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Nurses' perceptions on pain behaviours among burn patients: A qualitative inquiry in a Ghanaian tertiary hospital

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ABSTRACT

Background: Pain sustained from burns is usually quite severe and has been linked to extreme distress, preventing patients from contributing to their care. Nurses have legal and professional obligations to promptly assess burns pain by using pain assessment tools and by relying on the patient's behaviour and expressions.
Objectives: To explore nurses' perceptions on pain behaviours among burn patients in a Ghanaian tertiary hospital.
Methods: A qualitative descriptive design was used. A total of 11 nurses were recruited through a purposive sampling technique from a burns unit of a tertiary facility in Ghana. Semi-structured face-to-face interviews were conducted. Analysis was done using thematic content analysis, from which two major themes and nine sub-themes were identified.
Findings: Patients express their pain by adopting both verbal and non-verbal communication means. However, due to the subjective nature of pain, nurses' perceptions of pain were not sufficient to effectively assess the degree of pain. Verbal indicators that nurses perceived to be pain behaviours of burn patients were screaming, crying, praying and groaning, while frowning, reduced sense of humour, and body language were some non-verbal indicators nurses used to confirm the existence of burns pain. Nurses in Ghana must adopt the use of objective pain assessment tools, in conjunction with perceived pain behaviours, for optimal pain management outcomes.
Conclusions: Patients with burns experience intense pain from both the burns and the procedures that are done for them to aid in their healing. A systematic pain assessment by nurses, as part of the health care team, is a vital guide to pain management. To ensure consistency in the assessment of pain, there is a need to design protocols and policies to guide all nurses in the assessment of burns pain in the burns unit.

1. Introduction

A burn is an injury characterized by damage to the skin and other body tissues (Burns (WHO), 2018). Burn injuries are of varied extent and severity with morbidity and mortality rates directly proportional to the surface area of the burns (Vivo, Galeiras, & del Caz, 2016). Burns are usually from sources such as thermal, chemical, and electrical agents, and fire/flame (Johnson, 2018). An annual global average of 11 million people suffers from burns that necessitate hospitalization, while approximately 180,000 burns-related deaths occur annually (Burns (WHO), 2018). Smolle et al. (2017) report that injuries from burns have been more predominant among countries of low socioeconomic status and from underprivileged societies.

Burns can be classified according to their depth. Superficial burns affect the epidermis and are normally painful whilst partial-thickness burns extend from the epidermis into the dermis and are also painful. Full-thickness burns are burns that extend beyond the epidermis and the dermis into the subcutaneous fat, or much deeper, but are not painful (Schaefer & Szymanski, 2019).

A study by Bayuo, Agyei, and Baffour (2018) reports an increased rate of burns due to flames and scalds among the labour force group (15 to 59 years old) in Ghana. Furthermore, scalds were reported to be the

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most common cause of burns in Ghana (46.2%) followed by open fire (45.4%), chemical (3.5%), and electrical burns [2.7%] (Agbenorku, Aboah, Akpaloo, Amankwa, Farhat, Turkson, Hoyte-Williams, Klutsey, & Yorke, 2016).

There have been growing reports of various burn injuries in Ghana; however, this development is yet to receive the needed attention. For instance, a burns unit in a tertiary hospital in Ghana recorded approximately 300 burns cases between January and May 2017. This represents a 50% increase in cases over the same period of the previous year. However, there is no National Burn Repository in Ghana and a lack of vital information systems. As a result, assessing the actual incidence and outcomes of burn injuries is a challenge for nurses and other healthcare professionals (Bayuo et al., 2018).

Pain sustained from burn injuries is notably very severe and a major universal health challenge (Griggs, Goverman, Bittner, & Levi, 2017). Pain is manifested during both the acute and recovery stages of burn injury (Perez, Morales, Carrera, Garcia, Leon, Lopez, & Kaknani-Uttumchandani, 2016), as a result of the initiation of the inflammatory process and destruction to the peripheral sensory neurons (Morgan et al., 2018). The combined results of burn pain and injury healing have been defined as excruciating by patients (Bayuo, 2015). It has also been reported that survivors of burn injuries continue to experience pain as much as a year after the wound has healed (Shahid, Ismail, & Khan, 2018).

