
<td>Abuja Instrument for Midwives</td>
</tr>
<tr>
<td>AIPP</td>
<td>Abuja Instrument for Parturient Pain</td>
</tr>
<tr>
<td>AIPS</td>
<td>Abuja Instrument for Parturient Spouse</td>
</tr>
<tr>
<td>FMOH</td>
<td>Federal Ministry of Health</td>
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<tr>
<td>HDI</td>
<td>Human Development Index</td>
</tr>
<tr>
<td>IASP</td>
<td>International Association for the study of Pain</td>
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<tr>
<td>MDG</td>
<td>Millennium Development Goals</td>
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<tr>
<td>MSS</td>
<td>Midwives Service Scheme</td>
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<tr>
<td>NPHCDA</td>
<td>National Primary Health Care Development Agency</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children’s Emergency Fund</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WMA</td>
<td>World Medical Association</td>
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1 Introduction

Childbirth pain is a relative, subjective and multifactorial experience influenced by cultures, previous pain events, beliefs, moods and inherent ability to cope. This type of pain may present during labor, caesarean section and after delivery (Escott et al, 2009). Globally, women experience different degrees of pain and exhibit an equally varying range of responses to it. Although childbirth varies with individuals, pain during childbirth may be one of the most excruciating experiences any woman may ever encounter (Iliadou, 2009). Whereas a childbearing woman’s psychological state, mental preparation and cultural background may influence her perception of childbirth pain and pain relief (Iliadou, 2009), childbirth pain for the purpose of this study will be construed as what the childbearing women perceive it to be (McCaffrey and Alexandra, 1989).

Irrespective of the degrees and intensity of their pain, most childbearing women desire pain relief and require various pharmacological and non-pharmacological pain relief interventions (WHO 2015a). Childbirth pain has been studied intensely in western/developed countries (Beigi et al., 2010; Karlsdottir et al., 2014; Steel et al.,2015 Whitburn et al., 2015) and mostly pharmacology methods are utilized for pain relief (Silva and Halpern, 2010). Likewise, in low-income countries like Nigeria the issue of childbirth pain has been moderately studied and pain relief during childbirth remains poor and limited (Aduloju, 2013; Lawani et al., 2014). As such, non-pharmacological pain management methods are usually employed by midwives as a result of non-availability of pharmacological methods and the competitive costs of non-pharmacological options in most developing countries (Morhason-Bello et al 2009; Tasnim 2010; Anarado et al 2015).

Spousal presence is one of the non-pharmacological methods utilized by midwives in the alleviation of childbirth pain (Gayeski et al, 2014). Amongst the existing non-pharmacological methods, spousal presence especially provides physical support, emotional and psychological pain relief to the childbearing woman (Zwelling et al, 2006). It has been associated with enhancing pain relief, childbirth progress, and positive maternal outcomes during childbirth (Adams & Bianchi 2008). In this non-pharmacological process, spouses play vital roles such as labor coaches during childbirth and encouraging their partners to utilize techniques learned from antenatal classes for pain relief (Bradley 2008).

Women differ on their preferences in relation to the presence of their spouses during childbirth. The perception of the women on the subject is crucial because it strengthens the care and provides the required outcome of the intervention (Swiatkowska-Freund et al 2007). In a patriarchal society like Nigeria where childbirth is seen as a woman’s affair, spousal presence is still an evolving issue in maternal and child health care practices. Despite the importance and the contributory role of spouses in childbirth, the utilization of spousal presence for childbirth pain relief has been understudied in Nigeria, evident in the dearth of relevant literature. In addition, even though the focus of childbirth pain relief is on the woman, there is neither any known research on how women perceive spousal presence as a childbirth pain relief method, nor how the midwives perceive the use of spousal presence as a non-pharmacological pain relief method.
Conversely and bearing in mind that the spouse is a key factor in this non-pharmacological method of pain relief, his availability, disposition and attitude towards childbirth and pain relief are strong factors for consideration. Maternal health care remains one of the most pressing issues in Africa and this study is among the top priorities in nursing research in Africa, relating to the improvement of reproductive health outcomes (Adanu et al 2015). Also, involvement of men in maternal health (MNH) has been declared a priority to facilitate and support skilled care during pregnancy, childbirth and the postnatal period for women (WHO 2015d).

Consequently, from a tripartite perspective of midwives, women and spouses, this study has examined the use of spousal presence as a non-pharmacological pain relief method for managing childbirth pain in Nigeria.
2 Literature Review

2.1 Definition of Pain

Pain is defined as an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage (IASP, 2015). Another definition by Cashion (2014) defines pain as an unpleasant, complex, highly individualized phenomenon with sensory and emotional components. Pain is a subjective phenomenon and as such can be deemed whatever the experiencing person says it is and exist whenever the experiencing person say it does (McCaffrey and Alexandra, 1989; Belfer, 2013). Similarly, all the above definitions highlight that pain is more than just tissue damage or injury generating a response from the nervous system. While the IASP and Cashion see pain also as emotional, McCaffery affirms pain as personal, individual and the affected person the expert.

Pain can either be acute or chronic (PAIN, 2002). Acute pain has an identifiable pathology with a response to tissue damage that is usually relieved by treatment and is short lasting (Swieboda et al, 2012), which can be associated with fear and anxiety. On the other hand, chronic pain is long lasting with an unidentifiable pathology and can be unresponsive to treatment, which can be associated with feelings of hopelessness and depression (Pain community, 2015).

Pain can also be classified as nociceptive or neuropathic (IASP, 2015). Nociceptive pain can be visceral or somatic which results from the activity of neural pathways as a result of actual tissue damage or potential tissue damaging stimuli (Nicholson, 2006). Examples of nociceptive pains are childbirth pain, post-operation pain, sports trauma etc. Contrastingly, neuropathic pain is pain caused by a lesion or disease of the somatosensory nervous system (IASP, 2015). It is a syndrome caused by a range of diseases which manifest various signs and symptoms (Jensen, 2011). Neuropathic pain persists all through life and selective treatment is based on mechanism classification (Scadding & Koltzenburg, 2003).

2.1.1 Childbirth Pain

Childbirth can be defined as the completion of a pregnancy term with the emergence of a newborn infant from its mother's uterus (Cram, 2015). In some cultures, it is a transformative experience that women dream about, imagine, fear and finally overcome. Childbirth is divided into three stages; the first is the latent, active and transition stage, the second is the dilatation and delivery stage while the third is the post-delivery stage (Alden et al, 2014, p. 381). The processes in all these stages of childbirth although bearable are generally manifest with uncomfortable pain.

Childbirth pain is unique to each woman and differs from any other pain (Karlsdottir et al 2015). It is a regular recurrent spasm that is characteristic of childbirth and what women perceive to feel during the reoccurrence of uterine contraction and cervix dilation (Iliadou 2009). Pain during childbirth is described with wide variations of perceptions by different women influenced by multiple psychological, psychosocial, cultural and environmental factors (Zwelling et al 2006; Ebirim 2012). Irrespective of a woman’s social and ethnic background, the range of birthing pain includes mild, severe, unbearable, excruciating or worst pain ever experienced. Furthermore, the descending fetus,
expanding perineum, pressure on the bladder, bowels and pelvic structures contribute to the women pain level experienced during childbirth (Orange et al, 2012).

At different stages of the birthing process, different pain types are experienced. For instance, more sensory pain is experience by women who have had multiple births compared to women giving birth for the first time during the first phase of labor. This as a result of the slow, gradual fetal descent and progress of birth (Capogna et al, 2010). On the other hand, sensory pain felt by multiparous women are more intense during the late first and second phase of labor due to rapid fetal descent as a result of their more supple reproductive tissues (Kaur and Raddi, 2011).

Also, several factors can be associated with pain during the birthing process such as whether the delivery is the first, whether the woman has a history of dysmenorrhea, fear of childbirth, anxiety, religious and cultural practices (Tournaire & Theau-Yonneau 2007; Shamaki, and Buang, 2014; Toohill et al., 2014). In a qualitative study conducted in the United States, women in focus groups identified fear about pain as one of the themes in their fear of childbirth (Roosevelt and Low, 2016). Pain has also been stated as a reason for the increased choice of caesarean section for delivery in other studies (Rahnama, et al., 2015; Mazzoni, et al., 2016).

The findings of the prevalence of fear of childbirth varies in different studies; a Swedish study reported that about 10% of Swedish women suffer from fear of childbirth (Waldenstrom et al., 2006) and an overall 24% prevalence was reported from a randomised controlled trial of a sample of 1,410 women in a recent study conducted in Australia (Toohill et al., 2014). The level of fear of childbirth is reportedly higher in primiparous women due to birth uncertainty and the expectation of unendurable pain as well as stories of the experiences of other women (Spice et al., 2009; Toohill et al., 2014). For multiparous women, negative past experiences during childbirth influence their expectations for upcoming birth (Fenwick, et al, 2015). The variation in prevalence rate of fear of childbirth may be attributed to different measures of fear, timing of data collection and context, parity and cultural factors (Toohill et al., 2014).

Cultural factors are associated with pain during childbirth in terms of perception and reaction to pain. In previous studies of culturally diverse women, cultural differences relating to views and reaction to childbirth pain have been reported. For example, Chinese women have unmedicated hospital birth and believe it is shameful to scream during childbirth (Callista, et al, 2003). Likewise in Nigeria, women do see childbirth as a painful process but they tend to cope with it (Obuna, and Umeora, 2014). Women who endure pain quietly during childbirth are considered strong.

2.1.2 Physiology of childbirth pain

During childbirth, the somatic and visceral nerve pathways produce pain sensations. During recurrent uterine contractions, the produced sensations motivate the uterine muscle, pelvic, lumbar, and sacral vertebrae (Blackburn 2007). This pain occurs during the three stages of labor and the causes of pain and its intensity differ. During the first stage of labor also known as the dilation phase, the prevailing visceral pain with nociceptive stimuli originating from mechanical distention of the lower uterine segment and cervical dilatation occurs (Gupta et al 2006). This sort of pain is usually cramping, diffused and is poorly localized. Its intensity is related to developed pressure and strength of the contraction. Decreased blood flow and local oxygen deficiency due to the squeezing of arteries that
supply blood to the myometrium during the contracting period of the uterus causes uterine ischemia (Perry et al 2014, p. 356).

Pain sensations are relayed through the tenth thoracic (T10) to the twelfth thoracic (T12) and first lumbar (L1) spinal nerve segments. Then the sensations move along the accessory lower thoracic and upper lumbar sympathetic nerves originating from the uterine body and cervix (Blackburn 2013, p 545). The progressive pain may be referred to the abdominal wall, gluteal areas, lumbosacral region, iliac crests, and thighs (Zwelling et al, 2006). During this phase of labor, contractions experienced by the woman boost pain and discomfort. Pain indicates the beginning of fetal descent at the end of this phase.

In the descent phase which is the second phase, the pain is normally described as sharp and localized to the perineum, rectum, anus and also be sensed in the thighs or legs. The expansion and pull on pelvic structures surrounding the perineum, vaginal vault and the pelvic floor and perineum by the fetal descent are characterized by somatic pain that is dominating. The pudendal nerve which transmits pain impulses through the second sacral (S2) to the fourth sacral (S4) spinal nerve segments and the parasympathetic system (Blackburn, 2013), is stimulated as a result of the stretching perineum and vagina.

Furthermore, in the dorsal horn of the spinal cord, the nociceptive stimuli are processed and transmitted via the spin thalamic tract to the thalamus, brain stem, cerebellum where spatial and temporal analysis occurs and to the hypothalamic and limbic systems, where autonomic and emotional (affective) responses originate (Gupta et al 2006). During the third stage of labor and the immediate post-partum period, pain experienced is similar to the visceral pain in the first stage of labor, which occurs due to the rapidly decreased blood flow to the uterine tissue (Fig.1). Pain intensity increases with the progression of childbirth and most of the time the pain stops with the delivery of the baby. About 90% of women experience severe or unbearable pain during childbirth (IASP 2005).

Childbirth pain whether triggered by medical or non-medical causes can make the childbearing woman feel distressing, restless, insomniac and agitated (Susan Ward and Hisley 2015,p. 473). Also, an increased heart rate, high blood pressure, increased sweat production, hyper function of the endocrine and prognosis delays are all caused from childbirth pain stimulation of the sympathetic nervous system (Fortescue & Wee 2005; Blackburn 2012). In addition, painful contractions could trigger hypocapnia, maternal hyperventilation, and respiratory alkalosis, which can cause a decrease in oxygen flow to the fetus (IASP 2005). Also, the release of catecholamine with gastric inhibition and increased gastric acidity has been associated with physiologic effects of childbirth pain (Brownridge, 1995). Pain has also been reported to have a negative effect on maternal emotion with poor childbirth outcomes (Pirdel & Pirdel 2006).
2.1.3 Pain relief in childbirth

Many women are worried about labor pain, especially what their pain experience will be like and how they will cope with it. Childbirth is characterized by severe pain and its relief is usually desired in order to reduce maternal distress and enhance the progress of childbirth (Simkin & O’Hara, 2004). The focus of pain relief is on its alleviation or reduction with minimal side effects during the childbearing experience, and the woman’s perception of childbirth pain is crucial in administering pain relief (Karlsdottir et al, 2015).

There are a variety of non-pharmacological as well as pharmacological methods available that can help a woman cope with childbirth pain (Cambic & Wong, 2012; Azibaben et al, 2012; Jones, 2012; Jones, 2015). However, there is no single generally accepted pain management method that may meet all the needs of the laboring woman (Ogbosi-Nwasor et al, 2011). The selection of pain relief methods is influenced by availability, the situation, the health care provider and importantly the preferences of the woman (Cook & Loomis, 2012). As pain experience differs in women during childbirth, so also do their choices for labor pain relief. Bearing in mind that there is no pain relief method that is perfect as each pain relief method comes with benefits and side effects, consequently a combination of pain relief methods is often utilized by midwives during childbirth pain management.

Non-pharmacological methods of pain relief for childbirth are adopted by most healthcare providers in Nigeria (Anaredo et al, 2015) due to their attributes of being noninvasive, nonintrusive, cost effective, simple, effective, and especially without adverse effect (Brown et al, 2001). Also, non-pharmacological methods provide pain relief with no potential for causing harmful effects to the mother or infant (Brown et al, 2001; Simkin & O’Hara, 2004; Jones, 2015). The use of pharmacological pain relief methods in the birthing process is quite unpopular in developing countries due to lack of availability, high cost and apathy by health care institutions (Soyannwo, 2010). In Nigeria, while pharmacological interventions are rarely adopted or non-existent, non-pharmacological interventions such as breathing exercises, massage, positioning, reassurance and relaxation are mostly utilized for labor pain relief (Daniel et al, 2015; Anaredo et al 2015). These interventions have been reported by women to be effective in reducing pain and helping them cope with labor (Daniel et al, 2015; Brown et al.; Wallis, 2012).

Although research has revealed that other strategies such as continuous support, spousal presence, hydrotherapy, music, guided imagery, acupressure, hot/cold therapy, and aromatherapy are non-pharmacological methods initiated during childbirth for pain management (Brown et al, 2001; Bradley, 2008), there is lack of information or knowledge on their use for childbirth pain relief in Nigeria. There
are some evidences of the benefits of non-pharmacological methods such as continuous labor support, relaxation, massage baths, music, and maternal movement and positioning during childbirth (Simkin & O’Hara, 2004; Sedigheh et al, 2007; Liu et al, 2010; Taginehad et al, 2010; Smith et al, 2011; Gallo et al 2013). Regardless of this, a review on childbirth pain management advocated further research on non-pharmacological pain relief methods as only a few studies analyzed outcome data and the methodology quality of the studies were reported as low generally (Jones et al, 2012).

The international conferences in Cairo and Beijing highlighted in the last decade the importance and benefits that engaging men actively in maternal healthcare can have for women, children and the men (WHO, 2015d). In Nigeria, spouses tend to be the decision makers for their families and heavily influence decisions regarding the use of maternal healthcare services by their partner during childbirth, and research has revealed that engaging men can positively influence childbirth experience for both women and spouses.

Among the non-pharmacological mentioned, the one highly desired by women is the presence of their spouses which is believed to afford them emotional, psychological and physical support for their pain during childbirth (Hardin et al. 2004; Gayeski et al. 2014). Previous research have shown the positive impact of spousal presence during labor and delivery (Dlugosz 2013; Gugnor et al., 2007; Plantin et al., 2011). Women have been seen to express comfort from the presence of a spouse thereby taking control during birth, reported a positive birth experience, relieving uncertainty and anxiety, pain and relief without analgesia(Adams et al., 2008; Vehvilainen- Julkunen et al,2014).

Despite the importance of the supportive role of spouses during childbirth previous research conducted on non-pharmacological labor pain management, particularly in Nigeria have not evaluated spousal presence as a positive measure in labor pain relief. Additionally, even though few researches have been conducted on male involvement in maternal health care in Nigeria (Iliyasu et al 2010; Olayemi et al 2009; Obi et al, 2013), there is minimal reference to spousal involvement in management of childbirth pain and particularly its role as a non-pharmacological pain management technique. Equally, it is unclear the extent to which spousal presence has been utilized as a non-pharmacological pain relief measure, coupled with the fact that its effect on childbirth pain management has seldom been investigated. More so, the efficacy of non-pharmacological methods of pain relief in the birthing process still remains unclear in developing countries like Nigeria, due to a dearth of literature on the subject and poor quality evidence. Therefore, it is pertinent to examine the level of utilization, effectiveness and barriers towards spousal presence in childbirth pain management in Nigeria.

2.2 THEORIES OF NATURAL PAIN MANAGEMENT

There are two theories of managing labor pain naturally, the Gate control theory and the Neuromatrix theory of pain (Melzack & Wall, 1965). The Gate theory illustrates how the psychological pain components reduce the physiological transmission of pain impulses in the body. Also, the theory affords a framework for a pain management plan that can provide good maternal pain relief outcomes. It is demonstrated in the proposition that the action individuals take to reduce pain alters the brain centers serving attention, cognition and emotion.

