Use of Non-pharmacological Methods in Managing Labour Pain: Experiences of Nurse-midwives in Two Selected Districts Hospital of Pwani and Dar es Salaam Region, Tanzania

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Research Article

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Abstract

Background: Labour pain usually bring worries and most of the concerns to a woman and her family. Thus, the majority of the women in labour pain may require some sort of pain relief method be it pharmacological or non-pharmacological during this period. However, in Tanzania, the use of non-pharmacological labour pain-relieving methods remain low among nurse-midwives. This study analyzed the experiences of nurse-midwives on the use of non-pharmacological methods to manage labour pain in two selected districts of Pwani region Tanzania.

Materials and Methods: An exploratory qualitative study using a semi-structured interview guide was conducted to purposefully recruited nurse-midwives working in labour ward in two district hospitals in Pwani region Tanzania. Data were analysed using a qualitative content analysis approach to generate categories describing the experiences of using non-pharmacological methods in managing labour pain.

Results: Encouraging women on the tolerability of pain, provision of instructions on changing positions, deep mouth breathing techniques and exercises, provision of psychological support and provision of sacral massage emerged as the common non-pharmacological methods used by nurse-midwives. Comfortability on using the methods to both nurse-midwives and the women was stated to make both the nurse-midwives and women use them. Furthermore, some nurse-midwives did not use the methods because of limited skills, the misconception that labour pain to delivering women is necessary and lack of awareness of its benefits.

Conclusion: The findings of this study underscores that knowledge on benefits on non-pharmacological methods, skills on using non-pharmacological pain and misconception of nurse-midwives on labor pain influence use of non-pharmacological labor pain management.

Background

Labour pain usually bring worries and most concerns for woman and her family when approaching labour and delivery. The labour pain depends on the woman’s experiences of labour pain, labour management, and physical and psychological expression [1]. Pain relief may be a priority and an essential aspect of care for all races and cultures in satisfying women who access delivery services in the healthcare facilities [2]. For this reason, many women may benefit from the midwifery model of care which emphasizes the handling of labour and birth in low-risk pregnancy as a normal physiological process and promotes the incorporation of non-pharmacological methods into practice [3].

Despite the little implementation of labour pain management, international guidelines for respectful maternity care are available to increase the quality of care including managing pain during labour [4]. The number of women requesting pain relief medication during labour is increasing. WHO advocates labour pain management as a standard quality of care that should be offered to the highest attainable standard of health care timely and appropriately to the woman’s choice, culture and needs [5, 6]. Nurse-midwives working in labour wards strive to improving the quality of care through offering safe and effective labour pain relief without affecting women’s mobility or labour progress in a woman-centered environment [7]. Labor pain can be reduced through pharmacological and non-pharmacological interventions.

Non-pharmacological pain management (NPM) during labour refer to approaches used to increase comfort, promote rest, facilitate the woman to cope with the labour pain, and prevent her from suffering without the use of medication [8, 9]. The NPM can be achieved through strategies like education for childbirth preparation, performing breathing exercises, frequently change of positions during labour, taking warm bath, sitting on the birth ball, massage and listening to music [8–10]. NPM reduce labour pain with less or no effect on the mother, foetus and progress of labour [10, 11]. Moreover, NPM have the potential to reduce the consumption of analgesics by women during labour which may be associated with an increased risk of the delayed second stage of labour, instrumental delivery and Caesarean section [12]. To date, the number of women accessing maternal health care is increasing [13]. In Tanzania, 98% of women attend at least one antenatal clinic and 63% of deliveries occur in the health facility, among these 64% are assisted by a skilled provider [14]. The reason for women not giving birth in a health facility is not straight forward which may include lack of pain relief options during labour from health care providers.

Effective use of NPM to relieve labour pain is believed to increase satisfaction and reduce anxiety, stress and fear among women during labour which otherwise may worsen labour pain and prolong labour because of stress hormone release [11, 15]. A study done in Tanzania reported that providers are aware of various approaches to pain management including pharmacological and non-pharmacological methods however, they do not routinely apply these strategies [13]. This study analyzed the experiences of using non-pharmacological methods in managing labour pain by nurse-midwives in Tanzania as a strategy of increasing satisfaction and hence facility deliveries.

