COLLEGE OF HEALTH AND MEDICAL SCIENCES SCHOOL OF GRADUATE STUDIES

PREVALENCE AND ASSOCIATED FACTORS OF POSTDURAL PUNCTURE HEADACHE IN CESAREAN SECTION PATIENTS FOLLOWING SPINAL ANESTHESIA AT HIWOT FANA COMPREHENSIVE SPECIALIZED UNIVERSITY HOSPITAL, HARAR, EASTERN ETHIOPIA

THESIS REPORT

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Prevalence and Associated Factors of Post-dural Puncture Headache in Cesarean Section Patients Following Spinal Anesthesia at Hiwot Fana Comprehensive Specialized University Hospital, Harar, Eastern Ethiopia

In Partial Fulfillment of the Requirements for Specialty Certificate in Anesthesiology Critical Care and Pain Medicine

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I hereby certify that I have read and evaluated this thesis entitled **"Prevalence and Associated Factors of Post-dural Puncture Headache in Cesarean Section Patients Following Spinal Anesthesia at Hiwot Fana Comprehensive Specialized University Hospital, Harar, Eastern Ethiopia":** prepared under my guidance by Gizachew Tilaye (MD). I recommend that it can be submitted as fulfilling the thesis requirement.

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As a member of the board of examiners of the post-graduate Open thesis defense examination, I certify that I have read and evaluated the thesis prepared by Gizachew Tilaye (MD) and examined the candidate. I recommend that the thesis should be accepted as fulfilling the thesis requirement for the Specialty Certificate in Anesthesiology Critical Care and Pain Medicine.

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BIOGRAPHICAL SKETCH

My name is Gizachew Tilaye Ayalew. I was born on March 7 1995 G.C in Azezo, Gondar Amhara regional state, Ethiopia. I started and completed my primary education at Azezo kebele 19 primary school. I attended my secondary education at Azezo senior secondary school.

In 2013 G.C, I joined University of Gondar to attend my higher education. After attending for six years, I graduated with degree ofDoctor of Medicine on 29 October 2019 G.C. Then, I was employed at University of Gondar Specialized hospital as Lecturer and General Practitioner, and I served for one year and six months

On 13 March 2022 G.C, I joined Haramaya University to attend my specialty program in Department of Anesthesiology, Critical care and Pain Medicine.

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ABBREVIATIONS AND ACRONYMS

ACTH: Adrenocorticotrophic Hormone

AOR: Adjusted Odds Ratio

CI: Confidence Interval

COR: Crude Odds Ratio

CSA: Central statistical agency

CSF: Cerebral Spinal Fluid

EBP: Epidural Blood Patch

HFCSUH: Hiwot Fana Comprehensive Specialized University Hospital

HIS: International Headache Society

KAUH: King Abdullah University Hospital

PDPH: Post Dural Puncture Headache

SA: Spinal Anesthesia

SPSS: Statistical Package for Social Sciences

SSA: Sub-Saharan Africa

UK: United Kingdom

ABSTRACT

Background: One of the most side effects of spinal anesthesia is PDPH, which typically goes away 1–2 days after the dural puncture and normally goes away on its own or with basic painkillers. Even though it becomes reason for increased maternal morbidity, there is still a great scarcity of researches, which indicate factors associated with PDPH in eastern Ethiopia.

Objective: This study aimed to assess prevalence and associated factors of PDPH in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized University Hospital, Harar, Eastern Ethiopia from November 20/2024-January 20/2025.

Methodology: An institution based cross sectional studydesign was employed among 291 systematically selected patients who had cesarean section under spinal anesthesia. Data were collected via standardized questionnaire. Data were entered into EpiData Version 4.6 and were exported to statistical package for social scienceversion 26 for analysis. Descriptive analysis was conducted. All variables, with *p*-value less than 0.3 in bivariate analysis were included for multivariate logistic regression analysis. Strength of association was presented by an adjusted odd ratio with 95% confidence interval and statistical significance was declared at *p*-value less than 0.05.

Results: a total of 291 (with 97% response rate) data were analyzed. The mean (±SD) age of the respondents was 26.85 (±6.03) years. More than half of the respondents were urban residents. The parity of more than half of the mothers were ≤3.The overall prevalence of PDPH in cesarean section patients was (39%). Previous history of spinal anesthesia (AOR = 2.05; 95% CI: 1.16-3.65, *p*=0.014), previous history of PDPH (AOR = 1.87; 95% CI: 1.08-3.25, *p*=0.025), the use of large spinal needle size (AOR = 2.25; 95% CI: 1.22-4.14, *p*=0.009), and patients who had cesarean sections done by emergency type of operation (AOR = 2.72; 95% CI: 1.28-5.80, *p*=0.010) have shown statistically significant association with PDPH.

Conclusion and Recommendations: In this study, the prevalence of PDPH was high compared with most other studies. Factors such as previous history of PDPH, patients who received spinal anesthesia using bigger spinal needles, and respondents who had cesarean sections done by emergency type of operation have shown statistically significant association.As a result, the hospital should provide training to medical practitioners on preventive strategies such as advocating using smaller gauge spinal needles and modify the required medical equipment for emergency cesarean sections.

Key words: Postdural puncture headache, spinal needle, cesarean section, associated factor, Harar

1. INTRODUCTION

1.1.Background

Now adays, spinal anesthesia is widely used for cesarean sections as its wellbeing, reliability, low price, simplicity of administration, speedy outcomes, and well-functioning conditions; yet, there are several possible disadvantages to this approach (Ayub et al., 2019). Spinal anesthesia is currently used for cesarean sections all over the world; reports from various studies indicate that the percentage of spinal anesthesia usedin the UK is 86.6%, 95.2% in Botswana, and 68.2% in Addis Ababa, Ethiopia, respectively(Jenkins and Khan, 2003; Kassa et al., 2020; Marye et al., 2018).

One of the most common side effects of spinal anesthesia is post dural puncture headache(PDPH), which frequently occurs 1-2 days following dural puncture and frequently goes away on its own or with modest painkillers(Ayub et al., 2019). PDPH frequently demonstrates as a postural headache that becomes unpleasant when a patient is upright and acquires somewhat better when a patient is recumbent (Guglielminotti et al., 2019). PDPH is believed to be result from a persistent cerebrospinal fluid (CSF) leak that surpasses the rate of CSF production following the puncture(Bordlee et al., 2017).

As mentioned in the diagnostic standards of the International Headache Society (IHS) in 2004, the headache can appear until the fifth day following the puncture and may disappear on its own within a week or as long as 48 hours after an epidural blood patch (EBP) and accompanied by neck stiffness, tinnitus, hypoacusia (partial loss of hearing), photophobia, and nausea(Kassa et al., 2020).Even though the IHS described this, latest literatures showed the latency period to be within 3 days, and another study conducted in 2012 to assess the validity of the diagnostic criteria for Post-Dural puncture headache displayed that some patients can undergo from PDPH in the nonexistence of the related clinical manifestations(Amorim et al., 2012).

It is thought that women, especially those who are pregnant, have a higher risk of developing postdural puncture headache(PDPH), because of high estrogen levels in women might change the tone of the cerebral arteries, which in turn can exacerbate the vascular distension response to CSF hypotension (Liu et al., 2012). As mentioned by different literature, the prevalence of PDPH next to spinal anesthesia ranges from 0.3% to 40%(Amorim et al., 2012), factors such as differences in study populations and methodologies considered to be the reason for this variability.

1.2. Statement of the Problem

Studies reveal that the global incidence of postdural puncture headache (PDPH), which affects mothers who give birth via cesarean section, ranges from 0.3% to 40%(Amorim et al., 2012). A prospective randomized study conducted in Turkey revealed that 10.8% of patients who had spinal anesthesia after a cesarean section also experienced postdural puncture headache (Akdemir et al., 2017). The incidence of postdural puncture headache was found to be 6.3% in a research done at King Abdullah University Hospital in Jordan among women who had cesarean deliveries(Khraise et al., 2017).

In recent years, the incidence of postdural puncture headaches has been higher in Sub-Saharan Africa (SSA) compared to Western countries. Several studies conducted in SSA have highlighted this issue, with prevalence rates varying between 15.5% and 27.5% (Chekol et al., 2021).A prospective study conducted at Aminu Kano Teaching Hospital in Kano, Nigeria, found that the overall incidence of postdural puncture headache among pregnant women who had a cesarean section was 15.8%(Mohammed et al., 2017).According to a study conducted in Gondar, Ethiopia, 38.8% of patients who had spinal anesthesia experienced post-dural puncture headaches(Kassa et al., 2015).

Postdural puncture headache (PDPH) can result in longer hospital stays and increased healthcare costs, as well as dissatisfaction among mothers(Sachs and Smiley, 2014).In rare instances, a prolonged or severe PDPH may lead to serious complications, including cerebral venous thrombosis, bacterial meningitis, hypopituitarism, seizures, herniation, coma, and even death(Guglielminotti et al., 2019).

Performing spinal anesthesia at sitting position is more risky for the occurrence of PDPH than in lateral position(Gupta et al., 2020). Being female, young age, and having lean body weight are the risk factors to develop PDPH after spinal anesthesia (Adams et al., 2018). The incidence of PDPH is significantly higher when larger needles, those greater than 22 G, are used compared to smaller needles (less than 25 G). In addition to needle size, the type of needle tip also influences the occurrence of PDPH. Cutting needle bevels are more likely to cause PDPH than the less traumatic pencil point needle bevels(Ayub et al., 2019).

The direction of the needle bevel during insertion also plays a role in the occurrence of PDPH. When the bevel of the spinal needle is inserted perpendicularly to the longitudinal fibers of the dura, which is believed to be their orientation, a higher incidence of PDPH is expected(Ayub et al., 2019; Khraise et al., 2017). Patients are also more likely to develop PDPH from repeated dural punctures resulting from inexperienced personnel or technological issues(Mekete et al., 2023).

The use of a narrow gauge, pencil-tipped, non-cutting spinal needle is the most crucial factor in preventing PDPH(Peralta et al., 2015). Adrenocorticotrophic hormone (ACTH), epidural morphine, and intravenous aminophylline may lower the incidence of postdural puncture headache (PDPH), although further research is required to confirm their effectiveness (Naghibi and Hamidi, 2014). Conservative therapy, such as bed rest, hydration, and caffeine, is commonly used as a preventative measure and a treatment for this condition; however, data is not very clear on the benefits of extensive hydration and consistent bed rest (Kwak, 2017).

There is limited evidence on PDPH in Ethiopia, particularly regarding the prevalence and associated factors in cesarean section patients who receive spinal anesthesia at the area of interest. Therefore, this study aims to assess the incidence and associated factors of PDPH in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized University Hospital (HFCSUH) in Harar, eastern Ethiopia.