It also stimulates descending nerve impulses to close the “gate” located in the dorsal horn of the spinal cord, hence causing a modulated pain experience (Melzack & Wall, 1996). Spousal presence is considered an important part of a natural pain relief method which provides physical, emotional and
psychological relief during the painful and vulnerable moment of childbirth (Dlugosz, S. 2013). While the focus of the Neuromatrix theory is on perception of pain from a network of network of neurons known as the neuromatrix based on an active generation of multidimensional experiences, not from trauma related messages directed by the brain (Melzack. & Wall 1996). The mechanism, activities and effects of spousal presence during childbirth pain fit into the gate control theory.

2.2.1 Spousal presence and the Gate Control Theory of pain relief during childbirth

The theoretical framework embraced for this study is grounded in the Gate Control theory proposed by Melzack and Walls in 1965. Two types of nerve fibers transmit pain impulses descending from the brain through the spinal cord when pain occurs. They are the C-fibers which are slow small neural fibers and the A-fibers which are large fast fibers which are divided into four subtypes; the A-alpha (Aα), A-beta (Aβ), A-gamma (Aγ) and A-delta (Aδ). Amongst the A-fibers, the A-delta fibers are the smallest while the A-alpha fibers are the largest. In addition, Sensations such as touch are carried by the larger A-fibers to the spinal cord. Likewise, pain signals are carried by the C-fibers and A-delta (Aδ) fibers to the spinal cord (Pudner, 2010).

When more impulses are transmitted through the slow small pain fibers than the fast pain fibers, the gate is opened, the brain receives the impulses and perceives the pain (Moayedi & Davis, 2013). Conversely, if the fast fibers are more stimulated the reverse is the case, the gate closes. Thus, pain impulses is inhibited, decreasing pain perception, and prompt the release of endorphins which help in reducing pain. In the absence of any stimulation, both large and small nerve fibers are quiet resulting to the inhibitory interneuron blocking the signal in the projection neuron linking the brain.

On the basis of the Gate Theory, there are three effective mechanisms illustrating spousal presence as a pain reliever during childbirth. First, during childbirth, abdominal contractions tend to cause activities in the A-delta fibers and C-fibers which open the gate and increase pain. Therefore, active pain fibers come with stronger noxious stimulation and the increased perception of pain by the woman.

Secondly, a spousal pain relief activity such as a gentle massage, touching and rubbing from the spouse to the woman will cause activity in the A-beta fibers to carry information about the harmless stimuli to the brain so as to close the gate and inhibit the perception of pain when noxious stimulation exists. Thirdly, the impulses sent by neurons in the cortex and brainstem with efferent pathways can open or close the gate. The distraction of the woman by the presence of the spouse or spousal supporting activities also influences the gating mechanism by triggering effects of some brain processes. The presence of a spouse during childbirth can create a relaxed environment and positively distract the woman with an expected outcome of emotional and physiologic modifications that impede transmission of noxious impulses.
2.3 CONCEPTUAL FRAMEWORK

The conceptual framework for this study was based on the Health Promotion Model (HPM) by Nola Pender in 1982, modified to fit within the context of pain relief during childbirth. According to Pender (2011), health is defined as a positive dynamic state, not the absence of disease. Childbirth in the context of this study is seen as a state of wellness and intervention for pain relief as a health promotion directed towards increasing the patient’s well-being. Therefore, this study proposes to examine spousal presence as a non-pharmacological pain management during childbirth from a tripartite approach; midwives, women and spouse.

*Fig 2 The Gate Control Theory of pain relief during childbirth utilizing spousal presence. Modified from Conceptualizing the Gate Control Theory to Music Processing (Tse, Chan, & Benzie, 2005, p. 23)*
This model proposes that an individual’s commitment to action and evaluation of a health situation is determined by the individual characteristics and experiences, behavioral cognitive and affective, and behavioral outcomes which is unique to each person. The baseline experience from which an individual chooses to engage in healthy behaviors are guided by these three factors (Pender, 2011).

Individual characteristics and experiences are personal factors which are shaped by the nature of the target behavior and predictive of that behavior. These factors are classified as biological, psychological and socio-cultural. In this study, biological factors that could be included to examine the perceptions of midwives, women and spouse’s towards spousal presence in childbirth pain relief are variables such as participant demographics (age, gender, and parity), psychological factors could consist of variables such as (spousal support and presence during birth) and socio-cultural variables such as ethnicity, education and socioeconomic status. Previous studies have shown these various personal factors have influenced perceptions of spousal presence during childbirth (Olayemi et al, 2009; Iliyasu et al; 2010, Umeora et al., 2011). For example, a study which examined father’s engagement in pregnancy and childbirth revealed that age, ethnicity and parity were key factors affecting the father’s presence and involvement during labor. In addition, first time mothers were more likely to have their partner present during labor and delivery (Redshaw & Henderson, 2013).

Cognition and affective behaviors related to pain relief interventions during childbirth are guided by individual beliefs and attitudes which are influence by norms, social support, and modeling from families, peers, and healthcare providers. Such behaviors includes, labour pain perception , allowing spouses in labour room, acceptance of spousal presence as pain intervention and perceived benefits or barriers of spousal presence in pain relief. Childbirth can be a very stressful period associated with pain for the woman and concerns for their families and healthcare professionals. The pain experience can be impacted by previous pain events, culture and beliefs, moods and inherent ability to cope in an unfamiliar hospital environment. During this period, pain relief is paramount. Midwives intervention, women decision on pain relief and spousal participation are all influenced by their perception of labor pain and their environment.

Furthermore, information sharing is crucial in adopting spousal presence during childbirth. The midwives in the delivery settings play the pivotal role of providing information about spousal presence in pain relief as a guide to the women and spouse decision to adopt this pain relief strategy. However, adequate information provided will largely depend on perceptions and beliefs of the midwives.

The commitment to action and behavior can be facilitated or impeded by the perceived benefits or barriers towards spousal presence for pain relief. Perceived benefits of spousal presence as contributing to pain relief during childbirth, may foster its acceptance for use by midwives, women and increased spouse participation resulting to a positive experience. Previous studies have shown that women have expressed comfort from the presence of a spouse (Kainz et al., 2010; Price et al., 2009), and spouses are the most preferred choice of support during childbirth (Tarkka, 2003; Morhanson-Bellow et al., 2008). Also, the spouse helps in relieving distress associated with uncertainty and anxiety (Dlugosz, 2013; Blackshaw, 2009), provide emotional support, improved family communication, bonding, pain relief without analgesia and positive birth experience (Vehvilainen- Julkunen & Emelonye, 2014). While perceived barriers of spousal presence will lead to a constraint on its use as a pain relief strategy. Most men are willing to assume their expected roles of support during childbirth but are discouraged by
personal, relationship, family and community barriers towards their involvement during childbirth (Lewis et al., 2015). More so, the health system is perceived as unwelcoming, intimidating and unsupportive by men (Kaye 2014). Women feelings of being embarrassed having their husbands present during childbirth and reluctance to share birth information are barriers to spousal involvement (Lewis et al., 2015). Also, promoting the gendered perception influences to a great extent the degree of the husband’s involvement during childbirth and pain relief. Childbirth in some societies are largely considered as women activities and so spousal roles are delegated to other women such as mother-in-law, the wife’s mother and sister (Lewis et al., 2015; Iliyasu et al., 2010).

An individual intention and identification of a planned strategy, that leads to the implementation of a health behavior determines a behavioral outcome through the commitment to a plan of action. Labor pain relief expectations and outcomes are viewed differently by these major stakeholders; midwives, women and spouses based on their knowledge, experiences, belief systems, culture, and social backgrounds. Their evaluation of spousal presence as a non-pharmacological pain management method as positive or negative impact on behavioral outcomes. Spousal presence perceived with positive emotions or effect will have a behavioral outcome of increased action and commitment, while negative emotions will have a poor behavioral outcome of less action and probably total rejection of the strategy.

The variables in the study are measured with three questionnaires; Abuja Instrument for midwives, Abuja Instrument for Parturient Pain and Abuja Instrument for Parturient Spouse. Individual characteristics and experiences is measured by participant’s demographics in the questionnaires (age, gender, education, ethnicity, and past obstetric history). Cognitive and affective behaviors include perceived labor pain (mild, moderate, severe and worst pain ever); acceptance of spousal presence in pain relief, allow spousal presence during birth, perceived benefits or barriers to spousal presence during childbirth and pain relief care measured by the Universal Pain Scale and open-ended questions in the questionnaires. These factors are likely to influence the perception of spousal presence during childbirth and pain relief by midwives, women and spouses. The health-promoting behavior is the endpoint or action outcome directed toward attaining a desired positive health outcome such as adequate pain relief, spousal support, positive birth experience and optimal midwifery care during childbirth. The model is illustrated in Fig 3.
2.4 REVIEW OF SPOUSAL PRESENCE DURING CHILDBIRTH
A literature review of spousal presence in childbirth was completed by examining a body of published work and writing an impressionistic overview subject. The review was based on articles identified through online electronic sources of Google Scholar, CINAHL, Medic, and Pub Med. The review was undertaken between December 2013 and January 2017. Inclusion criteria were articles published between 1995 and 2016, in English and including at least one of the key words mentioned below. Non-English language articles were excluded along with those that were not related to the subject under study. The key words used for the search were spouse, spousal presence, midwife, woman, perception, participation, childbirth, pain relief and challenges. Of the 350 articles obtained, 51 articles were selected for the final review (Fig 4). Selection was done through screening article abstracts and removing duplicated copies of articles. Eighteen articles used a qualitative methodology, 21 were quantitative, two mixed studies and nine were literature reviews. The selected studies were conducted
in Bangladesh, Brazil, China, Greece, Finland, Israel, India, Kenya, Malawi, Nepal, Nigeria, Poland, Sweden, South Africa, Taiwan, Turkey, Uganda, United Kingdom and United States. Finally, the selected literature was summarized and synthesized. This provided an insight into and understanding of the subject under study.

![Diagram](image)

**Fig. 4 Literature review articles**

### 2.4.1 Spousal participation in childbirth

In the context of this study, a spouse is defined as a male who is either married, cohabitating or in a relationship with his partner and takes responsibility for the pregnancy. Spouse attendance at childbirth has been in existence since the 1960s in developed countries such as the United States and Nordic countries (Vehvilainen-Julkunen & Liukkonen, 1998; Green et al, 2007). Also, in England a remarkable increase (95%) in spouse attendance at childbirth was reported in the mid-1990s (Draper, 1997).

In contrast, the issue of spousal attendance at childbirth in low-income countries is still evolving. There have been conflicting results about spouse involvement and participation in childbirth from studies conducted in low-resource countries. Some studies have reported that most spouses are present during childbirth in India and Nigeria (Awasthi et al, 2008; Obi et al, 2013), while others have reported poor involvement in Nigeria, Nepal and Kenya (Iliyasu et al, 2010; Sapkota et al, 2012; Kwambai 2013). This poor participation in childbirth could be attributed to factors such as Ignorance, poverty, religion and cultural practices (Vehviläinen-Julkunen et al., 2014).

A review was conducted in 2013 on the level of spousal participation in labor and delivery using literature published between 1997 and 2013 in the English language. Findings from the synthesizing of the literature from amongst the studies conducted in Nigeria showed that spouse participation differs in various regions of the country. However, overall spouse participation in labor and delivery was poor (Vehviläinen-Julkunen & Emelonye 2014).

Amongst the studies in the review reporting high participation of spouses during childbirth was a cross-sectional study that assessed the level of participation of Nigerian men in pregnancy and birth.
The study showed that 72.5% of the men accompanied their wives to the hospital and a good percentage (63.9%) were present at the delivery (Olayemi et al, 2009). The study which also sought the attitude and preferences of respondents about spouse support during childbirth concluded that men role in labour support cannot be overemphasised and could improve the outcome for both the mother and her baby.

Also, the findings of another study in South East Nigeria that examined spousal companionship in labour reported a high attendance of fathers during delivery. However, the study showed that men with higher education, monogamous family status and higher socio-economic status participated more in childbirth compared to husbands of less social, academic and economic status (Umeora et al, 2011). On the other hand, a study conducted on fathers’ participation in maternity care in Northern Nigeria revealed that only 32.1% of spouses had ever accompanied their partners for maternity care. Also, the study showed that men comfortably performed other external activities relating to childbirth like providing financial support, while the emotional involvement of men was generally poor with only a few accompanying their wives (Iliyasu et al, 2010).

Even though the studies mentioned above had conflicting results, the studies that reported an increased participation of males during childbirth showed that only men who were educated with high social status make up the percentage of men present during delivery. Thus education was a strong influencing factor to male participation. In developing countries, spouses are usually absent during childbirth, leaving their supportive roles to female relatives and midwives (Iliyasu et al, 2010).

The absence of spouses during childbirth may be attributed to poor health facility infrastructures and policies, the attitudes of health workers, social-cultural and religious beliefs (Vehvilainen-Julkunen & Emelonye, 2014). Recent studies conducted in developing countries such as Malawi, Nigeria, Nepal have shown that most spouses who accompanied their wives during childbirth to the healthcare facilities were prevented from entering the delivery rooms by the healthcare workers (Sapkota et al, 2012; Vehvilainen-Julkunen & Emelonye, 2014).

Also, spouses have described the health system as unwelcoming, intimidating and unsupportive (Kaye et al, 2014). Furthermore, results from a Malawian study of male involvement in childbirth showed their involvement to be poor and the men not properly integrated into maternal care (Kululanga et al, 2012b) (Table 1).

2.4.2 Benefits of spousal presence in childbirth

Spousal presence and involvement during childbirth has been reported to contribute positively to the birthing process and is associated with positive outcomes of maternal experience (Porrett et al, 2013). In managing childbirth pain, spousal presence has contributed to pain relief, reduced analgesia use, minimized the length of labor and precipitated satisfactory birth experience (Somers-Smith, 1999; Kainz et al, 2010; Plantin et al, 2011).

A study assessing the effect of psychosocial support on labor outcomes in Nigeria demonstrated that 293 women in the control group without labor support had higher pain scores than the 292 women in the experimental group with labor support; spouses constituted about two-thirds of labor support and the women had a more satisfying labor experience (Morhason-Bello, 2009). Similarly, another study of 50 couples in Turkey on the effects of father’s attendance in labour and delivery shows that, the father’s
support in birth provided more positive experiences for the mothers during childbirth (Gugnor & Beji 2007).

Also, positive feelings towards birth experience have been reported by women who gave birth in the presence of their spouse. Other past studies have illustrated that women whose spouses attended and helped with their births reported less pain and had a lower probability of receiving pain medication compared to women whose husbands were absent (Chan & Paterson-Brown 2002; Dellmann 2004). According to Bradley (2008), spousal presence is associated with the vital role of a labor coach encouraging women to use techniques learned during antenatal classes for pain relief and creating a relaxed environment through continuous support during childbirth.

In 2007, various reviews and trials of the Cochrane Pregnancy and Child Birth Group showed that the continuous presence of a support person decreased the likely use of analgesia, operative delivery, and dissatisfaction of women during childbirth experience (Hodnett et al, 2007). Supporting this finding, a qualitative descriptive study in 2004 that examined the positive experience for women who had unmedicated childbirth showed women’s positive birth experience was in her ability to control her body and influence her environment during childbirth.

This control came as a result of comfort due to the presence of their spouses or a trusted person (Hardin & Buckner, 2004). Furthermore, a hermeneutic study from Sweden re-emphasized the father’s presence as essential during the birthing process for the mother’s comfort (Kainz et al, 2010). Findings in the study showed a favorable response from mothers reporting that the presence of their spouses inspired, strengthened, and encouraged them during labor.

In addition, spousal presence is associated with maternal emotional needs during pain relief. Lack of emotional support can increase the intensity of pain during childbirth (Zwelling et al, 2006). Emotional support provided by the spouse during childbirth could be in the form of encouragement, praise, reassurance, listening, and a continuous physical presence which are key components of intrapartum care (Christenson, 2013). Also, the feeling of the laboring woman as regards her spouse’s presence positively influences her approach towards childbirth as it is believed that their spouses share in their pain (Dick-Read, 2004).

The spousal support has been described as paramount compared to support from other companions during childbirth (Zwelling et al, 2006; Darvill et al, 2010). Women also believe that the presence of their spouse mitigates their pain during childbirth, strengthens them and relieves their pain (Dim et al, 2011). Also, the presence of spouses is desired by women because their spouses assisted them with pain relief activities such as breathing exercises (Swiatkowska-Freund et al, 2007). Spousal presence could also be beneficial to the spouse and not only the mother during childbirth. Benefits of improved family/couple communication, gratifying experience, family bonding, increased paternal knowledge about childbirth and improved connections and relationships with mother and newborn (Coutinho et al, 2016) (Table 2).
2.4.3 Perceptions and attitudes towards spousal presence in childbirth

This section of the review of literature examines the perception of the midwife (caregiver), the woman (care receiver) and the spouse (care). Midwives play the pivotal role of providing obstetrics care to childbearing women (Pirdel & Pirdel, 2009; Daniel et al, 2015). Their perceptions as regards childbirth pain and pain management practices such as assessment and interventions are important in providing optimal care and promoting positive maternal birth experiences (Brown et al, 2001).

Spousal presence has been reported as an effective pain relief method utilized during childbirth by midwives (Gayeski et al, 2014). Midwives’ practices and attitudes towards spouses during childbirth have been reported positively. A study by Thelin, et al, (2014) demonstrated that midwives were comfortable with spousal presence exhibiting positive feelings towards the woman and her spouse and creating a calm atmosphere during birth. Similarly, other studies have reported a positive birth experience for fathers as a result of the midwife providing support for the father and encouraging the father to perform their role (Sapountzi-Krepia et al, 2010; Hildingsson et al, 2011; Premberg et al, 2011; Johansson et al, 2012; Ekström et al, 2013; Gungor and Beji, 2007).

