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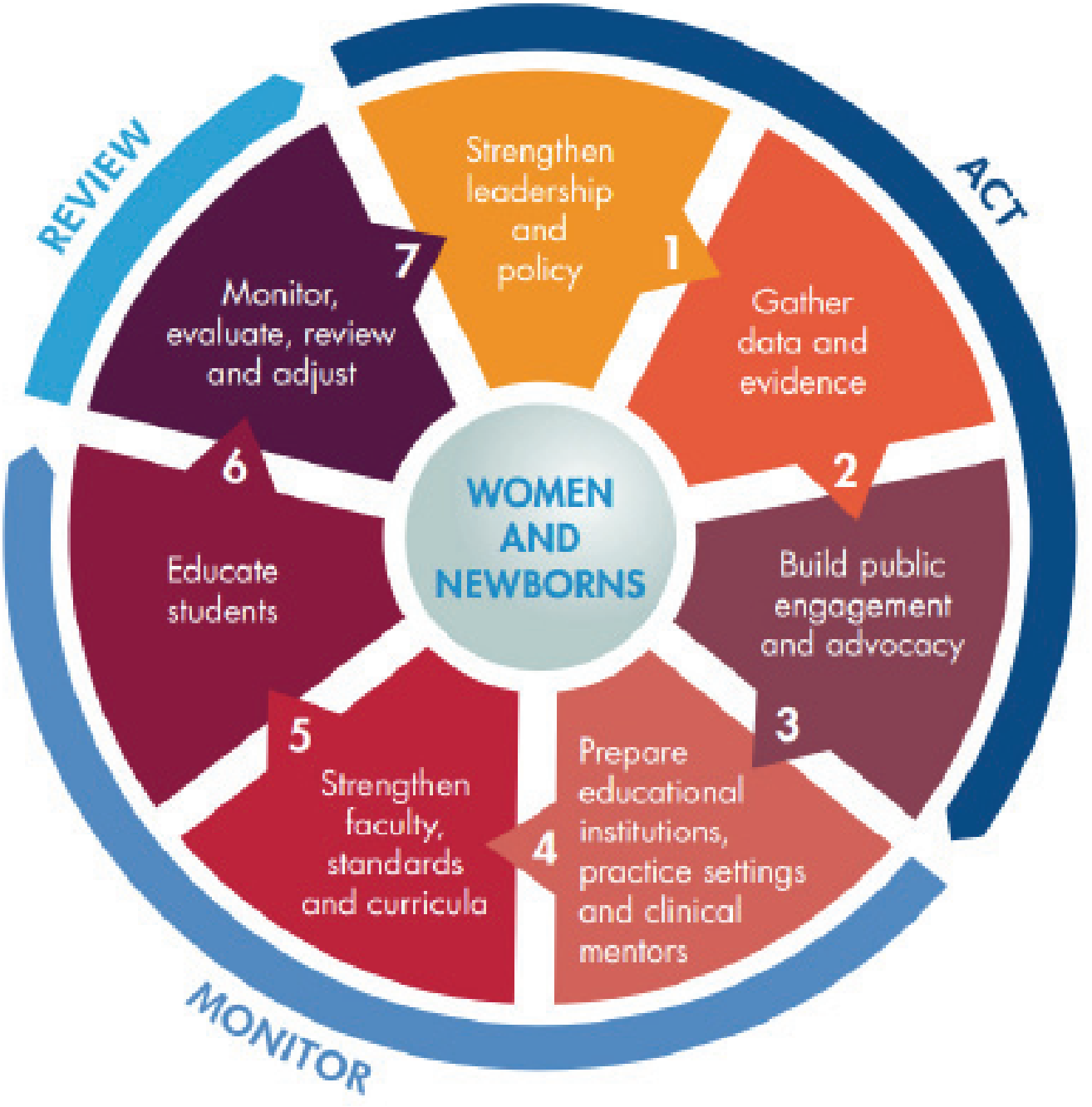

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Women, Midwives and COVID-19

Sabitri Sapkota

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Women have been worst hit by COVID-19 pandemic globally, mainly in Low and Middle Income Countries (LMICs).[1] Within the fragile health system, they are most vulnerable when it comes to seeking information, services and care during pregnancy, birth and period following childbirth.[2] In Nepal, most reproductive maternal and child health services are delivered from health institutions. Healthcare system have been designed across the country in such a way that encourages pregnant women to go to health institutions for childbirth.[3] We have little to no existing guidelines and protocols for safe home birth or alternate support mechanism with or without professional support during childbirth, and referral in case of complications.[4] As a result, during the lockdown, restrictions imposed to respond to COVID-19, Nepal's institutional childbirth halved, and the institutional stillbirth rate and neonatal mortality rate increased.[5] This data has shown the reality of our healthcare system in a time of crisis and stress, and that more needs to be done to turn pregnancy into a joyous and exciting time for women.

According to the World Health Organization, Midwives are the trusted companions of women throughout their pregnancy, childbirth, and postnatally.[6] As frontline health workers, midwives have achieved more during the global pandemic to keep women and their babies safe and healthy. Recently, Nepal has started midwifery education.[7] and has included professional midwifery in the list of human resource to deliver safe motherhood services to women. It is projected that it will take more than half a decade their presence to be acknowledged in the health workforce, and for women to benefit from their professional skills.[8] Until the health system starts deploying the midwives to actually deliver safe motherhood services to women, we need to continue striving in our effort to empower skilled health personnel who are currently fulfilling that role, and increase the investment during the pandemic to provide uninterrupted care to women.[9,10] In order to do this, the skilled health personnel need to be trained to provide tele support to the women during pregnancy and following childbirth.[4,10] Tele support should also include a digital platform for counselling, care coordination, and records of the care delivered to allow the nurses to provide continuum of care and timely referral for management of complications from conception to childbirth and postpartum.

Nevertheless, the current COVID19 pandemic has given us an opportunity to think of new ways to successfully establish professional midwifery in the country. For instance, what alternative arrangement is required to connect women with a midwife when the routes to health facilities are difficult or closed? What are the opportunities beyond facility based service delivery points to serve women, for example, home based care? How different aspects of care delivery are coordinated? What is the role of the midwife outside the facility? What services are needed to meet the needs of the pregnant women who are vulnerable and marginalized? How can we better equip midwives (skills, personal protection, and motivation) to work with women during the pandemic? Although the number of women giving birth in the health facilities has increased, challenges remain in the quality of the services received by the women.[11] To address the gaps in the quality of care, how can we build on midwives' capacity to initiate quality improvement projects within and outside the facility? More importantly, how do we support them to deliver evidence based care, share their own

experience and learning within and outside their network? These questions are not only relevant during the pandemic but also in the post pandemic context. The road map of safe motherhood and newborn health to 2030 has addressed some of these questions,[12] but the pandemic has really stressed that we need to think more.

Now is the time to initiate and explore the support that would be required to strengthen and prepare midwives to work during the pandemic and beyond.[13,14] Every single effort counts, no matter how small. Therefore the Journal of the Midwives Association of Nepal (JMAN) is going to provide a platform for sharing knowledge, learning and experiences, mainly to midwives, nurses and others who would otherwise not be able to participate in the international peer review journals with their local evidence and learning.

Finally, a huge appreciation goes out to all the front line health workers who are working selflessly and tirelessly round the clock to ensure that women receive the care they need during pregnancy, childbirth and following the birth during the COVID-19 pandemic.

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Experiences of Bachelor in Midwifery Science Students Regarding their Education Program in Nepal

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ABSTRACT

Background: The Bachelor in Midwifery course is relatively new in Nepal with three universities providing this program. As a first program, it is important to understand the lived experiences of students. The main objective of this study is to explore the experiences of Bachelor of Midwifery Science Students during their education program in Nepal.

Methods: A qualitative study with six participants were interviewed using in-depth interviews. Transcripts were analyzed thematically, using Braun and Clarke (2018)'s six steps. Ethical approval was taken from the research committee of Kathmandu University and Bir Hospital Nursing Campus.

Results: The study findings highlighted that the Bachelor in midwifery students have mixed experiences about their education program. Two main themes emerged from the data: developing theory for practice, and the journey to become a midwife.

Conclusion: This qualitative research provides an important contribution to understanding the experience of Nepal's first ever Bachelor in Midwifery Program. The participants recognized the importance of professional midwives as a faculty to strengthen the quality of the program for future continued success. The deployment opportunities after completion of the course are a concern for the sustainability of the program. Participants valued clinical learning in community settings and birthing centers, where they could practice continuity of care. Overall, there are more positive experiences and opportunities than challenges in becoming a midwife. However, the study identifies the challenges that are felt by students because of the increasing expectation within the country that midwives will significantly improve health outcomes for women and newborn.

Keywords: *Bachelor in Midwifery Science; Education Program; Experiences*

INTRODUCTION

According to International Confederation of Midwives (ICM), the midwife is a person who has successfully completed a midwifery education program based on its Essential Competencies for Midwifery Practice and the framework of the ICM Global Standards for Midwifery Education and is recognized in the country where it is located. Establishing the midwifery profession in a country requires professional regulation for registrants to use the title 'midwife and they need to demonstrate competency in the practice of midwifery.[1]

Recent estimates of the Maternal Mortality Ratio in Nepal is 239 per100,000live births and Neonatal Mortality Rate is 21/1000 live births.[2] Moreover, the Sustainable Development Goals are to reduce MMR to 70 per100,000 live births and NMR to 12/1000 live births by 2030.[3] Global evidence demonstrates

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the importance of midwives in preventing maternal deaths and indicates that 80% of maternal deaths are preventable with educated and regulated professional midwives.[4]

An analysis of the midwifery curricula in 2013 by Midwifery Society of Nepal (MIDSON) for Auxiliary Nurse Midwives (ANM), Proficiency Certificate Level Nursing (PCL), Bachelor of Nursing and Post Basic Bachelor Nursing as per the ICM essential competencies indicates gaps in each of the courses.[5] Therefore, with the joint effort of MIDSON, the Government of Nepal launched the Bachelor in Midwifery program on January 5, 2017, honoring its long-term strategy of reducing maternal mortality rate, neonatal mortality rate and making midwifery an independent profession by producing professional midwives.[6]

Pre-service midwifery students in Nepal who choose to study Bachelor level, are already qualified certificate nurses who have a strong motivation to want to become a midwife. This motivation is assessed through a written examination as part of the selection process and a willingness to study for a further 3 to 4 years full time.

The main objective of the study is to explore the experiences of bachelor in midwifery students during their educational program in Nepal.

METHODS

A phenomenological study was conducted to provide a rich description of the lived experience of participants from two educational institutions providing pre-service midwifery education programs in Nepal.

The study was conducted from 30th June to 11th July 2019 by the researcher. Research supervision was provided by two experienced midwifery faculty.

This phenomenological research provides an opportunity to explore and describe the phenomena of the lived experiences of pre-service student midwives during their education program in Nepal. Phenomenology is the study of structures and meanings of an experience and as such it provides a detailed insight into the lived experiences of the participants. Access to the world of lived experience can be provided through language according to the philosopher, Gadamer (1975). In order to gain such detailed insights, one to one in-depth interviews were conducted.

The sampling strategy is guided by ethical considerations of who could share the experiences of being on the BMS course and could be accessed to participate in the study. Purposive sampling was adopted to seek such participants. To invite participants to the study, the researcher advertisedon social media used by student midwives in Nepal. Individuals who were studying full time on a pre-service midwifery course enabled a homogenous sample group to be recruited.

The sample size was based on a view that in an exploratory study, using a homogenous sample size 6 to 8 participants.[7] BMS students who were exposed to clinical posting and attended both formative and summative assessment of the University were selected to obtain their overall experiences. All the participants were aware of the purpose of the study and the selection criteria.

Data were collected from participants using individual, semi structured, and in-depth interviews. Each participant chose a venue either at home or in a campus room. The interviews lasted for 45 minutes to 1 hour and were audio recorded. Immediately following the interview, the recordings were transcribed and field notes were reviewed. The framework for analysis of the transcripts was based upon Braun and Clarke's (2018) six steps.

Establishing quality is an important part of the research process. This requires the study to be judged on its trustworthiness. Trustworthiness is achieve through developing credibility, dependability, confirmability and transferability following criteria developed by Lincoln and Guba.[8] Credibility was addressed by including expert consultations, in-depth interview of the participants as well as independent observation like note taking and peer debriefing. The researcher engaged in reflexivity by debriefing with the research supervisor. Verbal

and non-verbal expressions of the participants were observed and recorded in field notes. The verbatim accounts provided ensures the experiences of the participants are represented.

In achieving dependability, the researcher ensured that the context of the research was provided in detail, alongside a clear process of documentation to provide an audit trail of all data collected and decisions made. Confirmability is demonstrated here through the presentation of a clear pathway of the research process and in presenting detailed findings. Transferability could be considered as the findings within this study could be used for further research within other institutions providing pre-service midwifery education.

Ethical approval was taken from Bir Hospital Nursing Campus and Institutional Review Committee of KUSMS. Likewise, permission for data collection and audio recording from each participant was taken. Confidentiality of information was ensured by giving each participant a code number. The participants were given full authority for their exclusion during any period of the study. All records were stored securely to maintain confidentiality. During interviews, participants may experience distress as they recall difficult experiences. Supportive measures were put in place to provide participants with debriefing and if needed, professional counseling.

Data analysis was done manually, simultaneously on the same day of data collection. Audio records were listened to and verbatim transcriptions created and then translated into English in Microsoft Word with fictitious name files. Each transcript was read carefully to capture the whole of the content using Braun and Clarke (2018) six step framework for analysis. Using a series of coding and categorizing, themes emerged from the data. The main themes and sub-themes are now presented and discussed.

RESULTS AND DISCUSSION

During the process of data analysis, themes emerged from the data. Two themes presented here relate to the experience of ***developing theory for practice and the journey to becoming a midwife.*** Firstly, the theme of developing theory for practice is discussed.

Theme: Developing Theory for Practice

In this study, participants have a range of experiences regarding their classroom learning environment.

> Maya expresses her experience: *"Beside midwifery subjects, we have combined classes with BNS students. There is no problem with midwifery classes as I can easily see white board from the back and the teacher's voice is audible. On the other hand, during combined classes, it is very difficult for us because sometimes our time is incompatible with theirs and our seats are not fixed. Sometimes, we have to stay at the back which makes it difficult to see the whiteboard and teachers are not loud enough."*

In this study, alongside positive experiences, participants have negative experiences too which reflects some degree of difficulties they were facing during their learning period in their classroom. These experiences are reflected in other published studies. Qualitative studies of medical school graduates have found that the learning environment is a significant predictor of preparation for practice.[9] Likewise, a qualitative study done in Ethiopia found that a poor quality learning environment can threaten student's mastery of core competencies.[10]

Applying theory to practice

Experiences of conflicting attitudes of nursing staff, doctors and midwifery teachers during the participant's clinical practicum revealed anxiety and concern about trying to provide the best care for the women.

Anita's experience conveyed her concerns: "*we were in X hospital with our X mam and she had been there even with first batch of midwife…I have heard about staffs gossip with younger sisters, "one X will come and she will stroke one women all the time" now you will get to see that scene. Moreover, when*

a woman went into PPH(postpartum Hemorrhages) shock because of precipitate labor, staff blamed us for not caring and making uterus contracted even though 2-3 of us were there caring for her and worked so hard to make uterus contracted. It is obvious to have some amount of bleeding following precipitate delivery but this bleed turned into PPH.. (makes a sad face). At the end everything went well."

Participants expressed fear related to perception of criticisms and blame from hospital staff if something goes wrong while practicing midwifery skills. They are striving to get support from the hospital staff so that they can practice confidently.

This finding of fear and concern about attitude is also recognized in a qualitative study done by Baraz, Memarian, & Vaniki, 2015, Iran who found that instructors and clinical nurses were not always supportive of the nursing students during their clinical practicum. The students in this study in Iran were concerned about the behavioral and verbal violence of the instructors, lack of criticism, acceptance by the instructors, and not caring about the students learning repeatedly.[11]

The participants shared experiences of the difficulty of working with medical staff as they recalled feeling low levels of support from them initially. It was perceived that some individual doctors were disrespectful with the pregnant women and postpartum mothers.

> Laxmi said**, "** *It was difficult to work with an obstetrician as they used to say that the patient will take us for granted if we are giving too much care. Well, I find this thought totally wrong, we have never felt so during our duties. In fact the patient was very happy and provided good feedback about our service when she left the hospital. No one will take you for granted, if you help them when they are not well."*

Participants expressed motivation to support respectful maternity care and childbirth rights as a central part of the care provided. Participants are psychologically expecting other health professionals, especially doctors, to follow this model too. The participants were disappointed that some doctors expected the midwifery students to be less involved with the clients.

This finding is similar to the findings of a quantitative study done at Ghana that a majority of midwifery students witness disrespectful care during their training.[12]

Clinical experiences

Many participants were satisfied with the exposure to various clinical sites including hospital and community. Almost everyone found that clinical experience at community level was of greatest satisfaction as it enabled them an opportunity to practice the midwifery model of care including continuity of care.

A participant Maya said*, "Recently, we were at X health post for our practicum. There, we never used oxytocin. We preferred total physiological birth and delivered normally. In that condition, we could provide one to one and continue care for more than 2 days. During that period, not only women but her partner and her family members were very proud of us and surprised with the type of health care we provided as they never expected from health personnel. This positive feedback towards the midwifery profession made me feel very happy. At that point, I realized that I chose the right subject (Smiles)."*

Participants were confident and competent in carrying out the midwifery model of care and applying continuous care in the setting where they are supported and there is less of an obstetric model. Therefore, more practical exposure to such settings could be increased.

Birthing Centres were one of the most supported areas for midwifery practice. For example, Mina's view is similar with other participants who expressed this experience of emerging autonomy:

"*In birthing centre we could show change through caring woman during labour and its outcome; we couldn't show in other wards .When staff know*

midwifery students are coming, they welcome us and let us work freely, respect our practices like from birthing ball to everything and are confident in our abilities." (Mina)

This also highlights that when staff support midwifery student's practices in carrying out a midwifery model of care, they learn more confidently and feel prepared for future midwifery practices. The presence of supportive staff is reported as enhancing midwifery student's confidence.