Materials & Methods

Study design & Setting

An exploratory qualitative research [16] using a semi-structured interview guide was used to explore nurse-midwives experiences on the use of non-pharmacological methods to manage labour pain in Tanzania. The study was conducted in two district hospitals, one in Dar es Salaam region that we conveniently labelled as A and another in Pwani region that we conveniently labelled as B. Both A and B provide basic and comprehensive obstetrics and newborn care. These hospitals serve as referral hospitals to their immediate lower level facilities. Hospital A was purposefully selected to represent a district hospital in a cosmopolitan area that is located in an area where it has a catchment of both affluent and lower socioeconomic status populations. Hospital B although located in urban in Pwani region is serving a large majority of referrals from lower socio-economic populations. Therefore, the two facilities had relatively similar characteristics and thus could provide a better picture of NPM use both in urban and rural areas.
Participants and Recruitment

Purposive [17] and chain referral sampling strategies were used to recruit nurse-midwives based on their years of experience. The researcher requested the nurse-midwife in charge of labour ward in the two health facilities to provide the list of nurse-midwives working in the labour ward. The researcher grouped the participants into three groups that include: Nurse-midwives with less experience referred to nurse-midwives who had worked in the labour ward for less than one year, those with moderate experience, were who had working in the labour ward between 2 and 5 years and those with high experience were those who had worked in the labour ward for more than 5 years. The reason for involving nurse-midwives with different years of experience was to unveil different experience of using non-pharmacological methods for labour pain management. In each group, we approached the first participant as we were introduced by the in-charge after explain the purpose of our visit. From there each identified nurse-midwife referred us to another member of the same work experience. Recruitment of participants continued until we attained data saturation, this is when there was no new information obtained from the study participants and the redundancy was achieved.

We interviewed 18 nurse-midwives about their experiences on the use of non-pharmacological methods in managing labour pain. The age range of the participants was between 25 and 53 years. All participants were females. Four (22%) had worked in labour ward for less than one year, 6 (33%) had worked between 2 and 5 years and 8 (44%) had more than 5 years experience. Their education level ranged from certificate to bachelor degree with 6 having certificate, 10 having diploma and 2 having bachelor degree.

Data collection

The interviews were conducted between July and November 2020. Ethical approval to conduct this study was obtained from Muhimbili University of Health and Allied Sciences (Ref. No.MUHAS-REC-2-2020-103). We collected data using a semi-structured interview guide in Kiswahili language. The questions were constructed based on the existing literature and the experiences of authors on labour pain management in Tanzania. Before each interview, the researcher requested for a written informed consent from each participant. The latter involved explaining the purpose of the study and how the information will be collected including their rights to withdraw and the principles of confidentiality to each study participant. The informed consent involved consent to audio recording and publishing of the information collected.

Semi structured interviews

Eighteen (18) semi-structured interviews were conducted with nurse-midwives using a semi-structured interview guide to explore experiences of nurse-midwives on the use of non-pharmacological methods to manage labour pain. Semi-structured interview guide with open ended questions and probes to explore and understand better the issues of relevancy on the use of labour pain relief as they emerged [18]. Interviews were conducted in an office chosen by the participant to ensure comfort and privacy in the buildings of the respective facility. Each interview was done at the time of convenience by the study participant based on a pre-arranged appointment by the researcher. All interviews were conducted in Kiswahili language as it is a native language of participants and all authors. Interviews were audio-recorded to capture the information provided by the participants. During the interview process field notes on verbal and non-verbal aspects were taken to compliment the audio recorded information. We reviewed the field notes on daily basis to improve the subsequent interviews and to note the emerging findings. It was until starting from the 11th interview we realized reoccurrence of similar issues with few new findings. At the 18th interview, we decided to stop further interviews as there was no new information that was coming anymore. We therefore considered the 18th interview as our point of information saturation [19]. Each interview lasted between 30 and 60 minutes.