However, health workers’ views of spousal presence has been reported as inconveniencing, a foreign concept, an obstacle and interfering with care procedures during childbirth (Kululanga et al, 2012b; 2012). A Nepalese study on male participation during childbirth illustrates midwives’ beliefs that the spouse being present during childbirth agitates the woman (Sapkota et al, 2012). In addition, a qualitative study using interview focus group discussions of 14 midwives similarly reported midwives’ feelings of childbirth pain as natural and bearable (Mahlako, 2008). As such, pain relief interventions are not necessary. Despite this, there are certain challenges influencing midwives’ poor attitudes towards spouse such as inadequate non-pharmacological methods during childbirth due to shortage of staff, lack of good infrastructure, culture, poor hospital policies and lack of implementation (Roets et al 2005; Bohren et al, 2014).

Subsequently, women are the main focus of obstetrics care during childbirth and their views are relevant in determining what available care intervention works best for them especially as regards childbirth pain relief methods. Research has shown mixed views and attitudes of women towards spousal presence during childbirth. Women’s preferences for spousal presence have been demonstrated in various studies. A randomized study of 224 pregnant women, exploring the effect of psychological support during labor by Morhason et al. (2008) found that most of the women (86%) indicated their husbands to be a preferred companion during childbirth.

This positive perception has also been shown in another study (Al-Mandeel 2013). The positive perceptions of women could be related to their beliefs of quick birth progress, reduced pain and being in control due to the presence of their spouse (Długosz, 2013; Gayeski et al, 2014; Sapkota et al, 2012b). Also, in a recent qualitative study, most women indicated a desire for their husband’s involvement in maternal health, but contrastingly, some women feel having a husband’s presence during childbirth is embarrassing (Lewis et al, 2015).

In utilizing spousal presence for pain relief during childbirth, the spouse is required to be readily available. This is in consonance with the fact that the feeling of the spouse towards childbirth is a determining factor in his involvement and level of his participation. Both recent and past studies have
looked at the feelings and experiences of spouses during childbirth. Spouses were committed and willing to participate during childbirth, believing they had important roles to play (Sapountzi-Krepia et al, 2010; Shibli-Kometiani & Brown, 2012; Sapkota et al, 2012; Ekström et al, 2013).

Excitement, empathy, and consideration for their partners have been reported feelings of spouses towards their partners during childbirth thus driving their participation (Ekström et al, 2013). Their roles involved offering support to their partner physically and strengthening her mentally, all of which are important for her well-being (Sengane, 2009; Sapountzi-Krepia et al, 2010). Some other studies have indicated that the most difficult experience spouses faced during childbirth and the key motivating factor for their participation in delivery is their concern about their partners' pain (Forsyth et al, 2011) and the displeasure of seeing their partner in pain (Vehviläinen-Julkunen & Liukkonen, 1998). Generally, a positive experience during childbirth has been reported by spouses who participated in the birthing process (Vehviläinen-Julkunen & Liukkonen, 1998; Chan & Paterson-Brown, 2002; Porrett et al, 2013).

A study of Chinese fathers showed that the majority of the fathers had a positive attitude towards their presence during childbirth believing it could empower their partners as well as provide psychological support (He et al., 2015). A similar result was also reported in a Brazilian qualitative study of 12 male partners about their perception of being in the labor room during childbirth. All the fathers agreed their presence provided support and comfort for their partner and highly recommended spousal presence during childbirth (De Melo, 2013).

Conversely, the majority of the studies in low resource areas have reported the poor perception of men as regards their involvement in the birthing process. Most men consider childbirth a woman’s affair and childbirth pain a natural phenomenon that does not require men’s involvement in line with traditional gender roles (Kwambai et al, 2013; Kululanga et al 2012, Akinpelu & Oluwaseyi, 2014; Singh et al 2014; Lewis et al, 2015). This is evident in a study of 12 first time fathers on their experience in the delivery room during childbirth conducted in Nepal.

The husbands described a man present in a delivery room as culturally discouraged, “…I felt embarrassed to enter at first, as our culture has taught us (husbands) not to be present when our wife gives birth”. In spite of their willingness and eagerness to participate in childbirth, there was a strong feeling of embarrassment by being amongst women in the delivery room (Sapkota et al, 2012). In the same way, a study on delivery care use in rural Bangladesh found that husbands were generally uninvolved, not having any knowledge about childbirth, and believed childbirth is a women’s affair and local traditions promote home birth (Story et al, 2012) (Table 3).

2.5 OVERVIEW OF NIGERIA AND MATERNAL HEALTH

Nigeria is a West African country bordered by Benin Republic in the west, Chad and Cameroon in the east, and Niger in the north. It covers an area of about 923,768 km² (CIA, 2015). Nigeria is the most populous nation in Africa with an estimated population of about 183 million inhabitants (UNDP, 2015). Although Nigeria is the world’s 20th largest economy with vast oil wealth, poverty is widespread amongst more than half of its population (UNDP, 2015). According to the United Nations Human Development Index (HDI) 2015, more than 70 per cent of Nigerians live on less than US$1 per day and in terms of per capita income, Nigeria is ranked 152 out of 188 countries in the world (UNDP, 2015).
Nigeria has a population growth rate of about 2.47% with a birth rate of 38.03 births/1,000 population (Index Mundi, 2014). The life expectancy rate in Nigeria for both sexes is 54 years (CIA, 2015). Approximately, a hundred million of her population is between 15 and 64 years; about 50.6% are males and 49.4% are females (Country meter, 2016). The country is ethnically diverse with about 374 ethnic groups and over 500 languages with English as the official language (DHS, 2013). In terms of religion, Christians constitute about 40%, Muslims 50%, and indigenous beliefs about 10% of the population. Literacy is highest in males (72.1%) and urban dwellers constitute 49.6% of the total population (Index, 2014).

Nigeria is a federation consisting of 36 States, a Federal Capital Territory (FCT) (Fig. 5) and 774 Local Government Areas. The health care system in Nigeria is based on a three tier system of government: the Primary, Secondary and Tertiary. At the federal level, the Federal Ministry of Health (FMOH) is responsible for the healthcare systems, providing policies and regulations for the overall health care delivery in the country (Saka, 2012).

At the second tier of health care delivery in Nigeria, the state ministries of health provide secondary healthcare and at the third tier the Local Government implement primary healthcare services. As of 2010, there were 18,258 primary, 3,275 secondary and 29 tertiary health care centers in Nigeria (The Report, 2010, p.253). There are also both public and private services providers in the Nigerian healthcare sector. About 70 per cent of the healthcare in the country is provided by private services and the remaining 30% is provided by the government and community-funded health institutions (Innocent et al, 2014).

Nigeria has one of the weakest health systems in the world. It is ranked 187th out of 191 amongst member states by the World Health Organization (WHO, 2015). As a result of the existing weak health systems, maternal and child health status in Nigeria is one of the worst in Africa. According to World Health Organization’s statistics, approximately 830 women die per day globally as a result of complications from pregnancy and childbirth (WHO, 2015). With a maternal mortality ratio of 545 per 100,000 births and a patriarchal society where pregnancy and childbirth are regarded as exclusively women’s affairs, Nigeria accounts for nearly 14% of the global estimates of maternal mortality (World Bank, 2013).

There is a 1 in 13 chance of a woman dying from pregnancy and childbirth in Nigeria (UNICEF, 2015) compared to 1 in 3,800 in developed countries (WHO, 2015). The causes associated with maternal mortality in Nigeria are: hemorrhage, infection, unsafe abortion, obstructed labor and toxemia/eclampsia/hypertension (Marchie & Anyanwu 2009). Also, inadequate health facilities, inability to pay for services, lack of transportation, poor standards of care, deteriorated equipment, staff shortage and cultural and other resistance to modern health care are causes of high rates of maternal mortality (Innocent et al, 2014). In Nigeria, most maternal deaths occur during delivery and the immediate post-partum period (Rogo et al, 2006).

Furthermore, statistics in Nigeria show that there is an average of six births per woman and a total of 38,160,762 females aged within the childbearing age of 15-49 years in Nigeria (WHO, 2015b). Since pain relief during childbirth remains rudimentary (Iliyasu et al, 2010), most females in Nigeria pass through the painful and excruciating experience of childbirth, with the majority desiring pain relief (Audu et al,
Due to issues including non-availability or high cost of drugs, lack of knowledge, lack of skilled human resources and equipment, pharmacological pain relief is not popular during childbirth in Nigeria (Ogboli-Nwasor et al, 2011). Consequently and by default, in the absence of widespread non-pharmacological methods of pain relief during the birthing process, the majority of Nigerian women are afflicted with pain during childbirth (Imarengiaye, 2005). This confounded situation of inadequate pharmacological and non-pharmacological methods of childbirth pain alleviation in Nigeria has exacerbated the management of childbirth pain in Nigeria and results in not only untold and avoidable psychological and physical hardship on women, but also provides the frail health care system with a huge financial burden.

2.5.1 Maternal health care professionals
Nigeria has one of the largest healthcare professional workforces in Africa (WHO, 2016). The maternal healthcare system comprises skilled workers, obstetricians/gynecologists, pediatricians, the midwives and nurse-midwives. There are 968 obstetrician/gynecologists in Nigeria (Agboghoroma & Etedafe, 2015) and an estimated 88,796 midwives including nurse-midwives (UNFPA, 2011). With an estimated population of about 183 million there is a ratio of one obstetrician/gynecologist to about 185,950 individuals with the ratio of nurses and midwives at 1.6 per 1000 people in the country (World Bank, 2010).

Thus, maternal healthcare delivery is low, ineffective, and disproportionate and unequally distributed at different locations as most of the skilled health workers are concentrated in healthcare facilities in the urban areas. In most of the healthcare facilities especially the primary health facilities in the rural areas, the skilled workers available on-duty are nurses/midwives. Obstetricians/gynecologists are rarely present, so the midwives are mostly responsible and at the forefront of maternal care in Nigeria (Ijadunola et al, 2007; Erim et al, 2012).
The professional skilled midwife undergoes either the three-year basic midwifery diploma training program or completes the general nursing three-year diploma training program with an additional 18 months of midwifery training to qualify as nurse/midwives (Oyetunde & Nkwonta, 2014). Also there are the university educated midwives who undergo a four-year degree program in a recognized university and in the course of their study complete the Registered Nurse and Registered Midwifery certification examination administered by the Nursing and Midwifery Council of Nigeria (NMCN) to qualify for licensing as midwives (LASU, 2010). The NMCN is the only legal authority that licenses and regulates nursing and midwifery professional practices in Nigeria.

2.5.2 Maternal healthcare developments

Poor maternal healthcare indicators have been a persistent challenge for Nigeria in the past decade (UNICEF, 2008; WHO, 2012; MDG, 2015). Presently in Nigeria, the focus on promoting and improving maternal health care is at the forefront of health care development. Despite various health programs adopted to achieve better maternal healthcare, the implementation has not yielded the desired results. The Millennium Development Goals (MDGs 4 and 5) are important measures adopted to improve maternal well-being and reduce maternal mortality by at least 75% in 2015 (MDG, 2015).

When the target period for the MDG came to an end, most developing countries like Nigeria did not achieve the proposed goal (DHS, 2013). However, there were marginal improvements recorded in the reduction of maternal mortality from complicated and painful childbirth in Nigeria from 350 in 2012 to 243 in 2014 (per 100,000 live births). In addition, there was a slow increase in skilled attendance at delivery of 62.9% in 2014 compared to 53.6% in 2012 with an increase in hospital births (DHS, 2013). With the unmet targets of the MDG’s, the launch of the Sustainable Development Goals (SDG) by the United Nations General Assembly in September 2015 (UN, 2015) is a welcome development for the poor healthcare system in Nigeria.

The SDG goals of dealing with good health and wellbeing which aims to reduce the global maternal mortality ratio to less than 70 per 100,000 live births by 2030 (UN, 2015) cannot be achieved in Nigeria without the necessary medical and auxiliary workforce.

The maternal health care system in Nigeria is faced with a disproportionate distribution of midwives/nurse midwives. There is a shortage of midwives in the poor rural areas, as most tend to migrate to the urban areas for better career progression and standard of living (Uneke et al, 2008). The burden of causes of poor maternal healthcare and mortality are highest in the rural areas (FMOH, 2009). In order to create a balance between adequate maternal healthcare coverage and improved quality of care, the Midwives Service Scheme (MSS) was launched in 2009 by the National Primary Health Care Development Agency (NPHCDA) in collaboration with the three tiers of government in Nigeria to mobilize midwives (newly qualified, unemployed and retired) to work in low staffed areas (FMOH, 2009).

The MSS provided capacity building through a training framework aimed at improving the skills and proficiency of midwives in the provision of quality maternal and child health services. Though some successes have been recorded with the program, there are still challenges of implementation, availability and retention of qualified midwives, retention of midwives, capacity building of midwives and sustenance of linkages (WHO, 2016).
Another approach to maternal health development relevant to Nigeria was the advocacy for active inclusion and the involvement of men in maternal health care adopted in 1994 during the International Conference on Population and Development (ICPD) in Cairo by 180 countries. This was further strengthened by the report of the United Nations Fourth World Conference on Women held in Beijing in 1995, encouraging men to join in promoting gender equality as well as better maternal health care (UNWOMEN, 2015). In Nigeria, which is a patriarchal society (Makama, 2013), men are meant to play an important role in maternal and child health care.

With the perceived positions of men in the family as head and decision makers, they have tremendous control over their partners due to economic and social status differentials. At all times, including the prenatal to post-delivery period, men have a strong influence over their partners and decide the timing and conditions of sexual relations, family size, and most importantly access to healthcare (Iliyasu et al, 2010). Also men’s behavior can significantly affect the childbirth outcomes of the women (Mullick et al, 2005). Men provide and demonstrate responsibility by supporting, caring and making decisions for the woman during pregnancy and childbirth (Sapkota et al, 2011; Gayeski et al, 2014).

Equally, with all the authority and power accorded to the men, due in part to being an important partner in improving and achieving adequate maternal health care, their involvement in the birthing process has been pronounced as a promising new strategy for improving maternal health (Cohen, 2000). Regardless of the approach taken to encourage male involvement in maternal child health and coupled with providing a supportive environment in many developing countries including Nigeria, low male involvement is still recorded to the effect that maternal health care services are still largely female-oriented (Ani et al, 2015). To date, male involvement is an evolving issue in maternal health care in Nigeria.

2.6 SUMMARY AND GAPS IN EXISTING LITERATURE

Childbirth pain presents physiological and psychological challenges to women, as such pain relief interventions are necessary to reduce suffering and promote positive maternal outcomes. Spousal presence in earlier studies has been seen to be beneficial and associated with positive pain maternal outcomes during childbirth (Dlugosz, S. 2013). In developing countries some studies have shown a high level of spousal participation during child birth while others have reported low participation. There is a dearth of literature on the use of spousal presence as a non-pharmacological method during childbirth pain management in developing countries. The majority of research generated on the subject is in western countries and evidence from these studies might not be potentially applicable in African countries with limited resources and vastly different healthcare problems (Setlhare et al., 2014).

The importance of this study is in contributing to fresh knowledge and constituting a basis for improving health policies in respect of nursing/midwifery practices in the administration of non-pharmacological management of childbirth pain. It will also create a connection and understanding between the key players involved and strengthen the advancement of male participation in childbirth, especially in the area of pain relief. Furthermore, the study creates an understanding of the extent to which spousal presence is integrated in childbirth pain relief and gaps inherent to spousal presence in pain relief in developing countries like Nigeria. Below are some existing gaps in the literature.
- Very little research concerning spousal presence in childbirth pain relief. Most studies are focused on the experience of the spouse and woman when present during labor.
- Lack of studies on spousal roles during childbirth and evaluation, as regards pain relief. Studies in developing countries focused on percentage of male participation.
- Most research on the subject is conducted in western and developed countries.
- Lack of nursing or midwife studies on their perception of utilization of spousal presence for pain relief in developing countries.
- Lack of studies examining women and spousal feelings on the relevance of spousal presence during childbirth in developing countries.
3 Purpose of Study and Research Questions

3.1 PURPOSE
The purpose of this study was to examine the use of spousal presence as a non-pharmacological pain relief method for managing childbirth pain in Nigeria. It was also aimed at ascertaining the prevailing perceptions and barriers of spousal presence in childbirth pain relief from the viewpoints of the midwives, women, and their spouses.

3.2 RESEARCH QUESTIONS
The following research questions were addressed:

I. What are the practices and perceptions of midwives on the use of spousal presence as a non-pharmacological childbirth pain management method? *(Articles I & IV)*

II. What are the views of child bearing women on the relevance of spousal presence in pain relief during childbirth? *(Articles II)*

III. What are spousal perceptions towards their participation and role in childbirth pain relief care during childbirth? *(Articles III)*

IV. What are the barriers to spousal involvement, role and contribution to pain relief during childbirth in Nigeria? *(Articles IV)*
4 Methods

4.1 OVERVIEW OF STUDIES
The studies included in this thesis were conducted in two phases (Fig 6). First phase, the development and pilot study of three questionnaires; Abuja Instrument for Midwives (AIM), Abuja Instrument for Parturient Pain (AIPP), and Abuja Instrument for Parturient Spouses (AIPS) in two general health facilities in Nigeria. The second phase, four studies using a pragmatic approach combining both quantitative and qualitative methods conducted in some healthcare facilities in Abuja, Nigeria. These studies explored and provided insight into the role of spousal presence in the management of childbirth pain in Nigeria including barriers to its use in childbirth pain relief from the perspective of the midwives, women and spouses.