This study is parallels with a qualitative study done in Pakistan where students were able to provide continuity of care in the primary setting, where there was no continuous medical presence a clearer agenda was created to expand and nurture future placements.[13]This is further supported by the qualitative study of the transition experiences of newly qualified midwives. Here it is identified that a supportive work environment is crucial to the process and facilitates opportunities for the graduates to ask questions, seek guidance and deal with new situations.[14]

In summary, the learning environment is central to the student's experience and needs to be supportive to the needs of the midwifery students. The clinical environment needs to enable students to apply theory to practice, safely and with support. Students have concerns about the quality of care they witness and they need to be supported to express this and have role models who can show them the way to bring about change.

The second theme relates to the participant's experiences of how they envisage themselves as midwives.

Theme 2: The journey to become a midwife

In this study, most of the participants recalled many fulfilling experiences alongside some of the challenges in becoming a midwife. However, they anticipate that they will have to face many challenges.

Anita expressed: *"It is very important to set an example of midwifery practice in front of obstetricians and nurse midwives. This will be helpful to differentiate us from them whether it be at periphery or wherever. The most important noticeable point is MMR, if we will be able to decrease it or not.. Even the government of Nepal has its most priority objective to decrease MMR… This program was initiated to fulfill this objective but if we won't be able to decrease MMR then it would be a greatest criticism for us. There might be a chance that this program will no longer exist as a result no midwives will be produced in future.. (laughs).There is a great responsibility upon us.*"

Participants expressed an awareness of a growing expectation within the country that the midwifery profession will reduce MMR and NMR in Nepal. One participant, Mery, expressed this pressure of expectation: "*being a first midwife, we were addressed in many programs*"

Participants expressed feeling proud of bringing positive change in women's health. In a qualitative study done by Lakhani et al, students also take pride in identifying themselves as midwives to bring positive change to their future workplace.

Concern their deployment after graduating was expressed.

Mina said, "*We are competent and capable now but we are still not sure about our deployment opportunities (looks down). It's hard for private sector people as compared to the government sector people. X employees can return to their old posts. Therefore, I hope this can change. We still don't know where we are going to work and how*."

These challenges are genuine when the program is very new in any country and appropriate deployment is essential according to qualification and experiences i.e. the right person for the right job in the right place could be ensured before midwifery students graduate.

A specific topic suggested for inclusion is ultrasound scanning skills.

Anita said, "*According to curriculum some topics are missing like Ultrasonography. It would be*

better if we have that topic and practice on that. Many rural areas are running out of facilities and with USG we can identify complications timely and manage accordingly."

Anita's comments are typical to Nepal's context as still most of the health facilities especially in rural areas are running out of proper maternity facilities. ICM competencies (2019) state that midwife should have skills and ability to evaluate fetal gestation. In the context of rural settings, the ability to perform an ultrasound may be required.[15]

Maya strongly feels that to change other health professional's attitude towards midwifery practice, colleges should have more professional midwifery teachers. She said, *"Our College should have more professional teachers so that our practice becomes easier, there would be a more enabling environment and we would gain more confidence to practice."*

Professional teacher here refers to competent and qualified midwifery faculty. WHO has published guidelines about the core competencies on midwifery education, which includes minimum qualifications and experiences in the field of midwifery.[16] Midwifery educators should have midwifery license. These minimum criteria might have a great impact on how midwifery students view their teachers who are nurses. The National Nursing council is working with the Government to address this.

This second theme focusing on the journey to become a midwife reveals the anxieties, hope and expectations that the student's experienced. Students need to have facilitators who can support the achievement of midwifery knowledge, skills and behavior. Acquiring competence in the skill of ultrasound scanning is highlighted as an aspect for more consideration in the development of the midwife in Nepal. Managing expectations of the professional responsibilities to improve the health outcomes of women and newborn create uncertainties of how others will judge them. Being able to practice as a midwife when the posts are not yet developed, creates uncertainty for the participants: not just for them but for the sustainability of the profession in the country.

CONCLUSION

This qualitative research provides an important contribution to understanding the experience of Nepal's first ever Bachelor in Midwifery Program. This study will provide education institutions with insights for further development of the BMS education system. In this study, participants had positive experiences in their classroom setting but they had issues during combined classes with other learners. Likewise, in clinical settings participants expressed feeling anxious about the criticism and blame from staff when something goes wrong while practicing midwifery skills. The participants expressed disappointment when they found that medical staff did not share the same values towards caring for women. The participants are striving to get support from the hospital staff so that they can practice confidently and psychologically expecting all the health professionals especially doctors to follow a respectful maternity care model.

Participants seem to be satisfied with their clinical exposure to community settings and birthing centers where they could practice continuity of care. In the other way, most of the participants believe that there are more positive experiences and opportunities than challenges in becoming a midwife. However, they accept that they will have to face many challenges because of increasing expectations of the government to decrease MMR and NMR from midwives. Moreover, they also recommended the institutions to add some important topics in their curriculum like ultrasonography. The participants recognized the importance of having professional midwives as faculty to strengthen the quality of the program for future continued success. The deployment opportunities were a concern for the participants both for themselves and for the sustainability of the program. Longitudinal studies could be done to create a deeper understanding of the experiences of the participants as they move from student to midwifery practitioner.

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Competing interest

None declared.

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Effectiveness of Ambulation during the First Stage of Labour on Labour Outcomes among Primigravidas

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ABSTRACT

Background: Ambulation allows mothers to respond to pain in an active way and shortens duration of labour, reduces the need for pain relief medication. Ambulation provides distraction from discomfort. It gives a sense of greater personal freedom, and a chance to reduce muscle tension. The study aimed to assess the effectiveness of ambulation during the first stage of labour on labour outcomes.

Methods: A non-equivalent control group post-test only design was used .Convenient sampling technique was used to obtain 30 primigravidas (15 experimental + 15 control group) at M.S.Ramaiah hospital, Bangalore. Data collected through administration of the numerical pain rating scale, per vaginal examination at 8th hour and 10th hour, wrist watch, time log and pedometer, and were analyzed by using descriptive and inferential statistics.

Results: It showed that in the experimental group, the mean pain score was 6and was less than the control group where it was 10. The experimental group had statistically significant faster cervical dilatation at the 8th hour and the 10th hour compared to the control group. The Duration of the first stage of labour was shorter in the experimental group compared to the control group (13.517±1.279 hour, p=<0.001). No significant association was found between selected labour maternal outcomes and any of the selected demographic variables.

Conclusion: The study concluded that ambulation during the first stage of labour was effective in improving labour outcome among primigravidas.

Keywords: *Ambulation; First stage; Pedometer*

INTRODUCTION

Women have experienced severe labour pain over the years and various attempts have been made to effectively manage labour pain.[1]In primigravidawomen, the first stage of labour lasts 12 to 16 hours as compared to 6 to 8 hours in multigravida. Non-pharmacological and pharmacological pain management strategies provide women the ability to cope with the pain and discomfort of labour, thereby increasing their feelings of control.[2]Studies have revealed that ambulation or upright positions during labour have a number of physiological benefits, including the effect of gravity and increased pelvic dimensions.[3] Women should be encouraged to give birth in the positions they find most comfortable. But usually they lie on the bed during the first stage of labour. The pain and discomfort of labour can often be helped by using positions that allow gravity to speed dilation, such as walking, squatting, kneeling forward on a chair, or sitting. This will help the fetus move down to the pelvis faster and less painfully. Ambulation allows mothers to respond to pain in

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an active way and can shortenduration of labour, requiring less pain relief medication. Ambulation provides distraction from discomfort. It gives a sense of greater personal freedom, and a chance to reduce the muscle tension. In fact, women who used ambulation in first stage of labor reported that it was effective method of relieving pain.[4]Changing positions during labour can change the shape and size of the pelvis, which can help the baby's head move to the optimal position during first stage labour, and helps the baby with the rotation and descent during the second stage.[5] Researches revealed many disadvantages of the recumbent position during labour. Lying on the back causes compression of the major abdominal blood vessels along the spinal column. Compression of the large artery of the heart ie (descending aorta) hinders circulation to the uterus and placenta and can result in foetal distress. Compression of large veins leading to the heart restricts the returning blood flow and can contribute to hypotension and other circulatory problems, increasing the risk of heavy bleeding after birth. Perinatal Health Program in British Columbia 2010 recommends, ambulation is one of the comfort and relaxation techniques during labour. Restricting women's movement may result in worse outcomes and may decrease women's satisfaction with their birth experiences.[6] In India 62% of pregnant women receive antenatal care and only 42% deliver at a health care centre. As per the gate control theory of pain, ambulation is one of the contributing factors for closing the gates of pain perception.[7] A prospective randomized study conducted in Tunisia 2010 to assess the effects of ambulation during the first stage of labour on maternal and infant outcome among 200 mothers with uncomplicated term pregnancies who were randomly assigned to ambulant and recumbent group. The results showed that ambulation reduces the duration of first stage of labour by 34%, the pain intensity by 64%, the oxytocin consumption by 48%, the rate of delivery by cesarean section by 58% and instrumental deliveries by 71%.[8] Despite evidence in the literature that ambulation during labour does not harm mother, fetus or newborn, women are still confined to bed during the first stage of labour. Most women today are confined in a recumbent or semi-recumbent position during labour. This practice is illogical, making birth needlessly complicated and expensive, changing a natural process of labour into a medical event and the labouring woman into a passive patient. There is also less motivation from the health professionals to practice ambulation during labour. Hence, the objective of this study was to assess the effectiveness of ambulation during the first stage of labour on labour outcomes in terms of level of intensity of pain, rate of cervical dilatation and duration of first stage of labour among primigravidas.

METHODS

The nonequivalent control group post test only design was used. The data was collected for one month duration (11th November 2016 to 12th December 2016) after obtaining the ethical approval and informed consent from the participants.Thirty primigravida women fulfilling the sampling criteria were selected and randomly allotted to experimental and control groups. Half of them (15) were allotted to the experimental group and were made to walk at a regular pace for 15 minutes of duration followed by 20 minutes of rest cycle repeatedly during the first stage of labour until rupture of membrane. Pedometers were used to quantify the distance covered during ambulation. Fifteen primigravida womenwere allotted to the control group and did not receive any intervention. Pedometerswere used to quantify the distance covered during their activities of daily living in the first stage of labour**.** Post test of pain perception was assessed for both groups at the end of labour usingnumerical pain rating scale. Cervical dilatation was assessed by per vaginal examination at 8th and 10th hour of labour. Duration of labour was assessed at the end of the first stage of labour by using calibratedstopwatch recorded in time log. Anonymity and confidentiality was maintained throughout the study. The collected data was checked thoroughly for completeness and coded first then it was entered in Microsoft excel. The entered data was checked, verified and was transferred to Statistical Package for Social Sciences (SPSS) 17 for analysis. Descriptive statistics were

done using frequency and percentage distribution to describe the demographic variables and post test level of labour outcomes. Man-Whitney U test was conducted to compare post test score of pain between experimental and control groups; independent 't' test to compare post test scores of cervical dilatation and duration of labour, and Fisher's exact test was used to find the association between post test scores of selected maternal outcomes and socio-demographic variable .

RESULTS

Section A: Socio demographic variables of primigravidas

Table 1 Primigravidas bySocio-demographic Characteristics (n=30)

S.N.	Variables	Experimental group (n=15)		Control group (n=15)	
1.	**Age in years**	Frequency	Percentage	Frequency	Percentage
	19-22	10	66.7	6	40
	23-26	2	13.3	5	33.3
	27-30	3	20.0	4	26.7
2.	**Religion**				
	Hindu	14	93.3	15	100
	Other than Hindu	1	6.7	0	0
3.	**Education**				
	Primary education	1	6.7	0	0
	Secondary education	3	20.0	0	0
	Higher secondary	10	66.6	4	26.7
	Graduation	1	6.7	9	60.0
	Post-graduation	0	0	2	13.3
4	**Occupation**				
	Private employee	1	6.7	2	13.3
	Government employee	0	0	0	0
	Unemployed	1	6.7	1	6.7
	Homemaker	13	86.6	12	80.0

Our finding shows that with regard to the age of mothers, 66.7% of mothers in the experimental group and 40.0% of the mothers in the control group belong to the age group between 19-22 years. As per religion category 93.3% belongs to Hindu, 6.7% belongs to other than Hindu in the experimental group whereas in the control group all participants belong to the Hindu religion.

With regards to education, 66.7% of women had completed higher secondary in the experimental group and 60% of women had graduated in the control group. Considering the occupation, the majority of the mothers were homemakers in both groups (Table 1).

Section B: Comparison of post-test scores of labour outcome of experimental and control group

Table 2 Comparison of Post-test Score of Pain between Experimental and Control Group

Intensity of level of pain	Median	Interquartile range	Mean rank	Mann-whitney z value	Wilcoxon w value
Experimental group (n=15)	6	6-6.25	8	5.182*	120
Control group (n=15)	10	10	23		

*p<0.05

The study also reveals that in the experimental group, mean pain score (6) is less than the control group (10). The calculated Mann-Whitney Z value (5.182) is greater than the Z α-value of 1.960 at 0.05 level of significance (Table 2).

Table 3 Post-test Scores of Cervical Dilatation at 8th& 10th Hour in the Experimental and the Control Group

Group	Cervical dilatation at 8th hour		Cervical dilatation at 10th hour		"t" test value	"t" test value	P value
	Mean	SD	Mean	SD			
Experimental (n=15)	3.87	.352	6.40	.507	7.603	15.340	<0.001
Control (n=15)	2.80	.414	3.53	.516			

There is a significant difference between the score of cervical dilatation at 8th hour among primigravidas in the experimental and the control groups with table value 7.603, which is statistically significant when compared to table value df_{28}= 7.603 P<0.001 level of significance.

Also there is a significant difference between the score of cervical dilatation at 10th hour among primigravidas in the experimental and control groups with table value 15.340, which is statistically significant when compared to table value df_{28}= 15.340 P<0.001 level of significance. This shows that ambulation is effective in increasing the rate of cervical dilatation (Table 3).

Table 4 Post-test Scores of Duration of First Stage of Labour in Experimental and Control Group

Group	Duration of first stage of labour		"t" value	P value
	Mean	SD		
Experimental (n=15)	8.921	.455	13.101	<0.001
Control (n=15)	13.517	1.279		

Thereis a significant difference between the scores for duration of the first stage of labour among primigravidas in the experimental and control group with table value 13.101, which is statistically significant when compared to table value df_{28}= 13.101 P<0.001 level of significance. This shows that ambulation is effective in reducing the duration of the first stage of labour (Table 4).

Section C: Association of intensity of pain in experimental group with selected socio demographic variables

Table 5 Association of Socio-demographic Variables with Intensity of Pain in Experimental Group (n=15)

S.N	Socio demographic Variables	Intensity of pain in experimental group		Fishers exact value, P
		Below median<6	Above median > 6	
1.	**Age in Years**			
	19-22	9	1	**0.241**
	23-26	1	1	
	27-30	2	1	
2.	**Religion**			
	Hindu	12	2	**0.200**
	Other than Hindu	0	1	
3.	**Education**			
	Primary education	1	0	**0.999**
	Secondary education	2	1	
	Higher secondary	8	2	
	Graduation	1	0	
4.	**Occupation**			
	Private employee	1	0	**0.999**
	Unemployed	1	0	
	Homemaker	10	3	
	Joint	6	1	

Significance level set at < 0.05

There is no association between intensity of pain and selected socio-demographic variables in the experimental group (Table 5). Similarly, there was no association between duration of first stage of labour and selected socio demographic variable of control group (data not shown).

DISCUSSION

The present study findings showed that ambulation was effective since the primigravidas in the experimental group had a positive attitude towards walking, were cooperative and had followed the instructions for walking properly. The primigravidas were also motivated by the consultant doctor, nurses and family attendant. The control group were confined to bed most of the time which may be due to the severe level of pain experienced.

A study supporting the present study by the Royal College of Midwives (RCM) (2010) concluded that mobility and upright positioning in labour have countless benefits, with or without epidural anaesthesia, for both woman and fetus. The National Institute of Health and Care Excellence (NICE) supports the adoption of positions that women find most comfortable (NICE 2007). Both midwives and students should fully explain the benefits of mobility and upright positioning in labour to women, preferably antenatally, to enable them to make informed decisions as to the positions they wish to adopt when in labour.[9]

A similar study suggests that there is clear and important evidence that walking and upright positions in the first stage of labour reduces the duration of labour, the risk of caesarean birth, the

need for epidural, and does not seem to be associated with increased intervention or negative effects on mothers' and babies' well-being. Given the great heterogeneity and high performance bias of study situations, better quality trials are still required to confirm with any confidence the true risks and benefits of upright and mobile positions compared with recumbent positions for all women.[10]The present study is limited to authenticity of information regarding socio-demographic variables which is only based on the response of the samples. Generalisation of the study cannot be done due to small sample size.

CONCLUSION

Study concluded that ambulation during the first stage of labour was effective in improving maternal outcome in terms of reduction of intensity of labour pain, increased the rate of cervical dilatation and shortened duration of first stage of labour among primigravidas. The findings of the study have several implications for nurses and midwives to create awareness among antenatal mothers regarding possible benefits of ambulation during labour. Nurse administrators can develop protocol for ambulation as a part of routine intranatal care for the primigravidas in the first stage of labour and nurse/midwifery educators can provide training of nursing/midwifery students regarding ambulation during the first stage of labour.

Competing interest

None declared.

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Psychological Effects of Low Birth Weight Babies on their Mothers at Paropakar Maternity and Women's Hospital

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ABSTRACT

Background: Giving birth to a low birth weight or preterm baby can be stressful for families. It can affect maternal health, mood, well-being, and alters women's feelings and perceptions of their baby. This study aims to identify the psychological effects of low birth weight and preterm babies on their mothers.

Methods: Descriptive cross sectional research design was used. The Sample size was 71 postnatal mothers who had given birth to preterm or low birth weight babies at Paropakar Maternity and Women's Hospital. Purposive sampling technique was used. The information was collected between 26 January 2018 and 24 February 2018 using interviews with the help of questionnaires consisting of the Likert scale. Informed consent was obtained from all participants before data collection.