The initial step to improve the management of pain in an Emergency Department is to accurately and systematically assess each patient (Dale & Bjornsen, 2015). Fidel-Kinori et al. (2016) in a study reported that burn patients are susceptible to developing post-traumatic stress disorder (PTSD). The authors attributed participants' psychological symptoms to factors such as physical deformities and social exclusion resulting from their burn injuries.

Additionally, failure to adequately assess and manage burns pain is known to be associated with high rates of morbidity and mortality (James & Jowza, 2017). Furthermore, ineffective management of burns pain can impede patient recovery and rehabilitation, indicating that the importance of effective management of burns pain cannot be overemphasized (Wang et al., 2018).

Generally, due to the subjective nature of pain, its assessment and management require an all-inclusive clinical assessment, using information from a variety of sources (Twycross & Finley, 2013). These include the use of pain assessment tools, selection of the appropriate analgesic, and the observation of patient behaviour for evidence of the presence of pain (Burns & McIlfatrick, 2015).

To attain an effective assessment and management of pain, the self-report of pain from the patient is of paramount importance (Network, 2016). However, there have been reports of instances where nurses tend to make their assessments of pain in a manner that reflects that they do not agree with the patient's accounts of pain (Chatchumni, Namvongprom, Eriksson, & Mazaheri, 2016). In another study, pain reported by patients was more than what the nurses perceived it to be, suggesting possible under-treatment of pain in the burn unit (Samolsky Dekel et al., 2016).

Differences in the actual pain felt by the patient and the nurses' perception of the patient's pain can be attributed, to a large extent, to the subjective nature of pain. Nurses' perception of pain can result in the underrating of a patient's pain. This, in turn, influences the treatment and care given to the patient. In some instances, this can increase the financial burden of the patient (Yildirim et al., 2015). Besides, some clinicians including nurses have misconceptions about the fear of patients getting addicted to opioids. As a result, they either withhold the administration of opioids or administer a lower than optimal dosage (Paschkis & Potter, 2015). Usually, facial expressions are referred to as pain behaviours, however, observers must note that they are also non-verbal expressions of the patient's actual pain. Therefore, when assessing pain, nurses must evaluate the patient's pain behaviours, be it verbal or non-verbal (Yildirim et al., 2015). Additionally, discrepancies in pain perception could be due to the lack of an assessment tool validated for assessing a patient's pain intensity, the nurse's own beliefs, and experiences of pain (Dequeker, Van Lancker, & Van Hecke, 2018).

To gain an appreciation of how nurses make decisions regarding pain assessment within the clinical setting, it is imperative to explore the practical knowledge they use to perceive the pain of their patients (Jang, Park, Kim, & Chang, 2019). Though there are studies that centre on pain assessment and management, as well as the general care given to patients with burns, in Ghana (Bayuo, 2015; Bayuo et al., 2018), there is a lack of research on the perception of nurses regarding the pain behaviours of burn patients. It is imperative for studies to be conducted in burn patients as there is evidence that not only does the pain have nociceptive and neuropathic characteristics, but also the pain can last during hospitalization, immediate post-discharge phase, and even one year after discharge, especially for adult burns survivors (Simons, Price, Kimble, & Tyack, 2016) Additionally, inadequate burns pain assessment and management has been linked to increased morbidity and mortality. Therefore, this study sought to explore nurses' perceptions of pain behaviours among burn patients in a Ghanaian tertiary hospital.

The study will be part of a collaborative effort to address the challenges in the assessment and management of burns pain among health personnel. This will increase the therapeutic relationship between nurses and patients who suffer pain in burns and also achieve maximum potentials in the provision of quality surgical and medical healthcare services in Ghana.