4.2 PHASE I: DEVELOPMENT OF QUESTIONNAIRE AND PILOT STUDY
The questionnaires Abuja Instrument for Midwives (AIM), Abuja Instrument for Parturient Pain (AIPP) and the Abuja Instrument for Parturient Spouses (AIPS) used for data collection in this study were developed at the University of Eastern Finland from December 2013 to May 2014 (Emelonye et al., 2015). The item development of the questionnaires AIM and AIPP was developed from a review of past works of literature of spousal participation during childbirth (Hardin & Buckner, 2004; Iliyasu et al., 2010; S. Dlugosz, 2013; Oluyemisi et al, 2014; Vehvilainen-Julkunen & Emelonye, 2014) and the AIPS was derived from modifying the English version of the Kuopio instrument for fathers (KIF) after obtaining the consent of the authors.

4.2.1. Development of the questionnaires
The multidimensional questionnaires for this pilot study investigated spousal presence for the purposes of parturient pain relief and from a tripartite perspective. The number of items generated for the respective questionnaires was 20 item for the AIM, 27 item for the AIPP, and 24 item for the AIPS. All questionnaires comprised of open and closed ended questions. The questionnaire was developed in English. The face and content validity of the questionnaires were determined by a panel of three experts, a professor of nursing science, a doctor of nursing science with extensive research and clinical expertise in maternity care and a senior researcher in public health science specifically in a clinical and research environment. The feedback from these experts clarified the appropriate use of terminologies such as the substitution of “partner instead of wife” and “pagan to traditional religions”.

Furthermore, the three questionnaires were pre-tested on two parturients, two spouses, and two midwives by a research assistant in Nigeria. All participants were duly informed that the questionnaires were being developed and response will improve the understanding of the questionnaire. The AIPP and AIPS were interview-administered questionnaires administered to the parturient and spouses respectively by the interviewer with verbal instructions to participants on the administering process. The AIPP and the AIPS examined the experience of parturient pain and spousal presence during parturiency. The AIM was a self-administered questionnaire by the midwives with a written instruction of how to fill in the questionnaire. It examined the perception of midwives regarding spousal presence as a non-pharmacological intervention for parturient pain.
The three questionnaires were completed in about 10-15 minutes by the parturients, spouses, and midwives respectively. Following completion of the questionnaires, questions regarding potential difficulties with the questionnaires, such as ambiguity of words, misinterpretation of questions, inability to answer a question, the sensitivity of questions, and any other perceived problems associated with the questionnaires and its administration processes were verified. Feedback obtained from participants was positive, but an improvement was needed in the questionnaire administering protocol (e.g. the interviewer should give participants adequate time to respond before the next question).

4.2.2 Pilot study
A pilot study to validate the AIM, AIPP, AND AIPS questionnaires was conducted in the maternity unit of two general health facilities in Abuja: the Wuse General Hospital and Kubwa General Hospital (Emelonye et al., 2015). The maternal delivery rate of these hospitals is estimated at 2,500–3,000 births annually. Participants in this study were parturient (n=10), spouses (n=10), and midwives (n=10). The sample size was 10% of the estimated sample of this larger study (Treece & Treece, 1982).

The convenience sampling method was used for selection of participants with the following inclusion criteria: parturient, 18–35 years of age, if they had single pregnancy at full term gestation, if they were within 24–48 hours post-delivery and a consenting couple. The parturients were excluded if they had a caesarean section, if they were on pain medication, and if they were mentally incapacitated. The spouse’s inclusion criteria were his partner’s eligibility.

Regarding the selection criteria for midwives, only those that were clinically practicing and licensed by the Nursing and Midwifery Council of Nigeria were included in the study. Study factsheets and verbal clarification of the study was provided for the participants. Also, the informed consent of all participants was obtained through a short signed form before administration of questionnaires. The AIM was self-administered by the midwives while the AIPP and AIPS were administered through interviews by independent inspectors.

The re-administration of three questionnaires to five of the consenting participants for test-retest reliability was done after five days for each group. Each questionnaire was evaluated separately for validity and reliability. The various questionnaires were collected after each administering period and the participants in the pilot study became ineligible for the main study.

The statistical analyzes for all the questionnaires were performed using the Statistical Package for the Social Sciences for Windows (SPSS 19). The demographics of all participants were described with the statistical median in the respective questionnaire. The reliability of each questionnaire item was evaluated with the Cronbach’s alpha statistics with a satisfactory Cronbach’s alpha value of 0.7 or above (Jackson & Furnham, 2000).

The Spearman’s correlation among items was used to determine construct validity using the numerical variables in the questionnaires. Furthermore, the two-way random effects model was used for Intraclass Correlations (ICC) measure based on consistency with a 95% confidence interval (CI). For the test-retest reliability of the questionnaires, the correlation coefficient was used to measure the variation between the responses of five participants for each questionnaire respectively tested twice. A value of
one indicated a perfect correlation between the two responses while a value of zero indicated no
correlation between the two sets of answers (Grimm, 2010).

The contents of the interview-administered questionnaires, the AIPP and AIPS were clear and
understood by the parturient and spouses as responses were precise and the questionnaires were
administered in less than 15 minutes. Over 95% of the answers by respondents corresponded to the
questions on the three questionnaires. The reliability and item correlations results for the three
questionnaires were as follows:

**Abuja Instrument for Midwives (AIM). Appendix 12**
The AIM divided into two domains, (a) midwives’ pain management practices and (b) perception of
spouse’s presence during parturienty, with four and two variables respectively, had a Cronbach’s alpha
coefficient of 0.789 and 0.780. The average measure for ICC in the two domains was (a) 78.9% and (b)
78% with 95% CI of 0.415–0.947 and 0.116–0.947 showing an acceptable degree of reliability. There was
good correlation between questionnaire items, midwives’ pain assessment, necessity of pain relief and
pain intervention (rho = 1.0; n=10; p < 0.001). Also, the perception on spouse contribution to pain
alleviation and encouraging spouse presence during childbirth also indicated a positive correlation (rho
= 0.67; n=10; p 0.35).

**Abuja Instrument for Parturient Pain (AIPP). Appendix 13**
The six selected items on the AIPP domain assessing parturient pain alleviation relating to spousal
participation in childbirth had Cronbach’s alpha coefficient of >0.802. The correlation coefficient for
test-retest reliability was r = 0.99. The average measure for ICC was 80% with a 95% confidence interval
of 0.522–0.943 showing an acceptable degree of reliability. AIPP items: spousal presence and pain relief
showed a relationship of positive correlations (rho = 1.0; n=10; p < 0.001), while correlations between
items, spouse relief and rating pain, after spousal intervention had a negative correlation (rho = -0.80;
n = 8; p = < 0.17).

**Abuja Instrument for Parturient Spouses (AIPS). Appendix 14**
All nine factors in the AIPS domain evaluating spousal participation and perception of spouses as an
intervention of alleviating parturient pain had a Cronbach’s alpha coefficient of >0.86. The correlation coefficient for
test-retest reliability was r= 0.90. The average measure for ICC was 0.860 with 95% CI of
0.860–0.956 showing an acceptable degree of reliability. Spearman’s rho correlations for AIPS items,
perception of spousal importance during childbirth and spousal presence contributing to parturient
pain alleviation showed a positive relationship (rho = 1.0; n=8; p < 0.001).

**4.3 PHASE II: STUDIES**

**4.3.1 Research design**
The four studies in this section were cross sectional descriptive multisite studies conducted in June –
December 2014, in the maternity units of four general hospitals situated in Abuja Nigeria; Kubwa
General Hospital, Garki General Hospital, Wuse General Hospital and Maitama District Hospital.
Abuja is an urban city that is cosmopolitan in nature and also the Federal Capital Territory of Nigeria
with an estimated population of over 3 million people (NBS, 2012).
4.3.2. Research sites
Abuja is also culturally diversified with its population drawn from 371 ethnicities in Nigeria (DHS 2013). Three of the research sites for this study are government operated hospitals: The Kubwa General Hospital has 110 bed spaces of which 24 are maternity beds, the Wuse General Hospital has 130 bed spaces out of which 20 are maternity beds, and the Maitama District Hospital has 60 bed spaces out of which 26 are maternity beds and all are government operated hospitals.

The Garki Hospital, with 70 bed spaces out of which 20 are maternity beds, is operating a public-private partnership since being privatized by the government in 2007 (Garki hospital, 2015). Two hospitals in this study had both private and multiple occupied wards, while the other two had only multiple occupied wards. Additionally, the estimated annual delivery rates in these health care facilities are: Kubwa General Hospital 3,000 births, Wuse General Hospital 2500 births, Maitama District Hospital 2000 births and Garki Hospital 1800 births.

4.3.3 Research participants
Selection of all the participants in the various studies was done through convenience sampling. Participants approached for the study were 500, of these a total of 384 participants participated in this study: midwives (n= 100), childbearing women (n=142) and spouses (n=142). The study sample size was determined by the study duration and the estimated average annual birth rates (n=4000) in the four study sites, confidence level of 95% with a confidence Interval of 5% using creative survey statistical software.

All midwives were informed by the Nursing Chiefs of the respective maternity units about the study in the various research sites. The inclusion criteria for the midwives were: practicing clinical midwives licensed and registered by the Nursing and Midwifery Council of Nigeria. Also, the potential women and spouses were identified by midwives.

The women were included in the study if they were between 18 and 35 years and within 48 hours postbirth, if they had a vaginal birth, single pregnancy at full term gestation, and with no history of obstetric, medical or psychological disease. Women who received pain medication during labor and those who had a caesarean section were excluded. Spouse’s inclusion in the study was dependent on their partner’s (childbearing women) eligibility to participate in the study and mental capability. Most importantly, the couple must consent to participate in the study.

The potential participants were approached and invited verbally by the researcher in the different health facilities. The study factsheet, verbal information, and clarifications about the study were made available to all participants. Ethical issues were addressed by obtaining written informed consent through a signed consent form by the participants. Furthermore, full confidentiality on all participants’ details was maintained and the participants were allowed to withdraw from the study at any time.

4.3.4 Data collection and analysis
Study I: Midwives’ perceptions of spousal presence in childbirth pain alleviation in Nigerian hospitals.
A pre-tested self-administered questionnaire (AIM) was used for data collection in this descriptive quantitative multisite study. The AIM is a twenty item questionnaire in English divided into three sections: demographics of midwives; midwives’ pain management practices and perception of spousal
presence in childbirth pain management. The study questionnaires were distributed during the hospital working shifts of the midwives by the researcher and were completed at the midwives’ convenience in the hospitals within a week. The completed questionnaires were handed over to the primary investigator at the expiration of one week by each midwife in an envelope.

The study data analysis was conducted using statistical methods and quantitative content analysis. The statistical analysis was both descriptive and inferential at the 95% confidence level using Statistical Package for the Social Sciences (SPSS) version 21 for Windows. Frequency statistics and percentages were used for analyzing demographic data and scores of items on midwife pain management practices. The non-parametric (Spearman rho) correlation was also used to explore possible relationships between midwife demographic variables, pain assessment and spousal presence parturient pain intervention techniques. Values of $p < 0.05$, $<0.01$ were considered to indicate statistically significant difference.

Also a Chi-Square Test of Independence was used to examine the relationship between the midwives’ perception of spousal presence contributing to pain relief, midwives allowing spouses to be present through the childbirth process and midwives accepting spousal presence as an intervention. Cross-tabulation and quantitative content analysis were used to analyze the midwives’ written comments to open ended questions regarding perception of spousal presence in childbirth pain relief.

One hundred handwritten pieces of data were transcribed exactly and written into an electronic database. In the first instance, the themes were composed and thereafter were summarized into main categories. For example, the original statement by the midwife “Good idea, it should be added and encouraged”, was categorized in the theme “Positive”, and placed in the category “Accept spousal presence”.

The quantification of the data was made by adding the number of original statements in each theme and category. The data classification process was achieved through discussions by the primary researcher with three researchers (a registered nurse, two midwives and a public health expert). They evaluated midwives’ comments on the AIM and how well the comments matched various themes and categories. Thereafter, a consensus was reached and credibility was achieved by peer debriefing (Lincoln & Cuba, 1985, p.308).

Study II: Women’s Perceptions of Spousal Relevance in Childbirth Pain Relief in Four Nigerian Hospitals

The data collection for this cross sectional study was conducted by the researcher within 48 hours post-birth using a pretested interviewer-administered 27 item questionnaire, the AIPP in English language for the women in this study (Emelonye et al 2015). Data collected included the demographics of participants (age, religion, ethnicity, education, marital status), the woman’s perception of spousal participation during childbirth and pain relief.

Also, data on the perceived effect of spousal pain relief activities (massage, breathing exercises, holding hands, encouraging words, diversional therapy) was collected by participants identifying their perceived pain pre and post-spousal pain relief activities using the universal pain scale. The universal pain scale is a multidimensional pain assessment tool for assessing pain according to individualistic needs. Administration of the questionnaires lasted from 10–15 minutes per participant.
The data analysis was descriptive with frequencies and percentages after entry and coding using the Statistical Package for Social Sciences (SPSS) version 21. The Wilcoxon signed-rank test was used to analyze the perceived effect of spousal pain relief activities by comparing pain scores of participants, pre and post-spousal pain relief activities with a statistical significance level of p < 0.01. Also, analysis on Likert item questions, participants’ views on the importance of pain relief, spousal presence and spousal attitudes towards pain relief was achieved by assigning numerical values to participant responses: “Very Important = 5, Important = 4, Moderately Important = 3, Of little importance = 2 and Unimportant = 1”.

The data analysis for open ended questions was done through conventional content analysis of the perceptions of participants as regards spousal presence in providing pain relief (Hsieh & Shannon, 2005). A group of three researchers independently read and annotated each questionnaire. 142 written data was generated from the open ended questions. Concepts were highlighted and labeled from the text. The pretesting of some of the collected data for adequate coding instructions, coder’s ability, reliability and consistency in individual coding decisions was carried out.

Words with similar meanings were grouped into themes and patterns from the words were further grouped into sub-themes that illustrated the meaning of the phenomenon through abstraction, e.g. the original statement “He provides emotional and psychological support, it helps relieve my pain”, was classified under the theme “Spousal role during childbirth”, and further placed under the subtheme “Childbirth support”. Codes were assigned to the different themes while identifying similarities. The themes were analyzed and described. The frequencies and percentages of comments coded under each theme were included and the entire process was reached by consensual agreement amongst researchers. The credibility of the analysis was achieved by peer debriefing (Lincoln & Guba, 1985, p.308).

Study III: Perceived spousal participation and role in Childbirth pain relief

The data for the cross-sectional study of 142 spouses was collected through a pretested English language interview-administered questionnaire for spouses, the AIPS (Emelonye et al, 2015). Data collected included social demographics of participants, spouse perception on his presence and participation in childbirth and pain relief. The outcome variable was the spousal attendance of subsequent childbirth and involvement in labor pain relief care while the independent variables were the participants’ social demographics factors (age, education, employment, ethnicity, marital status and religion).

The questionnaire was administered within 48 hours post-birth of the spouse’s partner by the researcher and a research assistant. The administration of the questionnaire lasted for about 10–15 minutes per participant. The data were entered, coded and analyzed using Statistical Package for the Social Sciences (SPSS) version 21. The descriptive statistics, frequency, and percentages were used to analyze each demographic characteristic of the participants. The χ2 test was used to examine the association between each independent variable and outcome variable with a p-value <0.05 considered statistically significant.

Also, data cells that had a value of five or less were analyzed using Fisher’s exact test. The content analysis method was employed to analyze qualitative data from open-ended questions where 142
pieces of written data was generated (Hsieh & Shannon, 2005). Data were read at least twice by two researchers and the patterns of words, phrases or statements were identified and assigned codes. An abstraction method was employed by putting similar codes together placing them into categories and further themes were identified through a consistent pattern of the statements from the data under the different categories. This process was agreed and achieved by consensus.

**Study IV: Barriers to spouses’ presence and contributions to pain relief during childbirth**

A cross-sectional qualitative study was conducted in four general hospitals in Abuja with an estimated average of 1000 births each annually. The self-administered questionnaire, the AIM for midwives, and the interview-administered questionnaires, the AIPP and the AIPS for the women and spouses respectively, were used for data collection in this qualitative study (Emelonye et al. 2015). Data collected were related to the participant’s socio demographics, their perceived barriers to utilizing spousal presence during childbirth for labor pain relief and recommendations based on open-ended questions in the AIM (two), the AIPP and AIPS (three each). Data collection for post-birth women and spouses lasted between 10 to 15 minutes, while midwives’ questionnaires were returned within a week.

The data analysis was done using descriptive statistics for demographic data and content analysis for the qualitative data (Hsieh & Shannon, 2005), capturing the perspective and human experience from within the context of the data (Terre Blanche & Durrheim, 2004). Two of the authors (AE, AA) reviewed the collected data and discussed emerging codes, categories and themes. The codes used for the data were not preconceived but formulated from the data. The data were examined by identifying the types of barriers and recommendations reported by participants with an emphasis on frequency and consistency. The patterns from words were identified and emerging themes reached by consensus.

**4.4 ETHICS OF THE STUDY**

Research ethics involves the protection of the dignity of the study participants and the publication of the research information (Fouka & Mantzorou, 2011). This aspect is ensured by the researcher. In the course of this study, there were adequate ethical considerations in line with good research practices for the research institutions, participants and the research.

*Research Institutions*: The appropriate approval for conducting the study was obtained from the Ethics Committee of the University of Eastern Finland (28/2012) and Federal Capital Territory Health Research Ethics Committee Nigeria (FHREC/2014/01/17/06-05-14). Permission was also obtained from the four general healthcare facilities through their various management boards.

*Participants*: All participants were treated equally with respect and in accordance with the non-discriminatory ethical principle. The potential participants were provided with complete information about the aim of the study, procedures, possible risks and benefits. Protection of anonymity and confidentiality of the research participants were guaranteed through the study factsheets and verbal explanations. A "Noncoersive Disclaimer" was provided to participants stating that participation was voluntary and no penalties are involved in refusal to participate.