Data analysis

The qualitative content analysis following Graneheim and Lundman [20] guided the analysis of data. Audio-recorded interviews were first transcribed verbatim. We analyzed the transcripts in Kiswahili language to maintain the originality of the gathered information as all the coders were fluent and native Kiswahili speakers. The full transcripts and field notes were first read and re-read by all authors to become familiar with the data and the context. The qualitative data analysis Nvivo software was used in managing and organizing data. Condensed meaning units related to experiences on using non-pharmacological labour pain relief measures were formed through data reduction. The codes were then generated from condensed meaning units. The initial list of codes were then discussed by all authors and the agreement on the final codes were reached. Similar codes were grouped together and abstracted into sub-categories through comparison. Through checking on similarities and differences of sub-categories and reflection on the interpretations of the participants experienced descriptions, theauth or sdiscussed and agreedonthemath ∈ cate or ies. Then > ∈ itquoteswerese ≤ cted → ọ p or tthecateg account. Although the description seems to be linear, the process of analysis was iterative.

Results

The analysis of data identified three major categories that describe the nurse-midwives experiences with the use of non-pharmacological methods in managing labour pain. These included the non-pharmacological approaches used by nurse-midwives, facilitators for using non-pharmacological methods and the myths and fear of the use of non-pharmacological methods (Table 1).
Non-pharmacological approaches used in managing labour pain

Non-Pharmacological approaches as revealed included encouragement and instructions provision of psychological support and back massage.

Nurse-midwives instructed labouring women to perform exercises including changing positions, conducting deep mouth breathing exercises between contractions. They further encouraged women to walk around the bed and at times to squat when the pain became intense to relief pain. A nurse-midwife reported;

“When a woman is in pain, I tell her to take a deep breath which will help her not to get tired and the pain to be less intense. So, I teach women how to perform mouth breathing, I have seen this being so helpful” (NM1)

Providing psychological support was another NPM stated by nurse-midwives to be used in relieving labor pain. Nurse-midwives added that they informed women earlier on about labour pain and what they should expect, they believe that this information prepared the women psychologically to deal with labour pain.

| Themes                                                                 | Sub-themes                                                                 | Selected codes                                                                 |
|------------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Non-pharmacological approaches used by nurse-midwives in managing labour pain | Encouragements and instructions on exercises, position changing and deep mouth breathing | "Telling to change lying positions"
|                                                                        |                                                                           | "Instruction women to open mouth and take a deep breath"
|                                                                        |                                                                           | "Encourage movements like walking"
|                                                                        |                                                                           | "Talking to women about labour prepares her mind"
|                                                                        |                                                                           | "You are going to deliver safely"
|                                                                        |                                                                           | "You will be fine just tolerate pain"
|                                                                        |                                                                           | "I rub her back when in pain"
|                                                                        |                                                                           | "I massage the back when I am not busy"
|                                                                        |                                                                           | "I massage a woman’s back when in contraction"
|                                                                        |                                                                           | "I do what I love doing"
|                                                                        |                                                                           | "It is a motivation from my heart"
|                                                                        |                                                                           | "The desire comes from my inner heart"
|                                                                        |                                                                           | "Knowing the NPMs"
|                                                                        |                                                                           | "Women appreciations"
|                                                                        |                                                                           | "Experience on using the methods"
|                                                                        |                                                                           | "NPs relief pain"
|                                                                        |                                                                           | "Raise women’s confidence"
|                                                                        |                                                                           | "Reduces incidence of fetal distress"
|                                                                        |                                                                           | "Absebce of labour may be a bad progress"
|                                                                        |                                                                           | "Relieving pain will lead in delay to deliver"
|                                                                        |                                                                           | "Pain is necessary for the baby to come out"
|                                                                        |                                                                           | "Women feels disturbed"
|                                                                        |                                                                           | "Women will not accept"
|                                                                        |                                                                           | "Women never follow our instructions"
|                                                                        |                                                                           | "The baby may fall down"
|                                                                        |                                                                           | "The baby may fall on the floor"