2. Methods

This study adopted a qualitative exploratory descriptive design (Holloway & Galvin, 2016). Qualitative descriptive research design seeks to understand and describe a phenomenon and also recognizes the participants' and researcher's subjective experiences. It is normally used when the researcher needs information of a phenomenon under study directly from the research participants (Bradshaw et al., 2017). Exploratory descriptive design was used because, to the best of our knowledge, there is limited research on the perception of nurses regarding pain behaviour among patients with burns in Ghana and the researchers wanted direct information from the participants.

The study was conducted between September 2018 to July 2019 in Ghana, West Africa (Fig. 1), in a burn s unit of a tertiary hospital in the Greater Accra Region. The hospital is a public, tertiary, and teaching hospital within the southern part of Ghana. This burns unit was selected for the study because it is one of the largest referral burns units in Ghana. The unit caters for all types of burn cases, with a significant number from the West African sub-Region including Nigeria, Togo, and Burkina Faso. The burns unit is made up of a male, female, and children's wards as well as an Intensive Care Unit.

A purposive sampling technique was employed. Out of a sample of 30 nurses working in the burns unit at the time of the study, eleven nurses were included in the study because the point of data saturation was attained. The predetermined inclusion criteria: qualified nurses with a minimum of two years working experience at the burns unit and caring for patients with burns and who had consented to participate. The exclusion criteria were qualified nurses working in other units in the hospital, caring for other categories of patients, and refusal to participate in the study. The point of saturation was attained on the eleventh participant thereby explaining the sample size. Furthermore, it is presumed that the sample for the study is a reflection of the total nursing staff within the burns unit owing to their knowledge of the phenomenon under study (Palinkas et al., 2015). These participants had all worked in the various wards of the burns unit at one point or the other for at least one year.

The interviews were conducted at the burns unit. Prior to the interview, the nature of the study, its objectives, information on confidentiality, privacy, and voluntary participation were explained to the participants. Subsequently, all participants gave their written informed

Fig. 1. African map showing the location of Ghana.

consent to participate in the study. Privacy was ensured by conducting individual interviews in either a conference room or in an office where there were no disruptions.

The Pain Transaction Model by Keen, Embree, Lancaster, & Bartlett Ellis, 2017 was the conceptual framework that guided the study. This framework recognizes that there are some factors from both the nurse and the patient that can influence the nurse's assessment, treatment, and management of the patient's pain. These factors include the nurse's knowledge and attitudes, patients' pain behaviours and coping mechanisms, and interpersonal communication. In line with the objectives of this study, a construct of the model by Keen et al. (2017) titled "patients' pain behaviours and coping mechanisms" adopted for this study, recognized that some behaviours of the patient population can be contributory factors to the variances in the perception of nurses towards the assessment and management of pain in a different clinical setting.

A semi-structured face-to-face interview was conducted, based on questions covering the areas of interest, themes in the conceptual framework, and literature reviewed for the study. The interview guide had two sections: Section A recorded demographic data of the participants and Section B comprised of five questions with probes. The core questions used in the interview were: "How do you identify a burn patient in pain"? "Are there any cues (be it verbal or non-verbal) from the patient that gives you some idea that he/she is in pain?" and "What is the best indicator of a patient's pain intensity (self or others)?" Probes were used by the principal investigator (PI) to stimulate more detailed responses from the participants where further clarification was deemed necessary to better understand the phenomenon under study.

The interview guide was piloted with two nurses at the Accident and Emergency centre of the same hospital. This center, apart from receiving and managing various trauma cases also receives and stabilizes patients with burns before transferring them to the main burns unit for continuity of care. Two nurses were selected from the centre for the piloting of the interview guide because these nurses also have experience with the management of patients with burns as those in the main study setting. Based on the outcome of the piloting of the data collection instrument, the wording of the questions and interview techniques were modified to elicit responses that would provide the data required for the focus of the study.

Each interview lasted between 45 and 60 minutes. Using an audio recorder, participants' responses were recorded and field notes were made in a field diary. These notes included the researcher's observation of the ward environment, interactions between the researcher and the participants, and the general nursing care given in the burns unit. The field notes helped to provide essential context that enhanced the data analysis, as suggested by Creswell (2014).