Results: The findings revealed that all the mothers in the sample had poor knowledge of the causes, prevention and management of low birth weight (LBW). At the same time, there was a fairly high incidence of postpartum stress among mothers with LBW babies. Four of the respondents (5.6%) had mild effects and 9 (12.7%) had severe psychological effects. Of the respondents with poor knowledge of LBW foursuffered mild effects (5.6%), 58 moderate effects (81.7%), and nine suffered severe effects (12.7%). There was a statistical association between poor knowledge levels and adverse psychological effects. Hence, the majority of respondents having poor knowledge had suffered from moderate effects.

Conclusion: Most of the respondents had suffered from anxiety, and were worried about their baby having low birth weight. It is important to identify signs of depression in the mothers of LBW and preterm infants, and offer early support and treatment.

Key words: *Intrauterine growth retardation (IUGR); Low birth weight (LBW); Postnatal mother; Preterm baby; Psychological effect*

INTRODUCTION

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[1] Psychologicalstress is any uncomfortable emotional experience accompanied by predictable biochemical physiological and behavioral changes.[2] Psychological pain is a feeling of strain and pressure.[3] A neonate refers to an infant in the first 28 days after birth. Early neonatal period is the within 7 days of life and the late neonatal period extends from 7 to 28 days of life.[4] Low birth weight has been defined by the World Health Organization (WHO) as birth weight less than 2,500 grams (5.5 pounds). Childbirth can be a traumatic event when intense fear, andhelplessness canoccur.[5] About one half of the world's low birth weight (LBW) babies are

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born in South Asia, Bangladesh has the highest incidence (31 - 47%). Low birth weight is either a result of preterm delivery or intrauterine growth retardation (IUGR).[6] More than 20 million infants worldwide, representing 15.5 percent of all births, result in low birth weight babies, 95.6% of them are in developing countries.[7] In 2011 in Nepal low birth weight babies were reported as 17.8% . The neonatal mortality rate in Nepal was reported at 21.1/1000 live births, the infant mortality rate is 32/1000 live births and the under-five mortality rate is 34.5/1000 in 2016.[8] The study was conducted at the Child Psychiatry Hospital, Aarhus, Denmark among 66 mothers of extreme low and very low birth weight infants. It shows 20% of the women met the criteria for posttraumatic stress disorder.[9] A study conducted at Patan Academy of Health Sciences (PAHS), Lalitpur, Kathmandu, Nepal in which a total of 4395 births occurred during the study. The prevalence of LBW was 11.99%[10] In this study, researchers attempt to identify knowledge of LBW and its psychological effect on post natal mother's health.

METHODS

A descriptive cross sectional research design was used. Sample size was 71 postnatal mothers in Paropakar Maternity and Women's Hospital who delivered preterm, LBW and IUGR babies. Purposive sampling technique was used. Information was collected through interview methods with the help of questionnaires. The instrument was developed on the basis of objectives of the study. Part I includes semi-structured questionnaires related to socio-demographic information including mothers as well as babies. Part II consists of knowledge related LBW. And part III includes the Likert scale which was designed to monitor the level of stress. Informed consent was taken before data collection. Privacy was maintained during data collection.

RESULTS

Table 1 Socio -demographic Information of the Mothers (n=71)

Variables	Frequency	Percentage
Age in years 17- 21	34	47.9
Joint family+	54	76.1
Homemakers	43	60.6
Primigravida	48	67.6
Vaginal delivery	45	63.4
Caesarean section	26	36.6

+ Family with more than two generations and their spouses living together as a single household

Nearly half of the respondents 47.9%, in the age group of 17 to 21 years, had delivered a LBW baby. More than half of the respondents 76.1% were from joint family. Out of 71, more than half of the mothers 63.4% had delivered their baby normally and 36.6% had a caesarean section (Table 1).

Table 2 Demographic Information of the Babies (n=71)

Variables	Frequency	Percentage
Condition of baby during birth		
IUGR	5	7.0
Preterm baby	19	26.8
Low birth weight	47	66.2
Sex		
Male	32	45.1
Female	39	54.9
Weight		
1000-1500 grams	6	8.5
1500-2000 grams	30	42.3
2000-2500 grams	35	49.3
Apgar score at 5 minute after birth[14]		
Fairly low (4-6)	20	28.2
Generally normal (7-10)	51	71.8

More than half of the female babies and 45.1% male babies were born with low birth weight. Among 71 childbirths 49.3% of the newborns had 2000-2500gm body weight, and 71.8% obtained a general APGAR score (Table 2).

Table 3 Knowledge of LBW Babies among Respondents (n=71)

Descriptions	Number	Percentage
Meaning of low birth weight		
Baby weighing less than 2.5kg	21	29.6
Causes *		
Preterm birth (<37weeks)	23	32.4
IUGR	20	28.2
Adolescent pregnancy (< 20yrs)	24	33.8
Genetics	36	50.7
High blood pressure	22	31.0
Diabetes mellitus	14	19.7
Prevention		
Nutritional supplementation	42	59.2
Care and Managements		
Kangaroo mother care	35	49.3
Breast feeding	35	49.3
Regular weight monitoring	37	52.1
Prevention from infection	22	31.0
Maintain hygiene practice	13	18.3

Our results showed that few of the respondents (29.6%) were familiar with the meaning of low birth weight. Half of the respondents answered that genetics is the cause of low birth weight. More than half of the mothers 59.2% think that nutritional supplementsare a preventive measure to avoid low birth weight delivery (Table 3).

Table 4: Measurement of Postpartum Stress[12] (n=71)

Statements	0	1	2	3
I feel sad and hopeless	16.9	16.9	29.6	36.6
I am crying more than usual	19.7	35.2	25.4	19.7
I cannot make decisions or concentrate	9.9	31.0	38.0	21.1
I feel overwhelmed	18.3	60.6	16.9	4.2
I'm afraid I will never feel better to my baby	47.9	42.3	8.5	1.4
I think about taking my own life	57.7	35.2	7.0	
I have recurring thoughts about harm coming to my baby, or myself	1.4	14.1	59.2	25.4
I have recurring thoughts about my baby getting low birth weight or having some kind of problem	-	9.9	53.5	36.6
I check on my baby multiple times throughout the night	-	1.4	39.4	59.2
I have thoughts about my LBW baby that scare me	-	-	43.7	56.3

Note: 0= No this is not true, 1= Yes this is true occasionally, 2= this is true some of the time, 3= this is true most of the time.

We also observed that 60.6% of postnatalmothers felt overwhelmed and 1.4% had recurring thoughts about harm coming to her baby or herself (Table 4).

Table 5: Stress Level of the Respondents (n=71)

Description	Number	Percentage
Mild effects	4	5.6
Moderate effects	58	81.7
Severe effects	9	12.7

Most of the respondents (81.7%) had suffered from moderate effects and 5.6% had suffered from mild effects of the stress (Wisconsin) (Table 5).

DISCUSSION

In this study, most of the mothers 48 (67.6%) were primigravidas. Similarly, most mothers 45 (63.4%) had had normal delivery. more of the babies 39 (54.9%) were female than male. A similar study was carried out at Oslo University Hospital, Norway, From June 2005 to July 2008 through two periods of 8 and 10 months.The psychological responses of 29 mothers of 35 premature children born before 33rd week of pregnancy were assessed.It was found that most of the mothers 48 (67.6%) were primigravidas. The number of Normal deliveries was 12 (41.4%), female babies born were 19 (48.6%) and male babieswere 18(51.4%).[11] This study reveals the adverse psychological effects of LBW babies on themothers health. The findings indicate that there was an association between low knowledge and adverse psychological effects. The longitudinal study compared the psychological impact of premature birth on the health of the motherin a sample of 121. Maternal depression scores differed significantly for the group. Most of mothers found stress level higher as they were more adversely affected.[13]

CONCLUSION

Most of the respondents had suffered from stress and were worried about their baby having low birth weight. Only a small number of the respondents knew about this, and had support from theirfamily. There is an association between knowledge and stress levels. Hence, the majority of respondents with poor knowledge have suffered from a degree of adverse effects. The need for awareness programson prevention of LBW babies before and during pregnancy is important, in order to decrease the stress among postnatal mothers.

Competing interest

None declared

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Knowledge of Infertility among People of Reproductive Age in a Community at Biratnagar

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ABSTRACT

Background: Infertility is a global reproductive health problem affecting both men and women not only medically but also mentally and socially. Knowledge is an important factor associated with infertility self-care. It is imperative for both men and women to have adequate knowledge of infertility in order to identify and treat the problem early. The main objective of this study was to assess the knowledge of infertility among the people of reproductive age in a community in Biratnagar.

Methods: A descriptive cross sectional study was carried out to assess knowledge regarding infertility among men and women of reproductive age in ward number one of Biratnagar municipality. Non probability quota sampling was used to select the equal number of men and women from the desired sample size. Data was collected by using a semi-structured interview schedule through face to face interview. The data obtained was analyzed using descriptive statistics like mean frequency, percentage and inferential statistics such as Chi-square test to find out any association between knowledge and selected socio-demographic variables.

Results: The findings of the study reveal that the majority (67.7%) of the respondents had adequate knowledge, 26.2% had average knowledge and 6.2% had inadequate knowledge. There was significant association between knowledge and age of the respondents ($p<0.05$).

Conclusion: The findings highlighted adequate knowledge of infertility yet there are some who did not have adequate knowledge. Hence regular awareness programs should be encouraged frequently.

Keywords: *Infertility; Knowledge; Reproductive age*

INTRODUCTION

Infertility is characterized by the failure to establish a clinical pregnancy after 12 months of regular, unprotected sexual intercourse or due to an impairment of a person's capacity to reproduce either as an individual or with his/her partner.[1] Worldwide, Infertility is estimated to affect as many as 186 million people. Although male infertility contributes to more than half of all cases of global childlessness, infertility remains a woman's social burden.[2]Globally infertility amongst men and women between the age of15–44, the highest prevalence of infertility is among the 35–39 age group and the 15–19 age group had the lowest prevenlence.[3] The average prevalence of infertility in developing countries is estimated to be around 6.9-9.3%. [4] In recent years, Nepal is experiencing an increasing trend of infertility although exact prevalence studies have not been done.[5] Knowledge about infertility in many part of the world is Improving young people's knowledge about infertility issues would give them more opportunity to take responsibility for their sexual health and to take an active role to improve condition for earlier parenthood.[7] In our context, very few studies have been conducted to assess knowledge of infertility at community level. This study aims to assess the

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level of knowledge and its association with different socio-demographic variables.

METHODS

A descriptive cross-sectional research design was used. The study was conducted in ward number one of Biratnagar Municipality. The study population was made up of men and women aged between 15-49 years. Non probability quota sampling technique was used to select equal numbers of men and women. Any man or woman who was willing to participate and who came into contact with the researcher first was included in the study. The desired sample size (130) was calculated taking 87.3 % prevalence[8] at 95% confidence with an allowable error of 6%. Data was collected for a period of two weeks from 2018/05/13 to 2018/05/27 by face to face interviews using semi structured questionnaires. Formal written permission was obtained for the study from the research committee of Tribhuvan University, Institute of Medicine Biratnagar Nursing Campus and ward office of Biratnagar. Written informed consent was obtained from each respondent and the respondents were informed about the objectives of the study. Confidentiality was maintained by using the data only for study purposes. The collected data was edited, classified, organized, coded and entered into the Statistical Package for Social Sciences (SPSS version 20). The data obtained was analyzed on the basis of research objectives using descriptive statistics like mean frequency, percentage and inferential statistics such as Chi-square test to find the association between knowledge and selected socio-demographic variables. The maximum score for the knowledge based questions was 31. The level of knowledge was classified into three categories namely adequate, average and inadequate taking 50% as cut-off.

RESULTS

Table 1 illustrates the socio-demographic information of the respondents where median age (with Inter Quartile Range (IQR)) of the respondents as 30 (36-21). Similarly, 32.3% of the respondents belong to Madhesi ethnicity and 68.5 % of them were married. Almost all of them were literate (96.2%). Among the literate, 38.5% were educated up to secondary level. 29.2% of the respondents were involved in business.

Table 1 Socio-demographic Information of Respondents (n=130)

Variables	Frequency	Percentage
Age Group		
15-19	27	20.8
20-24	18	13.8
25-29	13	10.0
30-34	28	21.5
35-39	17	13.2
40-44	15	11.5
45-49	12	9.2
Median (IQR+): 30(36-21)		
Ethnicity		
Dalit	16	12.3
Janajati	36	27.7
Madhesi	42	32.3
Muslim	8	6.2
Brahmin/Chhetri	28	21.5
Marital status		
Married	89	68.5
Unmarried	41	31.5
Educational status		
Literate	125	96.2
Illiterate	5	3.8
Educational level (n=125)		
Informal education	7	5.6
Primary level	16	12.8
Lower secondary level	5	4.0
Secondary level	50	40.0
Higher secondary	35	28.0
University level	12	9.6
Occupation		
Business	38	29.2
Homemaker	31	23.8
Service (Government/ Private)	26	20.0
Student	24	18.5
Daily wages earner/ laborer	10	7.7
Farming (own/other)	1	0.8

+ Interquartile range

Table 2 Respondent's Level of Knowledge on Infertility (n=130)

Variables	Frequency	Percentage
Adequate knowledge (More than 75%)	88	67.7
Average knowledge (50-75%)	34	26.2
Inadequate knowledge (Less than 50%)	8	6.1

Most of the respondents had adequate knowledge (67.7%), 26.2% had average knowledge and 6.1% had inadequate knowledge. To determine the association between knowledge and selected variables the dependent variable was re-categorized as adequate and inadequate knowledge taking a cut off value of 50% (Table 2).

Table 3 Association between the level of knowledge regarding infertility and Socio-demographic Variables (n=130)

Variables	Level of Knowledge		*P*-value
	Adequate f (%)	Inadequate f (%)	
Age (in years			
< 30	70 (53.8)	1 (0.8)	0.023*
≥30	52 (40.0)	7 (5.4)	
Ethnicity			
Madhesi	40 (30.8)	2 (1.5)	
Janajati	34 (26.2)	2 (1.5)	0.828
Other	48 (36.9)	4 (3.1)	
Marital status			
Married	81 (62.3)	8 (6.2)	0.056
Unmarried	41 (31.5)	0	
Educational status			
Literate	117 (90)	8 (6.2)	1.000
Illiterate	5 (3.8)	0	
Educational level (n=125)			
Higher education	93 (74.4)	4 (3.2)	0.074
Lower education	24 (19.2)	4 (3.2)	
Occupation			
Business	35 (26.9)	3 (2.3)	0.091
Homemaker	27 (20.8)	4 (3.1)	
Other	60 (46.2)	1 (0.8)	

* $p< 0.05$

We also looked at the association between the level of knowledge and selected socio-demographic variables among the respondents (Table 3). There was significant association between the level of knowledge and the age of the respondents. Sex, ethnicity, educational status, level of education, and occupation was found to be insignificant.

DISCUSSION

The finding of the study revealed that half (51.5%) of the respondents knew the correct meaning of infertility as a failure to conceive within one or more years of unprotected sexual intercourse which is contradictory to the study conducted in Punjab where 92% were able to define infertility correctly. Regarding the biological risk factors of infertility, this study showed that 76.2% of respondents identified irregular menstrual cycle as a risk factor for female infertility and 86.9% were able to answer low quality and quantity of sperm as a risk factor for male infertility. These findings are consistent with the study conducted in Punjab where more than half (59.9%) of the respondents knew irregular menstrual cycle as a risk factor for female infertility, 84.45% thought low quantity and quality of sperm as a risk factor for male infertility.[9]

Regarding lifestyle related factors, 55.4% and 56.2% of the respondents believe smoking was a risk factor for male and female infertility respectively. Regarding treatment for infertility, the primary preference for who should infertility, was medical doctors (95.4%) and the secondary preference was a traditional healer (39.2%) similar findings to a study conducted in South Africa where 73.5% accessed a medical doctor primarily then a traditional healer i.e. 16.6%.[10] In a study conducted in Nepal, the majority of the respondents (61.36%) had the knowledge that infertility can be treated with In-vitro fertilization/Test-tube babyand this finding is consistent with the finding of this study where 56.9% of the respondents knew that infertility could be treated by this method.[11] This might be due to the fact that the majority of the respondents included in the study were educated.

In this study 67.7% had adequate knowledge and level of knowledge was found to be statistically significant with age of the respondent which is in contrast with the study conducted in Nepal where type of family was a significant variable for level of knowledge.[12]This might be due to a difference in the research setting.Anon probability sampling method was used in this study because of limited duration of time.

CONCLUSION

In this study although the majority of the men and women had adequate knowledge yet there are some who did not have. Those who didn't have adequate knowledge may not be able to avoid the risk factors and identify the problem. This might ultimately affect their quality of life. Hence infertility awareness programs should be made available at the community level. The recommendation is to provide awareness programs in the community regardinginfertility and its prevention with wide use of mass media.

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Competing interest

None declared.

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Knowledge and Experience of Sexual Harassment in Public Places among Adolescent Student Girls in Jhapa District

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ABSTRACT

Background: Sexual harassment is a persistent and increasing problem in public places. The incidence is increasing at an alarming rate worldwide. Adolescents are more likely to experience sexual harassment than any other age group. The objective of this study is to assess the knowledge and experience of sexual harassment in public places among adolescent girls in Balmiki Education Foundation School.

Methods: A descriptive cross sectional study design was used. Non-probability purposive sampling method was used to select the setting and a total enumeration method was used to select the sample of 100 girls studying at grade IX and X. Data was collected by a self-administered semi-structured questionnaire method. Analysis of data was done usingSPSS version-16 and descriptive statistics such as median, standard deviation, frequency, percentage and chi-square test was used to find the association between the dependent and independent variables.

Results: The study result showed 62% of the respondents had poor level of knowledge regarding sexual harassment, 36% had average knowledge and only 2% of the respondents had good knowledge. 74% of the respondents believed that sexual harassment meant unwanted touching of sensitive parts of the body where only 5% believed it to be unwanted comments about your body. 21% of the respondents had experienced sexual harassment in a public place, among these, 66.67% of the respondents had experienced sexual harassment on public transport. There was no significant association between level of knowledge and selected demographic variables.