In line with the revised Declaration of Helsinki (DoH) 2013 on ethical principles on studies involving human subjects (WMA, 2013), the interest of participants superseded the overall interest of the research. Also, written informed consent was obtained from all participants. Full confidentiality of participants’
details was maintained throughout the research process and the data collection procedures protected the anonymity of the respondents.

There was confidentiality in the management of private information by the researcher in order to protect the subject's identity and anonymity so that the participant's identity cannot be linked with personal responses in the study. The questionnaires for the data collection were marked with codes, to promote participant anonymity. Administered questionnaires had no identifying information of participants involved in the studies. The collected data were handled only by the research team and stored in a secured box. Collected data entered into electronic devices were coded and passworded. Data analysis and publication of results of participants' responses were handled only as statistical representation.

Research: Ethical norms in research promote knowledge, truth, and avoidance of error (Resnik, 2011). Importantly, it also promotes values that are essential to study contributions, such as trust, accountability, mutual respect, and fairness. In the course of this study, records of research activities such as research design, data collection, data analysis and correspondence with journals were kept and methods and study findings were reported truthfully.

In this study and to avoid any conflict of interest, there was openness on all information about research members' roles in the study from the research design, to collection of data, analysis and reporting of results. Also the study rights, co-authorship, responsibilities and accountability were agreed upon with mutual respect and fair treatment for the research team members. Most researchers want to receive recognition and credit for their contributions. All the contributors to the study were acknowledged and respect for intellectual property was observed by properly citing all literature used in course of this research.
5 Results

5.1. BACKGROUND INFORMATION OF MIDWIVES, WOMEN AND SPOUSES
Background information of midwives, women and spouses are described in detail in the articles I-IV. Majority (99%) of the midwives were women, aged 18-57 years and had mostly (76%) the general nursing education. Women’s median age was 28.5 (range=25-31) and 42.2% had a university degree. Thirty eight (26.8%) women were first time mothers, while 104 (73.2%) women had undergone multiple births. The median age for spouses was 35 years (interquartile range of 30-39). Above half (52.8%) had university education and 128 (85.3%) were fully employed.

5.2 MIDWIVES PERCEPTIONS OF SPOUSAL PRESENCE DURING CHILDBIRTH (Article 1)
Results of midwives’ childbirth pain management practices showed that most of the midwives (91%) acknowledged that women were in pain during childbirth and 85% believed that childbirth pain relief was necessary. Ninety (90%) midwives assessed childbirth pain with the majority (38%) assessing birth pain four hourly. Physical examination (35%) was the most commonly used pain assessment method by the midwives and the least common pain assessment method was the pain scales (VAS/NVS) (4%).

Interventions for the alleviation of labor pain were reported by 87 (87%) of the midwives. Common non-pharmacological interventions used by the midwives were reassurance (20.2%), diversional therapy (12.9%), back rub/massage (12.9%), spouse presence (10.1%), positioning (7.3%) and psychotherapy (6.9%). Of the 25 midwives who utilized spousal presence as an intervention for labor pain, 16 (64%) had general nursing educational level, while 9 (36%) had a university education.

There was a positive significant relationship (rs = .613, p<0.01) with a large effect size (Cohen, 1988) between midwives’ agreement for intervention for pain relief and the use of spousal presence for pain relief care. Midwives’ education (p=0.271) did not have a relationship with the use of spousal presence as an intervention for pain relief. In addition, socio-demographic factors; midwifery experience (p=0.209), religion (p=0.755), marital status (p=0.076) and ethnicity (p=0.442) did not exhibit any statistically significant correlation with the use of spousal presence as a pain intervention (Table 4).

Midwives’ perception of spousal presence in the management of childbirth pain was divided into three categories. The first category, spousal contribution to pain relief, had two positive themes (psychological/emotional and physical relief) and two negative themes (inefficient and increased pain). Most of the midwives (90%) believed spousal presence contributed to the reduction of childbirth pain through emotional and psychological support, back rubs and massage. On the contrary, a few (5%) saw spousal presence negatively and increasing pain.

The second category, allowing spousal presence during childbirth, had four positive themes (moral support, environment, companionship and respect and treatment) and two negative themes (religion/culture and workplace). More than half of the midwives were of the view that allowing spousal presence would provide encouragement to their partners, relaxed atmosphere, family bonding and therapeutic treatment. Nonetheless, a few midwives were of the view that their religion and culture
does not permit allowing spouses during birth and also their work procedure will be disrupted by spousal activities.

In the third category, spousal presence as an intervention, three themes (positive, negative and conditional) were identified. Most midwives would accept spousal presence as an intervention for childbirth pain relief and agreed that it should be encouraged. A few of the midwives expressed difficulty in accepting the intervention while others would only accept the intervention if certain facility conditions such as providing more private wards were met.

Out of the midwives (90) who agreed that spousal presence contributed to childbirth pain relief, 76 would accept spousal presence as an intervention, 12 would accept conditionally if convenient single labor rooms are provided to accommodate the intervention, while two would not. Furthermore, out of the 10 midwives who did not agree that spousal presence contributed to childbirth pain relief, three of the midwives will allow spousal presence during birth as an intervention if imposed by the authorities of the hospital. The remaining seven midwives completely rejected the intervention as spousal presence was believed not to have any effect on pain during childbirth (Table 5).

A Chi-Square Test of Independence performed to examine the relationship between the spousal presence contributing to pain relief and midwives allowing spouses to be present through the childbirth process and associated with midwives accepting spousal presence as an intervention, demonstrated a significant relationship between the variables, $\chi^2 = p < .001$. Midwives who perceived spousal presence as contributing to childbirth pain relief were likely to allow spousal presence during childbirth and readily accept it as one of their pain management methods.

5.3 WOMEN’S PERCEPTIONS OF SPOUSAL PRESENCE DURING CHILDBIRTH (article II)

All the women reported that they had childbirth pain, with a majority (60.6%) reporting severe pain. The participants described their pain as: painful (27.3%), quite painful (9.3%), very painful (31.3%), natural (2.0%), discomforting (2.7%), traumatic (0.7%), excruciating (21.3%), difficult (2.0%) and satisfying (3.3%). Also, majority of fathers (71.3%) were reported present all through childbirth by participants. Furthermore, most of the participants (84%) were positive that spousal presence and activities contributed to pain relief. A Pre and post- spousal activities (massage, holding hands, comforting words, breathing exercises) labor pain rating from participants indicated a Wilcoxon rank exact test result of $z = -10.033$, $p < 0.001$, showing a higher negative mean rank. A total of 126 (78%) women had a reduction in pain following spousal activities, two (1.4%) women reported that there was an increase in their pain and 20.6% reported no change in their pain levels during childbirth.

The respondents on how important it was for their pain to be relieved, spousal presence and spousal attitudes during childbirth showed the following: a high percentage (79.6%) of the participants said childbirth pain relief was very important. Also, spousal presence and attitudes were reported as very important during childbirth by 83.1% and 82.4% of the participants respectively (Table 6).
Most women (93.3%) believed that spouses play very important roles during childbirth and also desired their presence. This belief was illustrated in the participants’ perception data themes of the spousal role during childbirth and spousal attitudes regarding childbirth pain.

SPOUSAL ROLE DURING CHILDBIRTH
Under the first theme, spousal role during childbirth, four subthemes were generated: childbirth support, responsibility, security and indifferent.

Childbirth support
Participants expressed different descriptions of the important spousal roles during childbirth. Spouses were perceived to provide emotional, psychological and physical support that helped in relieving childbirth pain. Also, providing physical and financial support during childbirth was included as important roles of the spouse. The following comments from participants illustrated their views about the roles of their spouses: "He provides emotional and psychological support, and it helps relieve my pain (pr20)"; "His presence helps in distracting me from my pain (pr74)"; "Rubs and massages my back, holds my hand when I am in labor pain (pr036)"; "He attends to all my financial needs and provides all the necessary items needed by the midwives for the delivery (pr015)".

Responsibility
Taking responsibility for the pregnancy and childbirth was perceived as a spousal obligation and a role he had to naturally fulfill. An important aspect of this role was decision making, giving of consent and handling emergencies and crisis situations. One woman said, "He makes the decisions and reduces my burden (pr01)"; and another, "He takes responsibility, he is the father (pr088)".

Psychological support
Participants perceived spousal presence as providing security and creating a safe and comfortable environment for them. They indicated that spousal presence prevents any harm from coming to his partner through favorable solicitation of treatment from the attending midwives. This can be summarized from a response from one of the participants..."I feel safe and comfortable with my husband around (pr03)".

Indifferent
Findings showed that a few participants (6.7%) perceived the spouses as not playing any special role during childbirth. This category of participants indicated that spousal presence reportedly did not make any difference to the situation of the woman during childbirth. The following quote illustrates this negative view of a participant. "He plays no special role. It makes no difference if he is around, my labor is like the first, very painful. My mother provides all my needs (pr120)".

SPOUSAL ATTITUDES REGARDING CHILDBIRTH PAIN
The second theme, spousal attitudes regarding childbirth pain, generated two subthemes: satisfactory and unsatisfactory.

Satisfactory
In response to the question how participants perceived the attitudes of their spouses towards labor pain, findings indicated that most (88%) of the participants reported that their spouse had positive attitudes towards childbirth pain. Some responses from participants are illustrated thus: "He has a
positive attitude, shares in my pain, sober and worried (pr01); "Very good, caring attitude towards my pain (pr049; Positive and sympathetic attitude (pr090)."

Unsatisfactory
Some negative spousal attitudes towards labor pain were reported by a few (12%) of the participants. This demonstrates an inference for negative goals with poor unsatisfactory birth experience evaluation for the laboring woman. This can be summed up by responses from two of the study participants: "He has always shown a poor attitude towards my labor pain and I always feel bad (pr053); "He feels women should endure labor pain as it is natural and pain relief should not be given to women (pr138)."

5.4 SPOUSES’ VIEWS OF THEIR ROLE IN CHILDBIRTH PAIN RELIEF (Article III)
The majority of spouses 107 (71.3%) were present during the birthing process from the beginning of labor to the end, 28 (18.7%) were present at the beginning of childbirth only and 7 (4.7%) were present from mid-childbirth to the end. Most of the spouses 133 (93.7%) took the decision to be present during childbirth alone. Five (3.5%) of the spouses took the decision with their partners and four (2.8%) were encouraged to be present by the obstetrician. Seven (4.9%) believed their partners pain was mild, 43 (20.3%) believed it was moderate, 74 (52.1%) believed it was severe, and 18 (12.7%) believed it was the worst pain ever.

Spousal feelings about their partner’s birthing process illustrated the following results: most of the spouses (73.2%) strongly agreed that their presence was important during childbirth; a good percentage (85.9%) strongly agreed that their spouses were in pain and 66.9% also strongly agreed that their presence helped in labor pain alleviation (Table 7).

In addition a chi-square test of independence on the association between the spousal demographic variables (age, education, employment, ethnicity) and spousal attendance in subsequent births and involvement in pain relief care amongst participants was not significant; age (p = .732), education (p = .829), employment (p = .197) and ethnicity (p = .998). Also, there was no significant relationship with religion (p = .650, FET) and marital status (p = 1.00, FET). This result shows that spousal demographics were not associated with spousal attendance in subsequent births and involvement in labor pain relief care; this indicates that spousal demographics do not make any difference in the spousal perception of childbirth attendance and involvement in pain relief care.

Furthermore, the description of spousal feelings concerning childbirth and birth pain are presented as three main themes: spousal feelings concerning birth pain, spousal presence at subsequent births and spouses accompanying partner and remaining all through childbirth. These findings are presented with narratives from participants.

Spousal feelings concerning birth pain
Spouses in this study described how they felt about their partner’s pain during childbirth. Childbirth for the spouses was a crucial period that was characterized by emotional spousal feelings and unemotional spousal feeling (women enduring pain). Almost all the spouses described their feelings with emotions such as sharing the childbirth pain, fear, confusion, empathy, sympathy, and appreciation. One of the spouses expressed his feelings as: "I felt I was carrying the pregnancy and sharing the pain with her (S10)." Another expressed fear and confusion by saying; "I was afraid, confused and
wanted the pain to be over (S25)”; “I was afraid throughout the process (S32)” . Some spouses also showed guilt, sympathy and appreciated their partner’s pain. This is evident by their descriptive statements; “I felt bad and sad concerning her pain” (S12) ”, “I felt pity and really terrible allowing her to undergo such pain (S02)” ”; “I felt I have not loved her the way I am supposed to (S45)” .

A few spouses expressed unemotional feelings towards their partner’s pain. This was reported in their descriptions as: “I felt indifferent, labor pain is natural for a woman to bear (S76)” “; “My feelings were neutral as labor pain is a natural pain and all women experience and endure it” (S115)” .

Spousal presence at subsequent births
In response to spouses being present at subsequent births of their partner’s, findings show that the participants differ in their views. Most of the spouses will want to attend the childbirth process with their partners, but a few spouses will not. Under this second theme, spouses providing support, spousal responsibility and unpleasant experience were used to describe the father’s responses. The majority of spouses felt that they had to be at subsequent births to provide support ranging from emotional, psychological and financial support. Descriptive sentences of support from spouses were: “I want to share her pain always and help her relieve pain (S10)” ; “To provide emotional and psychological support (S02)” ; “To provide necessities and financial support (S115)” .

Furthermore, spouses believed that they were the owner of the pregnancy, thus, should be responsible for being present at different stages of the pregnancy and most especially during birth. Some spouse responses were thus: “It is my responsibility to always be here and my wife’s entitlement (S07)” ”; “It’s a necessity and a responsibility I must uphold (S45)” ”. Also, results showed that a few spouses did not want to be present at subsequent births as a result of an unpleasant experience. Two spouses described their feelings as: “I am scared of childbirth (S18)” “; “I don’t want to experience it again, my mother will take her and I will just pay the hospital bills (S32)” .

Spouse accompanying the partner and remaining through childbirth
The third theme described spousal views of bringing their partners to the maternity and being present from the onset of childbirth and remaining till the post-birth period. Almost all the spouses reported that it was a good practice and should be encouraged. The spouses in this study stated their views as: “It is very important and should be encouraged (S23)” ”, “It is necessary every spouse should participate in the delivery and labor pain process (S03)” ”. However, some spouses believed that their presence was not necessary because it does not contribute to any relief during childbirth and most importantly, female relatives of the spouse could be of better help to the woman. A spouse expresses his view as: “I don’t believe I can help during labor, female relatives’ better help with the pain (S09)” .

5.5 PERCEIVED BARRIERS TOWARDS SPOUSAL PRESENCE DURING CHILDBIRTH PAIN RELIEF (Article IV)
The reported barriers to spousal presence during labor pain relief by participants (midwives, women and spouses) were divided into three categories: institutional barriers, professional barriers, and personal barriers.
INSTITUTIONAL BARRIERS

Two thematic barriers were identified in this category: poor infrastructural facility and lack of pain management policy.

**Poor Infrastructural facility**

It was found that the most perceived barrier reported repeatedly by participants in this study was poor facility infrastructure. Midwives reported that the maternity facilities were small and cannot accommodate spousal presence during childbirth. Some of the midwives wrote “… Restructure labor units to suit spousal presence (M02)… The facility infrastructure is not adequate for pain management, has limited space (M08).”

Similarly, spouses also reported facility infrastructures as poor and needing improvement. Two spouses stated “… poor infrastructure in the maternity unit, there is an urgent need for improvement of hospital facilities (S25)… The hospital is not convenient for spouses and we have to wait outside for our wives, facilities need improvement (S80).” Spouses believed that the poor hospital infrastructure limited their presence and pain relieving role during childbirth. They saw themselves as helpless and distressed in this situation because although they were within the maternity ward during childbirth, they could not be with their partners due to infrastructural defects and as such could not join in the pain relief care of their partners. This situation according to them leaves their spouses at the mercy of the midwives. In addition, spouses cited environmental concerns of hygiene as a barrier. A comment from a spouse was…”The hospital environment needs fumigation” (S05).

Furthermore, post-birth women’s description of the health facility centered on the facility space and conduciveness. They reported that it was small and inadequate for labor pain relief and interventions involving spouses. The shared labor room with no privacy during childbirth was of particular interest as a barrier to spousal presence. According to one of the women,” the labor room space is so little, my spouse and I cannot be accommodated” (W22).

The majority of participants did not perceive the environment as comfortable for pain management during childbirth. A midwife wrote, poor environment, no pain management intervention (M25). Women also commented that their movements were restricted and midwives were reported as not giving labor pain any priority and as such did not engage in its management through spousal presence.

**Lack of pain management policy**

Findings in this theme included non-inclusion of spousal presence during childbirth and guidelines for labor pain management. It was reported that institutional policies did not include allowing men into the delivery room. Furthermore, findings also indicated a lack of policy for pain management guidelines and interventions. Some comments reported by midwife participants were ….”There are no rules in this hospital allowing spouses into the delivery room (M02)”… “There is lack of appropriate guide for pain management procedures (M10).” Also, there were similar comments to that of the midwives from the spouses and the post-birth women. A spouse stated that….. “There was a lack of policy encouraging spouses to be present during childbirth (S20”), while a statement from a woman was…”My husband was asked to stop at the entrance of the maternity unit by the midwives (W08”).

PROFESSIONAL BARRIERS

Lack of midwife pain management practices and midwives’ attitudes towards spouses during childbirth were themes identified under this category.
Lack of midwife pain management practices
This theme included pain management practices (pain assessment, equipment, lack of knowledge upgrade) and attitude towards labor pain management. Results indicated poor pain management practices during childbirth as another barrier to midwives using spousal presence as a pain intervention. Pain management practices such as pain assessment, tools and updated knowledge on current trends were shown to be lacking by midwives' responses. This was illustrated in two quotes...
"Lack of pain assessment and pain management tools" (M10), "training of midwives is necessary on new pain management techniques and additional interventions" (M98).