The collection of data continued until the point of saturation after when the eleventh participant was interviewed and there was no new information emerging.

The analysis was done manually by conducting thematic content analysis involving the identification, deduction, and outlining of patterns from the data collected, in accordance with the process reported by Holloway and Galvin (2016). Interview responses from the participants were transcribed verbatim and the transcripts were read multiple times to identify contrasting and related ideas and thoughts. Themes and subthemes were formulated after related ideas, words, and thoughts were regrouped and coded. Themes derived from data analysis were supported with quotations from the interview transcripts.

3. Methodological rigour

Rigour was maintained according to the structure proposed by Lincoln and Guba (1985) namely, credibility, transferability, dependability, and confirmability. To ensure credibility, the researcher had a prolonged engagement with research participants, developing and establishing a relationship with them to build trust and gain their confidence. To substantiate the transferability of the research, the research setting and the methodology used were described comprehensively.

Dependability of the study findings was ensured as the researcher was transparent in her decision trail with regards to the analysis. The preliminary ideas regarding the themes and categories were discussed between the PI and co-authors. Confirmability was attained by creating verbatim transcripts of recorded interviews. The research findings were derived from the data collected to reflect the exact experiences reported by the participants about their perception of pain behaviours in patients with burns.

4. Ethical considerations

This research was approved by the Institutional Review Board of the Noguchi Memorial Institute for Medical Research (NMIMR-IRB CPN 014/18-19). Permission was also obtained from the Institutional Review Board of the hospital to have site approval for the research (Code; MD/G3/19). The PI had previously visited the unit to familiarize herself with the operations of the unit and to establish rapport with the nurses. Participants were invited to sign a consent form detailing the benefits of the study and informing them of their freedom to participate or to withdraw from the study at any point before and during the interviews. Identification codes (BN = Burns Nurse) were used to ensure anonymity and confidentiality for each participant.

5. Findings

5.1. Demographic data of participants

The demographic data of the participants are shown in Table 1. Most of the participants were between the ages of 30–39 years, with the majority having between 6 and 10 years of nursing experience.

Based on thematic analysis, two major themes and nine sub-themes regarding nurses' perceptions of pain behaviour among burn patients emerged (Fig. 2). Under the first major theme, verbal expression of pain theme, there were four sub-themes, which included crying, screaming, praying, and groaning. Under the second major theme, the non-verbal expression of pain, were five sub-themes including frowning, reduced sense of humour, closing of eyes severally, body language, and physiological changes. It is, however, worthy of note that these findings, verbal and non-verbal cues, of pain expression as experienced by the nurses were that of the adults with burns excluding children with burns.

5.2. Verbal expression of pain

The participants reported the use of the verbal expression of pain by patients to assess burns pain since tools to assess the pains of patients with burns were uncommon within the burns unit. Participants reported several means by which patients with burns expressed their pain verbally, including screaming, crying, praying, and groaning.

5.2.1. Screaming

> *When they are in pain, some of the patients, will shout and scream, and they will be screaming that they are in pain….* (BN-1)

Some participants further added that, in rare circumstances, some of the patients even rain verbal abuse on the nurses when they are in pain.

> *Most of them you will see them screaming and shouting. And some even rain abusive words on you when they feel you are not attending to them, though that is rare.* (BN-10).

5.2.2. Crying

Some participants reported that some of the patients cry or verbalize their pain:

> *Some of the patients cry, some of them shout. In fact, a lot of these patients, when they are in pain, cry. Even the older people also cry a lot….* (BN-2)
> *Some of the patients you will see them crying. Some too will simply verbalize that they are in pain.* (BN-3)

Other participants stated that sometimes the verbal expressions, such as screaming, happens when the patient's previously administered pain medication had worn off and the patient is yet to receive the next dosage:

> *Screaming, shouting sometimes happens when the pain-relieving drug has worn off and the patient has not received the next drug.* (BN-9)

Another participant was of the impression that some of the patients' pain expression was not equal to the actual pain they feel:

> *Sometimes from the way the patient will express himself, screaming and all that, you will think that this pain from afar it's about 5 when you rate it, but when you get closer and assess it, you realize that this pain is probably around 2* (BN-2).