Conclusion: Knowledge of sexual harassment tends to be poor among adolescence, so awareness of this needs to be promoted to increase awareness amongst adolescence girls to help prevent themselves from sexual harassment.

Keywords: *Adolescent; Experience; Knowledge; Sexual harassment*

INTRODUCTION

Sexual harassment is defined as unwelcome sexual conduct that interferes with work performance and creates an intimidating, hostile or offensive working/learning environment. It is unwelcome in the sense that the target did not ask for it and regards it as offensive.[1]

A study conducted in Saudi Arabia among pre-college girls in grades seven found 15.7% had a satisfactory knowledge of how to prevent sexual harassment and 51% reported some form of sexual abuse.Among those adolescents who reported sexual abuse, a 12% reported rape, 6% reported forced oral sex, and one percent reported an attempted rape. Almost one-third 32% of these assaults took place between the ages of 12 and 17 years. Similarly, in the National Survey of Adolescents in Jordon funded by the National Institute of Justice, 8% of teens reported that they had been sexually assaulted and to violence was 14% of girls aged 14 to 17 years old.[2]

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A study conducted in Delhi of 20 women between the ages of 18 and 30 years, to understand the nature of harassment they faced, its perceived consequences, their ways of coping with it. Sometimes, women chose to defend themselves by moving away from harassers rather than confronting them due to fear of escalation. However, several participants felt that staying quiet allowed the perpetuation of harassment.[3]

Similarly, a cross sectional study in Manipal Udupi district was carried out to assess knowledge of sexual harassment amongst students. This study found that 82.4% of the students had average knowledge, 13.2% had good knowledge and 4.4% had poor knowledge of sexual harassment.[4]

A survey conducted in Egypt found that 99.3% of women have experienced harassment at least once in their lives, while 49% of respondents faced harassment daily. Women and girls face street harassment in many public places, whether they are walking to school, using public transport, or traveling to work.[5] in international studies, the prevalence of sexual harassment ranges from 10% to 80% among students, and for the prevention of sexual harassment, individual and school based factors may play a role.[6]

Another survey conducted by the nonprofit organization Stop Street Harassment, 65% of US women have experienced some form of street harassment, 23% have been sexually harassed, and 37% don't feel safe walking home at night. More than 40% of women had experienced sexual harassment in the street and 35% of women had experienced unwanted sexual advances.[7]

An international study shows that more than 90% of women in countries such as Egypt, India, Yemen, and the USA have experienced it. In a survey of 811 women from 23 countries and 45 US states, nearly one in four women had been harassed in public by men by the age of 12 (7th grade). Nearly 90% had been harassed by the age of 19.[9]

In a study conducted in Jambia, with total 913 students 50% male and female, more than half of respondent's (54.1%) reported that they have knowledge of sexual harassment, 18.6% reported that they did not know and 27.3% were not sure. More males and females among the student and academic staff reported that they knew about sexual harassment and in non-academic staff more women 65.2% knew about sexual harassment compared to men 55.3%.[10]

Even though there much of the research conducted on sexual harassment has been in developed countries, only a few studies have been conducted in developing countries. As there are so few studies about sexual harassment In Nepal, there is a need for more research into the issues in the context of this country.

METHODS

A descriptive cross sectional study design was used. The major reason for choosing this study design was due to the limited time frame to conduct the study. A non-probability purposive sampling technique was adopted in order to select the research setting and a total enumeration method was adopted to select the sample which was made up of the 100 girls studying grade IX and X who were present at the time of data collection.

First of all approval from the Research committee of TU, IOM, Biratnagar Nursing Campus was obtained. Then an authorized letter was received from Biratnagar Nursing Campus. The approval from concerned authority was taken and permission for data collection was obtained. Self-introduction with the students was made. The purpose of the study was explained to the students. Participation of the respondent was voluntary and written consent was obtained. The tool was developed by extensive literature review and data was collected through a questionnaire method by using semi-structured self-administered questionnaires by the researcher herself using an English version between May and June 2019. The time taken was 25 to 30 minutes for each questionnaire and the collected data was checked for its completeness. All the data was kept in order for editing and coding. Descriptive statistics such as frequency, percentage and mean were used to assess the level of knowledge about sexual

harassment. Inferential statistics i.e. chi- square test was used for finding any association between the level of knowledge of sexual harassment and socio demographic variables. Chi-square test at the corresponding 95% confidence interval was used to find the significance betweenvariables.

RESULTS

The Findings of the demographic variables, respondents' knowledge on sexual harassment, level of knowledge regarding sexual harassment and experiences of being sexually harassed presented in frequency and percentage.

Table 1 Socio-demographic Characteristics of the Respondents (n=100)

Variables	Frequency	Percentage
Age (in completed years)		
13-14	54	54.0
15-16 Mean in years ± SD = 14.42 ± 0 .83	46	46.0
Education Level		
Grade 9	56	56.0
Grade 10	44	44.0
Ethnicity		
Dalit	6	6.0
Janajati	15	15.0
Madhesi	9	9.0
Brahmin/Chhetri	70	70.0
Type of family		
Nuclear	81	81.0
Joint	19	19.0
Education of Father		
Able to read and write	8	8.0
Primary	1	1.0
Secondary	23	23.0
Higher Secondary and above	68	68.0
Education of mother		
Unable to read and write	1	1.0
Able to read and write	7	7.0
Primary	3	3.0
Secondary	24	24.0
Higher secondary and above	65	65.0

We have presented the socio-demographic characteristics of the respondents in Table 1. Among the total sample more than half (54%) of the respondents were 13-14 years and 46% were 15-16 years of age group. Similarly, it shows 56% of respondents from grade ten and 44% from grade nine. Regarding ethnicity, most of the respondents (70%) were Brahmin/Chhetri, while the majority (81%) were from a nuclear family. 68% of the respondent's fathers had achieved higher secondary level education and 65% of the respondent's mothers had achieved higher secondary level education and only 1% of the mothers were unable to read and write.

Table 2 Knowledge on Sexual Harassment among the Respondents (n=100)

Variables	Frequency	Percentage
Behaviors considered as*		
Touching sensitive part of your body	74	74.0
Unwelcome touching and Hugging	58	58.0
Sexually suggestive signals	34	34.0
Kissing sound ,howling and smacking	16	16.0
Looking a person up and down	16	16.0
Whistles	5	5.0
Comments about your body	5	5.0
SH as problem among adolescents		
Yes	93	93.0
No	7	7.0
SH is punishable by law of Nepal		
Yes	70	70.0
No	30	30.0
Eve teasing and SH is same		
Yes	11	11.0
No	89	89.0
SH most commonly occurs in		
Transportation	54	54.0
Road side	18	18.0
Others	28	28.0
Effect of Sexual Harassment (SH) *		
Feeling depressed/helpless	79	79.0
Suicidal thoughts	69	69.0
Fear	63	63.0
Decrease self confidence	50	50.0
Decrease concentration in class	40	40.0
Less participation in class/sports	25	25.0
Sleeping disorders	12	12.0
Eating disorder	9	9.0
Prevention of SH*		
Strict punishment to the harasser	77	77.0
Self-defense training to girls	68	68.0
Stricter laws in favor of women	67	67.0
Awareness programs	65	65.0

*Multiple response questions (Each response is considered as 100%) Others = Park, cinema hall, shopping mall

Our results showed that all respondents responded correctly the meaning of sexual harassment (Table 2). Similarly, 74.0% responded that touching sensitive part of the body is a sexual harassment;93.5% of respondents answered that sexual harassment is a problem among adolescents and most of them (70%) felt that sexual harassment was punishable by law in Nepal. 54% of respondents believed that public transport was the place where people were most likely to get harassed. 79% respondent felt depressed/ helpless as a result of harassment and 77% of the respondent answered that prevention could be achieved through stricter punishment of the harasser.

Table 3 Level of Knowledge on Sexual Harassment (n=100)

Level	Frequency	Percentage
Poor < (50) %	62	62.0
Average ≥ (50-75) %	36	36.0
Good > (75) %	2	2.0

More than half of the respondents (62%) had a poor level of knowledge, regarding sexual harassment, whereas 36% had an average level of knowledge and only 2% had a good level of knowledge (Table 3).

Table 4 Sexual Harassment Experience by the Respondents (n=100)

Variables	Frequency	Percentage
Commute to school by *		
Bus	51	51.0
Walking	45	45.0
Auto rickshaw	9	9.0
Ever been sexually harassed		
Yes	21	21.0
No	79	79.0
Age of first victimization		**(n=21)**
10	1	4.8
11	2	9.5
12	3	14.3
13	8	38.1
14	7	33.3
Place of sexual harassment*		
Public transport	14	66.7
Road side	5	23.8
Park cinema halls	3	14.3
Market place	2	9.5
Park	1	4.7
Mostly harassed by*		
Passenger	11	52.4
Road walker	7	33.3
Conductors	5	23.8
Familiar person	3	14.3
Vehicle driver	2	9.5
Make you feel like*		
Feel angry	11	52.4
Feel scared	10	47.6
Feel humiliated	6	28.6
Feel traumatized	1	4.8
It doesn't affect me at all	1	4.8
Ever reacted to SH		
Yes	12	57.2
No	9	42.8
If yes, type of action		**(n=12)**
Reacted verbally	10	83.3
Walked away	2	16.7

*Multiple response questions (Each response is considered as 100%)

When we looked at the experience of sexual harassment, 21% of the respondents reported being sexually harassed (Table 4). Out of 21, nearly 4.8% of respondents have faced sexual harassment for the first time at the age of 10 years. More than half (66.7%) of respondents experienced being sexually harassed on public transport. Also showed that 100% of respondents were sexually harassed by men, 52% of respondents were harassed by passengers, and only 9.5% were harassed by vehicle drivers. More than half (52.4%) of respondents felt angry when they got sexually harassed and 4.8% felt traumatized. It also depicts that among them 57.2% of respondents have reacted to the sexual harassment they experienced, 83.3% of respondents reacted verbally to the sexual harassment and 16.7% walked away from the situation without action.

Table 5 Association between Level of Knowledge and Selected Demographic Variables (n=100)

Variables	Poor f (%)	Good f (%)	P value
Age group (in years)			
13-14	34 (34.0)	20 (20.0)	0.830
15-16	28 (28.0)	18 (18.0)	
Ethnicity			
Brahmin /Chhetri	43 (43.0)	27 (27.0)	0.857
Others*	19 (19.0)	11 (11.0)	
Type of family			
Nuclear	51 (51.0)	30 (30.0)	0.682
Joint	11 (11.0)	8 (8.0)	
Father's education			
Primary and below**	6 (6.0)	3 (3.0)	0.762
Secondary and above***	56 (56.0)	35 (35.0)	
Mother's education			
Primary and below	0 (0.0)	1 (1.0)	0.199
Secondary and above	62 (62.0)	37 (37.0)	

(*Others=Dalit, Janajati and Madhesi; ** primary and below = unable to read and write, able to read and primary; ***Secondary and above = Secondary, Higher secondary and above, x^2=association using chi-square)

Through looking at the association between levels of knowledge on sexual harassment and selected demographic variables, we did not find any significant association (Table 5).

DISCUSSION

The characteristics of the demographic variables as presented in the current study revealed that more than 54% of respondents were from the 13-14 years age group which is similar to the findings of a study conducted in Bangladesh which reported that 63.6% of the respondents were from 14-15 years age group.[13]

In current study, more than half (62%) of the respondents had poor knowledge, whereas 36% of the respondents had an average level of knowledge and only 2% of the respondents had a good level of knowledge about sexual harassment. This result was contradictory to a study conducted in ManipalUdupi district among 408 students which concluded that 82.4% of the participant's had average knowledge, 13.2% had good knowledge and only 4.4% had poor knowledge of sexual harassment. A possible reason for this contradiction may be due to the larger sample in the previous study.[4]

In this study 69% of the respondents believed that

the effect of sexual harassment on the victim was suicidal thoughts. The finding of a study conducted in Delhi concluded that women chose to defend themselves by moving away from harassers rather than confronting them due to fear of escalation.[3]

In these current study 74% respondents considered touching sensitive part of body as sexual harassment, 58 % considered unwelcome touching and hugging to be sexual harassment which is in contrast to the study conducted in Karachi, where respondents thought staring/ leering and 11.9% thought sexual comments/remarks constitute sexual harrassement.[11]

In this current study, more than half (54%) of the respondents reported that public transport is the most likely place where harassment might occur. In contrast, the finding of the study conducted in the USA concluded that 67% of women reported being harassed on streets and sidewalks. This contradiction may be due to different settings and sample size.[10]

The current study showed the effects of sexual harassment on the victims can be sleeping disorders 12%, eating disorders 9%, and decrease participation in class 40%. This result is supported by the study conducted in in Banglung, where trouble sleeping, loss of appetite, and decreased participation in class was reported.[8]

The current study shows that 77% respondents believed that sexual harassment can be prevented by stricter punishment for the abusers. This finding is in contrast with a study conducted among 2000 person, which concluded that more than half 55% of respondents declared that sexual harassment can be prevented by recommending more security cameras and increasing police presence in communities.[9]

The current study revealed that of the 21% of the respondents who had been sexually harassed, 52.4% reported the harassers were other passengers, 9.5% vehicle drivers 9.5% and 23.8% conductors. This result is supported by a study conducted in Karachi which showed 20% females had been sexually harassed; similarly harassers in this study were passengers 75%, conductors 20% and drivers 5%.[11]

The current study revealed that 21% of participant's had faced sexual harassment before the age of 16 years. This finding was supported by the study conducted in Nepal by Hollaback which revealed that 78% Nepalese women experiences sexual harassment before age 17 years and among them more than (52%) experienced it before the age of 15.[5]

Findings of this study showed that more than half (66.7%) of the respondents were harassed on public transport. This result is supported by study conducted in Kathmandu which showed 79.6% respondents were harassed on public transport.[12]

This study revealed that 100% of respondents were sexually harassed by male harassers. This result is contradicted by the finding of the study conducted in Virginia which concluded that being harassed by man was cited as the most common experience by women (70%) followed by girls or women (20%) and by both male and female (14%). This contradiction may be due to the difference in setting.[9] Similarly another study conducted with 280 school-going adolescents, from five schools in Luwero District in Uganda, which revealed that 61% have the good knowledge of sexual harassment and large proportions i.e. 38% do not. This contradiction may be due to the difference in geographical region and sample size.[1]

In this current study showed that respondent felt angry 52.4%, scared 47.6% , felt humiliated 28.57%, while sexually harassed this result is supported by the study conducted in Kathmandu showed that as 79.5% angry, 45.5% scared and 47.9% felt humiliated.[12]

In the current study respondents reactions to sexual harassment were that 83.34% reacted verbally and 16.66% walked away which is supported by the study conducted in Karachi where 74.5% reacted verbally and 14.9% walked away.[11]

The finding of this study showed that there was no association between level of knowledge and selected demographic variables such as age, ethnicity, father's education and mother's education, which is similar to the study conducted in Udupi district India which showed no association among the

selected variables.[4]

CONCLUSION

Based on the findings, it can be concluded that level of knowledge on sexual harassment tended to be poor amongst adolescent girls, and one fifth of the respondents experienced sexual harassment in public places. Knowledge of sexual harassment is poor so, awareness programs regarding sexual harassment should be conducted focusing on adolescent girls in school to help them increase their knowledge of how to prevent sexual harassment.

Competing interest

None declared.

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Menstrual Problems and Health Seeking Behavior of Adolescent Girls in Selected Schools of Kathmandu Valley

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ABSTRACT

Background: Menstrual problems among adolescent girls being one of the major health problems. If not well managed, it may lead to serious consequences. Thus, this study aimed to identify different menstrual problems and the health-seeking behaviour of adolescent girls.

Methods: The descriptive cross-sectional study design was used and a non-probability purposive sampling technique was applied to select 160 samples from two schools. Data was collected from 11 to 27 June 2019 through self-administered questionnaires by using a semi-structured questionnaire. Ethical permission was obtained from the Nepalese Army Institute of Health Sciences (NAIHS) and related schools. Data was entered and analyzed using SPSS version 16 through descriptive statistical methods such as frequency, percentage, mean and standard deviation.

Results: The findings revealed that the majority (85.6%) of girls had dysmenorrhea. Among those with dysmenorrhea, 46.7% had severe dysmenorrhea, 29.1% had moderate dysmenorrhea, and 24.2% had mild dysmenorrhea. Similarly, 33.8% had back pain, and 21.3% had fatigue during menstruation. Less than half (45.0%) girls had irregular menstruation and 8.7% had menorrhagia. Least (15.0%) of them had taken their menstrual problems to the experts. The minority (36.5%) of them had sought support from family members for managing dysmenorrhea.

Conclusion: Dysmenorrhea is a common problem among adolescent girls. Nearly half of the respondents suffered from irregular menstruation. However, few of them seek health services from experts. Therefore, awareness programs on menstruation problems are needed for adolescent girls to promote their reproductive health.

Keywords: *Adolescent girls; Dysmenorrhea; Health-seeking behavior; Menstrual irregularity; Menorrhagia*

INTRODUCTION

Menstruation is a part of the normal reproductive cycle of female adolescents. Although, variation in menstrual problems is frequently observed among adolescents. These may lead to problems in academic excellence and other extracurricular fields as well as the loss of self –image.