1.3. Significant of the Study

The primary beneficiary of this study was HFCSUH. Knowing the prevalence of postdural puncture headache and its associated factors among cesarean section patients following spinal anesthesia allows health care professionals and planners to put in place proper measures to prevent postdural puncture headache. It also saves the government and the patient financially by reducing unnecessary costs. Additionally, it will be used to reduce the work load on the health care providers by decreasing hospitalization rate of the patient by increasing awareness of the patient and gives the clues to emphasize the health professionals on the associated factors of postdural puncture headache. Furthermore, it will be used as an input for future researchers on the related topics.

1.4. Objectives

1.4.1. General Objectives

This study aims to assess prevalence and associated factors of PDPH in cesarean section patients following spinal anesthesia at HFCSUH, Harar, eastern Ethiopia from November 20/2024-January 20/2025.

1.4.2. Specific Objectives

1. To assess prevalence of PDPH in cesarean section patients following spinal anesthesia at HFCSUH, Harar, Eastern Ethiopia.
2. To identify factors associated with PDPH in cesarean section patients following spinal anesthesia at HFCSUH, Harar, Eastern Ethiopia.

2. LITERATURE REVIEW

Postdural puncture headache is becoming a major health problem around the globe with an increased incidence in countries with low socioeconomic status. Identifying its factors is quite important for the prevention and management of the condition. In order to see this study from different perspectives, different studies conducted worldwide were reviewed. The literature search was performed through different search engines like PubMed, Science HUB, Google scholar, and Hinari. The following are research articles that detail about postdural puncture headacheand its associated factors.

2.1. Prevalence of Postdural Puncture Headache

A randomized, prospective, double-blinded study was designed in Turkey among 682 American Society of Anesthesiologists I–II women having elective cesarean operations under spinal anesthesia. The spinal anesthesia was performed to 323 patients with 26-gauge Atraucan type needle and 342 patients with 26G Quincke type needle. PDPH was observed in 21 patients (6.5%) in Group A and in 17 patients (4.98%) in Group Q(Akdemir et al., 2017).

An analytic interventional cross sectional study conducted in Brazil showed that Forty-eight (7.5%) of the patients developed PDPH. The period of latency between the lumbar puncture and the onset of the headache ranged from 6 to 72 hours (24.0 ± 16.8 hours) and the headache duration from 3 to 15 days (4 ± 2 days)(Amorim et al., 2012).

The cohort study conducted at King Abdullah University Hospital in Jordan included 680 women who underwent cesarean delivery during 2015. Among these, 43 (6.3%) women had developed PDPH. Approximately one-half of the studied population (335 women, 49.3%) were anesthetized using a 25 g Whitacre needle type, while the others (345 women, 50.7%) were anesthetized using a 27 G Spinostar needle type(Khraise et al., 2017).

A prospective, non-randomized study examined the frequency and severity of post dural puncture headache in 96 Ghanaian women who consented to spinal anaesthesia for caesarean section at the Korle Bu Teaching Hospital, Accra, Ghana. The overall result showed that the incidence of post dural puncture headache was 8.3%, but was significantly higher (33%) in patients in whom 22-gauge Quincke needles were used(Nafiu et al., 2007).

An institution based cross sectional study conducted in University of Gondar teaching and referral hospital, Gondar, Ethiopia. A total of 116 patients aged 17-74 years were included in the study. Ten patients (8.6%) had a previous history of spinal anesthesia (SA) exposure and three (37.5%) of them complained a PDPH like headache after the procedure. Almost all patients (99.1%) had been given SA on a sitting position. 20 G was the most frequently used spinal needle to administer SA (42.5% of patients) whereas 25 G was used only in one patient. Out of 116 patients who have undergone spinal anesthesia 45 (38.8%) patients developed post dural puncture headache (Kassa et al., 2015).

Hospital-based longitudinal study conducted on mothers who underwent cesarean section with spinal anesthesia at Debre Tabor General Hospital, Ethiopia, revealed that from all participants (119), 24 respondents (20.2) developed PDPH and from those 35 participants having previous spinal anesthesia where as six (16.7%) respondents explained previous PDPH(Demilew et al., 2021).

Cross sectional comparative study conducted in Department of Anaesthesiology and Intensive Care Unit, Shalamar Hospital Lahore, Pakistan, revealed that most participants had moderate headache and resolved within a week after its onset with conservative management(Malik et al., 2012).

A prospective, non-randomized study examined the frequency and severity of post dural puncture headache in 96 Ghanaian women who consented to spinal anaesthesia for caesarean section at the Korle Bu Teaching Hospital, Accra, Ghana, indicates that most patients rated their headache as mild to moderate on a 10-cm visual analogue scale (Nafiu et al., 2007).

An institution based cross sectional study was conducted in University of Gondar teaching and referral hospital, Gondar, Ethiopia. This study showed that among 45 patients who developed PDPH, majority of them have developed mild (42.2%) followed by moderate (31.1%) pain. On the other hand 80% of patients with PDPH either of neck stiffness, nausea, or photophobia was observed(Kassa et al., 2015).

2.2. Factors Associated with PDPH

2.2.1. Socio-demographic Factors

An analytic interventional cross sectional study conducted in Brazil discovered that the age group of 31-50 was significantly associated with PDPH (Adjusted odds ratio [AOR]: 2.21, 95% confidence interval[CI]: 1.12, 4.36, P ≤0.05).Women's who have previous history of PDPH were found to have significant association with PDPH (AOR: 4.30, 95% CI: 1.99, 9.31, $p \leq 0.05$) (Amorim et al., 2012).

An institution based cross sectional study was conducted in University of Gondar teaching and referral hospital, Gondar, Ethiopia showed that patients were received spinal anesthesia by BSc anesthesia students under supervision of qualified anesthetists were 2.5 times more likely to develop PDPH than patients who received spinal anesthesia by qualified anesthetists[AOR = 2.47; (95%CI:1.51, 4.06) and p-value<0.0001](Kassa et al., 2015).

2.2.2. Anesthetic Factors

A cohort study conducted in 2015 at King Abdullah University Hospital (KAUH) in Jordan revealed that patients who received a second puncture attempt had a 2.55-fold (AOR = 2.55; 95% CI = 1.09–5.93; $p < 0.01$) increased risk of developing PDPH, while the use of the traumatic 27 G Spinostar needle increased the risk of repeated puncture attempt 28.45-fold ($P<0.01$) compared with the use of the pencil-point 25 G Whitacre needle(Khraise et al., 2017).

An analytic interventional cross sectional study conducted in Brazil revealed that perpendicular bevel orientation increased the incidence of postdural puncture headache (AOR: 2.16, 95% CI: 1.07, 4.35, $P = 0.03$) than parallel bevel orientation (Amorim et al., 2012).

A prospective, non-randomized study in Ghanaian examined the frequency and severity of post dural puncture headache and showed that a significantly higher (33%) in patients in whom 22-gauge Quincke needles were used than in the other two groups (4% and 5% respectively: $P = 0.003$)(Nafiu et al., 2007).

A study done in Gondar showed that women's who received SA using bigger spinal needles were more than 5 times more likely to develop PDPH than patients who received SA using smaller needles (AOR = 5.3, 95% CI= 1.66–16.93). Patients for whom SA was successful at the first attempt were 78% less likely to develop PDPH than those patients for whom attempt was repeated [AOR=0.22; 95% CI: 0.09, 0.54] (Kassa et al., 2015).

Hospital-based longitudinal study was conducted on mothers who underwent cesarean section with spinal anesthesia in Debre Tabor general hospital, Ethiopia, showed that using 20- and 22-gauge needle (AOR= 4.206; 95% CI = 1.247–14.187; *p*= 0.021), and repeated attempt (AOR= 4.699; 95% CI= 1.59413.872; *p*=0.05) had statistically significant association with postdural puncture headache(Demilew et al., 2021).

2.2.3. Clinical Factors

According to a retrospective cohort study done at North Western University in the United Kingdom, in women who got SA for a cesarean section surgery, the odds ratio for a PDPH in the high BMI group compared with the low BMI group was 0.36 (95% CI, 0.14–0.92, P = 0.04) (Peralta et al., 2015). Postdural puncture headache risk was found to be correlated with lower body mass index (BMI < 25 versus > 25) in a cross-sectional analysis carried out in the USA (OR 3.3; CI 95% 1.5, 7.0; p=0.001) (de Almeida et al., 2011).

A single-center prospective cohort study among 252 patients in Serbia showed that preexisting headache (AOR= 2.40; 95% CI= 1.39–4.17) and cardiovascular system disease (AOR= 0.52; 95% CI= 0.29–0.92) had statistically significant association with postdural puncture headache(Ljubisavljevic et al., 2020). Hospital-based longitudinal study was conducted on mothers who underwent cesarean section with spinal anesthesia in Debre Tabor general hospital, Ethiopia showed that having previous spinal anesthesia (AOR = 7.028; 95% CI = 2.377–20.781; p= 0.0001) had statistically significant association with postdural puncture headache (Demilew et al., 2021).

A cohort study conducted in 2015 at King Abdullah University Hospital (KAUH) in Jordan with all women undergoing cesarean delivery revealed that patients with tension headache prior to spinal anesthesia had a 4.60-fold (AOR = 4.60; 95% CI = 2.31–9.15; p < 0.01) increased risk of developing postdural puncture headache compared to those without headache (Khraise et al., 2017).

2.3. Conceptual Frame-work

The investigators constructed this conceptual framework after systematic and careful review of different literatures.