Furthermore, the women in this study reported that midwives' attitudes were poor towards managing their pain. They reported being ignored, had no pain relief administered to them and that they had to endure pain. Some of the women reported harsh responses from midwives as they were shouted at and scolded when in need of requesting pain relief. In addition, parturient women reported that the midwives assessed labor regularly and pain rarely. They advocated that pain assessment should be given the same priority as labor assessment by midwives. Furthermore, the issue of being left alone by midwives for most of the birthing period in the strange environment of the labor room made women desire their spouses.

Midwives' attitude towards spouses during childbirth
Midwives' attitudes towards spouses during childbirth were highlighted by spouses as one of the major barriers to utilizing spousal presence for pain relief during childbirth. Midwives' attitudes were reported as poor and not encouraging in the maternity units and were also described with words such as hostile, unfriendly and harsh. Spouses stated that the midwives did not want to see them around the labor area and were also not receptive to communication about their partner's childbirth process.

PERSONAL BARRIERS
This category reports on the theme perceptions of spouse's participation during childbirth and managing labor pain.

Perceptions of spouse's participation during childbirth and managing labor pain
The midwives perceived spouses as an obstruction to their care procedures and their presence agitated the women during childbirth. Also, midwives' views of labor pain as a natural occurrence to be endured contributed to poor utilization of spousal presence for labor pain relief. Furthermore, women were meant to believe the myth by some of the midwives that labor pain signifies labor progress and stopping it in any way will obstruct the progress of childbirth.

The women's perception of their spouses being present during delivery in this study was also a barrier to spousal presence during childbirth for pain relief. The issue of spousal presence not contributing positively to labor pain management was reported by the post-birth women. They also indicated a preference for a female friend or relative to be present during childbirth rather than their spouses.

Spousal perception about childbirth was also identified as a barrier to spousal presence as a method of pain relief. In response to what spouses think about accompanying their partners and remaining with them through childbirth, some spouses had negative views about the idea and believed men should not accompany their wives during labor with reasons related to cultural and societal beliefs. They described childbirth as a woman's affair emphasizing that men were not needed to be with the woman during this period. Also, some spouses perceived their roles as providing financial support and
responsibility towards the payments of bills and argued that their partners should be comforted by other women during childbirth as pain relief care.
6 Discussion

6.1 MIDWIVES’ PAIN RELIEF PRACTICES AND PERCEPTION OF SPOUSAL PRESENCE DURING CHILDBIRTH

A major part of the modern obstetric care of the woman during childbirth is interventions by the midwives to reduce pain (Pirdel & Pirdel, 2009). The midwives in this study (I) believed that women presented with pain during childbirth and pain relief was necessary. As such, most midwives provided pain management interventions for women during childbirth. This result is confirmed by a previous study describing midwives’ pain management interventions during childbirth in Nigeria, where women validated that midwives utilized pain intervention averagely and these interventions helped during childbirth (Daniel et al, 2015).

Furthermore, interventions for managing childbirth pain are predicated on proper pain assessment, the frequency of this assessment by caregivers coupled with adequate instruments. It was shown that more than half of the midwives conducted physical observation as the most common pain assessment method. This finding differs from the study of Bergh et al (2015) on Swedish midwives regarding their pain assessment methods during childbirth. The study showed that unstructured verbal communication between the midwife and the birthing woman was the main method of assessing childbirth pain. Bias often arises in physical observation of pain during the birthing process.

This is mainly due to the fact that interpretation of assessment most likely will be influenced by midwives’ perception of what the pain is rather than the woman’s perspective. To achieve proper assessment of women’s pain during childbirth, a combination of physical observations and the use of a good pain scale such as the visual analog scale (Mårtensson & Bergh, 2011) or numeric pain rating scale (Breivik, 2008) is expedient. In addition, the majority of the midwives reported assessing pain every four hours.

Arguably it is logical that the frequency of pain assessment during childbirth be done at every progress check by the midwives, bearing in mind that childbirth progress varies and is unique to each woman. Hence, pain assessment during childbirth progress check will provide a holistic care approach for the woman, enabling the midwives to provide timely interventions, ameliorate suffering and reduce the long regimen of pain assessment. Although this approach can be quite tasking and challenging, the pain assessment should also match each woman’s preference during childbirth as regards mode and timing (Jones et al, 2015b).

Spousal presence was reported as underutilized by midwives during childbirth pain relief. This was evident as only a quarter of the midwives utilized spousal presence during childbirth pain relief. On the other hand, the most common pain relief method utilized by over half of the midwives was reassurance. The low use of spousal presence by midwives may be attributed to poor spousal participation during childbirth (Iliyasu et al 2010) and the high use of reassurance due to less time consumption and ease of use when compared to other non-pharmacological pain relief methods. Due to a very low midwife-woman ratio in Nigeria (UNFPA, 2011), the reassurance method of pain relief
can create space and time to accommodate other women during childbirth, and spousal presence could also assist to a great extent in facilitating midwifery care for multiple childbearing women.

Midwives had a conflicting perception of spousal presence during childbirth and its use for pain relief. However, a majority of the midwives perceived spousal presence as contributing positively to pain relief during childbirth, which in turn promotes positive maternal birth experiences (Brown et al, 2001). Even though it was shown that 90% of the midwives agreed that spousal presence actually contributed to parturient pain relief, a lower percentage 84%, which is still a good majority, will allow a spouse to be present during childbirth. Nevertheless, the positive reasons by the midwives for allowing spouses to be present during childbirth outweigh any perceived negative consequences. Spousal presence contributes to pain relief through psychological and emotional support as well as physical contact with the woman during childbirth such as massage and backrubs.

Spouses fill the communication gap between midwives and women undergoing the birthing process due to the amount of time midwives spend on technical care during childbirth (Hodnett et al, 2007). This gap is filled in the sense that spouses are more physically present; more involved with their partners in providing comfort and creating a relaxed atmosphere, thereby fostering cooperation from the woman. Certainly, these positive effects of spousal presence add to reducing anxiety and fear which are components of pain and consequently contribute to pain relief during childbirth.

In the context of accepting spousal presence as an intervention, most midwives (76%) will accept the addition of spousal presence as a pain management intervention during childbirth in their respective hospital care practices. On the other hand, a few (15%) will only accept this conditionally with a response like: ‘it is a good idea if facility provision is compatible with the practice’. This minority perception on spousal participation amongst midwives can be related to the poor infrastructure of maternity units such as the prevalence of wards with multiple occupancies in most healthcare facilities (IV).

Also, the fact that some of the maternity wards used for this study were not constructed with spousal attendance and participation in mind may have influenced negatively the perception of midwives. Ultimately, if proper and adequate infrastructures that are respectful of the privacy of the women during childbirth are put in place in the health care facilities, midwives will certainly accept utilizing spousal presence as a pain management intervention. Thus, women would at the same time have a guarantee unlike in the conventional open system currently in place in most of the maternity wards (IV).

Also in contrast, the study results showed that some midwives viewed spousal presence as having little or no substantiated effect on pain relief during childbirth. A few midwives did not believe that spousal presence contributed to pain relief but agitated the woman and increased pain. This is in line with findings in a Nepalese study of male participation during childbirth (Sapkota et al, 2012). In addition, this negative view is collaborated by some of the midwives that pain during childbirth is a natural occurrence that must take its course and spousal presence cannot make any difference in relieving the pain. Mahlako (2008) reported a similar perception of midwives’ views of pain during childbirth as natural, bearable and manageable.
According to previous studies in some developing countries, Nepal and Bangladesh (Sapkota et al, 2012; Story et al, 2012), cultural influences have been reported as a factor that prevents spousal presence during childbirth. Deeming spousal presence as a taboo and convinced that their culture and religion forbids it, this practice is in agreement with one of the reasons given by the midwives in this study for not allowing spousal presence during childbirth. In addition, spousal presence seen as an inconvenience and interference to care procedures during childbirth was also considered a factor by the midwives. Kululanga et al, (2012) had reported a similar finding because during the birthing process, tensions are usually high between the midwives and male partners to the extent that health workers label male partners as difficult and an obstacle when present during childbirth.

One tenth of midwives in this study will not accept spousal presence as an intervention because of the inconvenience related to the presence of the woman and her spouse during childbirth at the same time. This is contrary to the study by Thelin et al (2014) where midwives were comfortable with spousal presence and showed positive feelings towards the woman and her spouse thereby creating a relaxed atmosphere. Similarly, another study documented that fathers reported a positive birth experience due to the midwife’s supportive atmosphere in the delivery room (Hildingsson et al, 2011).

6.2 WOMEN’S VIEWS ON THE RELEVANCE OF SPOUSAL PRESENCE IN CHILDBIRTH PAIN RELIEF

This study showed that the majority of the women perceived spousal presence as helpful in ameliorating and effectively managing pain during childbirth (Chan & Paterson-Brown, 2002). A similar finding was reported by Dellman (2004), where most participants reported that they found their spouse’s presence at childbirth helpful in lowering their level of labor pain. Also, lower pain level was reported by most women after spousal activities. This is suggestive of a positive outcome leading to a satisfying experience for women (Somers-Smith1999; Kainz et al 2010).

Spousal roles such as emotional and physical support, taking paternal responsibility, making decisions and psychological support were seen by women as very important in contributing positively to their birth experience. In relation to taking spousal responsibilities and decisions, women felt that since the spouse owns the pregnancy, it is only proper for him to take responsibility for all issues concerning maternal health. In a patriarchal society like Nigeria (Makama 2013) where the social system promotes male dominance in both social privilege and in the domain of the family, traditional and customary practices accord the males authority as the head of the family. This enormous responsibility to provide for the family comes with the privilege of deciding, most times, singlehandedly for the family. This assertion is congruent with previous studies in Uganda and Nigeria (Kaye et al, 2014; Sokoya et al, 2014).

During childbirth, relaxation of the laboring woman, reduction of fear and anxiety, and control of labor have been reported in earlier studies as benefits associated with spousal presence (Sapkota et al, 2011; Gayeski et al, 2014). This is congruent with the findings of this study. Most of the women reported that spousal activities such as back rubs, comforting words, and holding of hands were beneficial as these spousal gestures contributed immensely to the reduction of their pain during childbirth. In addition, with the mere presence of their spouse, the women were emotionally comforted (Hardin & Buckner, 2004) and secured (Kainz et al, 2010).
The spousal emotional support such as encouragement, reassurances, and inspirational words, coupled with physical support such as massage and breathing exercises have resulted in a variety of positive outcomes of pain relief for the women. Also, psychologically, spouses were seen as a source of diversional therapy during childbirth (Dlugosz, 2013) where women believed that labor progressed more quickly and with less pain due to their spouse’s involvement. In agreement with this study, verbal interaction with their spouses as one of the spousal activities during childbirth was perceived as a welcome distraction by women from pain, particularly when the pain was excruciating and unbearable.

Furthermore, spousal presence and attitudes are very important as they promote less anxiety and fear for women during childbirth, thus contributing to the reduction of pain (Somers-Smith 1999). Such a positive impact on the woman arises due to spousal kind words of encouragement, actions, and the atmosphere of tranquility that his presence creates. This is a clear indication that during birth, spousal attitudes serve as a source of inspiration, strength, and encouragement for the woman.

Findings show some dissenting views of women regarding spousal presence and attitudes towards childbirth pain. In this group, women reported that their spouses had negative attitudes towards their pain. For these respondents, they attributed such negative attitudes and feelings to spousal beliefs that childbirth pain is a natural phenomenon which does not require any pain relief, but rather should be endured. Accordingly, they viewed childbirth pain as an inevitable effect of childbirth, which will cease only when the child is born.

In addition, spousal presence was also perceived by a few women as not contributing to pain relief, not providing any special benefit nor playing an important role during childbirth. These responses from a minority of the participants may be suggestive of the fact that some women prefer their mothers or other female relatives to be present during childbirth. Also, this can be attributed to the belief that such roles are ideally and preferably played by female relatives who may have previously undergone childbirth or who are prone to being sensitive to the birthing experiences based on their gender. This finding is in line with a previous study (Banda et al, 2010) where the majority of women preferred their mothers to be with them during childbirth.

6.3 SPOUSAL PERCEPTIONS TOWARDS THEIR PARTICIPATION AND ROLE IN CHILDBIRTH PAIN RELIEF CARE DURING CHILDBIRTH

The findings in study III demonstrated a positive perception from spouses as regards being present during their partner’s childbirth and pain relief care. This is in agreement with previous studies reporting spousal willingness to be present and eager to participate in care activities for their partners during childbirth (Kaye et al, 2014; Zhang & Lu, 2014), as well as an increased level of spousal attendance during childbirth in developing countries (Olayemi et al, 2009; Udoia et al, 2012). Also, this is further expressed in the decision to be present during childbirth, which was taken independently by the majority of the spouses in this study without being convinced or encouraged by anyone. This differs from an earlier study conducted in Greece where the decision to be present during childbirth was jointly taken by most of the spouses and their partner (Sapountze-Kreplia et al, 2010).

In the African context, childbirth is usually seen as a woman’s affair and most of the decisions relating to women’s maternal healthcare are taken by their spouse (Iliyasu, et al 2010; Kabakyenga, 2012; Nanjala & Wamalwa, 2012; Akinpelu & Oluwaseyi, 2014; Dumbaugh et al, 2014). With this decision-
making role and the positive views of spouses as regards their presence and participation during childbirth, there is a strong indication of a shift in the perceived gender dominance of childbirth and a progressive increase in spousal involvement during childbirth and childbirth pain relief. Also, the foregoing is suggestive of a positive trend of increased and active participation of spouses in childbirth as against the previous passive role they were identified with.

Furthermore, the socio-demographic factors such as culture, religion, employment and most especially education have been reported to influence the participation of spouses during childbirth (Iliyasu et al, 2010; Olugbenga-Bello et al, 2013). This is in contrast to findings in this study where the aforementioned socio-demographic variables had no association with spousal presence and perception of attending subsequent births and involvement in pain relief care. Although most of the spouses in this study were fully employed, their employment status did not have any effect on their participation as they were willing to take time off to be with their partners during subsequent birth.

This is in contrast to the findings in an earlier study (Secka, 2010) where men stated their job responsibilities as the reason for not being able to physically support their partners during childbirth. Also, evidence in previous research has shown that spousal attendance during childbirth was determined by the level of spousal education (Umeora et al, 2011). Spouses with a higher education were likely to be present during childbirth compared to men of less academic standing. On the contrary, findings in this study illustrated that education was not associated with perceived spousal attendance at childbirth because all of the spouses in this study that had no formal education were present from the beginning to the end during the birthing process.

Most of the spouses in this study shared the same views with the women that their presence during childbirth actually helped with alleviating pain. Spousal activities such as comforting words and holding hands were believed to be part of the important role played by the spouses during childbirth pain relief. The majority of the spouses expressed sympathy, guilt, confusion and stated that they shared the painful feelings with their partners, which is similar to the findings reported by Johnson (2002). In addition, most spouses expressed fear concerning their partner’s pain as they wanted it to be over quickly. This fear is usually associated with uncertainty leading to anxious thoughts, frustration, and helplessness during the birthing process.

Interestingly, the spouses were positive about attending subsequent births. Amongst the various reasons given for their willingness to attend subsequent births was the need to help their partners with pain relief, provide emotional and psychological support and most importantly show solidarity with their partners in their time of need. Most of the spouses wanted to be physically present for their partners during the critical period of the birthing process. They wanted to offer support and show love as well as take responsibility as fathers, thus strengthening their relationships and bonding with partners (Pestvenidze & Bohrer, 2007).

Also, it was revealed that the majority of spouses expressed strong support for accompanying their wives during childbirth and remaining in the hospital facility until the end of the birthing process. Spousal presence during childbirth was believed and acknowledged as good practice for pain amelioration that should be encouraged. Even with this current trend where spouses were willing to participate in alleviating pain all through childbirth, they are not usually allowed into the delivery
room. Spouses only had the opportunity to be with their partners within the common rooms or non-restricted areas of the maternity units before their partners proceeded to the delivery room.

6.4 BARRIERS INHIBITING THE UTILIZATION OF SPOUSAL PRESENCE DURING CHILDBIRTH

According to the results of study IV, institutional, profession and personal factors are the barriers inhibiting the utilization of spousal presence during childbirth. A major institutional barrier highlighted was poor maternity infrastructure. This finding conforms to several studies in low-income countries where poor maternity infrastructure has been highlighted as a major barrier to spousal presence during childbirth (Sapkota et al, 2012; Behruzi et al, 2010; Kululanga et al, 2012; Tann et al, 2007). Infrastructural defects in the health facilities resulting in among other things lack of privacy in maternity units for both the spouses and their partners negatively influence the presence of a spouse during childbirth (Roets et al 2005; Sapkota et al 2012; Kwambai et al 2013).

With poor facility infrastructure it is difficult for spouses to be involved in providing pain relief without infringing on the privacy of the other women in the delivery wards. Also, there is hesitation, anxiety and discomfort from spouses to participate in childbirth pain relief due to distracting cries of pain from other women in the multiple occupancy maternity wards either wide open or separated only by curtains (Sapkota et al, 2012).

Furthermore, it was shown that poor health policy is one of the barriers inhibiting spousal presence for childbirth pain relief. This finding differs from previous studies (Mullany, 2006; Bohren et al, 2014; Kaye et al, 2014) that reported encouraging policies on spousal presence during childbirth and assisting in pain relief. Despite the fact that in developed countries adequate policies are put in place to facilitate spousal participation in childbirth, the reverse is the case in some developing countries where even though such policies are in place on paper, implementation is not realistic due to socio-cultural, socio-economic and other barriers (Bohren et al, 2014).