About 350 million adolescents comprise of about 22% of the population in the countries of the South-East Asia Region (SEAR).[1] A large proportion of the female population of reproductive age suffer from menstruation-related health issues. One International study in the USA reported that dysmenorrhea was extremely common, especially among adolescents. As many as 90% of adolescent females worldwide report suffering from it.[2]

Menstrual disorders include menstrual irregularity, menorrhagia, dysmenorrhea, and other related symptoms. The prevalence of menorrhagia,

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dysmenorrhea, and menstrual symptoms were 17.9%, 68.7% and 37.7% respectively".[3]Menstrual problems not only carry an economic burden but are also one of the most common causes of absenteeism and poor academic performance among young females.[4]

The study conducted in India suggested painful menses was reported by 70% of girls, followed by heavy menstrual bleeding 46% and cycle irregularity 22%. The proportion of girls visiting a doctor and taking medications for painful menses was 26.7% and 16.5% respectively".[5] One study of India reported that more than 90% menstrual problems are manageable with early detection and early treatment from experts.[6]

Another study conducted in Tamil Nadu, India revealed that painful periods were 28.3%, frequent or short periods 8.4%, prolonged periods 4.8%, and irregular periods 36.7%. Among the respondents who reported to have menstrual problems, 27.1% sought consultation for treatment and 46.7%, 37.8%, 4.4%, and 11.1% sought consultation with governmental hospitals, private hospitals, friends/relatives and self-treatment respectively.[7] A descriptive study conducted in India revealed that 38.33%, 37.60%, and 18.06% had a backache, dysmenorrhea, and menorrhagia respectively. Among them, 39.66% had taken medical advice and the remaining 21.53% took advice from a mother or elder and 7.4% took self-medication.[8]

Another study conducted in India showed that 70% of girls had dysmenorrhea, followed by heavy menstrual bleeding 46% and cycle irregularity 22%. The proportion of girls visiting a doctor and taking medications for painful menses was 26.7% and 16.5% respectively, for heavy menstrual bleeding was 25.7% and 16.5% respectively and for the cycle, an irregularity was 33% and 16.5% respectively.[9]

Dysmenorrhea is the commonest problem faced during menstruation was 78.7% in Nepal.[10]A study conducted in Nepal reported that 33.3% of students had an irregular menstrual cycle, 67.3% of students had complained of premenstrual symptoms and 53.8% of the study population reported incidence of dysmenorrhea.[10]

This study was carried out to identify menstrual problems and health-seeking behavior among adolescent girls. This information might be useful in modifying health promotion and educational activities for adolescent girls to improve reproductive health.

METHODS

A descriptive cross-sectional study was used. The study was carried out in Neel Barahi Secondary School, Kathmandu, and Tri-Padma Vidhyashram Secondary School, Lalitpur among 267 adolescent girls. Non-probability purposive sampling technique was used. The inclusion criteria were girls of 13-18 years, experienced at least six cycles of menstruation, and willing to participate in this study. A semi-structured self-administered questionnaire was used for data collection. To assess the severity of dysmenorrhea, the respondents were asked to rate their pain from a scale of 1-10 and to analyze this, itemized scores were categorized using a multi-dimensional scoring system into three grades (mild, moderate, and severe). Ethical permission was obtained from the Nepalese Army Institute of Health Sciences (NAIHS) and administrative approval was obtained from concerned authorities prior to data collection. The objective of the study was explained and informed consent was obtained from each adolescent girl. The assent was obtained for those below 16 years. Anonymity was assured by asking them not to write their name in the questionnaire. The instruction was provided to fill the questionnaire. Then a questionnaire was distributed to them in the classroom of their tiffin time. Respondents filled the questionnaire in the presence of the researcher and arrangement of seats at least two meters distances to prevent contamination of data. Data was collected within 20-30 minutes, between the dates of 11 June 2019 to 27 June 2019. Data was coded, classified, and entered into Statistical Package for Social Sciences (SPSS) version 16. Descriptive statistics i.e., frequency, percentage, the mean, and standard deviation were used to describe the findings.

RESULTS

Table 1 Socio-demographic Characteristics of the Respondents (n=160)

Characteristics	Frequency	Percentage
Age in completed years		
13 – 15 years	113	70.6
16 – 18 years	47	29.4
Mean age = 14.9, SD = ±1.260		
Religion		
Hinduism	126	78.8
Buddhism	29	18.1
Islamic	3	1.8
Christians	2	1.3
Ethnicity		
Janajati	69	43.1
Brahmin / Chhetri	59	36.9
Dalit	32	20.0
Age of Menarche		
10 – 12 years	72	45.0
13 – 15 years	81	50.6
16 - 18 years	7	4.4

In our study, most (70.6%) of respondents were of the age group 13 - 15 years and minority (29.4%) were the age of 16-18 years with mean age 14.9 and standard deviation ±1.260. The majority (78.8%) of the respondents were Hindu. More than half (50.6%) of the respondents' menarche was between the age of 13 - 15 years (Table 1).

Table 2 Problems of Dysmenorrhea among the Respondents (n=160)

Characteristics	Frequency	Percentage
Having Dysmenorrhea (n=160)		
Yes	137	85.6
No	23	14.3
Severity of Dysmenorrhea (n=137)		
Mild dysmenorrhea	33	24.2
Moderate dysmenorrhea	40	29.1
Severe Pain dysmenorrhea	64	46.7
Associated Symptoms during Dysmenorrhea **(n=137)		
Lower abdomen pain	132	96.3
Back pain	113	82.4
Fatigue	71	51.8
Nausea	18	13.1

****Multiple Responses**

Our study showed that 85.6% of the respondents had experienced dysmenorrhea (Table 2). Among them, 46.7% had severe pain, 29.1% had moderate pain, and 24.2% had mild pain. Similarly, 96.3% had lower abdomen pain, 82.4% had back pain and 51.8% had fatigue during menstruation.

Table 3 Problems of Menstrual Irregularities and Menorrhagia among the Respondents (n=160)

Characteristics	Frequency	Percentage
Having Irregularity (n=160)		
Yes	72	45.0
No	88	55.0
Duration of Menstrual Cycle (n=160)		
<21 days (Early)	22	13.8
21-35 days (Normal)	88	55.0
>35 days (Delay)	50	31.2
Having Menorrhagia (n=160)		
Yes	14	8.7
No	146	91.3
Duration of Menstrual Blood flow (n=14)		
6 - 7 days	6	42.9
> 7 days	8	57.1

We found that 45.0% of respondents had an irregular menstrual cycle (Table 3). Regarding the duration, 55.0% had a normal duration cycle of 21-35 days while 31.2% had delayed menstrual cycles of more than 35 days and 13.8% had a cycle of less than 21 days. Although, 8.75% had menorrhagia and among them, 57.1% had more than 7 days of menstrual blood flow.

Table 4 Respondents' Health Seeking Behavior during Menstrual problems (n=160)

Characteristics	Frequency	Percentage
Health seek (n = 160)		
Yes	24	15.0
No	136	85.0
Problems for Health seek (n = 24)		
Severe dysmenorrhea	14	58.3
Irregular menstruation	7	29.2
Menorrhagia	3	12.5
Reason for not seek Health Care(n =136)**		
Think the problems not severe	120	88.2
Socio-economic status of family	35	25.7
Unaware	16	11.7
Cultural restrictions	10	7.3
Places where adolescents seek Health Service (n = 24)		
Private clinic	12	50.0
Traditional healers	5	20.8
Hospital	4	16.6
Health-post/Primary Health Center	3	12.6
Whom to seek Opinion for Dysmenorrhea (n=137)		
Family members (mother and sister)	50	36.5
Friends	49	35.8
Female teachers	29	21.2
Medical persons	9	6.5

****Multiple Responses**

Only very few respondents (15.0%) had sought advice regarding their health due to menstrual problems. Among them, 58.3%, 29.2%, and 12.5% had sought their health for severe dysmenorrhea, irregular menstruation, and menorrhagia respectively. Likewise, 88.2% of the respondents did not seek advice regarding their menstrual problem as they thought the problem was not severe, and 7.3% of them did not seek support due to cultural restrictions. Therefore, 50.0% of the respondents had sought health services in private clinics. Similarly, 36.5% of the respondents had sought an opinion from family members, 35.8% and 21.2% from friends and few (6.5%) of them from medical persons during dysmenorrhea (Table 4).

Table 5 Status of Menstrual Problems among the Respondents (n=160)

Characteristics	Frequency	Percentage
Status of Dysmenorrhea	137	85.6
Status of Irregular Menstruation	72	45.0
Status of Menorrhagia	14	8.7

Out of 160 respondents, majority (85.6%) had dysmenorrhea, less than half (45.0%) had irregular menstruation and 8.7% of them had menorrhagia (Table 5).

DISCUSSION

This study illustrated that 85.6% of the respondents had dysmenorrhea, less than half (45.0%) had irregular menstruation and 8.7% had menorrhagia. Findings of this study are inconsistent with the study conducted in India which showed most prevalent menstrual disorder was painful menses reported by 70.0% of girls, followed by heavy menstrual bleeding 46.0% and cycle irregularity was 22.0%.[5] Present study revealed that 85.6% of respondents were suffered from dysmenorrhea. This finding is consistent with another study conducted in Nepal, which stated that 78.7% of respondents had dysmenorrhea.[9]

The current study showed that less than half (45.0%) of the respondents had irregular menstruation. This finding is inconsistent with the study conducted in India where that study reported 21.8% had irregular menstruation.[4] Another study conducted in Tamil Nadu, India showed cycle irregularity was 36.7%. So, that finding of Tamil Nadu is in contrast with the current study.[7]It might be varied in finding because India has a large number of adolescent girls.

The present study revealed that 8.6% of the respondents had menorrhagia. A study conducted in Mysore City, India revealed 18.1% had menorrhagia. Hence, this study is differ from that study which may be due to the larger sample size of the study than the current study.[8]

The current study revealed that a small proportion (15.0%) of the respondents had sought health advice from different experts. Among them, 50.0% of the respondents received treatment from private clinics and 36.5% of the girls sought opinion from family members (mostly their mothers and sister) during dysmenorrhea before considering seeking medical advice. This study is inconsistent with the study conducted in India, which suggested 39.7% of the adolescents did seek medical advice for different menstrual problems and 21.5% took advice from mother to manage it during dysmenorrhea".[8] Present study revealed that 21.3% of the respondents had fatigue during menstruation. This finding differs from the study done in India that revealed 57.4% of the adolescent girls suffered from tiredness during menstruation.[11]

This study was conducted on a small scale and data was collected by using a self-administered questionnaire method, so the findings depend on the result on the respondents' sincerity and honesty. As the study used a non-probability sampling technique, it may lack generalizability.

CONCLUSION

From the study, it can be concluded that dysmenorrhea is a very common problem among adolescent girls, and they experience a number of physical symptoms associated with dysmenorrhea. Besides this, nearly half of them suffer from irregular menstruation and few suffer from menorrhagia. However, very few adolescents seek health services

from experts and most of them seek opinion from family members, friends and female teachers to manage dysmenorrhea. Therefore, awareness programs on menstruation problems are needed for adolescent girls to safeguard themselves from future consequences.

Competing interest

None declared.

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Risk Factors of Neonatal Sepsis among Neonates admitted in Tertiary Level Hospital, Nepal

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ABSTRACT

Background: Neonatal sepsis is an important cause of morbidity and mortality among neonates in developing countries accounting for 30-50% of total deaths each year. Identification of the risk factors causing such infections will provide necessary information for timely intervention. The study was conducted to find out the risk factors of neonatal sepsis.

Methods: Descriptive cross sectional study was conducted in 190 mothers with admitted neonates in Kanti Children's Hospital, Kathmandu. Non- probability, consecutive sampling technique was used to select participants. Data was collected through a face to face interview with the mothers of neonates using a semi structured interview schedule. Data analysis was done by SPSS version 16 using descriptive and inferential statistics.

Results: Findings of the study revealed that one third of neonates (34.74%, CI: 27.97, 41.51) were diagnosed with sepsis. Maternal risk factors such as multiparity (p=0.009), prolonged labour pain (p=0.029), intrapartum fever (p=0.001), prolonged rupture of membranes (p=0.012), neonatal risk factors such as low birth weight (p=<0.001), preterm baby (p=<0.001).

Conclusion: Maternal and neonatal factors contribute to the risk of getting neonatal sepsis. Risk approach based identification can help to detect and treat neonatal sepsis and curb mortality.

Keywords: *Neonate; Neonatal sepsis; Risk factors.*

INTRODUCTION

The first 28 days of life – the neonatal period – is the most vulnerable time for a child's survival. Neonatal sepsis (NNS) is a clinical syndrome resulting from the pathophysiologic effects of local or systemic infection in the first month of life.[1] It is estimated that 20% of all neonates may develop sepsis and 30-50% of total neonatal deaths may be due to neonatal sepsis in developing countries.[2] Neonatal mortality rate in Nepal is 33 per 1000 live births. One of the main causes of neonatal mortality is severe infections, which includes- sepsis, meningitis, pneumonia and tetanus, and accounts 18% of neonatal mortality.[3]

Neonatal sepsis is a common cause of morbidity and mortality in both developing and developed countries. It is a life threatening emergency and delay in diagnosis and treatment with appropriate antibiotics may have devastating consequences. According to NDHS, 2011 report, neonatal mortality has decreased at a slower pace than infant and child mortality with the result that neonatal deaths have risen from 63% of all infant deaths in 1996 to 72% in 2011 from 42% of under- five children to 61

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percent. The three main causes of neonatal mortality are complications of preterm birth, severe infection and intra partum-related (asphyxia), accounting for 90% of all newborn death.[4]

Identification of factors and early institutions of therapy, thereby can improve neonatal mortality and morbidity. Many studies have been done towards the common causative agents of neonatal sepsis with their sensitivity pattern. But there are limited studies trying to verify the risk factors of neonatal sepsis in the study area as well as in the country as a whole. Hence, there is a need to carry out research to find out the risk factors of neonatal sepsis.

METHODS

A descriptive cross-sectional study based on quantitative research design was used. The calculated sample size was 169 mothers of neonates. Sampling was done by using non probability, consecutive sampling technique. All the neonates up to 28 days admitted in different units of tertiary level hospital during the four weeks of data collection period (September 4-30, 2016), were taken as samples for this study. Neonates, who had been evaluated for neonatal sepsis with one or more clinical features along with at least two positive hematological criteria for sepsis, were enrolled into the sepsis group.

Mothers of neonates were interviewed through an interview schedule and the neonate's medical records were reviewed. The study received Ethical approval from the Institutional review committee of Institute of Medicine and Kanti Children's Hospital, Kathmandu. Written informed consent was obtained prior to data collection. All the mothers of the neonates in the study were informed about the purpose of the study and written consent was acquired. The participation in the study was entirely voluntary. The confidentiality of the information was maintained and used for the purpose of this study only.

Data was collected using a semi structured interview schedule. The data was collected by the researcher herself through face to face interviewing the mothers and reviewing neonate's medical records throughout the data collection period. The time for each interview varied between 15-20 minutes.

The instrument comprised Part I:Socio-demographic characteristics of mother and neonate; Part II: Maternal obstetric health factors for neonatal sepsis; Part III: Neonatal health factors for neonatal sepsis; Part IV Newborn care practices of mother.

Analysis was done by using a non-parametric test. Descriptive statistics (frequency, median, Inter Quartile range and percentage) were used to describe socio-demographic, maternal obstetric health factors, neonatal health factors, and newborn care practice of mother. On bivariate analysis, Chi-square test was applied to determine the association of the selected socio-demographic, maternal obstetric health, neonatal health factors, and newborn care practices of mothers with neonatal sepsis. Odds Ratio (OR) with 95% confidence interval (CI) was calculated to find out the strength of association. On multivariate analysis, binary logistic regression was used to determine the predictors of neonatal sepsis. The significance level was set at p- value < 0.05.

RESULTS

One hundred and ninety mothers of neonates admitted in Kanti Children's hospital during the data collection period interviewed during the one month of study period in September, 2016. Among 190 neonates, one third of the neonates (34.74%) were diagnosed as sepsis. The prevalence of sepsis in 95% confidence interval is 27.97- 41.51.

Demographic characteristics of the sample (N = 190) are presented in Table 1. The findings showed that75.3% mothers were within 20 to 35 years old. 58.9% mothers were Brahmin and Chhetri. 81.6% followed Hinduism. Out of 97.8% literate, 41.8% had obtained secondary education.

Table 1 Socio Demographic Characteristics of the Mothers (n=190)

Characteristics	Frequency	Percentage
Age of Mothers (in Years)		
Below 20 years	37	19.5
20-35 years	143	75.3
35 years and above	10	5.2
Median Age (IQR+) 26.075 (9.96)		
Ethnicity		
Brahamin and Chhetri	112	59.0
Aadibasi/ Janajati	55	29.0
Madhesi	18	9.4
Muslim	4	2.1
Dalit	1	0.5
Religion		
Hinduism	155	81.6
Buddhism	29	15.3
Islam	4	2.1
Christianity	2	1.0
Maternal education level		
Illiterate	8	4.2
Literate	182	95.8
Level of education (n=182)		
Just read and write	20	11.0
Primary (up to 5 class)	18	9.9
Secondary (6-10 class)	76	41.8
Higher Secondary (11-12)	46	25.3
Graduate (bachelor and above)	22	12.0

+Interquartile range

More than half of (55.3%) mothers had only a single child. More than half of mothers (54.2%) experienced 12 hours or more of labour pain. Less than half of the mothers (41.6%) had fever during labour; 38.0% of them had experienced prolonged rupture of membrane; among those who had prolonged rupture of membrane, 62.0% had for 18 hours or more (Table 2).

Most of the neonates (74.2%) were within 7 to 28 days of age (Table 3). More than half of neonates were (61.1%) female. Regarding gestational age, most of the neonates (70%) were born within 37-40 weeks. Most neonates (73.7%) had 2500gm and above birth weight.