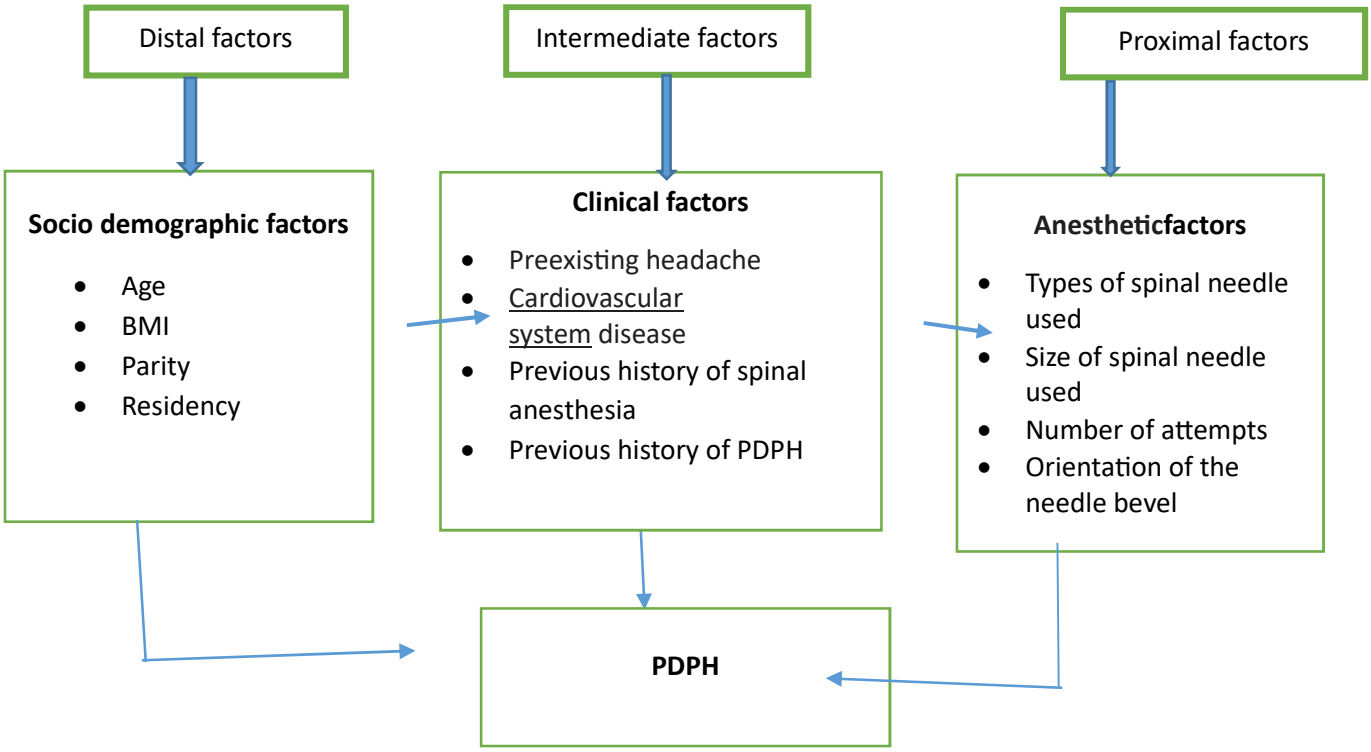

Figure 1. Conceptual framework showing determinants of postdural puncture headache from reviewing of literatures (constructed by the investigator from reviews of different literatures).

3. METHODS

3.1. Study Setting and Period

This study was conducted at Hiwot Fana comprehensive specialized hospital (HFSUH). Hiwot Fana comprehensive specialized hospital (HFSUH) is found in Harari Regional State, Eastern Ethiopia. Harar is the capital city of Harari regional state, which is 532 km toward east of Addis Ababa, the capital city of Ethiopia. According to central statistical agency (CSA) population projection by 2022, the region had an estimated population of 276,431(CSA, 2013). The region has 2 public hospitals (HFCUSH and Jugale General Hospital), 8 health centers and 28 health posts(Birhanu and Mathibe-Neke, 2022). HFCSUH was selected purposely over Jugale hospital as it has more patient flow and provide more service related to obstetrics and critical care medicines. HFSUH is a teaching hospital of Haramaya University with a total of 210 beds and more than 250 health professionals working in this hospital. According to the information obtained from the Hospital's HMIS or obstetric and maternity ward registry, average of 180cesarean sections done per each month.The study will be conducted from November 20/2024-January 20/2025at HFCSH in eastern Ethiopia.

3.2. Study Design

An institution based prospective cross sectional studydesign was employed.

3.3. Populations

3.3.1. Source Populations

All mothers who gave birth with cesarean section under spinal anesthesiaat Hiwot Fana Comprehensive Specialized Hospital (HFSUH) in eastern Ethiopia were the sources population.

3.3.2. Study Populations

All mothers who gave birth with cesarean section under spinal anesthesia fromNovember 20/2024-January 20/2025 at Hiwot Fana comprehensive specialized hospital (HFCSH) in eastern Ethiopia and fulfill the inclusion criteria were the study population.

3.4. Inclusion and Exclusion Criteria

3.4.1. Inclusion Criteria

All mothers who gave birth with cesarean section under spinal anesthesia within the study period.

3.4.2. Exclusion Criteria

Mothers who need general anesthesia due to failed spinal anesthesia in between the procedure, have complications like active bleeding, have pre-existing chronic or recurrent headache, and had previous diagnosis of migraine headache were exclude from this study.

3.5. Sample Size Determinations

To determine the sample size for this study; outcome variable and the factors that were significantly associated with the outcome variable were considered. The sample size for first and second objective was calculated separately by adding 10% on both specific objectives and the one with the largest number will be used for this study.

For the first specific objective, sample size for the study was determined using the formula of single population proportion.

Specific objectives 1 $n = \frac{(Z\alpha/2)^2 P(1-P)}{d^2}$

n=the minimum sample size required, p= prevalence of postdural puncture headachez= the standard value of confidence level of alpha=95%, d=the margin of error between the sample and the population (0.05). To determine the sample size, I used the previous study that was conducted in Debre Tabor General Hospitalwith the prevalence of postdural puncture is 20.2(Demilew et al., 2021).

n= $\frac{(1.96)^2\ 0.22\ (1-0.22)}{0.05^2} = 264$

By adding 10% (27 of participants) for non -response rate gives; n=291.

Specific objective 2	Main factors	Specific factors	Proportion value			**Final sample size (nf)**
			% of exposed with outcome	% of unexposed with outcome	Reference	
Factors associated with PDPH	Sociodemographic factors	BMI	37.0	16.2	(de Almeida et al., 2011)	**156**
	Anesthetic and clinical factors	Previous history of spinal anesthesia	42.8	10.7	(Demilew et al., 2021)	**70**
		Number of attempts	36.8	12.3	(Kassa et al., 2015)	**112**

		Large spinal needle	68.1	9.2	(Kassa et al., 2015)	**21**

As a result, the largest sample size is found to be **291** from the first objective, therefore it was taken as the final sample size.

3.6. Sampling Procedures and Technique

Systematic random sampling technique was used to select the study population. Sampling frame was prepared using mother medical registration number to adjust the Kth value based on sample size determination and source of population. Then, the "K" value was calculated by dividing the total population of cesarean sections patients (360) to the calculated sample size (291). Which means, K = N/n, 360/291 = 1.23, so I was take K = 2 by rounding the decimal. By using lottery method patient one was taken as the first participant, then data collection continued with every other patient.

3.7. Data Collection Methods

3.7.1. Data Collection Tool

Data were collected by using a structured and pretested self-administered questionnaire via face to face interviews that was adapted from previous studies with some modification by adding clinical factors such as commorbidities (Demilew et al., 2021; Kassa et al., 2015; Mekete et al., 2023; Nafiu et al., 2007). The tools comprised of four parts: section one is about the patient identification which contains three items; section two is about patients socio-demographic characteristics and contains six items; section three is about anesthetic and clinical characteristics of patientsand contains eight items; section four is about follow up data of patients and contains five items. The questionnaire is translated to the local languages (Amharic and Affan Oromo) in written form and was translated back to English version after data collection for its analysis and processing.

3.7.2. Data Collectors and Supervisors

For data collection one anesthesia resident and one BSc midwiferywere assigned as data collectors, and one anesthesia resident as a supervisor was recruited.

3.7.3. Data Collection Procedures

Trained data collectors collected data over a period of 2 months. Data regarding patient's condition were also taken from their medical records. The data were collected with face-to-face interview with patients using structured and pretested questionnaire. Body mass index (BMI) of the patient was computed by taking patient's weight and height and was calculated by dividing the weight of the patients in kilogram (kg) by the square height of patients in meter (m^2). Weight was measured in light closing and without shoes by calibrated digital weighing scale. Stadiometer in centimeter in erect position at a precision of 0.1cm without shoes was used to measure height.

3.8. Study Variables

3.8.1. Dependent Variables

- ✓ Postdural puncture headache

3.8.2. Independent Variables

- ✓ **Socio-demographic characteristics of respondents:** Age, residency, body mass index (BMI), parity.
- ✓ **Anesthetic characteristics of respondents:** number of attempts, position during spinal performance, type and size of spinal needle, type of cesarean section and provider's experience in years.
- ✓ **Clinical characteristics of respondents:** Preexisting headache, cardiovascular system disease, previous history of spinal anesthesia and previous history of PDPH.

3.9. Operational Definitions

PDPH: In the first three days following postoperative period, the participants were evaluated twice for PDPH. The first visit was take place at 12 hours, and the second visit was follow after 72 hours. Participants who develop positional headache within 72 h were labeled as having PDPH.

BMI: Body mass index (BMI) of the patient wascomputed by taking patient's weight and height and wascalculated by dividing the weight of the patients in kilogram (kg) by the square height of patients in meter (m^2).

Cardiovascular system disease: Participants were regarded to have cardiovascular problems if they have any known heart or blood vessel abnormalities that are diagnosed by a physician and noted on their patient card.

Preexisting Headache: A respondentswere recognized to have a preexisting headache if they haveheadache prior to the time of data collection or before they arrive at the hospital.

Comorbidity: Any of concomitant chronic disease conditions which are diagnosed from participants based on physician diagnosis and stated on the patient card was labeled as 'Yes' forcomorbid illness but if not it was labeled as 'No'.

3.10. Data Quality Control

Data quality control was maintained by different data quality control mechanisms. A pre-test was conducted on 5% of the questionnaire at another hospital (JugalGeneral Hospital). The principal investigator conducted training for data collectors before the data collection begins to avoid any preventable sources of error. This training included teaching on the purpose and significance of the study, an explanation of the questionnaire and a review of the procedure for data collection.The principal investigator and one resident supervised the overall data collection process so that the data collectors can forward any issue during the data collection time.

3.11. Data Processing and Analysis

The collected data was cleaned for completeness and consistencies before data entry. Responses in each question was coded for simplicity of data entry. The coded data was entered in to Epi data 4.6 and exported to SPSS version 20 statistical software for data analysis. . In the first step the descriptive analysis like; percentages, frequency distribution and measures of central tendency was computed. Binary logistic regression was done and variables with a *p*-value less than 0.3 were eligible for the final model. A multivariable logistic regression was performed to identify the independent predictors of PDPH and to control the effect of potential confounding variables using adjusted odds ratios with its corresponding 95% confidence intervals. Statistically significant level was declared at a p-value of less than 0.05. Then the result was presented with text, graphs, figures and tables. Multi-co-linearity and fitness of the model was checked. Model fitness was tested by the Hosmer-lemeshow goodness of fit statistics.