5.2.3. Praying

According to the nurses, some patients resorted to prayers when in pain which, according to the patients, helped relieve their pain:

> *Some of them pray because they are in pain. You will hear them praying and afterward when you ask them, they will tell you they were in pain and the prayers have helped* (BN-2)

5.2.4. Groaning

Some participants mentioned that some burn patients apart from the prayers, also resorted to groaning when in pain:

> *Some of them pray because they are in pain, some of them you hear them calling your name often, and then some will also be groaning.* (BN-2)

Overall, the participants reported that, due to the individuality of patients, the verbal expression of pain differed significantly among burn patients.

5.3. Non-verbal expression of pain

The participants also outlined some non-verbal ways that burn patients expressed their pain, such as body movement, facial expressions, and physiological changes.

5.3.1. Facial expression

Frowning, reduced sense of humour, and closing of eyes severally were some forms of facial expressions expounded by the participants during the study:

> *First and foremost, what I have observed is that when they are in pain, you see that the person will be closing the eyes not once, not twice, but several times. And if you see all that, you will ask the patient: Are you ok? And he'll say no, I am feeling pain here* (BN-5).
> *Well automatically, when someone is in pain, the person doesn't smile. So the person will frown. Even if you are trying to crack jokes with the person, they won't smile* (BN-6).

Thus, when the patient has a relaxed facial expression, sleeps comfortably, and has stable vital signs, it was perceived as the absence of pain:

> *For adults, you will see that the person has a relaxed facial expression. Some of them will go to sleep comfortably. Or you can see that he is having a good sleep, which tells you that the pain is gone* (BN-6).
> *We normally check their vital signs too, and if it is within the normal ranges, then we know that the pain medication has been effective* (BN-1).

5.3.2. Body language

Participants reported that body language was a form of non-verbal expression exhibited by patients with burns when in pain. Body language included visible shaking of their legs and sitting uncomfortably in a chair.

Table 1
Demographic data of participants.

		Frequency
Gender	**Male**	**4**
	Female	**7**
	Total	**11**
Age	**26–29**	**1**
	30–39	**9**
	40–49	**1**
	Total	**11**
Years in the burns unit	**1–5**	**1**
	6–10	**7**
	11–15	**3**
	Total	**11**

Source: Field Data 2019.

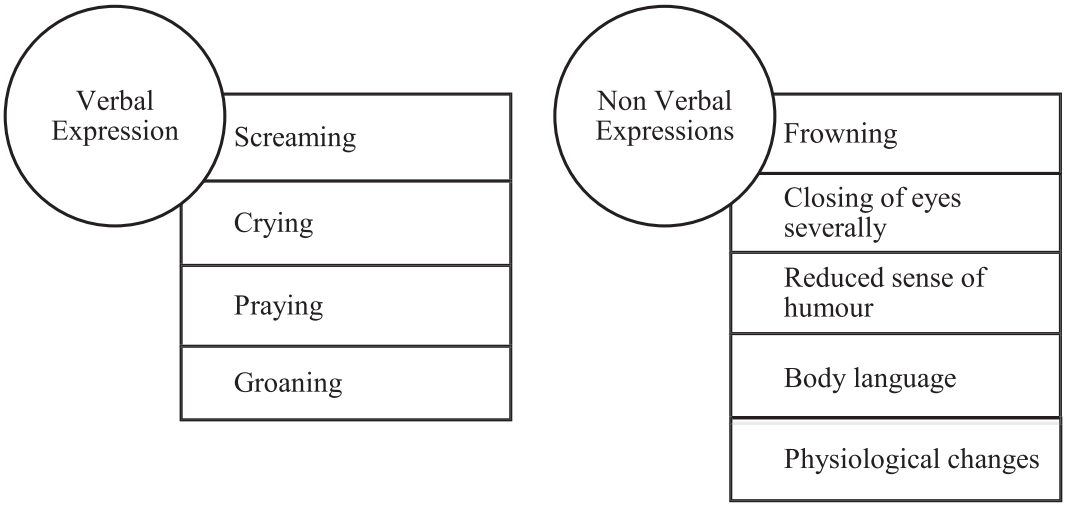

Fig. 2. Findings of the study (Themes and subthemes).