Table 2 Maternal Obstetric Health Factors (n=190)

Variables	Frequency	Percentage
Parity		
One child	105	55.3
Two children	68	35.8
More than two children	17	8.9
Duration of labor pain *(n=166 - had labour pain)*		
Less than 12 hours	90	54.2
12 hours or more than 12 hours	76	45.8
Episode of fever during labour		
Yes	79	41.6
No	111	58.4
Prolonged rupture of membrane		
Yes	71	37.4
No	119	62.6
Duration of prolonged rupture of membrane (n=71)		
Less than 18 hours	27	38.0
18 hours or more than 18 hours	44	62.0

Table 3 Neonatal Health Factors (n=190)

Variables	Frequency	Percentage
Neonate's age *(in days)*		
Below 7 days	49	25.8
7-28 days	141	74.2
Neonates sex		
Male	74	38.9
Female	116	61.1
Gestational age of baby *(in weeks)*		
Less than 34 weeks	6	3.2
34-37 weeks	36	18.9
37-40 weeks	133	70.0
40 weeks& above	15	7.9
Median gestational age=38.19 weeks (IQR=4.137)		
Birth weight (in gram)		
Less than 1500gm	5	2.6
1500-2500gm	45	23.7
>2500gm	140	73.7
Median Birth weight (gm) 2821 (IQR= 678.425)		

On reviewing the association of maternal, neonatal health factors and newborn care practices with Neonatal Sepsis, parity was found to be significantly associated in the development of neonatal sepsis (*p*-value=0.009) at 5% significance level. Multiparous mothers carried 2.22 times higher chance of developing neonatal sepsis to their neonates with reference to those who were primiparous (CI: 1.22- 4.17). In relation to duration of labour pain, mothers who had experienced labour pain for 12 hours and more were 2.05 times more likely to have a baby with neonatal sepsis compared to those who experienced labour pain for less than12 hours (CI: 1.07-3.92) which is significantly associated with sepsis (p- value= 0.029) at 5% significance level. Regarding episodes of fever during labour, mothers who had a history of fever during labour had 2.75 times greater chance to develop neonatal sepsis than those who had no history of fever (CI: 1.43-5.08) and it is highly associated with neonatal sepsis (p-value=0.001) at 5% significance level. Prolonged rupture of membrane had significant association with risk of neonatal sepsis (p- value= 0.012) at 5% significance level. The odds of neonatal sepsis among mothers who gave birth after 18 hours of rupture of membrane was 3.66 times higher chance of developing sepsis to their neonates compared to those who gave a birth before 18 hours of rupture of membrane (CI: 0. 1.30-10.31). Neonates up to 7days of age were 1.42 times more likely to develop sepsis in reference to neonates within 7-28 days of age (CI: 0.73- 2.78) despite not being statistically significant (p-value= 0.299) at 5% significance level. Gestational age had shown high statistical significance (p-value=<0.001) in the development of neonatal sepsis. Neonates who were preterm had 4.39 times higher risk in the development of sepsis in reference to term neonates (CI: 2.13-9.02) and also it is statistically highly significant at 5% significance level. Neonates whose birth weight was less than 2500 gm were 3.84 times higher odds to develop sepsis than neonates whose birth weight was 2500gm and above (CI: 1.956-7.56). Also, it is statistically highly significant (p-value= < 0.001) at 5% significance level (Table 3).

Table 4 Association of Maternal, Neonatal and Newborn Care Practices with Neonatal Sepsis (n =190)

Characteristics	Sepsis f (%)	No sepsis f (%)	OR	(95%CI)
Parity				
Multi	38 (44.71)	47 (55.29)	2.22*	1.22-4.17
Primi	28 (26.67)	77 (73.33)	1	
Duration of labor pain (n=166)				
12 hours or more than 12 hours	35 (43.20)	46 (56.80)	2.05*	1.07-3.92
Less than 12 hours	23 (27.06)	62 (72.94)	1	
Episode of fever during labor				
Yes	38 (48.10)	41 (51.90)	2.75*	1.43-5.08
No	28 (25.23)	83 (74.77)	1	
Prolonged rupture of membrane (n=71)				
18 hours or more	34 (77.28)	10 (22.72)	3.66*	1.30-10.31
Less than 18 hours	13 (48.14)	14 (51.86)	1	
Gestational age of baby (in weeks)				
Preterm	26 (61.90)	16 (38.10)	4.39*	2.13-9.02
Term	40 (27.02)	108 (72.98)	1	
Birth weight (in Gram)				
Less than 2500gm	29 (58)	21 (42)	3.84*	1.96-7.56
2500gm and above	37 (26.42)	103 (73.58)	1	

**p<0.05; 1-reference*

Table 5 Binary Logistic Regression for Determining Predictors of Neonatal Sepsis (n=190)

Determining Variables	Sepsis (34.74%)	No Sepsis (65.26%)	UOR+	AOR^ (95%CI)
Parity (Multi)	38 (44.71)	47 (55.29)	2.22	0.47 (0.12,1.87)
Prolong labour pain	35 (43.20)	46 (56.80)	2.05	2.86 (0.67, 12.19)
Fever during labour	38 (48.10)	41 (51.90)	2.74	2.37 (0.63,8.94)
Prolong rupture of membrane	34 (77.28)	10 (22.72)	3.66*	3.77 (1.05,13.33)
Gestational age of baby (Preterm)	26 (61.90)	16 (38.10)	4.38	1.80 (0.29, 11.03)
Birth weight of baby (less than 2500gm)	29 (58)	21 (42)	3.84	3.25 (0.48, 21.85)
Constant				0.145

+UOR- Unadjusted odds ratio

^AOR- Adjusted 0dds ratio

*Nagelkerke R-square =0.402, *p<0.05*

Prolonged rupture of membrane had been the main determining factors of neonatal sepsis (Table 5). It indicates that mothers who had rupture of membrane for 18 hours and more had a 4 times higher chance of their baby developing neonatal sepsis compared to those who had prolonged rupture of membrane for less than18 hours (CI: 1.05,13.33). Prolonged rupture of membrane had significant association with neonatal sepsis at 5% level of significance (p-value=0.041).

DISCUSSION

Neonatal septicemia is still a serious condition and one of the leading causes of neonatal morbidity and mortality. This study also reflected the same cumulative influence of those risk factors, commonly known as maternal risk factors, neonatal risk factors and newborn care practice of mother, in the development of neonatal sepsis.

Regarding maternal age, mothers age below 20 years had babies who were less likely to develop sepsis than mother age above 20 years and above (OR: 0.88, CI: 0.41-1.89), however it is not statistically significant (p=0.743) at 5% significance level, which is also consistent with the study done in Dharan Nepal, in which maternal age had no significant association (p=0.124) with neonatal sepsis.[5]In relation to residence, mothers who lived in an urban area were less likely to have risk for sepsis than those of mothers from rural area (OR: 0.741, CI: 0.399-1.376). However it is statistically insignificant (p=0.341) at 5% significancelevel. The findings of this study are inconsistent with the study, which showed neonates from rural areas were less likely to develop sepsis in reference to newborn from urban area (OR:0.83, CI: 0.27, 2.54).[6]

In this study, parity was found to be significantly associated in the development of neonatal sepsis (*p*=0.009) at 5% significance level. Neonates of multiparous mothers carried 2.22 times higher chance of developing sepsis with reference to those who were of primiparous mothers (CI: 1.22-4.17). The finding is similar to the study that multiparous mothers carried 1.33 times higher chance of developing sepsis to their neonates than primiparous mothers (CI: 0.82-2.16).[7] In relation to duration of labour pain, babies of mothers who experienced labour pain for 12 hours and more were 2.049 times more likely to develop sepsis compared to those whose mothers experienced labour pain for less than12 hours (CI: 0.255-.934) which is significantly associated with sepsis (p=0.029) at 5% significance level. This result complies with the previous researcher, who also indicated significant (p=<0.008) association between duration of labour and sepsis.[8] In contrast to this finding the study had shown duration of labour had no effect on neonatal sepsis.[5]

Intrapartum fever was shown to have a significant (p= 0.001) effect on the development of neonatal sepsis in the present study. Newborns to mothers who had a history of fever during labour had a 2.747 times greater chance to develop neonatal sepsis than those born to mothers with no history of fever (CI: 1.425-5.082). This is consistent with the study conducted previously in North Ethiopia which revealed intrapartum fever was an independent predictor of neonatal sepsis (p=0.00).[5,9] Prolonged rupture of membrane had significant association with risk of neonatal sepsis (p- value= 0.012) at 5% significance level. The odds of neonatal sepsis among mothers who gave birth after 18 hours of rupture of membrane was 3.66 times higher chance of developing sepsis compared to those who gave a birth before 18 hours of rupture of membrane (CI: 0. 1.30-10.31). Similar findings were also observed in earlier studies conducted in Dharan Nepal showed Prolonged rupture of membrane had significant association with sepsis (p=0.019).[3] Current study showed that gestational age had high statistical significance (p=<0.001) in the development of neonatal sepsis. Neonates who were preterm had 4.388 times higher risk in the development of sepsis in reference to term neonate (CI: 2.134-9.020). This finding was consistent with the previous study done in Nepal. Also reported gestational age (<37 weeks) had statistically significant association with sepsis (p=0.01).[10] In the present study, neonates whose birth weight was less than 2500gm were 3.844 times higher odds to develop sepsis than neonates whose birth weight was 2500gm and above (CI: 1.956-7.555). Also, it is statistically highly significant (p= < 0.001) at 5% significance level. This finding of the study is supported by the previous study in which low birth weight had significant association with neonatal sepsis (p=0.01).[10]

The current study showed that prolonged rupture of membranes is the main determining factor of neonatal sepsis. It indicates that mothers who had rupture of membrane for 18 hours and more had a 4 times higher chance of their babies developing neonatal sepsis compared to those who had prolonged rupture of membrane for less than18 hours (CI: 1.05, 13.33). Prolonged rupture of membrane had significant association with neonatal sepsis at 5% level of significance (p=0.041). A study carried out in Bangladesh, to find out relative influence of risk factors for neonatal sepsis, by using multiple regression, found that irregular antenatal checkup of mother (p<0.017), prematurity (p<0.027) are

statistically significant while, intrapartum fever ($p<0.089$); the association of which was near statistical significance but prolonged rupture of membrane was associated but was not the determining factors of neonatal sepsis ($p<0.969$).[9]

CONCLUSION

Based on findings, this study shows that one third of the neonates who were involved, were found to have neonatal sepsis. It also concluded that maternal, neonatal factors and newborn care practice had contributed to the risk of getting neonatal sepsis. Among maternal risk factors, multiparity, prolonged labour pain (more than 12 hours), intra partum fever, prolonged rupture of membrane (more than 18 hours) were significantly associated with neonatal sepsis. Accordingly, among neonatal risk factors, gestational age of neonate (<37 weeks), birth weight of neonate (<2.5 kg) were significantly associated with neonatal sepsis. The study also concluded that prolonged rupture of membrane (more than 18 hours) was found as a predictor of neonatal sepsis.

Competing interest

None declared.

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Postnatal Mothers' Satisfaction on Maternal Health Care Services in Birthing Centre among Tertiary Level Hospital, Kathmandu Nepal

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ABSTRACT

Background: Childbirth has a substantial psychological, emotional and physical impact on women whose expectations and suggestions can enhance providers' awareness of the women's priorities during childbirth. The objective of the study was to assess the postnatal mothers' satisfaction on maternal health care services in the birthing centre of a tertiary level Hospital, Kathmandu.

Methods: Descriptive cross-sectional study design was used with the sample size 78 respondents were purposefully selected in Paropakar Maternity and Women's Hospital. Face to face interviews were conducted using a semi – structured interview schedule. Descriptive statistics and inferential statistics were used to analyze the data.

Results: The result of the study showed that 60.3% of respondents were satisfied with the maternal health care services. Only 52.6% and 48.7% were satisfied with informative aspects of care and quality health services respectively. Also, 87.2% of respondents were satisfied with the physical environment and 70.55% with interpersonal aspects of care accordingly.

Conclusion: More than half of the postnatal mothers were satisfied with the maternal health care services. Socio – demographic and obstetric information does not tend to affect the satisfaction level of postnatal mothers towards the maternal health care services but almost all respondents were satisfied with the incentives provided by the Nepal government.

Keywords: *Birthing center; Maternal health care services; Maternal satisfaction; Satisfaction*

INTRODUCTION

Ending Preventable Maternal Mortality (EPMM), now an internationally accepted goal, reflects a convergence of rich and poor nations focused on reducing maternal deaths. The goal is to reduce the maternal mortality ratio (MMR) to a global average of less than 70 per 100,000 live births by 2030, and to less than 50 per 100,000 live births by 2035.[1] Childbirth is a crucial experience in a woman's life as it has a substantial psychological, emotional and physical impact. A childbirth positive experience is important to the woman, infant's health and well-being, and mother–infant relationship.[2] The woman's expectations, suggestions, and needs can enhance providers' awareness of the woman's priorities during childbirth and serve as a guidepost for health services to increase the quality, acceptability and uptake of maternal health services.[3] Client satisfaction is an important aspect in the maternal care which is directly related to the quality of services provided. The willingness of the client returning to the health service in future has a strong

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association with information provided, politeness of the staff and overall care at the facility. The feedback obtained from the client can be useful for improving health service delivery.[4] Maternal satisfaction is a multidimensional construct which is affected by physical set up, cleanliness of health facilities, client - provider communication, accessibility to facility, privacy and staff discipline. It is one of the most frequently reported outcome measures for quality of care, and it needs to be addressed to improve the quality and efficiency of health care during pregnancy, childbirth, and puerperium to provide quality maternal-friendly services.[5] A women-friendly approach to delivery of maternal health care based on adequate response to women's concerns and experiences of health care will be critical to curbing women's dissatisfaction with modern facility based health care, improving access to maternal health, and reducing maternal morbidity and mortality.[6] Maternal satisfaction is one of the important determinants of health service utilization as satisfied woman are more likely to follow the health provider's suggestions. So, emphasis should be given to ensure client satisfaction as a means of secondary prevention of maternal mortality.[9] A descriptive, cross-sectional study was conducted in maternity ward of Bheri Zonal Hospital, Nepal showed that a majority of postnatal mothers are satisfied by the delivery service. However, lack of satisfaction even by a minority of postnatal mothers may result in a limited ability to engage in health facility, which further contributes to maternal mortality.[10] While increasing service, availability and maintaining acceptable quality standards, it is important to assess maternal satisfaction with care in order to make it more responsive, ultimately leading to enhanced utilization and improved outcomes.[11] The conduct and practice of healthcare workers is an important determinant of client's perception of quality of reproductive and maternal health services. Findings can be used by healthcare managers as a guide to evaluate different areas of healthcare delivery and to improve resources and physical facilities that are crucial in elevating clients' level of satisfaction.[12]There is need for more research into maternal satisfaction in developing countries, where safe deliveries remain a major problem and barriers to utilization of institutional deliveries pose a major challenge for health- care programs.[12] The General Objective of the research was to assess the Postnatal Mothers' Satisfaction on Maternal Health Care Services in Birthing Centre among Tertiary Level Hospital, Kathmandu, whereas the specific objective was to identify the level of satisfaction on maternal health care services in Birthing Centre among postnatal mothers and to find out the association between level of satisfaction of postnatal mother and selected variables.

METHODS

Descriptive cross – sectional research design was used to find out the level of satisfaction with maternal health care services among postnatal mothers. This study was carried out in Paropakar Maternity and Women's Hospital in Thapathali (PMWH), Kathmandu among postnatal mothers delivered in Birthing Center which is the central referral hospital of Nepal for obstetrics and gynecologic treatment. Non- probability, purposive sampling technique was adopted for this study. This is the most appropriate method of sampling as the judgment and deliberate effort will be used to select postnatal mothers giving live birth at the birthing center of the hospital and who were about to be discharged from the hospital. The sample size was calculated by using a choharan formula where Prevalence (p) was 89.88%.[11]The equation used to calculate sample size was $n = z^2 \times p \times q / d^2$ and z 1.96 with d 7% and non-responsive rate 10%. With calculation, the total sample size was 78. All postnatal mothers who delivered a healthy baby by normal vaginal birth in the Birthing Center within 24 hours of delivery without any maternal or newborn complications were included.

Instrument of study consisted of four parts where part I consisted of socio – demographic information, part II consisted obstetric information, part III consisted Likert scale to assess level of women's satisfaction and Part IV consisted of questions related to future use of hospital service and recommendations for hospital. There were five domains which included seven questions related to "Quality Health Services", eight questions will

be related to "Informative Aspects of Care", eight questions will be related to "Interpersonal aspects of Care", five questions will be related to "Physical Environment" and three questions will be related to "Maternal Incentives". The scale included 28 items (the range of score 28 to 140). Each item of the scale was scored as 5 for "very satisfied", 4 for "satisfied", 3 for "neither satisfied nor dissatisfied", 2 for "dissatisfied" and 1 for "very dissatisfied". The mean for each item was calculated and the grand mean from the individual means was calculated to dichotomize the women as satisfied and dissatisfied. The postnatal woman who acquired more than mean score from the total obtained scores were satisfied mothers whereas the postnatal women who acquired mean score less than the acquired mean score were dissatisfied mothers. The mean score <129 was categorized as dissatisfied and ≥129 as satisfied.

The content validity of the instrument was assessed by reviewing literature, consulting research advisor and subject expertise. A tool was translated into Nepali language by consulting language experts and the tool was pretested. The written approval was taken from the Nursing Director and respective ward in–charge after collecting approval from the research committee. The researcher herself collected the data, which was checked, reviewed, organized daily for completeness and accuracy. Data was coded, tabulated and entered in SPSS software. Categorical data regarding personal and clinical characteristics of the participants, occupation, religion was statistically analyzed in the frequency and percentage. Descriptive statistics was used to describe socio – demographic, obstetric information and level of maternal satisfaction (mean, percent, standard deviation). Inferential statistics (chi – square) was used to measure the association between maternal satisfaction and selected variables. Interpretation was done on the basis of analyzed data. The findings were presented on the relevant tabulated form. The study was conducted only after the approval of the research committee of the campus. Permission was taken from the authority of Paropakar Maternity and Women's Hospital, by submitting the official written documents to IRC of Paropakar Maternity and Women's Hospital. Written informed consent was obtained from all respondents before data collection. Anonymity of the respondents was maintained by using code numbers while collecting and entering data into the computer.

RESULTS

Table 1 Demographic Information of Respondents

Variables	Frequency	Percentage
Age (in years) of respondents		
Below 20	16	20.5
20 – 30	55	70.5
More than 30	7	9.0
Ethnicity		
Hindu	62	79.5
Buddhist	11	14.1
Christian	5	6.4
Occupation		
Homemaker	43	55.1
Farmer	11	14.1
Service	17	21.8
Business	7	9.0
Educational Status		
Informal education	3	3.8
Primary education	11	14.1
Secondary education	28	35.9
Higher secondary education	29	37.2
Bachelor level and above	7	9.0

Out of 78 participants, fifty five participants were aged more than or equal to 20-30 while others were less than 20 age groups (Table 1). Mean age of the respondents was 23.35 years ±5.17 years. More than 75% of the respondents were Hindu and more than 50% of the respondents were homemakers. Regarding the educational status of mothers, 53.8% of participants received up to secondary level education and 46.2% respondent received more than secondary level education.