3.12. Ethical Considerations

An ethical clearance was obtained from Institutional Health Research Ethics Review Committee (IHRERC) of Haramaya University College of health and medical sciences with reference number (Ref.No. IHRERC/284/2024) and support letter was submitted to HFCSH in which the study was conducted. Informed, voluntary, written and signed consent was obtained from the head of hospital.The information

that the participant give was kept confidential and there is no any information that identify the participant specifically. The finding of the study was general for the whole study participants and not reflects the particular participant.

3.13. Dissemination Plan of Findings

The study's findings will be submitted and presented to Haramaya University, College of Health Sciences, and Department of anesthesia and pain medicine. The results will additionally be kept in the Haramaya University, College of Health Science library and will be published in a peer-reviewed journal. Also the findings will be disseminated in to Harar region health bureau and selected health facilities.

4. RESULTS

4.1. Socio-demographic Characteristics of Study Participants

A total of 282 study participants were interviewed from Hiwot Fana comprehensive specialized hospital (HFSUH) in Eastern Ethiopia, giving a response rate of 97%. More than two-third of the respondents 211 (74.8%) age was within 18-30 years.The mean (±SD) age of the respondents was 26.85 (±6.03) years.More than half (53.2%) of the respondents were urban residents and 266(94.3%) of them had BMI of <31 kg/m^2 **(Table 1).**

Table 1**:** Socio-demographic characteristics of the study participants in Hiwot Fana Comprehensive Specialized Hospital, eastern Ethiopia from November 20/2024-January 20/2025.

Variables	Category	Frequency (N)	Percentage (%)
Age	≤17	11	3.9
	18-30	211	74.8
	≥31	60	21.3
Residency	Urban	150	53.2
	Rural	132	46.8
BMI (kg/m^2)	<31	266	94.3
	≥31	16	5.7
Parity	≤3	152	53.9
	>3	130	46.1

BMI, body mass index

4.2. AnestheticCharacteristicsof Study Participants

A similar cutting type spinal needle were used in all participants and ≤23 gauge needle were used in 70.9% of them.Most cesarean sections (78%) were done by emergency type of operation.Almost all patients (99.3%) had been given SA on a sitting position. Spinal anesthesia performed with the needle orientation in relation to the long axis of the spine was parallel in 235(83.3%) of the respondents. More than half of the respondents (53.5%) needed twice attempt to succeed for the planned procedure. More than two third (81.6%) of the procedure was performed byanesthesia practitioners who had greater than two years working experience **(Table 2)**.

Table 2**:** Anesthetic characteristics of the study participants in Hiwot Fana Comprehensive Specialized Hospital, Eastern Ethiopia from November 20/2024-January 20/2025.

Variables	Category	Frequency (N)	Percentage (%)
Needle size	≤23	200	70.9
	>23	82	29.1
Position	Sitting	280	99.3
	Lateral	2	0.7
Number of attempts	>2 attempt	86	30.5
	Twice attempt	151	53.5
	Single attempt	45	16
Type of CS	Elective	62	22
	Emergency	220	78
Approach of spinal anesthesia	Midline	280	99.3
	Paramedian	2	0.7
Orientation of bevel	Parallel	235	83.3
	Perpendicular	47	16.7
Time of experienced staff in years	<2	52	18.4
	≥2	230	81.6

4.3. Clinical Characteristics of Study Participants

The majority of the participants (92.2%) didn't have any comorbidities and (98.6%) didn't have preexisting headache. More than half of the respondents (56.4%) had previous history spinal anesthesia and 150 (53.2%) respondents explained previous history of PDPH.In this study PDPH was observed on 110 patients (39%, 95% CI: 33-45 %).

Out of 110 patients who developed PDPH, more than half 61(55.5%) of patients were developed after 24 hours but within 48 hours of the procedure.Among 110 patients who developed PDPH, 40 patients develops neck stiffness. Fifty patients (45.5%) were developed moderate pain and followed by mild pain 48(43.6%). Patients who experienced PDPH were treated using oral fluids (38.2%) and analgesics (30%)**(Table 3)**.

Table 3**:** Clinical characteristics of the study participants in Hiwot Fana Comprehensive Specialized Hospital, eastern Ethiopia from November 20/2024-January 20/2025.

Variables	**Category**	**Frequency (N)**	**Percentage (%)**
Comorbidities	Yes	22	7.8
	No	260	92.2
Preexisting headache	Yes	4	1.4
	No	278	98.6
Previous spinal anesthesia	Yes	159	56.4
	No	123	43.6
Previous PDPH	Yes	150	53.2
	No	132	46.8
Onset of time	Within the first 24 hours	23	20.9
	Within 24 to 48 hours	61	55.5
	Within 48 to 72 hours	14	12.7
	After 3 days within 14 days	12	10.9
Severity of headache	Mild	48	43.6
	Moderate	50	45.5
	Sevier	12	10.9
Associated symptoms	Neck stiffness	40	36.4
	Low back pain	31	28.2
	Nausea	10	9
	Vomiting	8	7.3
	Vertigo	12	10.9
	Tinnitus	9	8.2
Measure	Take rest	17	15.5
	Fluid diet	42	38.2
	Iv fluid	12	10.9
	Caffeine	6	5.4
	Analgesia	33	30

4.4. Factors Associated with PDPH

In a bivariate logistic regression model, 9 variables were significant at a p value less than 0.3. The explanatory variables were residency, parity, comorbidities, number of attempts, timingof CS, previous history spinal anesthesia, and previous history of PDPH, spinal needle size, and orientation of needle bevel. In the multivariable logistic analysis, previous history spinal anesthesia, previous history of PDPH, spinal needle size, and types of CS were significantly associated with PDPH at a p value of less than 0.05.

In this studypatients who had previous history of PDPH were almost two times (AOR = 1.87; 95% CI: 1.08-3.27) more likely to develop PDPH. Respondents who had previous history of spinal anesthesia were two times (AOR = 2.05; 95% CI: 1.16-3.65) more likely to develop PDPH. The use of large spinal needle size was two times (AOR = 2.25; 95% CI: 1.22-4.16) more likely to develop PDPH. Patients who had cesarean sections done by emergency type of operation were almost three times (AOR = 2.72; 95% CI: 1.28-5.80) more likely to develop PDPH **(Table 4)**.

Table 4: factors associated with PDPH of the study participants in Hiwot Fana ComprehensiveSpecialized Hospital, eastern Ethiopia from November 20/2024-January 20/2025.

Variable	Category	PDPH(N=282)		COR (95% Cl)	AOR (95% Cl)	P-value
		Yes n (%)	No n (%)			
Residency	Urban	54(19.1)	96(34)	1	1	
	Rural	56(19.9)	76(27)	1.31(0.811-2.117)	1.30(0.762-2.231)	0.333
Parity	<3	63(22.3)	89(31.6)	1	1	
	≥3	47(16.7)	83(29.4)	0.80(0.494-1.295)	1.23(0.681-2.239)	0.487
Previous spinal anesthesia	No	35(12.4)	88(31.2)	1	1	
	Yes	75(26.6)	84(29.8)	2.24(1.361-3.703)	2.05(1.155-3.646)	**0.014***
Previous PDPH	No	38(13.5)	94(33.3)	1	1	
	Yes	72(25.5)	78(27.7)	2.28(1.393-3.744)	1.87(1.081-3.246)	**0.025***
Co-morbidities	No	104(36.9)	156(55.3)	1	1	
	Yes	6(2.1)	16(5.7)	0.56(.213-1.49)	0.67(0.23-1.97)	0.465
Number of attempts	One	14(5)	31(11)	1	1	
	Twice	70(24.8)	81(28.7)	1.91(0.943-3.883)	1.72(0.766-3.874)	0.188
	>2	26(9.2)	60(21.3)	0.96(.439-2.095)	1.07(0.451-2.533)	0.879
Needle size	>23	22(7.8)	60(21.3)	1	1	
	≤23	88(31.2)	112(39.7)	2.14(1.221-3.761)	2.25(1.223-4.135)	**0.009***
Type of CS	Elective	11(3.9)	51(18.1)	1	1	
	Emergency	99(35.1)	121(42.9)	3.79(1.877-7.667)	2.72(1.276-5.807)	**0.010***
Needle orientations	perpendicular	14(5)	33(11.7)	1	1	
	parallel	96(34)	139(49.3)	1.63(0.827-3.204)	1.86(0.884-3.902)	0.102

*Significant variable at a p-value< 0.05, PDPH, Post Dural Puncture Headache

5. DISCUSSION

This study was done toassess prevalenceand associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, Eastern Ethiopia. It is an important topic to guide health care workers on the management of PDPH or to make uniform treatment guidelines or procedures. In this study the overall prevalence of PDPH was observed to be more than one third among the study population. The findings of this study identifiedprevious history of spinal anesthesia, previous history of PDPH, large spinal needle size, and cesarean sections done by emergency typeasindependent predictors of PDPH.

The prevalence of PDPH in this study was in line with other studies that was conducted in University of Gondar teaching and referral hospital, Gondar, Ethiopia(Kassa et al., 2015).The finding of this study was higher than studies done in Jordan(Khraise et al., 2017), Nigeria(Mohammed et al., 2017)and turkey(Pirbudak et al., 2019).Study method, population, and clinical setup difference may be the possible reasons for this difference.However this study finding was lower than other studies that was conducted in Gambia(Anyanwu et al., 2024). The discrepancy might be due to the variation in sociodemographic characteristics across studies, clinical setup differences, and study design.

This study revealed that patients who had previous history of spinal anesthesia were 2 times more likely to develop PDPH than those had no previous history of spinal anesthesia. This finding agreeswith the other study that was conducted in Debre Tabor General Hospital, Ethiopia (Demilew et al., 2021). This could be because spinal punctures create a potential site for CSF leakage, and repeated punctures in the same area from prior spinal procedures can weaken the dura mater even more, increasing the likelihood that CSF will leak after a subsequent spinal anesthesia, resulting in a headache from decreased intracranial pressure.

This study depicted that patients who had previous history of PDPH were almost 2 times more likely to develop PDPH than those who had no previous history of PDPH. This study is in line with other study conducted in comprehensive specialized Referral Hospital of Northwest Ethiopia(Mekete et al., 2023) and brazil (Amorim et al., 2012).The association might be explained that post-dural puncture headaches increase the brain's sensitivity to changes in cerebrospinal fluid (CSF) pressure, having a history of these headaches increases the likelihood of getting another one.