*When they are in pain you realize that they will be sitting in a chair, raising their buttocks as if someone wants to defecate. And that one alone should tell you that this patient is in pain not necessarily screaming or shouting (*BN-1*).*
Their mannerism, like shaking their legs in bed and sweating, will tell you that something is going on wrong. And usually, when you probe further, you find out that that he's in pain (BN-10).

According to the participants, observing a frequent change in position in the bed of these patients is an indication that they are in pain, after which the appropriate measures are put in place to manage the pain.

*You know, with burns, when they are in severe pain they will not be stable on their bed. You know, turning and other things. They just want to find a comfortable position for themselves. So that is where you go in and help put them in a better position (*BN-4).

5.3.3. Physiological changes

In some instances, burn patients with inhalational injuries or those who have undergone surgery are not able to communicate as they are usually intubated. For these patients, physiological changes such as high blood pressure and increased pulse rate are other pointers that can be used to establish that they are in pain. In extreme cases, some of the patients can become very aggressive:

Sometimes, when they become unconscious, like after surgery, we use their vital signs, like the blood pressure and the pulse, to know whether they are in pain or not (BN 1).

The pain affects their breathing pattern, making them breathe faster than normal. It affects their vital signs. Sometimes their BPs shoot up and their temperatures also begin to rise (BN-1).

Additionally, participants reported that male adult patients express their pain more violently compared to female patients. Others also commented that some cultural beliefs made some patients "suppress" their pain:

Men are the worst when it comes to tolerating pain… it is the men, who fight us in the treatment room because of the pain. So, when you compare men and women, the men are the worst (BN-9).
*I know that some cultures have even taught their people to suppress pain, and so, even when they are in pain, you realize that they will be sitting on the chair and be raising the buttock but will never admit that they are in pain (*BN-1).

6. Discussion

The aim of the study was to explore the perceptions of nurses on the pain behaviour of patients with burns. The findings suggest the existence of verbal and non-verbal cues regarding pain assessment in the burns unit. Screaming, crying, praying, and groaning by burn patients were some verbal indicators, whilst frowning, closing of eyes several times, reduced sense of humour, body language, and physiological changes were non-verbal indicators of pain that nurses used to confirm the existence of pain among burn patients. These findings are consistent with a report by Fillingim, Loeser, Baron, and Edwards (2016).

However, the complexity of burns pain cannot be deciphered solely by a patient's verbal and non-verbal expressions, but an assessment must be combined with regular and continuous pain assessment (Booker & Haedtke, 2016). Taken together, the findings reflect challenges to pain management in the burns unit, which should direct the implementation of educational programmes to support clinicians in burn pain management.

The findings suggest that there could be disagreement between the nurse's perception and the patients' expression of pain. These findings are in line with a study by Chatchumni et al. (2016). Hence, effective pain assessment and management requires the collaboration of caregivers and patients. It can be argued that pain assessment and its control can be deemed incomplete when done only through either the lenses of the nurse or the patient. Therefore, adopting other pain assessment tools that validate the patient's pain behaviour can reduce the discrepancies in pain assessment.

Findings from our study were that irrespective of the pain expression from these patients, verbalization of the pain by the patient is the most reliable. This corroborates with the current findings by the National Comprehensive Cancer Network (2017). Similarly, Mirjafar et al. (2018) report that the patient's complaint of pain must be trusted and not ignored or attributed to dependence on drugs. Although the nature of burn pain may vary, the findings suggest that irrespective of the disease state, pain should be interpreted as what the patient says it is and exists when he/she says it does.