Table 2 Obstetric Information of the Respondents (n=78)

Variables	Frequency	Percentage
Parity of respondents		
Primi	45	57.7
Multiparous	33	42.3
Previous place of delivery		
Hospital	28	35.9
Home	5	6.4
Type of current delivery		
Spontaneous vaginal delivery with tear	40	51.3
Spontaneous vaginal delivery with episiotomy	32	41.0
Spontaneous vaginal delivery	6	7.7
Healthcare provider		
Female	55	70.5
Male	2	2.6
Both	21	26.9
Preferred care provider in future		
Female	56	71.8
Male	21	26.9
Both	1	1.3

More than 50 respondents were primiparous and 28 respondents delivered at hospital in their previous delivery (Table 2). However only 32 respondents were given episiotomy while others had spontaneous delivery or a certain degree of tear. 55 respondents received care from female health care providers and 56 respondents preferred to get future services from female health care providers.

Table 3 Satisfaction on Different Domain of Maternal Health Care Services

Domains	Response				Mean	SD
	Satisfied		Dissatisfied			
	f	%	f	%		
Quality Health Services	38	48.7	40	51.3	28.02	3.26
Informative Aspects of Care	41	52.6	37	47.4	34.14	6.93
Interpersonal Aspects of Care	55	70.5	23	29.5	32.98	3.71
Physical Environment	68	87.2	10	12.8	19.73	1.15
Maternal Incentives	74	94.9	4	5.1	14.93	1.61

Most of the respondents were satisfied with maternal incentives whereas only 41 respondents were satisfied with informative aspects of care. Although 68 and 55 respondents were satisfied with the physical environment and interpersonal aspects of care respectively, only 38 were satisfied with quality health services. In regards to overall satisfaction on Maternal Health Care services, 47 postnatal mothers were satisfied (Table 3).

Table 4 Association between Maternal Satisfaction and Socio–demographic Variables (n=78)

Variables	Responses		Chi – square value	*P* – value
	Satisfied f (%)	Dissatisfied f (%)		
Age in years				
<20	16 (66.7%)	8 (33.3%)	.595	.441
> 20	31 (57.4%)	23 (42.6%)		
Occupation				
Homemaker	26 (60.5%)	17 (39.5%)	.02	.967
Others	21 (60%)	14 (40%)		
Education				
Up to secondary level	25 (59.5%)	17 (40.5%)	.20	.886
Above secondary level	22 (61.1%)	14 (38.9%)		

There is no significant association between maternal satisfaction and socio – demographic variables using chi – square test (Table 4). Similarly, there was no significant association between maternal satisfaction and obstetric variables (Table 5).

Table 5 Association between Maternal Satisfaction and Obstetric Variables (n=78)

Variables	Responses		Chi – square value	*P* – value
	Satisfied f (%)	Dissatisfied f (%)		
Parity of Respondents				
Primiparous	29 (64.4%)	16 (35.6%)	.779	.377
Multiparous	18 (54.5%)	15 (45.5%)		
Type of Delivery				
Spontaneous vaginal delivery	3 (50%)	3 (50%)		
Spontaneous vaginal delivery with tear or episiotomy	44 (61.1%)	28 (38.9%)	.286	.593

DISCUSSION

The study has shown important findings in relation to maternal satisfaction in different aspects: quality health services, informative aspects of care, interpersonal aspect of care, physical environment and maternal incentive.

The present study showed that there is no association between age and maternal satisfaction. However, the study carried out in mid – western Nepal showed that the education level of women also affected their level of satisfaction. It showed that the higher the level of education, the lower the level of satisfaction on maternal health care services.[11] No association was found between the age and educational level of the women with maternal satisfaction in this study is consistent with a similar study conducted in 13 districts of Nepal.[19] However, the research conducted in Ethiopia showed that demographic characteristics such as age, educational attainment, and socio – economic status are some of the factors considered to influence measured satisfaction ratings.[6]

Physical environment of the hospital is an important factor of maternal satisfaction as a good physical environment attracts women to hospital whereas weakness in this aspect acts as a negative driver for the client to seek care. 87.2% of respondents were satisfied with the physical environment of the birthing center.[18]More than 80% of respondents were satisfied in physical facilities and cleanliness and almost every respondent was satisfied with incentives provided. Whereas the study conducted at Paropakar Maternity and Women's Hospital 8 years back stated 80.4% were homemaker, only 14.5% were fully satisfied in physical facilities, 13% were satisfied in general cleanliness, 39.9% were satisfied with transportation allowance and 47.8% were satisfied with free of cost services.[15]

A client's poor pain control, lack of information regarding different positions during labour and comfort measures were found to be leading causes of participants' dissatisfaction in this study. This was similar to the study conducted at maternal referral centers in Ethiopia.

The study reveals that the satisfaction of postnatal women on maternal health care services was 60.3% which was similar to the Ethiopian study conducted in Amharaa Referral Hospital which reported to be 61.9%[6]. In this study, 71.8% women desired to get health services from female health care provider in the future and one study conducted in Tertiary Hospital of Western Nepal showed that women tend to be more satisfied by the care provided by female health care providers compared to that of male health care providers.[18]

CONCLUSION

The study concludes that most of the postnatal mothers were satisfied with the maternal health care services provided by the birthing center. Socio-demographic and obstetric information does not tend to affect the satisfaction level of postnatal mothers towards the maternal health care services. However less than half of postnatal mothers were satisfied with the quality of health services which means that different activities and measures can be taken to improve quality in health services which enhances maternal satisfaction.

Competing interest

None declared.

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Knowledge on Preconception Care among Women in a Community at Biratnagar

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ABSTRACT

Background: Preconception care is recognized as a critical component for both mother and child health promotion. It aids successful pregnancy outcome, reduces the maternal and child mortality, morbidity as well as enhances the health of mother and child. The purpose of the study is to assess the knowledge on preconception care among women in a community at Biratnagar.

Methods: A descriptive cross-sectional research design was carried out among married women of age 20-49 years in Metropolitan city Biratnagar - 8. The non-probability purposive sampling was used to select 110 samples. Data was collected using a semi structured questionnaire through face to face interview schedule. Data analysis was done on SPSS version 16.0. Descriptive statistics and inferential statistics were used to find the association between knowledge of pre-conceptional care and selected demographic variables.

Results: The findings of the study revealed that out of 110 women 35.5% were in the age group 20-25 years. A majority of the women (71.8%) had moderate levels of knowledge and 16.4% had adequate knowledge.

Conclusion: The study concludes that there is an association between knowledge on preconception care with education of the women. Awareness programs using various mass media should be developed by health care providers to increase the level of knowledge among women on preconception care.

Keywords: *Community Knowledge; Preconception care; Women;*

INTRODUCTION

Preconception period means time span between planning and onset of pregnancy which refers to a time span of anything 3 months to 1 year before conception but ideally should include the time when both ova and sperm mature, which approximately 100 days before conception.[1] Preconception care is the provision of biomedical, behavioural and social health interventions to women and couples before conception occurs. It aims at improving their health status, and reducing behaviours and individual and environmental factors that contribute to poor maternal and child health outcomes. Its ultimate aim is to improve maternal and child health, to both short term and long term {World Health Organization (WHO)}.[2.] Preconception care means providing care before pregnancy is established.[3]

Organogenesis is completed by the first trimester and according to WHO 4 focused visit of antenatal care, it is often too late to advise because all the adverse effects have already begun to exert their effects. So, preconception care is an integral part of antenatal care because preconception care programs have potential to help women by reducing risk, promoting healthy lifestyle and improving readiness for pregnancy. It also, importantly, minimizes fetal malformation.[4]

According to WHO, four out of 10 women, globally, report that their pregnancies are unplanned. Perinatal

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deaths are 50% higher among babies born to adolescent mothers.[5] Global health observatory data in 2016 shows that 2.6 million deaths, or roughly 46% of all under-five deaths occurred during the neonatal period. The majority of neonatal deaths are concentrated in the first day and week, with about 1 million dying on the first day and close to one million dying within the next six days.[6]

According to Nepal health demographic survey (2016) neonatal mortality rate is 21 which is high in comparison to developed countries, the preconception care is an integral part of antenatal care which helps to reduce both maternal and neonatal mortality rate. Hence the need for knowledge of preconception is important in women for better outcomes of pregnancy.[7]

A study revealed that the prevalence of preconception care was 18-45% reported for women with chronic diseases. It has also been reported that most people using these services were people with type 1diabetes and type 2 diabetes.[8]

Preconception care helps to reduce the risks of adverse health effects for women, foetus or neonate by optimizing the health and knowledge before planning and conceiving a pregnancy.[9]

A descriptive study conducted i.e. study on knowledge on preconception care among reproductive age women at Tulsipur municipality of Dang district among 227 reproductive age women to assess their knowledge on preconception care. Results showed that 192 (84.58%) had average knowledge only 15.42% had good knowledge on preconception care. The overall mean percentage was 57.39 with mean and SD 63.13± 7.14.[10]

A similar study conducted at Bharatpur Hospital Gynecology Outpatient department on the topic of knowledge and practice regarding preconception care among antenatal women by using non probability purposive sampling among 100 antenatal mothers. The result showed that 51% of respondents had an inadequate level of knowledge, 42% had a moderate level of knowledge and 7% had an adequate knowledge. The knowledge gap was found on genetic counseling, meaning of preconception care, folic acids supplementation and timing of preconception care. The study also highlighted that respondent's knowledge and practice about preconception care was relatively poor.[11]

Knowledge regarding preconception care is essential among women. For better pregnancy outcomes and to reduce maternal and child mortality and morbidity, it is essential for the reproductive age women to have knowledge on preconception care. Since limited studies have been conducted in Nepal in this area, the aim of this present study is to assess the knowledge on preconception care among women in a community at Biratnagar.

METHODS

Descriptive cross-sectional study design was used to assess the knowledge on preconception care among reproductive age (20-49 years) married women in ward -8 of Biratnagar Metropolitan city, which is located in Morang district, Koshi zone of province one. Non-probability purposive sampling technique was used. A total of 110 samples were selected. Semi-structured questionnaire was developed for data collection. Pretest was done on 10% of sample size. Ethical clearance was taken from Biratnagar Nursing Campus and Biratnagar -8 ward office. Informed consent was obtained from the respondents. Privacy was maintained and confidentiality of information were ensured. The data was collected for a period of 2 weeks [2018/05/13 to 2018/05/27] by using pre designed pretested semi- structured interview schedule during home visits. Descriptive statistics that is frequency, percentage and mean was used to assess the level of knowledge of preconception care among women. Inferential statistics i.e. chi- square test was used for finding association between knowledge and socio demographic variables.

RESULTS

Regarding ethnicity, Madhesi and Janajati equalled 38.2% of the total respondents, and 9.1% belonged to Brahmin/Chhetri. Similarly, 53.6% respondents lived in nuclear families whereas 4.5% lived in extended families. Likewise, in terms of educational status, 82.7% were literate. 71.8% were homemakers. A majority of 72.2% mentioned they had unplanned pregnancy, 13.6% of respondents answered folic acid as an important vitamin before pregnancy and 9.1% of respondents knew to take folic acid three months before pregnancy. Regarding the importance of folic acid, 23.6% of respondents stated the correct response that it helps to reduce birth defects.

Table 1 Respondent's Knowledge on Preconception Care (n=110)

Variables	Frequency	Percentage
Meaning of preconception care		
Any intervention either advice or treatment and lifestyle modification before being pregnant	34	30.9
Care only to couples those who have health problems	23	20.9
Care providing to pregnant women	50	45.5
Care given to men only	3	2.7
Importance of preconception care		
Yes	106	96.4
No	4	3.6
Important to only couples with health problem		
Yes	30	27.3
No	80	72.7
Need for preconception care		
For men and women	59	53.6
For women only	50	45.5
For men only	1	0.9
Place for preconception care		
Home	37	33.6
Home and health institution	37	33.6
Health institution	36	32.7
Visit to obstetrician before pregnancy		
known pregnancy status	76	69.1
Before conception	24	21.8
Three months after conception	10	9.1

***multiple responses**

Among the total sample, 30.9% of respondents knew the meaning of preconception care. A majority of respondents (96.4%) knew some importance of preconception care. Similarly, 72.7% stated that preconception care is important to all couples. More than half (53.6%) of respondents reported that both males and females are in need of preconception care, and an equal number of respondents i.e. 33.6% and 33.6% respectively chose home, and home and health institution as preferred places for preconception care. Less than a quarter (21.8%) of the respondents reported that they visit an obstetrician before conception, whereas 69.1% had the misconception that they visit an obstetrician to know their pregnancy status.

Table 2 Respondent's Knowledge on Pre-conceptional Behavioral risk Factor on Fetus (n=110)

Risk factors	Yes f (%)	No f (%)	Don't know f (%)
Drug intake without prescription	105 (95.5)	5 (4.5)	0
Alcohol consumption	102 (92.7)	8 (7.3)	0
Gender based violence	102 (92.7)	8 (7.3)	0
Cigarette smoking	101 (91.8)	8 (7.3)	1 (0.9)
STD & HIV AIDS	97 (88.2)	7 (6.3)	6 (5.5)
Stress & depression	91 (82.7)	16 (14.5)	3 (2.7)
Environmental hazard exposure	87 (79.1)	20 (18.2)	3 (2.7)
Diabetes mellitus	78 (70.9)	23 (20.9)	9 (8.2)
Genetic problem	74 (67.3)	28 (25.4)	8 (7.3)
Heart diseases	71 (64.5)	29 (26.4)	10 (9.1)
Epilepsy	70 (63.6)	32 (29.1)	8 (7.3)
Obesity	49 (44.5)	54 (49.1)	7 (6.40

Majority of respondents had knowledge that drug intake without prescription (95.5%), alcohol consumption (92.7%), gender based violence (92.7%), cigarette smoking (91.8%), and STD & HIV AIDS (88.2%) are risk factors to foetuses whereas nearly half (49.1%) thought obesity did not cause risk to foetus (Table 2).

Table 3 Respondent's Knowledge on changes to be made on life style before Conception (n=110)

Changes to be made before conception	Yes f (%)	No f (%)	Don't know f (%)
Good nutrition	109 (99.1)	1 (0.9)	0
Avoid stress	106 (96.4)	2 (1.8)	2 (1.8)
Stop smoking	105 (95.)	5 (4.5)	0
Exercise	87 (79.1)	15 (13.6)	8 (7.3)
Visit doctor	65 (59.1)	41 (37.3)	4 (3.6)
Stop drug abuse	48 (43.6)	42 (38.2)	20 (18.2)
Take folic acid	36 (32.7)	8 (7.3)	66 (60.0)

As per the respondents, changes to be made before conception were thought to be to stop alcohol (100%), good nutrition (99.1%), avoid stress (96.4%) and take folic acid (32.7%).

Table 4 Respondent's Level of Knowledge on Pre- Conception Care (n=110)

Level of knowledge	Frequency	Percentage
Moderate	79	71.8
Adequate	18	16.4
Inadequate	13	11.8

Regarding the level of knowledge on preconception care 79 (71.8%) had a moderate level of knowledge 18 (16.4%) had adequate knowledge, and 13 (11.8%) had inadequate knowledge.

Table 5 Association of Respondent's Level of Knowledge with Socio Demographic Variables (n =110)

Variable	Level of knowledge		*P value*
	Inadequate	Adequate	
Age group			1.000
≤29	7 (6.4)	50 (45.4)	
>29	6 (5.5)	47 (42.7)	
Type of family			1.00
Nuclear	4 (3.6)	55 (50.0)	
Joint	9 (8.2)	42 (38.2)	
Educational status			0.234
Illiterate	4 (3.6)	15 (13.6)	
Literate	9 (8.2)	82 (74.5)	
Education level			.035*
Lower	7 (7.7)	32 (35.2)	
Higher	2 (2.2)	50 (54.9)	
Occupation			0.344
Homemaker	11 (10.0)	68 (61.8)	
Others	2 (1.8)	29 (26.4)	
Income			.069
≤20000	11 (10.0)	53 (48.2)	
>20000	2 (1.8)	44 (40.0)	

Chi-square test,* significant p=< 0.05

The level of knowledge regarding preconception care is significantly associated with education level of respondents with *p-value* .035 whereas age, type of family, education status, occupation and income were not associated with knowledge on preconception care (Table 3).

DISCUSSION

The present study shows that 53.6% of the respondents said preconception care is needed for both men and women, which is inconsistent with the study conducted in Adet, Ethiopia. This involved 422 respondents where 14.2% answered it is needed for both men and women. This might be due to variation in sample and of a more literate respondent of present study.[12]The present study depicts 59.1% of respondents receive information about preconception care from relatives which is incongruent with the study conducted at an outpatient department of National Medical College in Birgunj. Here, 36.4% of respondents got information from radio/television. This might be due to difference in setting.[13]

In the study regarding the best time to take folic acid, 9.1% of respondents answered to take 3 month before pregnancy. This was congruent by the study of Nepali & Sapkota, where 6% of respondents realized the correct time of folic acid supplement. It is also supported by the study conducted in Dang by Gautam & Dhakal, where 11.5% respondents provided the correct time of taking folic acid.[11-10]

The study conducted in Adet, among 422 reproductive age women, shows that 33.6% of respondents identified alcohol consumption as a risk factor to the foetus. Similarly, smoking was stated as an issue by 33.4%, STD & HIV AIDS by 30.3%, diabetes mellitus by 20.9%, gender based violence by 15.6% and genetic problem by 13.0%. This is not similar with the current study where a significant number of respondents identified alcohol consumption (92.7%), smoking (91.8%), STD &

HIV AIDS (88.2%), diabetes mellitus (70.9%), gender based violence (92.7%) and genetic problem (67.3%) as risk factors. This might be due to large sample size whereas it is supported by a study of Gautam and Dhakalconducted in Dang where it is stated highest knowledge score was in the area of reproductive health risk factors.[12-10]

The study presents that 99.1% of participants identified there should be good nutrition before conception, similarly avoidance of stress (96.4%), smoking cessation (95.5%) and, in context of taking folic acid, 32.7% respondents mentioned it should be taken, which is consistent with a study done in Jordan with 763 men and women. In that study, 98.1% of the participants agreed that good nutrition is important, 96.3% of respondents agreed on avoidance of stress. Likewise, smoking cessations was deemed to be important by 97.5%. However, with taking folic acid, there are inconsistencies, as 70.2% mentioned to take folic acid. The differences might be due to large sample size and difference in population.[14]

The findings of this study showed that 16.4% of respondents had adequate knowledge on preconception care, which is supported by a similar study conducted by Gautam and Dhakal in Dang district, Nepal (15.8% of respondents had good knowledge) and also the study conducted by Thakuri and Singh (10.9% of respondents had adequate level of knowledge).[10-13]

CONCLUSION

The findings of the study conclude that a significant proportion of respondents had a moderate level of knowledge about preconception care. There was an association between level of knowledge on preconception care and education. This may reflect that education level tends to have an effect on knowledge. It is recommended to healthcare providers to provide awareness programs for community people on preconception care with wide use of mass media. Awareness campaigns should be conducted regarding planned pregnancy to community people.