According to the findings of this study, a significant association was observed between large spinal needle sizeand PDPH. Patients who received spinal anesthesia using bigger spinal needles (<23gauge) were 2 times more likely to develop PDPH than patients who received spinal anesthesia using smaller needles. This is in line with the studies conducted inDebre Tabor general hospital, Ethiopia(Demilew et al., 2021) and

Colombia (Zorrilla-Vaca et al., 2018). This might be due to the fact thatlarger holes allow more cerebrospinal fluid (CSF) to leak, which makes it less likely to heal on its own. However, there is no association to the outcome variable on the type of design of the needle, because of all were cutting type.

The findings of this study showed that respondents who had cesarean sections done by emergency type of operation were almost three times more likely to develop PDPH than thosewho had cesarean sections done by elective type operation. This is similar to the findings of the studies done in Gambia (Anyanwu et al., 2024). During SA, a needle is inserted into the intrathecal space to numb the spinal cord. As the dura, the membrane that surrounds the spinal cord, is punctured, cerebrospinal fluid (CSF) can leak out and this leakage can cause a headache.

Strengths and Limitations

5.1. Strengths

This study has several strengths.It examined the prevalence of PDPH. The study used interviews complimented with a review of medical records for obtaining comprehensive information about the cesarean section patient. Since there were limited studies done on the prevalence and associated factors of PDPH, the findings will serve as a base line information for researcher and policy makers.

5.2. Limitations

The study has also certain limitations. Biases related to self-report, recall, and social desirability bias may have an impact on the study's findings. Some participants had difficulties of remembering details of previous events. Temporality and causal inferences could not be established because of the nature of the cross-sectional study design. In addition, the study was only limited to one hospital (Hiwot Fana Comprehensive Specialized Hospital) and not generalized to other hospitals in the Harari region.

6. CONCLUSION AND RECOMMENDATIONS

6.1. Conclusions

The result of our study showed that the prevalence of PDPH was high compared with most other studies. Factors such asprevious history of spinal anesthesia and previous history of PDPH, patients who received spinal anesthesia using bigger spinal needles and respondents who had cesarean sections done by emergency have shown statistically significant association.

6.2. Recommendations

The government and health bureau should provide appropriate sized spinal needles forcesarean sectionpatients.The health care providers should pay special attention for emergency cesarean delivery and for mothers who had previous history of spinal anesthesia and PDPH.

For Health bureau and Hospitals

- To develop intervention programs to address the factors identified for PDPH.
- To provide small sized spinal needles forcesarean sectionpatients.
- To encourage the health professionals to do research to identify further influencing factors.
- To encourage researcher and investigator to do research in order simplify treatment regimen.

For Health care professionals

- Should pay due attention to the PDPH and the influencing factors
- To make the treatment regimen simple, by using small spinal needle size.
- To give more attention to patients who had cesarean sections done by emergency type of operation.
- Educate mothers what to do in the postpartumperiod.

For Researchers

- To conduct prospective cohort studies with multicenter andlarge sample size in the future.

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8. ANNEXES

8.1. Information Sheet and Informed Voluntary Consent Form for the Head of Hospital

My name is Gizachew Tilaye, I am a principal investigator of this study and I am a graduating student at Haramaya University, college of health and medical sciences department of anesthesiology critical care and pain medicine. I kindly request to lend me your attention to explain the study, your hospital being selected as a study participant.

The study title: prevalenceand associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia.

Purpose of the study: the main aim of this study is to assess prevalenceand associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia. Moreover, the result of the study will help to improve health services provided by health facilities.

Procedure and duration: Data collector will interview the participants using a questionnaire with 31 questions to provide me with pertinent data that is helpful for the study. The interview will take about 20 minutes.

Risk and benefits: The risk of being participating in this study is very minimal. But few minutes from participants time. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the health care givers and for local healthcare planners.

Confidentiality: The information that we will be provided will kept confidentially. There will be no information that will identify the participant in particular. The findings of the study will be general for the study participants and will not reflect anything particularly of individual person. The questioner will be coded to exclude showing names. No reference in oral or written reports that could link participant to research.

Rights: Participation for this study is fully voluntary. The participants have the right to declare to participate or not in this study. If they decide to participate, they have the right to withdraw from the study at any time and this will not label them for any loss of benefits which they otherwise are entitled. They do not have to answer any question that they do not want to answer.

Contact address: If there are any questions or enquires any time about the study or procedures, please contact in this address.

Principal investigator: Gizachew Tilaye, Email. gizetila@gmail.com, Mobile phone: +251918552377

Institutional Health Research Ethics Review Committee; Office phone: +251-254-66-2011

P.O. Box 235, Harar, Ethiopia.

Declaration of informed voluntary consent:

I have read the participant information sheet. I have clearly understood the purpose of research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that participants have the right to withdraw from the study at any time or not to answer any question that they do not want. I am also informed that the hospital administration has the right to stop this study from being conducted if any misdeeds and unethical procedures are observed during the data collection process in the institution. Therefore, I declare my voluntary consent to permit this study to be conducted in this institution on behalf of_____ hospital management with my signature as indicated below.

Name and signature of Head of institution _____ Date_____

Name and signature of principal investigator_____ Date_____

Thank you for your cooperation!!

8.2. Information Sheet and Informed Voluntary Consent Form for Study Participants

My name is_____. I am working as a data collector for a study conducted by Gizachew Tilaye, who are a graduating student at Haramaya University, college of health and medical sciences department of anesthesiology critical care and pain medicine. I kindly request you to lend me your attention to explain you about the study and study participant.

The study title: Prevalenceand associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia.

Purpose of the study: the main aim of this study is to assess prevalenceand associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia. Moreover, the result of the study will help to improve health services provided by health facilities.

Procedure and duration: I will interview the participants using a questionnaire with 31 questions to provide me with pertinent data that is helpful for the study. The interview will take about 20 minutes.

Risk and benefits: The risk of being participating in this study is minimal. But few minutes from participants time. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the health care giver and for local healthcare planners.

Confidentiality: The information that we will be provided will kept confidentially. There will be no information that will identify the participant in particular. The findings of the study will be general for the study participants and will not reflect anything particularly of individual person. The questioner will be coded to exclude showing names. No reference in oral or written reports that could link participant to research.

Rights: Participation for this study is fully voluntary. The participants have the right to declare to participate or not in this study. If they decide to participate, they have the right to withdraw from the study at any time and this will not label them for any loss of benefits which they otherwise are entitled. They do not have to answer any question that they do not want to answer.

Contact address: If there are any questions or enquires any time about the study or procedures, please contact in this address.

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Institutional Health Research Ethics Review Committee; Office phone: +251-254-66-2011

P.O. Box 235, Harar, Ethiopia.

Declaration of informed voluntary consent:

I have read this form or it has been read to me in the language I understand. I have clearly understood the purpose of research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to participate in this study with my signatureas indicated below.

Name and signature of participant _____ Date _____

Name and signature of data collector_____ Date _____

Thank you for your cooperation!!

8.3. Participant Information Sheet and Informed Voluntary Consent Form For Minors (Age < 18 Years) /Vulnerable Individuals to Be Signed By Their Legal Competent Adult Representative

Introduction: My name is_____. I am working as a data collector for a study conducted by **Dr** .**Gizachew Tilaye**, who is studying for Anesthesiology, critical care, and pain medicine Specialty at Haramaya University, the College of Health and Medical Sciences. I kindly request you to lend me your attention to explain you about the study and study participant.

The study title: : prevalence and associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia

Purpose of the study: the main aim of this study is to assess prevalence and associated factors of postdural puncture headache in cesarean section patients following spinal anesthesia at Hiwot Fana Comprehensive Specialized Hospital, Harar, eastern Ethiopia. Moreover, the result of the study will help to improve health services provided by health facilities

Procedure and duration: Data collector will interview the participants using a questionnaire with 31 questions to provide me with pertinent data that is helpful for the study. The interview will take about 20 minutes.

Risks and benefits: The risk of participating in this study is very minimal. But few minutes from participants time. There would not be any direct payment for reviewing in this study. But, the findings from this research will reveal important information for the health care givers and for local healthcare planners.

Confidentiality: The information that we will be provided will kept confidentially. There will be no information that will identify your child or yourself in particular. The findings of the study will be general for the study participants and will not reflect anything particularly of individual person. The questioner will be coded to exclude showing names. No reference in oral or written reports that could link participant to research.

Rights:

Participation for this study is fully voluntary. You have the right to declare to allow your child to be involved in this study or not. If you would allow your child for this study, you have the right to withdraw him/her from the study at any time and this will not label you/your child for any loss of benefits which you/your child otherwise are entitled. You do not have to answer any question that you do not as well.

Contact address: If there are any questions or enquires any time about the study or procedures, please contact in this address.

Principal investigator: Gizachew Tilaye, Email. gizetila@gmail.com, Mobile phone: +251918552377
Institutional Health Research Ethics Review Committee; Office phone: +251-254-66-2011
P.O. Box 235, Harar, Ethiopia.

Declaration of informed voluntary consent:

I have read this form or it has been read to me in the language I understand. I have clearly understood the purpose of the research, the procedures, the risks and benefits, issues of confidentiality, the rights of participating and the contact address for any queries. I have been given the opportunity to ask questions for things that may have been unclear. I was informed that I have the right to withdraw my child from the study at any time or not to answer any question that I do not want. Therefore, I declare my voluntary consent to allow my child to participate (be involved) in this study with my initials (signature).