Childbirth pain management is generally given a low priority in many developing countries (Comley & Banks, 2000). Consequently, poor consideration and sensitivity to childbirth pain by midwives were other important barriers affecting spousal presence for pain relief. Lack of prioritization of pain influences midwives’ pain management practices. This is characterized by the lack of pain management knowledge by midwives, lack of pain assessment skills, weak pain intervention practice and procedure, poor perception and myths about pain during childbirth.

On the other hand, poor consideration given to pain during childbirth may also be related to the poor health care facility’s commitment to pain management strategies (Comley & Banks, 2000). The hospital’s practice of providing and enforcing guidelines for pain management and pain assessment was also emphasized critically, especially by women in this study who advocated that pain assessment should be given the same priority as labor progress assessment (Asuquo et al, 2000).

Midwives’ negative attitudes towards spouses during childbirth have been reported as hostile, rude and unfriendly in previous studies (Asuquo et al, 2000; D’Ambruoso et al, 2005; Tann et al, 2007; Behruzi et al, 2010; Ebirim et al, 2012) which is in agreement with this study. This negative interpersonal relationship between the midwives and spouses often results in poor communication (Sengane, 2013).
and encourages tension with spouses (Bohren et al, 2014). It also makes spouses feel excluded from the birthing process and not wanted in the delivery process, except limiting their role to providing birth requirements and errands.

Following the foregoing unwelcoming treatment by midwives, spouses naturally develop a high degree of reluctance to accompany their partners during childbirth for fear of being ignored or chastised by the midwives (Bohren et al, 2014). In addition, the practice of disallowing spousal presence during childbirth by midwives creates a negative influence on spousal participation in labor pain relief. Previous findings (Bakhta et al, 2010; Oboro et al, 2011; Ebirim et al, 2012; Adeniran et al, 2015) that spousal presence has not been supportive and alleviative of birthing pain, increases childbirth pain, agitates and discomfits the woman in labor and interferes with care procedures by midwives are in line with the findings in our study.

Furthermore, previous studies in developing countries have reported that childbirth is a woman’s affair and spouses are not needed except to provide financially (Somers-Smith, 1999; Sapkota et al, 2012; Sokoya et al, 2014; Bohren et al, 2014). This finding differs from reports from industrialized countries (Nejad, 2005; Premberg et al 2011) where spouses believe that their partners needed them to be present for support and pain relief during childbirth. These misconceived views of childbirth are borne out of inadequate knowledge, lack of orientation and ignorance of spousal roles during the birthing process (Sapkota et al, 2012; Sokoya et al, 2014; Adeniran et al, 2015).

The midwives, women and spouses identified some strategies that could resolve the barriers affecting the utilization of spousal presence during childbirth for pain relief. First, the improvement on existing hospital infrastructures and development of new maternity structures were strongly recommended. Secondly, an all-inclusive policy of encouraging spousal presence and participation during childbirth. Third, providing and enforcing guidelines for pain management and pain assessment, emphasized especially by women who advocated that pain assessment should be given the same priority as labor progress assessment.

Fourth, training in pain management and interpersonal relationship with spouses and their partners were suggested for midwives to improve the quality of care. Lastly, in order to overcome personal barriers it was recommended that attendance at antenatal classes be made obligatory for both spouses and partners, where orientation and enlightenment programs educating spouses on their roles during childbirth and pain relief should be provided and benefits highlighted. Similarly, the strategies for overcoming the aforementioned barriers in this study are consistent with findings from previous studies (Nejad, 2005; Tann et al, 2007), whereby improved infrastructural facilities, especially wards and delivery rooms that provide adequate privacy, adequate spousal presence facility policies, training of midwives on pain management practices, and educating both spouses and partners on role of spouses during childbirth were recommended.

6.5 SUMMARY OF MAIN FINDINGS

The summary of the main result of this study is as follows:

- The majority of the midwives believed that women presented with pain during childbirth, pain relief was necessary and where possible that they provided pain relief interventions for women.
• Spousal presence for pain relief was underutilized as only a quarter of the midwives used it. Similarly, while reassurance was the most common childbirth pain relief method, physical observation was the most common pain assessment method employed by the midwives.

• Most of the midwives will allow spouses to be present during childbirth and accept spousal presence as an intervention for childbirth pain management if instituted as a policy in their health care facility.

• The majority of the midwives, women and spouses perceived spousal presence as positively contributing to pain relief during childbirth. Perceived roles of spouses were associated with emotional, psychological and physical support as well as making decisions and responsibility of maternal needs.

• A high percentage of women desired the presence of their spouse and believed that activities such as comforting words, massage, and holding hands from their spouses helped reduce their pain during childbirth.

• Findings showed that there is a positive perception from spouses as regards being present during their partner's childbirth and pain relief. There is a strong indication of a shift in the perceived gender dominance of childbirth and a progressive increase of the willingness of spousal involvement during childbirth and childbirth pain relief.

• Spouses in this study were positive about attending subsequent births and also committed to remain with their partners from the beginning to the end of the birthing process. There was a need to share in their partner's pain and assist with their pain relief.

• Institutional factors (poor infrastructure, lack of pain policies), professional (lack of pain management practices, poor midwife attitudes) and personal (perception about spouses during childbirth) were all barriers to the optimal use of spousal presence during childbirth pain relief.

6.6 METHODOLOGICAL CONSIDERATIONS AND LIMITATIONS OF STUDY

This study adopted a pragmatic approach (Gill & Johnson 2002) in investigating spousal presence in the management of childbirth pain. This approach focuses on the 'what' and 'how' of the research problem. It utilized pluralistic approaches to derive knowledge about the problem under study in a particular context (Creswell, 2003, p. 12). Due to this epistemological continuum, the pragmatist will often use mixed method designs within a single investigation. Mixed design logic of inquiry according to Johnson and Onwuegbuzie (2004) utilizes induction (or discovery of patterns), deduction (testing of theories and hypotheses), and abduction (uncovering and relying on the best of a set of explanations for understanding one's results).

A combination of quantitative data through closed-ended questions in the form of numeric information and qualitative data through open-ended questions in the form of texts collated and reported together as results were utilized for this study (Creswell, 2003, p.20). The research instruments for data collection in this study were questionnaires. Questionnaires are one of the primary sources of obtaining data in research. The data were collected simultaneously, analyzed and interpreted from different sources (midwives, women and spouses). These different sources of gathering information can supplement each other and hence boost the validity and dependability of the data. The items of the questionnaires
were developed based on the research objectives and questions, ensuring both the validity and reliability of the questionnaires (Richards & Schmidt, 2002, p. 438).

Validity and reliability are both important concepts in research. Validity is concerned with whether our research is believable and true and if it is evaluating what it is supposed or purports to evaluate. “Validity is an essential criterion for evaluating the quality and acceptability of research (Burns 1999, p. 160). Therefore, the quality of the instruments is critical because the conclusions of the study are based on the findings and the information obtained using the questionnaires (Fraenkel & Wallen, 2003, p. 158). Furthermore, reliability is defined as the consistency of the research over time as well as an accurate representation of the total population (Joppa, 2000). The face and content validity of the questionnaires were determined through the use of a panel of three experts in the field of maternal health care. The questionnaires reflected the objectives of the study.

Construct validity is the degree to which a test measures what it claims or purports to be measuring (Polit and Beck 2012). The Spearman’s rho correlation between questionnaire items was used in measuring the subject under study in the respective questionnaires. In the AIM questionnaire, measuring the midwifery pain practices and evaluating the midwife’s perception on spousal presence as a childbirth pain management intervention were correlated together with an increase in pain assessment, the necessity for pain relief and an increase in childbirth pain management interventions.

Also, while the AIPP items spousal presence and pain relief showed a positive correlation, the correlation between spouse relief and the rating of pain after spousal intervention was negative. Apparently, childbirth pain relief increases with the presence of spouses. The inverse relationship between the spouse relief and the lower rating of pain is indicative of childbirth pain reduction after spousal presence. The effects of spousal presence were measured in terms of relief provided by spousal presence by rating childbirth pain before and after the spousal activities. This suggests that the questionnaire is measuring spousal presence as an intervention for relieving pain from the perspective of the woman.

The AIPS items, if spouse presence was important and contributed to pain alleviation, showed a positive relationship. The values of the correlation were large at a value of 0.5 (Cohen 1988). A good relationship was shown between items on the three questionnaires utilizing the Spearman’s correlations for measuring spousal presence as intervention in childbirth pain management, thus justifying good construct validity. There was an acceptable internal consistency of items on each of the questionnaires, with Cronbach’s alpha coefficient of >0.70 (AIM (n=100), α= 0.71, AIPP (n=142), α= 0.97 and AIPS (n=142), α= 0.72) which is the cutoff value for being acceptable (Polit and Beck 2012).

The trustworthiness of the qualitative part of the study was ascertained through the credibility and transferability of the research. Credibility is the confidence in the truth of the research findings over time (Lincoln and Guba, 1985). The study supervisors and research experts examined the research plan and execution. Also, content analysis of data was done through panel discussions, code-recode procedure and peer debriefing (Hsieh 2005; Lincoln and Guba, 1985). Transferability implies that the findings of the research study can be applicable to similar situations or individuals (Lincoln and Guba, 1985).
The proximal similarity model was adopted for this study (Donald Campbell 1986). The proximal similarity supports transferability of the study findings to people, settings, sociopolitical contexts, and times that are most similar to the focal study. This model of transferability is a concept that can be applicable to both qualitative and quantitative research. In this study, findings could be extrapolated to midwives, women and spouses in urban health care facilities in other geopolitical zones in Nigeria, urban health centers in other African countries as well as multicultural societies globally. Rich descriptive information about the research setting, study participants and processes was provided to understand the study’s context and participants (Geertz, 1973; Firestone, 1990; Lincoln and Guba, 1985).

The present study provided information about the spousal presence in the management of childbirth pain in Nigeria from a tripartite perspective of midwives, women and spouses. The three groups of participants are a good representation of the individuals closely involved in childbirth and can greatly influence pain relief during childbirth. The study contributed to fresh knowledge and constituted a basis for improving health policies in respect of midwife practices in the administration of non-pharmacological management of childbirth pain. While it also improves pain management care in maternal health, this study is however not devoid of limitations.

- Bearing in mind that pain is a subjective phenomenon, data for this study was collected retrospectively from the women and spouses. To that extent, responses were provided based on the participant’s recollection after birth.
- The studies were conducted in government operated urban healthcare facilities to the exclusion of numerous others (privately operated health facilities) and rural primary health care facilities. Thus, the result of this study cannot be generalized to represent all midwives, childbearing women and spouses in Nigeria.
- Since this study was not randomized, the convenience sampling method was used in selecting the participants. As such, the approach poses potential risk of bias during data collection.
- The exclusive source of data collection for this study was questionnaire. The exclusion of other methods of data collection, such as focus group discussion may have hindered more insight on the phenomenon under study.
7 Conclusion

This study has provided an understanding of the use of spousal presence in childbirth pain management in Nigerian hospitals and therefore makes the following conclusions:

1) Spousal presence is perceived by the midwives, women and spouses as an important factor during childbirth and contributes positively to pain relief. Also, spousal presence is one of the non-pharmacological techniques seldom utilized by midwives in Nigerian hospitals. As such, midwife awareness and knowledge on spousal presence as part of their pain management practices is crucial in promoting utilization and positive outcomes of this method for pain relief during childbirth.

2) It is commendable that most of the spouses are willing to go through the birthing process with their partners and also be willing to share in their partner’s pain and be part of the pain relief and support mechanism. Spouses play an enormous role in the comfort and wellbeing of the woman during childbirth; their positive views of the key role in providing emotional support and the positive contribution to labor pain relief cuts across social, economic or educational barriers in this study.

3) There is a preference for spousal presence by birthing women as a result of its perceived beneficial reduction of maternal pain during childbirth. Considering that there are a few women that differ on their preferences for spousal presence during childbirth in this study, there is a strong need for a patient-specific non-pharmacological pain intervention.

4) Poor infrastructure, lack of institutional pain management policies, poor midwifery attitudes, inadequate pain management practices and negative perceptions of spousal participation during childbirth are amongst the revealed barriers inhibiting the use of spousal presence and its benefits in pain relief during childbirth. Therefore, adopting effective strategies such as improving hospital facilities, high priority pain management and spousal friendly hospital policies that encourages full spousal participation in the birthing process of their partners is crucial in tackling the aforementioned barriers.

5) Overall, the findings in this study are relevant and are expected to create some awareness on the efficiency, effectiveness and contribution of spousal presence during childbirth pain relief and birth experience. Health care facilities and professionals provide essential pain relief care during childbirth and appropriate pain relief methods by midwives enhance the childbirth care for the woman.

6) Spousal presence contributes to pain relief during childbirth through psychological and physical support for their partner. In order to help promote spousal presence during childbirth, health professionals should encourage rapport and participate in dialogue with women to identify their preferences as regards the method of pain relief care to be adopted. Also, women should be assisted in making decisions about spousal presence so as to foster a sense of control and positive birth experience through provision of adequate information on the availability of this option during childbirth.

7) Likewise, the views of spouses about the beneficial impact of their involvement in the birthing process of their partners should be encouraged, explored and adopted as part of maternal care policy and pain relief practices by healthcare professionals and their facilities. More so, due to the extensive acceptance of the relevance of spousal presence during childbirth by the major
stakeholders and with the potential for optimal benefit to women, increased spousal involvement in childbirth pain relief is strongly advocated. Furthermore, it is imperative that spousal presence be adopted as a deliberate health care policy in midwifery training and practices in management of childbirth pain in Nigeria and other developing countries where the practice is yet to be fully adopted.
8 Recommendations

8.1 FOR HEALTH POLICY AND INSTITUTIONS

1) Health care facilities and professionals should acknowledge and highlight the importance of spousal presence in labor pain relief and thus create an enabling environment for the participation of spouses during childbirth in Nigeria.

2) Policies giving high priority to pain management and guidelines on midwife’s pain relief interventions including spousal presence should be instituted as standard practice in hospitals and should be introduced to staff at the earlier stage of employment into the health institutions.

3) Sensitization programs and educative classes should be included during ante natal classes involving both women and their spouses, emphasizing the roles and benefits of spousal presence during childbirth and pain relief. Mandatory attendance of this classes should be emphasized by the health institutions.

4) It is recommended that re-orientation of the midwives on their relationship (especially with the spouses) is necessary for spousal participation, promotion of good communication and proper dissemination of information during childbirth. Midwives knowledge of spouse participation can be ascertained during employment interviews.

5) Also, improvement in hospital infrastructural facilities such as building more private wards and delivery rooms will provide the adequate space and atmosphere for spouses to be involved fully in their partner’s pain alleviation during childbirth.

8.2 FOR FUTURE RESEARCH

1) Further research is advocated in varied settings with a focus on the father’s birth attendance and involvement during childbirth pain relief in rural healthcare facilities. Comparison of the findings with spouses in other settings would provide valuable information in developing policy and implementation strategies as regards spousal participation in childbirth pain management.

2) Midwives’ knowledge and preferences on pain relief methods during childbirth should be investigated so as to ascertain barriers and the cause of poor pain management practices and promote effective use of pain relief.

3) Spouses are rarely allowed into the delivery rooms and there are no known studies on spousal experience during childbirth in Nigeria. It is necessary to conduct future research on spousal experiences in supporting their partners during childbirth pain relief with a focus on those that were present in the maternity ward during delivery.
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Available from: apps.who.int/rhl/pregnancy_childbirth/childbirth/routine.../index.html. [20 October 2015]


### Tables

**Table 1 Summary of literature review studies on spousal participation in childbirth**

<table>
<thead>
<tr>
<th>Study</th>
<th>Purpose of the study</th>
<th>Sample size (n) / Method</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draper, 1997</td>
<td>To review fathers' birth attendance: Expectant fathers and health professional roles, responsibilities and educational requirements.</td>
<td>190 articles Review</td>
<td>Increased fathers' birth attendance, encouraged by changing cultural and professional attitudes towards their participation.</td>
</tr>
<tr>
<td>Vehvilainen-Julkunen et al, 1998</td>
<td>To describe how fathers experience, feelings and understanding of childbirth.</td>
<td>137 Fathers Survey</td>
<td>Increased participation of fathers during childbirth.</td>
</tr>
<tr>
<td>Awasthi et al, 2008</td>
<td>Investigating male participation levels in maternal care.</td>
<td>360 husbands Cross sectional study</td>
<td>A low percentage (18.33) of husbands accompanied their wives for maternal care.</td>
</tr>
<tr>
<td>Olayemi et al, 2009</td>
<td>Assessed Nigerian male involvement in pregnancy and birth.</td>
<td>462 pregnant women Descriptive cross-sectional Survey. Quantitative study</td>
<td>A good number of the husbands (63.9%) were present during delivery.</td>
</tr>
<tr>
<td>Iliyasu et al, 2010</td>
<td>To assess birth preparedness, complication readiness, and participation in maternal care by men</td>
<td>400 men Descriptive and cross-sectional survey. Mixed study</td>
<td>Findings show low participation in maternal care; 32.1% men accompanied spouses for maternity care. Predictors of male participation in maternal care were ethnicity and education.</td>
</tr>
<tr>
<td>Umeora et al, 2011</td>
<td>Assess the level of spousal companionship during labor</td>
<td>149 Men Cross sectional prospective survey. Quantitative study</td>
<td>Men likely to accompany their partners for delivery were educated and have monogamous family.</td>
</tr>
<tr>
<td>Sapkota et al, 2012</td>
<td>Explored experiences of husbands support during childbirth.</td>
<td>12 first-time fathers Qualitative study</td>
<td>Poor involvement of fathers during childbirth.</td>
</tr>
<tr>
<td>Kululanga et al, 2012b</td>
<td>Explored the men’s views of their involvement in maternal health.</td>
<td>60 women, 40 men, 2 health care workers Qualitative study.</td>
<td>Integration and involvement of men into the existing maternal and child health was poor</td>
</tr>
<tr>
<td>Kwambai et al, 2013</td>
<td>Explored men’s feelings towards of antenatal and delivery. Also, factors affecting their involvement.</td>
<td>68 men Qualitative study</td>
<td>Men had positive views of antenatal and delivery but in practice only a few during childbirth unless</td>
</tr>
</tbody>
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there was a clinical complication.