Though a patient's experience of pain is a subjective one, it is still the universal criteria for the assessment of pain (Jang et al., 2019). Contrary to this, Chatchumni, Namvongprom, Sandborgh, Mazaheri, and Eriksson (2015) suggest that realistically it is the mixture of the perception of nurses regarding patients in pain and their experience in pain management that leads to optimal care. The findings of the current study also revealed that patients who could not communicate verbally due to inhalational injuries or surgery expressed their pains through non-verbal means, such as the use of mannerisms. These include facial expressions,

movement, and frequent changing of position in bed. Increased blood pressure, increased pulse rate, and abnormal breathing pattern were also cues the study participants used to identify and manage intubated burn patients. This finding is consistent with a study by Gélinas (2016).

Nevertheless, adopting the use of changes in blood pressure and heart rate as an indication of a patient's pain has proven to be neither reliable nor valid (Kapoustina, Echegaray-Benites, & Gélinas, 2014). Additionally, vital signs outside the accepted parameters may be a result of medications or the disease process (Booker & Haedtke, 2016). Thus, for patients who are unable to communicate, the use of pain assessment tools and behaviours indicative of pain are effective approaches that can be used to assess their pain (Hamdan, 2019).

There is the need to advocate for nurse-initiated analgesia protocol with tools for pain assessment within the burns unit, as this will help reduce the delay to analgesia and save the patient from unnecessary pain. This corroborates with a study's findings by Ridderikhof et al. (2017).

The expression of pain among patients with burns, according to the participants, is generally an individual phenomenon as burn patients expressed pain differently, depending on their cultural beliefs and sometimes on their psychological status. This finding is consistent with a report by Henschke et al. (2016).

7. Study limitations

The study was conducted with eleven nurses from one burns unit in a setting with distinct structural values and atmosphere. The findings may differ for other nurses from a different setting. The researchers excluded nurses who have worked at the burns unit for less than two years, but there could have been amongst those excluded, nurses with rich information on the perception of pain behaviours of patients with burn pain.

8. Recommendations

There is a need for Nursing Training Colleges to improve the skills and knowledge of trainee nurses in the assessment of pain by reviewing the existing curriculum on pain assessment and management.

9. Implications for nursing practice, research and administration

The findings of this research can inform the development of specialized and continuous professional development programmes for nurses working in the burns unit. Additionally, to reduce morbidity and mortality associated with severe burns, accurate pain assessment and management protocols are needed. The nursing administration must, in conjunction with management of the hospital, be committed to providing pain assessment tools in the burns unit to enhance practice.

Intense public education aimed at sensitizing people on the prevention of burns and the provision of expert burns services can be considered by stakeholders/government. These findings can initiate the conduct of quantitative studies on the determinants of the relationship between the patient's pain intensity and the nurses' pain knowledge.

10. Conclusion

Patients with burns experience intense pain from both the burns and from the procedures that are done for them to aid in their healing. A systematic pain assessment by nurses, as part of the health care team, is a vital guide to pain management. To ensure consistency in the assessment of pain, there is a need to design protocols and policies to guide all nurses in the assessment of burns pain in the burns unit.

CRediT authorship contribution statement

Linda Tetteh: Conceptualization, Methodology, Data curation, Writing - original draft, Visualization, Investigation, Supervision, Validation, Writing - review & editing. **Lydia Aziato:** Conceptualization, Methodology, Data curation, Writing - original draft, Visualization, Investigation, Supervision, Validation, Writing - review & editing. **Gwendolyn Patience Mensah:** Conceptualization, Methodology, Data curation, Writing - original draft, Visualization, Investigation, Supervision, Validation, Writing - review & editing. **Emma Kwegyir-Afful:** Data curation, Writing - original draft, Visualization, Validation, Writing - review & editing. **Katri Vehviläinen-Julkunen:** Data curation , Writing - original draft, Visualization, Validation, Writing - review & editing.

Declaration of Competing Interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: The first author received 6 months Erasmus+ Global mobility study grant to complete work on the manuscript.

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