8.4. Questioners

Part one: Patient Identification

Ser. No	Items	Responses
101	Serial number	_____
102	Date of admission	_____
103	Contact Telephone number	_____

Part two: Sociodemographic characteristics

201	Age in years	_____
202	Parity	_____
203	Residency	a) Urban b) Rural
204	Height in meter	_____
205	Weight in Kg	_____
206	Previous history of spinal anesthesia	a) Yes b) No
207	Previous history of PDPH	a) Yes b) No

Part three: Anesthetic and clinical characteristics

301	Time at which the spinal anesthesia is given	_____
302	Spinal needle used	a) Type (design)_____ b) Size_____
303	Position	a) Siting b) Lateral
304	Number of attempts	a) Single attempt b) Twice attempt c) >2 attempts
305	Type of cesarean section	a) Emergency b) Elective
306	Approach to the spinal anesthesia	a) Midline

		b) Paramedian
307	Orientation of the needle bevel to the long axis of the spine	a) Parallel b) Perpendicular
308	Provider's experience in years	----------year
309	Preexisting headache	a. yes b. no
310	Comorbidities (if yes go to next question)	a. yes b. no
311	Diabetes mellitus	a. yes b. no
312	Cardiovascular disease	a. yes b. no
313	Stroke	a. yes b. no
314	Kidney disease	a. yes b. no
315	Asthma	a. yes b. no
316	Others	a. yes b. no

Part four:Follow Up Data in Maternity Wards

401	PDPH	a) Present b) Absent
402	Time of onset of PDPH after spinal block	a) Within the 1st 24hrs. b) After 24hrs within 48hrs. c) After 48hrs within 72hrs. d) After 3 days within 14 days
403	Severity of headache	a) Mild b) Moderate c) Severe
404	Other symptoms associated with PDPH	a) Neck stiffness

		b) Low back pain c) Nausea d) Vomiting e) Vertigo f) Tinnitus
405	What measures do you take for your headache?	A) Take rest B) Fluid diet C) IV fluid D) Caffine(Coffee, Tea, Cola) E) Analgesic a) Paracetamol b) Diclofenac c) Ibuprofen d) Opoids (specify)_____ e) Other (Specify)_____

8.5. Information Sheet and Informed Voluntary Consent Form for Study Participants (Amharic version).

ስሜ---------- ይባላል። በሀሮማያ ዩኒቨርሲቲ ጤና እና ህክምና ሳይንስ ኮሌጅ በሰመመን እና ፅኑ ህሙማን እንክብካቤ ህክምና ትምህርት ክፍል የድህረ ምረቃ ተማሪ በሆኑት ግዛቸው ጥላዬ ለተካሄደ ጥናት መረጃ ሰብሳቢ ሁኝ እየሰራሁ ነው። ስለጥናቱ እና የጥናቱ ተሳታፊ ለዕርስዎ ለማስረዳት ትኩረት እንዲሰጠኝ ስል በትህትና እጠይቃለሁ፡

የጥናቱ ርዕስ፡ በህይወት ፋና ሁሉን አቀፍ ስፔሻላይዝድ ሆስፒታል ውስጥ በቀዶ ጥገና ከሚዎልዱት እናቶች መካከልከድህረ ዱራል መበሳት በሁላ ስለሚከሰት የራስ ምታት እና የሚያጋልጡሁኔታዎችን መለየት።

የጥናቱ አላማ፡ የዚህ ጥናት ዋና አላማ በህይወት ፋና ሁሉን አቀፍ ስፔሻላይዝድ ሆስፒታል ውስጥ ካሉ በቀዶ ጥገና ከሚዎልዱት እናቶች መካከልከድህረ ዱራል መበሳት በሁላ ስለሚከሰት የራስ ምታት እና የሚያጋልጡሁኔታዎችንመለየት። በተጨማሪም የጥናቱ ውጤት በጤና ተቋማት የሚሰጠውን የጤና አገልግሎት ለማሻሻ ይረዳል።

የጥናቱ ሂደት እና ቆይታ፡ ለጥናቱ የሚረዳ ጠቃሚ መረጃ እንዲሰጠኝመጠየቅን በመጠቀም ጠቅላላ 31 ጥያቄዎችለተሳታፊወች ቃለመጠይቅ አደርጋለሁ። ቃለመጠይቁ 20 ደቂቃ ያህል ይወስዳል።

ጥቅም እና ጉዳት፡ በዚህ ጥናት ውስጥ ለሚሳተፉት ምንምአይነትጉዳትየለውም። ነገር ግን ከተሳታፊወች ጊዜ ጥቂት ደቂቃዎች ይወስዳል። በዚህ ጥናት ውስጥ ለማምገማ ምንም አይነት ቀጥተኛ ክፍያ አይኖርም። ነገር ግን ከዚህ ምርምር የተገኙት ግኝቶች ለማህበረሰቡ እና ለአካባቢው የጤና እንክብካቤ እቅድ አውጪወች ጠቃሚ መረጃን ያሳያሉ።

ሚስጥራዊነት፡ የምናቀርበው መረጃ በሚሰጥር ይጠበቃል። በተለይ ተሳታፊውን የሚለይ መረጃ አይኖርም። የጥናቱ ግኝቶች ለጥናት ማህበረሰብ አጠቃላይ ይሆናል እናም የግለሰብን ሰው ምንም የሚያንፀባርቅ አይሆንም። ጠያቂው ስሞችን ከማሳየት እንዲገለሉ ኮድ ይደረጋል። ተሳታፊውን ከምርምር ጋረ ሊያገናኝ የሚችል የቃል ወይም የፁሁፍ ዘገባወች ምንም ማጣቃሻ የለም።

መብቶች፡ የዚህ ጥናት ተሳትፎ ሙሉ በሙሉ በፍቃደኝነት ነው። ተሳታፊዎች በዚህ ጥናት ውስጥ ለመሳተፍ ወይም ላለመሳተፍ የመግለፅ መብት አላቸው። ለመሳተፍ ከወሰኑ በማንኛውም ጊዜ በጥናቱ የመውጣት መብት አላቸው እና ይህ ካልሆነ ግን መብት ላላቸው ጥቅማጥቅሞች ኪሳራ አይገልፁም ሊመልሱት የማይፈልጉትን ጥያቄ መመለስ አያስፈልጋቸውም።

አድራሻ፡ ስለ ጥናቱ ወይም አካሄዶቹ ማናቸውም ጥያቄዎች ካሉ እባክዎ በዚህ አድራሻ ያግኙ።

የጥናቱ መሪ ግዛቸው ጥላዬ ፡ ኢሜይል፡ gizetila@gmail.com. ሞባይል ስልክ +251918552377

ተቋማዊ የጤና ጥናት እና ምርምር ስነምግባር ግምገማ ኮሚቴ፡ ስልክ፡ +251-254-66-2011

ፖ. ሣ. ቁ. 235፡ ሐረር፣ ኢትዮጵያ።

በመረጃ ላይ የተመሰረተ የፍቃደኝነት ስምምነት መግለጫ

ይህን ቅፅ አንብቤዋለሁ ወይም በምረዳው ቋንቋ ተነቦልኛል:: የጥናቱ አላማውን፣ አካሄዶቹን፣ ስጋቶቹን እና ጥቅሞቹን፣ ሚስጥራዊነት ጉዳዮቹን፣ የመሳተፍ መብቶችን እና ለማንኛውም መጠይቆች አድራሻውን በግልፅ ተረድቻለሁ። ግልፅ ባልሆኑ ጉዳዮች ላይ ጥያቄወችን እንድጠይቅ እድል ተሰጥቶኛል። በማንኛውም ጊዜ ከጥናቱ የመውጣት ወይም የማልፈልገውን ማንኛውንም ጥያቄ ላለመመለስ መብት እንዳለኝ ተነግሮኛል። ሰለዚህ ከዚህ በታች በተገለፀው መሰረት በዚህ ጥናት ለመሳተፍ በፍቃደኝነት መስማማቴን በፊርማዬ አረጋግጣለሁ።

የተሳታፊው ስም እና ፊርማ ----------ቀን----------

የመረጃ ሰብሳቢው ስም እና ፊርማ----------ቀን----------

ለትብብርዎ እናመሰግናለን!!!

8.6. Amharic Version of Participant Information Sheet and Informed Voluntary Consent Form for Minors (Age < 18 Years) /Vulnerable Individuals to Be Signed By Their Legal Competent Adult Representative (Amharic Version).

ስሜ----------ይባላል::

በሀሮማያዩኒቨርሲቲጤናእናህክምናሳይንስኮሌጅበሰመመንእናፅኑህሙማንእንክብካቤህክምናትምህርትክፍልየድህረ ምረቃተማሪበሆኑት**ግዛቸውጥላዬ**ለተካሄደጥናትመረጃሰብሳቢሁኝእየሰራሁነው።ስለጥናቱእናየጥናቱተሳታፊለዕርስ ዎለማስረዳትትኩረትእንዲሰጠኝስልበትህትናእጠይቃለሁ፡

የጥናቱርዕስ፡በህይወትፋናሁሉንአቀፍስፔሻላይዝድሆስፒታልውስጥበቀዶጥገናከሚዎልዱትእናቶችመካከልከድህረዱ ራልመበሳትበሁላስለሚከሰትየራስምታትአናየሚያጋልጡሁኔታዎችንመለየት።

የጥናቱአላማ፡የዚህጥናትዋናአላማበህይወትፋናሁሉንአቀፍስፔሻላይዝድሆስፒታልውስጥካሉበቀዶጥገናከሚዎልዱ ትእናቶችመካከልከድህረዱራልመበሳትበሁላስለሚከሰትየራስምታትአናየሚያጋልጡሁኔታዎችንመለየት።በተጨማሪ ምየጥናቱውጤትበጤናተቋማትየሚሰጠውንየጤናአገልግሎትለማሻሻይረዳል።

የጥናቱሂደትእናቆይታ፡ለጥናቱየሚረዳጠቃሚመረጃእንዲሰጠኝመጠየቅንበመጠቀምጠቅላላ 31 ጥያቂዎችለተሳታፊወችቃለመጠይቅአደርጋለሁ።ቃለመጠይቁ20 ደቂቃያህልይወስዳል።

ጥቅምእናጉዳት፡በዚህጥናትውስጥለሚሳተፉትምንምአይነትጉዳትየለውም።ነገርግንከተሳታፊወችጊዜጥቂትደቂቃዎ ችይወስዳል።በዚህጥናትውስጥለግምገማምንምአይነትቀጥተኛክፍያአይኖርም።ነገርግንከዚህምርምርየተገኙትግኝቶ ችለማህበረሰቡእናለአካባቢውየጤናእንክብካቤእቅድአውጪወችጠቃሚመረጃንያሳያሉ።

ሚስጥራዊነት፡የምናቀርበውመረጃበሚሰጥርይጠበቃል።በተለይተሳታፊውንየሚለይመረጃአይኖርም።የጥናቱግኝቶ ችለጥናትማህበረሰብአጠቃላይይሆናልእናምየግለሰብንሰውምንምየሚያንፀባርቅአይሆንም።ጠያቂውስሞችንከማሳየ ትእንዲገለሉኮድይደረጋል።ተሳታፊውንከምርምርጋረሊያገናኝየሚችልየቃልወይምየፁሁፍዘገባወችምንምማጣቃሻየለ ም።

መብቶች፡የዚህጥናትተሳትፎሙሉበሙሉበፍቃደኝነትነው።ተሳታፊዎችበዚህጥናትውስጥለመሳተፍወይምላለመሳተ ፍየመግለፅመብትአላቸው።ለመሳተፍከወሰኑበማንኛውምጊዜበጥናቱየመውጣትመብትአላቸውእናይህካልሆነግንመ ብትላላቸውጥቅማጥቅሞችኪሳራአይገልፁምሊመልሱትየማይፈልጉትንጥያቄመመለስአያስፈልጋቸውም።