Obi et al, 2013  
Assessed involvement of the community and men in birth preparedness and complication readiness.  
237 consenting spouse/male  
A descriptive cross sectional study design.  
More than half 127(55%) of the spouses accompanied their partners during labor, but the study concluded low male and community involvement in BPACR.

Kaye et al, 2014  
Explored male involvement in healthcare during pregnancy and childbirth of their partners.  
16 men  
Qualitative study  
Male involvement is limited and have no specific roles during delivery.

Vehviläinen-Julkunen et al, 2014  
Review the level of spousal participation in labor and delivery.  
Narrative review  
10 Articles  
Overall, spousal participation in labor and delivery in Nigeria is poor.

Table 2 Summary of literature on benefits of spousal presence in childbirth

<table>
<thead>
<tr>
<th>Author</th>
<th>Method</th>
<th>Positive birth experience</th>
<th>Pain relief</th>
<th>Reduced analgesic use</th>
<th>Less incidence of caesarean birth</th>
<th>Reduced operative delivery</th>
<th>Emotional support</th>
<th>Family communication &amp; Bonding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Somers-Smith, 1999</td>
<td>Quantitative</td>
<td>√</td>
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<tr>
<td>Chan et al, 2002</td>
<td>Quantitative</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>Dellmann 2004</td>
<td>Narrative Review</td>
<td>√</td>
<td>√</td>
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<tr>
<td>Dick-Read, 2004</td>
<td>Review</td>
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<tr>
<td>Hardin et al, 2004</td>
<td>Qualitative</td>
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<tr>
<td>Zwelling et al, 2006</td>
<td>Review</td>
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<tr>
<td>Hodnett et al, 2007</td>
<td>Systemic Review</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>Gugnor et al 2007</td>
<td>Quantitative</td>
<td>√</td>
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<tr>
<td>Swiatkowska-Freund et al, 2007</td>
<td>Qualitative</td>
<td>√</td>
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<td>Bradley 2008</td>
<td>Review</td>
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<tr>
<td>Morhason-Bello, 2009</td>
<td>Quantitative</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>Darvill et al, 2010</td>
<td>Qualitative</td>
<td>√</td>
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<tr>
<td>Kainz et al, 2010</td>
<td>Quantitative</td>
<td>√</td>
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<tr>
<td>Dim et al, 2011</td>
<td>Quantitative</td>
<td>√</td>
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<tr>
<td>Plantin et al, 2011</td>
<td>Review</td>
<td>√</td>
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<tr>
<td>Christenson, 2013</td>
<td>Review</td>
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<tr>
<td>Porrett et al, 2013</td>
<td>Qualitative</td>
<td>√</td>
<td></td>
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<tr>
<td>Coutinho et al.,2016</td>
<td>Integrational Review</td>
<td>√</td>
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</tbody>
</table>
Table 3 Reviewed literature on the perceptions towards spousal presence in childbirth

<table>
<thead>
<tr>
<th>Author</th>
<th>Aim of study</th>
<th>Method</th>
<th>Main Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehviläinen-Julkunen et al, 1998</td>
<td>To describe how fathers experience, feelings and understanding of childbirth.</td>
<td>137 Fathers Survey</td>
<td>The fathers had a positive experience during childbirth.</td>
</tr>
<tr>
<td>Chan et al, 2002</td>
<td>Investigated fathers’ experiences of labour and delivery.</td>
<td>121 couples Quantitative study</td>
<td>Most fathers (81%) were interested in accompanying their laboring partners. Their experience was rewarding and enjoyable.</td>
</tr>
<tr>
<td>Roets et al, 2005</td>
<td>Determined midwives use of non-pharmacologic methods for pain relief</td>
<td>45 Midwives Descriptive quantitative study</td>
<td>Inadequate utilization of non-pharmacological methods for pain relief during the first stage of labour due to staff shortage, lack of privacy and hospital policies.</td>
</tr>
<tr>
<td>Gungor et al, 2007</td>
<td>Determined the effects of fathers’ participation to labor and delivery</td>
<td>50 couples Prospective study</td>
<td>Fathers had positive perceptions of child birth.</td>
</tr>
<tr>
<td>Morhason et al. 2008</td>
<td>Examining the attitude and preferences of women during childbirth concerning social support.</td>
<td>224 women Randomized cross-sectional study</td>
<td>Women preferred their husbands to be a companion during childbirth.</td>
</tr>
<tr>
<td>Sengane, 2009</td>
<td>Described the experience of black fathers concerning support for partners during delivery.</td>
<td>10 black fathers A Phenomenological Study</td>
<td>Fathers express positive feelings of wanting to be there during childbirth.</td>
</tr>
<tr>
<td>Kainz et al, 2010</td>
<td>Examined Swedish mothers’ experiences of spousal presence during childbirth.</td>
<td>67 mothers Hermeneutic study</td>
<td>The father is an important person for the mother’s comfort during the childbirth.</td>
</tr>
<tr>
<td>Sapountzi-Krepi et al, 2010</td>
<td>Explored the views and the experience of fathers on delivery.</td>
<td>417 fathers Descriptive study</td>
<td>Fathers felt positive about their wife/partner birth.</td>
</tr>
<tr>
<td>Hildingsson et al, 2011</td>
<td>Identified fathers having a positive experience of a normal birth and midwifery care.</td>
<td>595 new fathers Survey</td>
<td>Most fathers had a positive birth experience due to midwife’s presence and practices.</td>
</tr>
<tr>
<td>Premberg et al, 2011</td>
<td>Described fathers’ experiences during childbirth.</td>
<td>10 first time fathers Phenomenological study</td>
<td>The childbirth experience was mutually shared by the couple.</td>
</tr>
</tbody>
</table>

continues...
<table>
<thead>
<tr>
<th>Study authors</th>
<th>Nature of study</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johansson et al, 2012</td>
<td>Explored Swedish fathers’ birth experiences. Qualitative study 827 fathers Mixed methods</td>
<td>Most fathers (74%) had a very positive or positive childbirth experience.</td>
</tr>
<tr>
<td>Kululanga et al 2012</td>
<td>Explored the perceptions and experiences of men who attended the birth.</td>
<td>20 Men Exploratory descriptive Qualitative approach Men were excluded from the decision-making process, felt helpless and unprepared during childbirth and there was health care provider--male partner tension</td>
</tr>
<tr>
<td>Kululanga et al, 2012b</td>
<td>Investigated the views of individuals, the community and health professional towards male involvement in maternal health care.</td>
<td>60 women and 40 men 2 health care workers Qualitative studies Male involvement in childbirth was viewed as a foreign concept, pregnancy and childbirth issues are women’s affairs. Spousal presence is inconveniencing, an obstacle and interfering with care procedures during childbirth</td>
</tr>
<tr>
<td>Lewis et al, 2015</td>
<td>Examined the role of husbands in maternity care and women’s feelings about male involvement in childbirth.</td>
<td>Husbands (17), wives (15), mothers-in-law (3), and health workers (7) Qualitative study The majority of women expressed a desire for husbands involvement in maternal health was expressed by most women. However, women reported feeling embarrassed having their husbands present during childbirth.</td>
</tr>
<tr>
<td>Sapkota et al, 2012b</td>
<td>Examined a woman’s control during labour with husband’s presence</td>
<td>309 primigravida women survey The presence of the husband makes her feel more in control during birth</td>
</tr>
<tr>
<td>Shibli-Kometiani et al, 2012</td>
<td>Explored the role and perceptions of first time fathers during childbirth.</td>
<td>8 fathers Retrospective study Fathers were willing to be present during labour and birth</td>
</tr>
<tr>
<td>Story et al, 2012</td>
<td>Examined the husband’s role during childbirth from the views of men.</td>
<td>20 men qualitative study Men were uninvolved, believed childbirth is a woman’s affair and should occur at home in line with societal traditions.</td>
</tr>
<tr>
<td>De Melo, 2013</td>
<td>Analyzed the perception of fathers towards their presence in the labor room.</td>
<td>12 men Descriptive exploratory qualitative study Father’s presence in the labor room is highly values and recommended by all the participants.</td>
</tr>
<tr>
<td>Dlugosz, 2013</td>
<td>Explored the experiences of women regarding their partner’s involvement during childbirth is</td>
<td>8 women Interpretative phenomenologi Women felt their partner’s involvement during childbirth is continues...</td>
</tr>
<tr>
<td>Study</td>
<td>Design</td>
<td>Sample Size</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>Ekström et al, 2013</td>
<td>Explored fathers’ feelings and experiences during pregnancy and childbirth.</td>
<td>8 fathers</td>
</tr>
<tr>
<td>Kwambai et al, 2013</td>
<td>Examined men’s perceptions of antenatal and delivery care services.</td>
<td>68 married men</td>
</tr>
<tr>
<td>Porrett et al, 2013</td>
<td>Explored male’ perceptions of their antenatal, labor, and birth experiences, expectations and involvement</td>
<td>163 men</td>
</tr>
<tr>
<td>Akinpelu et al, 2014</td>
<td>Examined the attitude and practice of males towards antenatal care.</td>
<td>120 men</td>
</tr>
<tr>
<td>Gayeski et al, 2014</td>
<td>Assessed the application of non-pharmacologic methods for childbirth pain relief during birth.</td>
<td>188 primiparous women</td>
</tr>
<tr>
<td>Singh et al, 2014</td>
<td>Examined the attitudes of men and women attitudes towards increased male involvement in antenatal, pregnancy care and childbirth.</td>
<td>12 men, 23 women</td>
</tr>
<tr>
<td>Thelin, et al, 2014</td>
<td>Examined midwives’ experience of caring during childbirth in a Sweden.</td>
<td>10 Midwives</td>
</tr>
<tr>
<td>He et al., 2015</td>
<td>Examined Chinese fathers’ feelings about their partners’ delivery and their presence during labour and birth.</td>
<td>403 fathers</td>
</tr>
</tbody>
</table>
Table 4 Spearman rho Correlations on midwives’ demographics, beliefs and spousal intervention in childbirth pain relief (n=100)

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)Age</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2) Education</td>
<td>.125</td>
<td>.177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.235)</td>
<td>(.078)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3) Midwifery experience</td>
<td>.763*</td>
<td>.177</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.078)</td>
<td>(.078)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4) Pain relief necessary</td>
<td>.011</td>
<td>.095</td>
<td>.073</td>
<td>.161</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.912)</td>
<td>(.349)</td>
<td>(.470)</td>
<td>(.109)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5) Intervention for pain</td>
<td>-.001</td>
<td>.004</td>
<td>-.058</td>
<td>.294*</td>
<td>.504*</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.996)</td>
<td>(.969)</td>
<td>(.565)</td>
<td>(.504)</td>
<td>(.504)</td>
<td></td>
</tr>
<tr>
<td>6) Spousal presence</td>
<td>.104</td>
<td>.111</td>
<td>.127</td>
<td>-.216*</td>
<td>-.231*</td>
<td>.613**</td>
</tr>
<tr>
<td></td>
<td>(.302)</td>
<td>(.271)</td>
<td>(.209)</td>
<td>(.031)</td>
<td>(.021)</td>
<td>(.021)</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.05 level (2-tailed). **Correlation is significant at the 0.01 level (2-tailed).
Table 5 Midwives’ perception of spousal presence; content analysis of midwives’ comments (n=100)

<table>
<thead>
<tr>
<th>Category</th>
<th>Themes</th>
<th>%</th>
<th>Midwives’ response</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Positive</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contributing to pain relief</td>
<td>Psychological, emotional</td>
<td>84</td>
<td>Psychological and emotional relief of pain</td>
</tr>
<tr>
<td></td>
<td>Physical relief</td>
<td>6</td>
<td>Presence helps relieve pain, back rubs and massage</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ineffective</td>
<td></td>
<td>5</td>
<td>Labor is a natural process that cannot be relieved, must take its course</td>
</tr>
<tr>
<td>Increase pain</td>
<td></td>
<td>5</td>
<td>Spouses make women agitated and upset increasing pain</td>
</tr>
<tr>
<td>Positive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allow spousal presence</td>
<td>Moral support</td>
<td>37</td>
<td>Psychological and moral support</td>
</tr>
<tr>
<td></td>
<td>Environment</td>
<td>17</td>
<td>Relaxing environment, makes her cooperate</td>
</tr>
<tr>
<td></td>
<td>Companionship &amp; respect</td>
<td>13</td>
<td>Bonding, share in pain, empathy and appreciate her more</td>
</tr>
<tr>
<td></td>
<td>Treatment</td>
<td>17</td>
<td>Diversional therapy, therapeutic</td>
</tr>
<tr>
<td>Negative</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Religion &amp; Culture</td>
<td></td>
<td>4</td>
<td>Culture and religion forbids it</td>
</tr>
<tr>
<td>Workplace</td>
<td></td>
<td>12</td>
<td>He will inconvenience procedures, poor infrastructure</td>
</tr>
<tr>
<td>Accept spousal presence</td>
<td>Positive</td>
<td>76</td>
<td>Good idea, it should be added and encouraged</td>
</tr>
<tr>
<td></td>
<td>Negative</td>
<td>9</td>
<td>No it will be difficult to accept this intervention</td>
</tr>
<tr>
<td></td>
<td>Conditional</td>
<td>15</td>
<td>It is a good idea, if facility provision is done(privacy)</td>
</tr>
</tbody>
</table>
Table 6 Women views on importance of pain relief, spousal’ presence and attitude during labor (n=142)

<table>
<thead>
<tr>
<th>Women</th>
<th>Very Important</th>
<th>Important</th>
<th>Moderately Important</th>
<th>Of little Importance</th>
<th>Unimportant</th>
</tr>
</thead>
<tbody>
<tr>
<td>How important was it for your labor pain to be relieved?</td>
<td>113 (79.6)</td>
<td>22 (15.5)</td>
<td>2 (1.4)</td>
<td>4 (2.8)</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>How important was your spouse’ presence during labor?</td>
<td>118 (83.1)</td>
<td>14 (9.9)</td>
<td>2 (1.4)</td>
<td>8 (5.6)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>How important was your spouse’ attitude towards you during labor?</td>
<td>117 (82.4)</td>
<td>16 (11.3)</td>
<td>2 (1.4)</td>
<td>6 (4.2)</td>
<td>1 (0.7)</td>
</tr>
</tbody>
</table>

Table 7 Spouse responses about their partner’s childbirth pain (n=142)

<table>
<thead>
<tr>
<th>Spouses</th>
<th>Strongly agree n (%)</th>
<th>Agree n (%)</th>
<th>Neither agree or disagree n (%)</th>
<th>Disagree n (%)</th>
<th>Strongly disagree n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Do you agree your presence was important during your partner’s birth?</td>
<td>104 (73.2)</td>
<td>32 (22.5)</td>
<td>4 (2.8)</td>
<td>1 (0.7)</td>
<td>1 (0.7)</td>
</tr>
<tr>
<td>2) Do you agree that your partner was in pain during labor?</td>
<td>122 (85.9)</td>
<td>19 (13.4)</td>
<td>1 (0.7)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3) Do you agree that your presence helped in relieving your partner’s pain?</td>
<td>95(66.9)</td>
<td>34(23.9)</td>
<td>8(5.6)</td>
<td>1(0.7)</td>
<td>4(2.8)</td>
</tr>
</tbody>
</table>
### Figures

#### Phase I

**Development of questionnaire and pilot study**

Aim: To develop and validate three questionnaires measuring spousal presence in management of parturient pain in Nigeria  
Design/Sample: A prospective descriptive study of midwives (n=10), parturient (n=10) and spouses (n=10)  
Method: Experts’ determination of face and content validity. Pretest and pilot study; administering of the AIM, AIPP and AIPS questionnaires. Descriptive statistics, Cronbach’s alpha statistics and Spearman correlation used for data analysis

#### Phase II

<table>
<thead>
<tr>
<th>Study</th>
<th>Aim</th>
<th>Design/Sample</th>
<th>Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Midwives’ perceptions of spousal presence in childbirth pain alleviation in Nigerian hospitals</td>
<td>To examine the perception of midwives on the use of spousal presence in the management of childbirth pain in Nigeria</td>
<td>A descriptive quantitative study. Clinically practicing midwives (n=100).</td>
</tr>
<tr>
<td>II</td>
<td>Relevance of spousal presence in providing labor pain relief: Women’s perspective</td>
<td>To explore the perceptions of women on the relevance of the father’s presence in pain relief during childbirth in Nigerian hospitals</td>
<td>A cross sectional descriptive mixed study. Women (n=142)</td>
</tr>
<tr>
<td>III</td>
<td>Perceived spousal participation and role in labor pain relief</td>
<td>To investigate and provide an insight into spousal perceptions towards their participation and role in labor pain relief care during childbirth in Nigeria</td>
<td>A cross sectional descriptive mixed study. Spouse (n=142)</td>
</tr>
<tr>
<td>IV</td>
<td>Barriers to spousal presence and contributions to pain relief during childbirth in Nigeria: A qualitative study.</td>
<td>To investigate the barriers to utilizing spousal presence during childbirth for labor pain relief in Nigerian health facilities</td>
<td>A cross-sectional study. Midwives (n=100) Women (n=142) Spouse (n=142)</td>
</tr>
</tbody>
</table>

*Fig 6. Overview of the Study*
Spousal presence during childbirth in most developing countries is still an evolving issue. This study examined the use and barriers of spousal presence as a non-pharmacological pain relief method for childbirth pain management in Nigeria from a tripartite perspective. Results showed that even though spousal presence was underutilized as a pain relief method by midwives, it was perceived to be an important contributor to childbirth pain relief by the midwives, women and spouses. This study revealed spousal willingness to be part of childbirth and pain relief.