Myth and fear of using non-pharmacological strategies to relief labour pains

| Facilitators for using non-pharmacological methods in managing labour pain | Comfort of nurse-midwives on using the methods | Providing psychological support |
|----------------------------------------------------------------------------|------------------------------------------------|--------------------------------|
| Nurse-midwives intrinsic motive                                           | Knowing the NPMs                                 | Providing psychological support |
|                                                                            | Women appreciations                              | Providing psychological support |
|                                                                            | Experience on using the methods                  | Providing psychological support |
|                                                                            | NPMs relief pain                                  | Providing psychological support |
|                                                                            | Raise women’s confidence                          | Providing psychological support |
|                                                                            | Reduces incidence of fetal distress               | Providing psychological support |
|                                                                            | Absence of labour may be a bad progress           | Providing psychological support |
|                                                                            | Relieving pain will lead in delay to deliver      | Providing psychological support |
|                                                                            | Pain is necessary for the baby to come out        | Providing psychological support |
|                                                                            | Women feels disturbed                             | Providing psychological support |
|                                                                            | Women will not accept                             | Providing psychological support |
|                                                                            | Women never follow our instructions               | Providing psychological support |
|                                                                            | The baby may fall down                            | Providing psychological support |
|                                                                            | The baby may fall on the floor                    | Providing psychological support |
"I always let the mother understand that, as time goes there will be a series of events concerning her pain. This prepares her mind, I tell the woman to tolerate and endure the pain which will make her feel less pain, (...) the reassurance about safe delivery prepares her psychologically as well" (NM10)

Back massage was another NPM approach used by the nurse-midwives to relieve women’s labour pain. Participants acknowledged that rubbing the lower back of the woman in labour provide an immediate pain relief.

"...another method I sometimes use is massaging a woman on her back which I know it reduces pain instantly, but we don't use it oftenly as we (nurse-midwives) are few in number than the clients we get, but I know it helps to reduce labour pain" (NM13)

Facilitators for using non-pharmacological methods in managing labour pain

Nurse-midwives intrinsic motive, comfortability of nurse-midwives on using the methods and understanding the usefulness and benefits of using NPMs, were stated to facilitate the use of NPM in managing labor pain.

Intrinsic motivation was stated by nurse-midwives to promote the use of NPM to manage labor pain. Furthermore, nurse-midwives stated that the shortage of nurse-midwives act as a barrier to the use of the NPM.

"it comes from my heart, the spirit tells me to do something I like, you know it feels good when you do something you love, people do say “becoming a midwife must come from your heart”, I mean this is something that developed from your heart, and you will never wait for someone to tell you to something to help mothers” (NM 11)

Nurse midwives stated that the comfortability of using the methods was another facilitator towards using NPM in managing labor pain. They added that being knowledgeable and skilled and having experience on using the methods promote the nurse-midwives to use the NPM in managing labor pain.

"knowledge and skills also inspires us to use, as I can comfortably apply what I learnt or experienced like performing a back massage, telling the mother to exercise regularly because I know it's a good thing to be done and is helpful” (NM5)

Understanding the usefulness and benefits of using non-pharmacological methods in managing labour pain has also emerged from the participant’s descriptions. Participants stated that the use of labour pain relief measures reduces the pain but also promotes provider-client close relationship and increases the mother’s comfortability and confidence during the childbirth process.

"...it builds a close relationship with a woman, she becomes more comfortable and confident, she feels to be at the right place. She learns that performing breathing exercises, changing position will help to relieve her pain when contractions are too strong” (NM1)

Myth and fear of using non-pharmacological strategies to relieve labour pain

Misconception about labour pain relief, women may be uncomfortable with the methods and fear of baby falling emerged as myth and fears attributed to the use of NPM in managing labor pain. Some midwives reported not to use NPM to relieve labor pain believing that childbirth should be painful. The further added thatthe absence of pain may be an indication for poor progress of labour. This misconceptions of viewing pain as necessary during labour made them fear to use pain relief measures.

"The feeling of pain is beneficial to the woman in the way that if she doesn't feel pain means she is not progressing well (...) The presence of pain gives reassurance of the fetus descending thus if the pain subsides means the delivery may also be difficult” (NM14)

Participants reported fear of using pain relief measures due to their experience on how women felt about the pain relief measures used. Participants stated that, regardless of the few available labour pain relief measures they tried to use, some women refused, felt disturbed by providers and did not follow the instructions given by providers which made them fear that women do not feel comfortable with the methods.