አድራሻ፡ስለጥናቱወይምአካሄዶቹማናቸውምጥያቄዎችካሉእባክዎበዚህአድራሻያግኙ።

የጥናቱመሪግዛቸውጥላዬ፡ኢሜይል፡gizetila@gmail.com.ሞባይልስልክ +251918552377

ተቋማዊየጤናጥናትእናምርምርስነምግባርግምገማኮሚቴ፡ስልክ፡+251-254-66-2011

ፖ. ሣ. ቁ. 235፡ሐረር፣ኢትዮጵያ።

በመረጃላይየተመሰረተየፍቃደኝነትስምምነትመግለጫ

ይህንቅፅአንብቤዋለሁወይምበምረዳውቋንቋተነበልኛል::

የጥናቱአላማውን፣አካሄዶቹን፣ስጋቶቹንእናጥቅሞቹን፣ሚስጥራዊነትጉዳዮቹን፣የመሳተፍመብቶችንእናለማንኛውም መጠይቆችአድራሻውንበግልፅተረድቻለሁ።ግልፅባልሆኑጉዳዮችላይጥያቄወችንእንድጠይቅእድልተሰጥቶኛል።በማንኛ ውምጊዜከጥናቱየመውጣትወይምየማልፈልገውንማንኛውንምጥያቄላለመመለስመብትእንዳለኝተነግሮኛል።ሰለዚህ ከዚህበታችበተገለፀውመሰረትበዚህጥናትለመሳተፍበፍቃደኝነትመስማማቴንበፊርማዬአረጋግጣለሁ።

የጥናቱተሳታፊስም:_____ (እድሜ 12-17 አመት፤ጥናቱእንዲደረግመስማማቴ☐ነው።)_____ቀን_____

የወላጅ /አሳዳጊስምእናፊርማ _____ቀን_____

የመረጃሰብሳቢውስምእናፊርማ _____ቀን._____

8.7. Questionnaire (Amharic version)

ክፍል አንድ: የታካሚወች መለያ

ተ.ቁ	ጥያቆዎች	ምላሾች
101	ተራ ቁጥር	_____
102	ሆስፒታል የገባበት ቀን	_____
103	ሞባይል ስልክ ቁጥር	_____

ክፍል ሁለት፡ማህበራዊ ሁኔታን የተመለከቱ ጥያቄዎች

201	ዕድሜዎበዓመትስንትነዉ ?	_____
202	እስካሁን የወለዱት ልጅ ብዛት	_____
203	መኖሪያዎየትነዉ?	1. ከተማ 2. ገጠር
204	ቁመት በሜትር ስንትነዉ?	_____
205	ክብደት በ kg ስንትነዉ ?	_____
206	ከዚህ በፊትየሰመመን መድሃኒት ወስደው ያውቃሉ?	1. አዎ 2. የለም
207	ከዚህ በፊት ከድህረ ዱራል መበሳት በሁላ የራስ ምታት አጋጥሞዎት ያውቃል ?	1. አዎ 2. የለም

ክፍል ሶስት: የሰመመን መድሃኒት አሰጣጥ እና የታካሚዋ ሁኔታ

301	የሰመመን መድሃኒት የተሰጠበት ሰአት	_____
302	የሰመመን መድሃኒት መስጫ መድፊ	1 አይነት_____ 2 መጠን _____
303	አቀማመጥ	1 በመቀመጥ 2በጎን
304	የሙከራ ብዛት	1 አንድ ጊዜ 2 ሁለት ጊዜ 3 ከሁለት ጊዜ በላይ

305	የቀዶ ጥገና አይነት	1 ድንገተኛ 2 ድንገተኛ ያልሆነ
306	የሰመመን መድሃኒት ለመስጠት የባለሙያው አቀራረብ	1ትይዩ 2 ፓራሚዲያን
307	የመድፈው ጫፍ አቀማመጥ ከታካሚው ሰውነት ላይ	1ትይዩ 2 ቀጥ ያለ
308	የሰመመን ሰጪው ስራልምድ በአመት	_____
309	ከዚህ በፊት የራስ ምታት ነበረብዎት	1. አዎ2. የለም
310	ከደምግፊቱበተጨማሪሌላበሽታአለበዎት? ካርድበማየትጭምርየሚሞላ	1. አዎ2. የለም
311	የስኳርበሽታ	1. አዎ2. የለም
312	የልብደምቧንቧበሽታ	1. አዎ2. የለም
313	ስትሮክ	1. አዎ2. የለም
314	የኩላሊትበሽታ	1. አዎ2. የለም
315	አስም	1. አዎ2. የለም
316	ሌሎች(ይጠቀስ)_____	

ክፍል አራት:በአናቶች መኝታ ክፍል ውስጥ ስላለው ክትትል በተመለከተ

401	ከድህረ ዱራል መበሳት በሁላ የራስ ምታትአለ	1. አዎ2. የለም
402	ሰመመን ከተሰጠ በሁዋላ የራስ ምታቱ የጀመረበት ሰአት	1. በመጀመሪያወቹ 24 ሰአት ውስጥ 2. ከ 24 ሰአት በሁዋላ በ 48 ሰአት ውስጥ 3. ከ 48 ሰአት በሁዋላ በ 72 ሰአት ውስጥ 4. ከ 3 ቀን በሁዋላ በ 14 ቀን ውስጥ
403	የራስምታቱ ደረጃ	1. ቀላል 2. መካከለኛ 3. ከባድ

404	ከድህረ ዱራል መበሳት በሁላ ላለ የራስ ምታት ተጨማሪ ምልክቶች	1. የአንገት መገተር 2. የዝቅተኛው የጀርባ ህመም 3. ማቅለሽለሽ 4. ማስመለስ 5. ማዞር 6. የጆሮ መጮህ
405	ለራስ ምታት ተብሎ የተወሰደው ነገር	1. ረፍት መውሰድ 2. ፈሳሽ መመገብ 3. በደም ስር ፈሳሽ መውሰድ 4. ካፌን (ቡና፣ ሻይ፣ ኮላ) 5. የህመም ማስታገሻ i. ፓራስታሞል ii. ዳይክሎፌናክ iii. ኢቡፕሮፌን iv. ኦፖይድ (ይግለፁ)_____ v. ሌሎች (ይግለፁ)_____

8.8. Information Sheet and Informed Voluntary Consent Form for Study Participants (Afan Oromo version).

Maqaan koo _____,Qorannaa Gizachew Tilaye;Duree qorataa qorannaa kanaa fi koollejji fayyaa yunivarsiitii haramaayaatti ,kutaa barnootaa yaala Qoricha Hadhoocha dhiibee cimaatti barataa Oggessa kadhimama yaala Qoricha Hadhoocha dhiibee cimaa tahee kan barachaa jiruuf sassaabaa odeeffanno taheen hojjachaa jira. Waa'ee qoranno kana fi hirmaataa qorannoo kanaa isin hubachiisuuf akka xiyyeffanno naaf kannittan isin gaafadha.

Mata dureen qorannaadha : Kutaa hadhooli baqaaqfamani dahanitti Taateewwan fi wantoota Dhuukkibbi mataa erga Qoricha Hadhoccha fudhatan booda jiruun walqabaatee irratti, Hopiitala addaa giddugalessa hiwoot fanaa,Harar, Baha Itoopiyaatti.

Kaayyoon qorannaadhaa: kaayyoon qorannaa kana Kutaa hadhooli baqaaqfamani dahanitti Taateewwan fi wantoota Dhuukkibbi mataa erga Qoricha Hadhoccha fudhaan booda jiruu walqabaatan irrtti, Hopiitala addaa giddugalessa hiwoot fanaa,Harar, Baha Itoopiyaatti argamu kessatti tajaajila fayyaa kennamuu foyyesuuf gargaara.

Adeemsa qoraannaati fi turtii yeroodha: Gaafiilee qoroonnodhaaf na gargaaran fayyadamuun hirmaatoota qorannaa kana bifa gaafiitiin odeeeffanno qorannodhaaf barbaachiisoo tahan akka naaf kennan nan gaafadha. Af gaafiiniis haga daqiiqaa 20 ni fudhata.

Miidhaa fi bu'aa : Miidhaan qoraannaa kana irratti hirmaataa tahuudhaa garmalee xiqqaadha.. Garuu hirmaataa qorannaa kana yeroo(daqiidaa) xiqqo irraa ni fudhata. Qoranna kanaaf kaffaltiin kallattiidhaan kaffalamu hin jiru. Garuu bu'aan qoraannaa kana irraa argamuu hawaasaafi karoorsaa dhiimmaa tajaajila fayyaa naannootiif odeeffanno barbaachisaa tahe ni keenna.

Icciitiwwan: Odeeffannoon dhiheessinuu icciitiidhaan eggama. Odeeffannoon eenyuumma hirmaataa ibsuu tokkolleen hin jiraatu. Bu'aan qoraannoo irraa argamuu akkuma waligalaatti bu'aa qoraanna hawaasaa qorannaan irratti gaggeffame malee qorannoo hirmaattoota dhunfaa hin ibsu. Gaafiileen akkaa maqaa hin ibsine jechaa dhooysaa(siirri) itti fayyadamna.Hirmaataa qoraanna waliin kan walqabsiisuu dandahu gabaasnii jechaaniis barreffammaaniis wabiitahee hin jiru.

Mirgoota: Qorannaa kana kessatti hirmaachun guutumaa gututti fedhiinaadhaani. Hirmaattonni qorannoo kana keessatti hirmaataan qoranno kana keessatti hirmaachuu fi hirmaachuu dhabuu ibsuu mirga qabu. Yoo hirmaachuudhaaf hayyamoomoo tahu murteessannille yeroo barbaadanitti qorannoo adda muruu mirga qabu. Akkasuma adda muruun kun bu'aa argachuu qaban tokkolle irraa hin hir'isuu. Gaafii deebiisuu hin feenee deebisuu dhabuu hirmaaattonni mirga qabu.

Iddoo (Teessoo): Waa'ee qorannoo kana fi adeemsa isa waliin gaafilee fedheeyyu haatahu yoo qabaatan teesso Kanaan na argachuu dandeessu.

Duree Qoratootaa qorannoo kana: **Gizachew Tilaye,** imeelii. gizetila@gmail.comBilbila: +251918552377.
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Lakkoofsa sandudaa 235, Harar, Itoopiyaa.

Ibsa walta'iinsa hayyamiinsaa ragaa irratti hundaayee

Boca kana dubbiseera yookaan afaan an hubadhuun naaf dubbifameera. Ani kaayyoo qorannodhaa,adeemsa isaa,miidhaa fi bu'aa isaa,dhiimma iccitiidhaa, mirga hirmaachuudhaa fi tessoo qorataadha gaafiilee kamifiyyu ifaan ifatti hubadheera. Dhiimma ifaa hin taanee gaafachuuf carra argadheera. Hirmaatoonni yeroo kammittu qoranno adda muruu fi gaafiilee deebisuu hin barbaanne deebisuu dhabuu akka dandahan natti himameeera. Kanaafuu an fedhii kootiin qoraannoo kana irratti hirmaachuudhaaf hayyamoo tahu koo mallattoo too asi gadiitiin beeksiseera (ibseera).

Maqaa fi mallatto Hirmaataadha _____Guyyaa_____

Maqaa fi mallatto nama odeffanno qoranno funaanaa jiru _____Guyyaa_____

Gargaarsa kessanniif galatoomaa

8.9. Participant Information Sheet and Informed Voluntary Consent Form for Minors (Age < 18 Years) /Vulnerable Individuals to Be Signed By Their Legal Competent Adult Representative(Afan Oromo version).

Maqaan koo _____,Qorannaa Gizachew Tilaye;Duree qorataa qorannaa kanaa fi koollejji fayyaa yunivarsiitii haramaayaatti ,kutaa barnootaa yaala Qoricha Hadhoocha dhiibee cimaatti barataa Oggessa kadhimama yaala Qoricha Hadhoocha dhiibee cimaa tahee kan barachaa jiruuf sassaabaa odeeffanno taheen hojjachaa jira. Waa'ee qoranno kana fi hirmaataa qorannoo kanaa isin hubachiisuuf akka xiyyeffanno naaf kannittan isin gaafadha.

Mata dureen qorannaadha : Kutaa hadhooli baqaaqfamani dahanitti Taateewwan fi wantoota Dhuukkibbi mataa erga Qoricha Hadhoccha fudhatan booda jiruun walqabaatee irratti, Hopiitala addaa giddugalessa hiwoot fanaa,Harar, Baha Itoopiyaatti.

Kaayyoon qorannaadhaa: kaayyoon qorannaa kana Kutaa hadhooli baqaaqfamani dahanitti Taateewwan fi wantoota Dhuukkibbi mataa erga Qoricha Hadhoccha fudhaan booda jiruu walqabaatan irrtti, Hopiitala addaa giddugalessa hiwoot fanaa,Harar, Baha Itoopiyaatti argamu kessatti tajaajila fayyaa kennamuu foyyesuuf gargaara.

Adeemsa qoraannaati fi turtii yeroodha: Gaafiilee qoroonnodhaaf na gargaaran fayyadamuun hirmaatoota qorannaa kana bifa gaafiitiin odeeeffanno qorannodhaaf barbaachiisoo tahan akka naaf kennan nan gaafadha. Af gaafiiniis haga daqiiqaa 20 ni fudhata.

Miidhaa fi bu'aa : Miidhaan qoraannaa kana irratti hirmaataa tahuudhaa garmalee xiqqaadha.. Garuu hirmaataa qorannaa kana yeroo(daqiidaa) xiqqo irraa ni fudhata. Qoranna kanaaf kaffaltiin kallattiidhaan kaffalamu hin jiru. Garuu bu'aan qoraannaa kana irraa argamuu hawaasaafi karoorsaa dhiimmaa tajaajila fayyaa naannootiif odeeffanno barbaachisaa tahe ni keenna.

Icciitiwwan: Odeeffannoon dhiheessinuu icciitiidhaan eggama. Odeeffannoon eenyuumma hirmaataa ibsuu tokkolleen hin jiraatu. Bu'aan qoraannoo irraa argamuu akkuma waligalaatti bu'aa qoraanna hawaasaa qorannaan irratti gaggeffame malee qorannoo hirmaattoota dhunfaa hin ibsu. Gaafiileen akkaa maqaa hin ibsine jechaa dhooysaa(siirri) itti fayyadamna.Hirmaataa qoraanna waliin kan walqabsiisuu dandahu gabaasnii jechaaniis barreffammaaniis wabiitahee hin jiru.

Mirgoota: Qorannaa kana kessatti hirmaachun guutumaa gututti fedhiinaadhaani. Hirmaattonni qorannoo kana keessatti hirmaataan qoranno kana keessatti hirmaachuu fi hirmaachuu dhabuu ibsuu mirga qabu. Yoo hirmaachuudhaaf hayyamoomoo tahu murteessannille yeroo barbaadanitti qorannoo adda muruu mirga qabu. Akkasuma adda muruun kun bu'aa argachuu qaban tokkolle irraa hin hir'isuu. Gaafii deebiisuu hin feenee deebisuu dhabuu hirmaaattonni mirga qabu.

Iddoo (Teessoo): Waa'ee qorannoo kana fi adeemsa isa waliin gaafilee fedheeyyu haatahu yoo qabaatan teesso Kanaan na argachuu dandeessu.

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Ibsa hayyama tola ooltummaa beekumsa qabu:

Waraqaa odeeffannoo hirmaattotaa dubbiseera/ naaf dubbifameera. Kaayyoo qorannichaa, hojimaata, balaa fi faayidaa, dhimmoota iccitii, mirga hirmaachuu fi teessoo quunnamtii gaaffii kamiifuu sirriitti hubadheera. Wantoota ifa hin taane ta'uu danda'aniif gaaffii akkan gaafadhu carraan naaf kennameera. Yeroo barbaadetti qo'annoo keessaa ba'uuf ykn gaaffii ani hin barbaanne kamiyyuu deebisuuf mirga akkan qabu naaf himameera. Kanaafuu, qorannoo kana irratti hirmaachuuf fedhii kootiin hayyama koo qubee jalqabaa (mallattoo) kootiin nan ibsa.

Maqaahirmaataa qoranichaa: _____(umurii 12-17, qoranichi akka raawwatu waligalteen mirkaneeseera_____ Guyyaa _____

Maqaa fi mallattoo abbaa fihaadhaa/guddifataa _____ Guyyaa _____.

Maqaa fi mallattoo Walitti qabaa Odeeffannoo: _____Guyyaa _____.

8.10. Questionnaire (Afan Oromo version)

Kutaa Tokkoffa: odeeffanno yaalama adda baasuu ilaalate

Lakkofsa tartiibaa	Gaafilee	deebilee
101	Lakkofsa Tartibba addaa	_____
102	Guyyaa mana yaalaa seenan	_____
103	Lakkofsa bilbilaa	_____

Kutaa Lammaffa:Gaafile hawaasa-dimoogiraafi ilaallate

201	Uumrii kee meeqa ? (waggaan/gannaan)	_____
202	Haga amma baayi'inaan ilma meeqa dessee ?	_____

203	Essa jiraatta	1. Magaalaa 2. Baaddiyyaa
204	Dheerinni kee meetiraan meeqa ?	_____
205	Kulfinni ykn furdinni kee kilograamaan meeqa ?	_____
206	Ammaan dura qorichaa hadochaa lafee duugdaatiin kennamu fudhatte beektaa ?	1. Eyye 2. Lakki
207	Ammaan duraa erga Qoriicha hadhocha lafa dugdaatiin fudhatte booda dhukkubbiin mataa si qunname ture?	1. Eyye 2. Lakki

Kutaa Sadaffa: Akkaata Qoriichii Hadoochaa ittin kennamufi haala yaalamaa ilaalate

301	Sa'aa dawaan hadoochaadha lafee dugdaatiin kenname itti kenname	_____
302	Ilmee hadhoochaaf lafee dugdaattin kannamuf fayyadamame	1Gosa isaa_____ 2 hamma isaa (ballinaan) _____
303	Akkaataa taahuumsa (Ejjenno)	1Taahuudhaan 2Cinaachaan
304	Marraa meeqa yaalame	1 Yeroo Tokko 2 Yeroo Lama 3 Yeroo lama ol
305	Goosa baqeessa hodhu isa kami ?	1Hatatamsistu 2 Hatatamsisitu kan hin tahini
306	Akkaata ogessii hadoocha lafee dugdaatiin kennu ittin dhiihaatee hadochaa keenuuf	1Kallatti walakkaan 2 paramidi'an
307	Qaama yaalamaa irratti Akkaata lilmmoon ittin kaawamee	1wal cinaa 2 kallatuma fulleen
308	Muxanno hojii kan Ogessa hadoocha keenne waggaadhaan?	_____

309	Ammaan dura dhukkubbi mataa qabda ture ?	1. Eyyee2. Lakkii
310	dhibee biro ni qabu ture ? eyye yoo tahe , gaafile itti anutti dabraa	1. Eyyee2. Lakkii
311	Dhibe Sukkaraa	1. Eyyee2. Lakkii
312	Dhibe Onne	1. Eyyee2. Lakkii
313	Dhibee dhangalahu dhigaa gama sammuttit(istrooki)	1. Eyyee2. Lakkii
314	Dhibe Kale	1. Eyyee2. Lakkii
315	Dhibe asmiidhaa	1. Eyyee2. Lakkii
316	Kan biroo(haa ibsamu)_____	

Kutaa afraffaa: odeeffannoo kutaa ciisicha hadhoolee kessa jiruu walin walqabate

401	Erga qoricha hadochaa lafee duugdaatiin fudhatan booda dhukkubbin mata turee ra?	1. Eyyee2. Lakkii
402	Dhuukkubbi mataa yoom egale erga Qorichaa hadoochaa lafee dugdaatiin fudhatan booda	1. Sa'aatii 24 duraatti 2. sa'aati 24 booda hanga sa'aati 48 keessatti 3. sa'aati 48 booda hanga sa'aati 72 keessatti 4. Guyya sadii irra hanga Guyya 14 keessatti
403	Sadaarkaa dhukkubbi mataa	1. Salphaa 2. Jiddu gala 3. Ulfaataa
404	Erga qoricha hadochaa lafee duugdaatiin fudhatan booda dhukkubbin mataatti ala Mallattooleen bira jira ?	1. mormii jabaachuu 2. dhukkubbi dugdaa gad aanaa 3. machaahu 4. Qooqiffachu (Haqiisu) 5. lafti sin maru 6. Iyyensa Gurraa

405	Dhuukkubbi mataatiif qorichii fudhatame jira	1. Boqoonnaa Fudhachu 2. dhangalaho fudhachu fi Nyaachu 3. Hiidda dhigaattin dhangalahoo fudhachu 4. Buna, shaayi , kookaafa fudhachu 5. Qoricha dhukkubbidhaa fudhachu i. pariistamool ii. daaykiloofenaak iii. ibupiroofiin iv. opooyidi (Haa ibsamu)_____ v. Kan biro (Haa ibsamu)_____