"Some women refuse the pain relief measures to be performed, they find it annoying and do not accept, complain to feel bad, so it needs extra effort to make them understand” (NM7)

Nurse-midwives reported the fear of baby falling following the use of some pain relief measures such as exercising and position changing. Participants stated that, although may not happen often, women assuming exercise such as walking with uncertain about the level of the fetus may pose a risk for the baby to fall on the floor.

"The effect of the baby falling on floor... however very rare can occur when a woman performs movements like walking without knowing the level of the fetus (...) as a provider I may tell a woman to get out of bed and exercise without knowing the baby is so close” (NM5)

Discussion

We explored the experiences regarding the use of non-pharmacological methods in managing labour pain in Tanzania based on the perspectives of nurse-midwives. Our study revealed the commonly Non-pharmacological approaches used by nurse-midwives in managing labour pain, facilitators for using non-pharmacological methods in managing labour pain and the myth and fear of using non-pharmacological strategies to relief labour pain.
Although the expression to most of the participants on this topic was of surprise, the majority reported several non-pharmacological methods they used in managing labour pain including provision of psychological support, back massage, encouragements and giving instructions to mothers on breathing techniques (deep mouth breathing), position changing during labour and exercising. This is similar to what was found in other studies where the majority of midwives reported using various non-pharmacological methods including changing a woman’s position which encourage labour progress and increase the cervical dilatation [2, 13, 21]. Recent studies recommend labour pain relief for higher maternal satisfaction with childbirth and reduction of obstetric interventions including the caesarean section [2, 15, 22]. However, other non-pharmacological approaches such as education for childbirth preparation, warm bath/shower and music which can be effectively used in our context were not reported by any of participants signifying limited awareness or rare use of these methods among our participants. This is not unique to Tanzania, similar findings have been reported in other studies where many methods of non-pharmacological pain relief are not well known by the majority of health care providers, thus unable to offer non-pharmacological methods to manage labour pain [2, 12, 21, 23]. This shows that the use of non-pharmacological methods by health care providers is still low and the management of labour pain is not evidence-based [12, 24].

Oral fluid and food intake in labour has been encouraged to enhance energy and stamina and that its restriction has no beneficial effects on important clinical outcome [25, 26]. In this study, it was noted that nurse-midwives encouraged women to take fluids such as hot tea and porage during labour because they consider it may ease the pain. Moreover, psychological support was strongly noted to be the most common approach used in managing labour pain by the majority of participants. This is done through counselling women on labour pain, providing reassurance, good care, attention, support and consolation to mothers in labour. Also, nurse-midwives provided information on the labour process and progression after the assessment as one way of making women relax and cope with pain when couldn’t have enough time to use other approaches such as sacral massage which is believed to be more efficient in pain relief. This is strongly backed by other studies which reported that continuous support during labour including psychological support was closely related to less pain and satisfying childbirth experience [27, 28].

The intrinsic motive among nurse-midwives has been among the facilitators for using non-pharmacological methods in managing labour pain. This has been characterized by having passion, and inspiration to help women and desire to use approaches to help mothers during labour. Despite that participants recognized that knowledge of non-pharmacological methods used in managing labour pain increases nurse-midwives’ comfortability and confidence in using the various approaches. Our study revealed that the use of non-pharmacological methods in managing labour pain was also facilitated by the experience of having gone through labour pain. This finding is in line with what was found in Ghana that a midwife who has gone through labour pain is more likely to demonstrate the higher estimation of labour pain and could have empathy for labouring women [21]. The possible reason for this comparison may be due to similarity in culture and context.

In the current findings, the nurse-midwives understood the usefulness and benefits of using non-pharmacological methods in managing labour pain and hence their desire to use. As revealed in our study, similarly, increasing woman’s comfortability, self-confidence and being able to cope with pain were the most reported benefits [12, 29, 30]. Moreover, the increase in hospital delivery due to positive childbirth experience was found to be the important aspect stated by the majority. This was reported to be an outcome once women get satisfied with the care provided in health facilities during labour and delivery. Despite the good progress, the health facility deliveries in Tanzania are still low [31, 32] and the possible reason may be the negative childbirth experiences which reinforce mistrust of health facility care. As recommended by WHO and SDGs the standard quality of care provided at the health facility in increasing women’s satisfaction include timely and appropriate pain management offered to women during labour to facilitate humanized childbirth experience [1, 5, 6, 15]. There is now a window of opportunity to adapt and amend the available labour wards protocols/guidelines to include the provision of non-pharmacological labour pain relief measures as an integral component of quality of care to increase hospital deliveries.

The myth regarding the use of labour pain relief approaches reported in this study was associated with the misconception about labour and labour pain management. The nurse-midwives posited that without pain a baby could not come out and that reducing pain may lead to a labour prolongation. In line with other findings, they believed that pain is necessary for a woman in labour and that its absence may be a sign of a problem in labour progression [7, 12, 13]. This is an indication of a knowledge gap in labour pain management. This calls for orientation of health care providers on labour pain management options to empower them with knowledge and hence facilitate the use. Findings also revealed that nurse-midwives feared that there is a possibility of the baby falling in case some approaches are used without having assessed on the level of the baby. Although this may sound like a non-objective, it is important to note for it provides a basis on the knowledge gap on the labour pain management options based on the labour phases.

**Conclusion**

Nurse-midwives uses various non-pharmacological approaches to relief labour pain. These include encouraging women and providing instructions on changing positions, using deep mouth breathing techniques, and exercises, providing psychological support and performing sacral massage. However, these strategies and other several approaches were not commonly used because majority were unfamiliar with the methods and how they are used. Intrinsic motive and the passion were key drivers to use non-pharmacological labour pain approaches. Nevertheless, nurse-midwives reported some myth and fear that prevented the optimal use of labour pain management approaches. This indicates the knowledge gap which shows the need for designing an intervention to fill up the gap including the comprehensive labour pain management education in health professionals training programs in Tanzania. To move forward with the provision of standard quality care for pregnant women during labour and delivery, the emphasis should be put on the labour pain management as a component to humanizing childbirth and hence rise the number of health facility deliveries. The findings from this study also offer the basis for health care facilities to identify the need for providing the in-service training on labour pain management which is a key for changing in improving care provided to women during childbirth.

**Methodological Considerations**
To ensure trustworthiness of this study, credibility was ensured by collecting data from two different hospitals (rural and urban) to ensure comprehensive accounts on the experiences of nurse-midwives [16, 33]. The reliability was ensured by doing initial analysis and agreeing on the codes by all authors. Validation of data accuracy was ensured by member check [34]. Participants’ quotes have been included to support researchers’ interpretations which also increase the credibility of the study [35]. Dependability and conformability were promoted through inquiry audit where by the researchers reviewed and examined the research process and the data analysis in order to ensure that the findings were consistent. The thick description of the study design and setting, the purposive sampling approach used, data collection method that was used, the description of the analysis process and the use of participant’s accounts will allow to determine the transferability to other contexts [36].

Abreviations

MUHAS-Muhimbili University of Health and Allied Sciences
NPM-Non-pharmacological Pain Management
SIDA-Swedish International Development Cooperation Agency
SDG-Sustainable Development Goals
WHO-World Health Organizations
NM-Nurse-midwife

Declarations

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Author contributions

DLM and LTM conceptualized and designed the study, collected data and analyzed data. NS participated in the designing of the study, data collection and analysis. VZC participated in data collection and analysis of data, DLM and VZC drafted the manuscript that was critically reviewed by LTM and NS. All authors read and approved the final manuscript.

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Availability of data and materials

The data analyzed during the current study are available from the corresponding author upon request.

Ethical approval and consent to participate

Ethical approval to conduct this study was obtained from research and ethics committee of the Muhimbili University of Health and Allied Sciences (Ref. No. MUHAS-REC-2-2020-103). Permission to conduct the study was obtained from the Regional Administrative Secretaries, District Medical Officers and Health facility Medical in-charges. Written informed consent was obtained from each participant before the start of the interview.

Declaration of Helsinki

The study protocol was performed in accordance with the relevant guidelines and regulations.

Consent for publication

Not applicable.

Competing interests


The authors declare that there is no conflict of interest regarding the publication of this paper.

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