Competing interest

None declared.

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Postnatal Care Practices among Mothers Attending a Health Facility

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ABSTRACT

Background: Postnatal care is the essential care during the postnatal period after child birth, and up to 6 weeks. Mortality and morbidity are high during the postnatal period. The objective of this study was to explore postnatal care practices among mothers attending a health facility.

Methods: A descriptive cross sectional study with purposive sampling technique was adopted to collect data from 84 participants, calculated by using Cochran formula. Face to face interviews were conducted using semi structured questionnaires. Data collection was done at Karnali Academy of Health Sciences, Jumla. The collected data was analyzed using descriptive statistics.

Results: The findings of the study showed that more than half (54.8%) of the respondents belongedto the 21-25 age group, and most of the respondents belonged to Hindu religion. More than three quarters (79.8%) of the respondents did not receive any postnatal visits. Most of the (89.1%) of the respondents did not perform kegel's exercise, and 92.9% of the respondents practiced exclusive breastfeeding. Most of the respondents (94%) reported using sanitary pads, or soft and clean clothes as material for perineal pads. More than half (60.7%) of the respondents had good postnatal care practices.

Conclusion: The study concludes that more than half of the respondents had good postnatal care practices. Most of the respondents had adequate practices regarding nutrition and personal hygiene during the postnatal period, but practices regarding postnatal visits and postnatal (kegel) exercise need to be promoted.

Keywords: *Postnatal care; Practice; Mothers; Health facility*

INTRODUCTION

The postnatal period is defined as the period beginning immediately after the birth of a child and extending for about six weeks. The postpartum period is a significant time for the mother, baby, and family as there are vast maternal and newborn physiological adjustments and important psychosocial and emotional adaptations for all family members and support people.[1]

The maternal mortality ratio (MMR) in Nepal decreased from 539 maternal deaths per 100,000 live births to 239 maternal deaths per 100,000 live births between 1996 and 2016. In 2016, roughly 12% of deaths among women of reproductive age were classified as maternal deaths.[2]A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child.[1]Safe motherhood programs recommend that all women receive a check of their health within two days after delivery. However only 51%of

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respondents made their first postnatal contact.[2]

More than half of the world's maternal deaths occur in Sub Saharan Africa and almost one third occur in South Asia. Most of the deaths that occur during the postnatal periods are due to postpartum hemorrhage, and puerperal sepsis from delivery. In developed countries most of the women receive care from healthcare professionals.[3]

Postnatal care in Nepal is historically uncommon, and most mothers and newborns make their first postnatal contact with health services at the time of the baby's first immunization at 6 weeks postpartum. The Ministry of Health and Population recommends at least three postnatal visits at specific times: within 24 hours of birth, on the third day of the newborn's life, and on the seventh day of life.[4]

A study conducted on Postpartum Care Practices among Postnatal Mothers in Tharu showed that family income played a significant role in a nutritious diet within 24 hours of birth. Occupation had no effect on the frequency of postnatal visits. Education played a significant role in perineal pad usage. Only 49.7% of respondents had received a postnatal visit. Education played a significant role in colostrum feeding practices. Literate respondents had four times more practice of colostrum feeding compared to illiterate respondents. Distance played a significant role in attending health facilities. Education of mothers played a major role in postpartum care practices.[5]

A study conducted in Tamang community stated that, after child birth, a mother and her newborn were considered as birth pollution and stayed separately on a straw bed for 3 days. In that community, they had a belief that the separation protected the family from evil eyes and witches. Mother in laws and female relatives are the strong believers of such negative rumors.[6]

Every day, worldwide, about 830 women died due to complications of pregnancy and childbirth. Almost all of these deaths occurred in low resource settings, and most could have been prevented. Around 99% of deaths occurred in developing countries that is about 33 times higher compared to a woman living in a developed country. About three quarters of all maternal deaths are caused by postpartum hemorrhage, hypertensive disorders, infections, unsafe abortion and other delivery-related complications.[3]

There is a lack of sufficient research being conducted on Postpartum Care Practices among Mothers Attending a Health facility, so the researcher's aim is to find out the level of Postnatal Care Practices among Mothers Attending a Health Facility and to identify the association between Postnatal Care Practices among Mothers with the selected variables.

METHODS

A descriptive cross sectional study design was used. This study was conducted in the MCH clinic of Karnali Academy of Health Sciences. The study population were mothers who visited in MCH clinics from 4 weeks to 14 weeks following childbirth.The sample size was calculated by using the Cohran formula and sample size was 84. Non probability purposive sampling technique was used to select the desired sample. Data was collected from 01/07/2019 to 14/07/2019. A semi structured face to face interview schedule was used to collect data and this schedule consisted of two parts socio-demographic informationandpostnatal care practices among mothers.

Formal approval was obtained from the authority of Bir Hospital Nursing Campus, research committee of Karnali Academy of Health Sciences and also from MCH clinic of KAHS. Those mothers who meet the inclusion criteria were identified, and written informed consent was obtained from all the respondents, while clarifying the purpose of the study prior to the data collection.

Total time allocation for the completion of the interview schedule was around 15-20 minutes

for each respondent. The privacy was maintained by taking interviews in a separate place and confidentiality of the subject was maintained by not disclosing their personal information, coding the respondents and protecting the computer with password throughout the study and thereafter.

The collected data was checked, reviewed and organized daily for completeness and accuracy. Data was coded, tabulated and entered in SPSS version 16 software. Data was analyzed using a descriptive method by calculating mean, standard deviation, percentage and frequency.

RESULTS

Table 1 Socio- demographic Characteristics (n=84)

Variables	Frequency	Percentage
Age in years		
15-20	16	19.0
21-25	46	54.8
26-30	18	21.4
31-35	3	3.6
36-40	1	1.2
Mean ± SD 23.61± 3.617		
Education of mother		
Cannot read and write	6	7.1
Can read and write	5	6.0
Primary level	17	20.2
Secondary level	33	39.3
Higher secondary level	23	27.4
Religion		
Hindu	81	96.4
Buddhist	2	2.4
Christian	1	1.2
No. of children		
One	39	46.4
Two	35	41.7
Three and more	10	11.9

Out of 84 respondents, 54.8% of the respondents were between the 21-25 age group, while 1.2% were between the 36-40 age group. The mean age of the respondents was 23.61 years ±3.62 years. Regarding the educational status of mothers, 39.3% of respondents received secondary level education and 6.0% respondents could read and write. The majority (96.4%) of the respondents belong to Hindu religion. Almost half (46.4%) of the respondents had a single child whereas 1.2% had four children (Table 1).

Table 2 Practices regarding Postnatal Visit: Kegel Exercise and Nutrition (n=84)

Variables	Frequency	Percentage
Regular postnatal visit		
Yes#	17	20.2
No	67	79.8
Reasons for not visiting during postnatal (n=67)		
Transportation problem	3	4.4
Cultural reason	4	6.0
Did not feel the need	60	89.6
Any food avoided during postnatal periods		
Yes	19	22.6
No#	65	77.4
Pelvic floor (kegel) exercise		
Yes#	9	10.9
No	74	89.1

Correct response

Only 17% of the respondents visited healthcare facilities regularly during their postnatal periods to report problems and seek advice from a doctor or nurse. Most of the respondents (79.8%) did not visit a healthcare facility regularly as they did not feel a need for a postnatal visit. Regarding nutrition, 71.5% were not avoiding any food during the postnatal period and 28.5% of the respondents avoided food during their postnatal period. Most of the respondents (89.1%) did not perform kegel exercise after delivery and only 10.9% respondents practiced Kegel exercises during postnatal period (Table 2).

Table 3 Practices regarding Personal Hygiene and Breastfeeding (n=84)

Variables	Frequency	Percentage
Take first bath after delivery		
Within 24 hours	7	8.3
After 24 hours	30	35.7
After 3 days	31	36.9
After 6 days	1	19.0
Material used as a perineal pad		
Sanitary pad#	32	38.0
Soft and clean clothes#	47	56.0
Any available cloths	5	6.0
Duration of changing the pad		
Once it soaked	53	63.1
Change daily	6	7.1
After every urination	11	13.1
Change every 4 hourly#	14	16.7
Way of clean perineal area after urination and defecation		
From front to back#	57	67.9
From back to front	12	14.3
From any direction	9	10.7
Back only	6	7.1
Initiation of the first breast feeding after delivery		
Within an hour#	67	79.8
After 1 hour	14	16.7
After 1 day	3	3.6

Correct response

In our sample, 36.9% women took their first bath after three days of delivery. Most of the respondents (94%) used sanitary pad and soft and clean clothes as a material for perineal pads. More than fifty percent (63.1%) of the respondents changed their pads once they had soaked (Table 3). About 67.9% of the respondents cleaned their perineal area from front to back. 79.8% of the respondents initiated breastfeeding within 1 hour.

Table 4 Practices related to Cultural Practices (n=84)

Variables	Frequency	Percentage
Live separately in a room after delivery		
Yes	56	66.9
No	28	33.1
Reasons for living separately (n= 56)		
Follow tradition	54	96.4
Reduce the household work	1	1.8
Fear of god	1	1.8
Male member of family (including husband) touch after delivery		
Yes	41	48.8
No	43	12
Time period for not allowing to touch (n=43)		
Up to 11days	37	88.1
Up to 15 days	1	2.4
Up to 22 days	3	7.1
Up to 1 month	1	2.4
Restricted activities during postnatal periods		
Visit to temple	74	87.9
Go outside from house	9	10.7
Touch to others small baby	1	1.2
Consider as polluted		
Up to 6 days	2	3.6
Up to 11 days	5	8.9
Up to 15 days	4	7.1
Up to 30 days	42	75.0
Up to 45 days	3	5.4

More than half (66.9%) of the respondents were living separately to their family, in another room. Most of them (96.4%) lived separately due to their traditional beliefs (Table 4). More than half (51.2%) of the respondents were not touched by male members of the family. Among them, 88.1% were restricted by touch for up to 11days. Most of the (87.9%) of respondents were restricted in their visits to temples. Seventy five percent of the respondents are considered as polluted for up to 30 days.

Table 5 Level of Practices regarding Postnatal Care of the Respondents (n=84)

Level of practices	Frequency	Percentage
Good practice	51	60.7
Poor practice	33	39.3

Mean scores± SD: 12.67 ± 2.5285

More than half (60.7%) of the respondents had good practice regarding postnatal care and 39.3% of the respondents had poor practices (Table 5).

DISCUSSION

In this study regarding postnatal visit, most of the respondents (79.8%) did not visit a healthcare facility regularly and only 20.2% had regular postnatal visits. The findings of this study are quite similar to the study assessing utilization of postnatal care in Nepal, which revealed the proportion of women who had received postnatal care after delivery was low(34%).[7]

In this study, 36.9% of the respondents took their first bath after three days of delivery. Most of the respondents (94%) used sanitary pad and soft and clean clothes as a material for perineal pads. More than fifty percent (63.1%) of the respondents changed their pads once they were soaked. About 67.9% of the respondents cleaned their perineal area from front to back. The findings of the study are similar to the study conducted in rural areas of Tirupati India, revealing that almost all women (90%) believed they should not take a bath for a minimum of 3 to 5 days. They performed a ceremony, a special ritual, of "purudu" at 5thor 9thday.[8]

In regard to newborn care, this study suggests 79.8% of respondents start early initiation of breastfeeding, 76.2 % of respondents bath their babies after 24 hours of birth, and the exclusive breastfeeding rate is 89.6%. The findings of this study are similar to a study done at TUTH on knowledge and practice of postnatal mothers around newborn care. All of the respondents i.e 100% were supported to feed colostrum and exclusively breastfeeding, but cord and eye care practice is different.[5]

In this study, regarding restrictions during the postnatal period, most of the (87.9%) respondents were restricted with respect to visiting temples. It is quite similar to the study conducted in rural areas of Tirupati, Andhra Pradesh regarding the Cultural Beliefs and Practices during Postnatal Period. 77% of respondents said they should not visit temples, and to perform puja at home till 22 days they believe postpartum period is impure.[9]

In this study, more than half (60.7%) of the respondents had good practice regarding postnatal care and 39.3% of the respondents had poor practices. The findings of this study are contradictory to a descriptive study conducted in Mangalore, India, to assess the Knowledge and Practice on Selected aspects of Postnatal Care among Postnatal Mothers. The study shows that 48.3% respondents were having inadequate practices regarding selected aspects of postnatal care, 43.3% were having moderately adequate practices and only 8.3% of them had adequate practices.[10]

CONCLUSION

More than half of the respondents had adequate levels of postnatal care practices but postnatal visits and postnatal (kegel) exercise seemed to be inadequate. Most of the respondents had adequate practices regarding nutrition and personal hygiene. The findings provide a basis for the hospital administrators to develop strategies regarding proper postnatal visits and healthcare education; for example, postnatal exercise and newborn care regarding postnatal care practices. The findings of the study might also serve as a baseline data for further research in this area.

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Competing interest

None declared.

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Factors Associated with Poor Uptake of Antenatal Care among Mothers Attending Public Health Facility at Kavrepalanchowk, Nepal

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ABSTRACT

Background: Antenatal care (ANC) is very important for the positive pregnancy experience and to reduce maternal morbidity and mortality. Poor uptake of ANC is high among the lower income countries like Nepal**.** The objective of this study was to identify the prevalence and factors associated with poor uptake of ANC at Kavrepalanchowk district of Nepal.

Methods: A community based descriptive cross-sectional study was conducted among 363 women aged 15-49 who had at least 1st ANC visit as per protocol of the government but had not completed the 4th visit. Systematic sampling method was used to select a sample population for the study. Face to face interviews were conducted to collect quantitative data using semi-structured questionnaires. Bivariate and multivariate analysis was done to find the factors influencing poor uptake of ANC.

Results: The prevalence of poor uptake of ANC was 24.2%. Poor uptake of ANC was more likely among the respondents whose spouses had a lower education level. Those respondents who were not in contact with Female Community Health Volunteers (FCHV), those who reside more than 30 minutes from the health facility, and women whose last ANC visit was in the health facility without birthing facilities.

Conclusion: This study has shown that there are many factors associated with poor uptake of ANC amongstwomen. Hence, it is very important to create demand and provide the services as per the demand generated to access the complete ANC visit for the positive pregnancy experience to reduce maternal mortality as well as morbidity.

Key words: *ANC visits; Factors; Kavrepalanchowk; Nepal; Poor uptake*

INTRODUCTION

In 2017 around 810 women died every day from preventable causes related to pregnancy and childbirth and 94% of all maternal deaths occurred in low and lower middle-income countries.[1] In 2015, an anticipated 303,000 women died from pregnancy-related causes, and 2.7 million babies died during the first 28 days of life. About 38% of maternal deaths occurred in the antepartum period; 38% in the intrapartum period and up to 48 hours afterwards; and 28% in the postpartum period.[2] A systematic review showed that women attending

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antenatal care were 7 times more likely to give birth at a health facility.[3] Similarly, this study also revealed that with an increase in antenatal care and health facility delivery, there was a progressive drop in maternal mortality ratio per 100, 000 live births.[3] Antenatal care (ANC) reduces maternal and perinatal morbidity and mortality both directly, through detection and treatment of pregnancy-related complications. It is also reduced indirectly, through identification of women and girls at increased risk of developing complications during labor and delivery, thus ensuring referral to an appropriate level of care.[4] ANC gives women access to nutritional supplements, treatment of illnesses such as hypertension and eclampsia, immunization against diseases such as tetanus, testing for Human Immunodeficiency Virus (HIV), and access to medications to prevent mother-to-child transmission of HIV.[5] Hence, In order to reduce mortality and morbidity, a high level of ANC is needed. When women don't access the full range of ANC available, they miss out on care that would enhance their own health and that of their newborn.[6]

The recommended number of ANC visits varies between countries and is often higher in high-income countries.[7] The World Health Organization (WHO) has recommended a minimum of four antenatal contacts but the new WHO guideline has suggested 4 to 8 visits. Eight or more contacts for antenatal care can reduce perinatal deaths by up to 8 per 1000 births when compared to four visits.[3] Women who attended ANC early in their pregnancy and those who attended the recommended number of contacts were more likely to be delivered at a health facility by a skilled birth attendant compared to those who accessed ANC later in pregnancy and also attended less than four visits.[7] In the least developed countries where maternal mortality is high, 77 % of pregnant women have access to at least once ANC visit while only 42% has access to recommended 4 ANC visits.[10]

At least 4 ANC contacts are recommended in the fourth, sixth, eighth and ninth months of pregnancy as per the National protocol of Nepal. The uptake of the 1st antenatal visit in Nepal, is almost 100%. However, by the fourth visit the uptake is only 51% and the dropout rate is found to be 24%.[12] Maternal mortality in Nepal, as per the Nepal Demographic Health Survey in 2016, is 239 deaths per 100,000 live births.[13] In Kavrepalanchowk district, the proportion of women receiving the 1st time ANC visit at any time during the pregnancy, is 100% for the last two years but only 59.3% has received first ANC visit as per ANC visit protocol.[14]

Lack of education, poor socio-economic status, previous pregnancy outcomes, accessibility of health facilities, poor knowledge of ANC and the behavior of health service providers are some of the factors affecting the uptake of ANC, as per the protocol.[15-22] A study conducted in Nepal revealed that the older age, higher parity, higher educational status,[24-27] and lower economic status [21,27] were significantly associated with poor uptake of ANC. The aim of this study was to identify the prevalence of poor uptake of ANC and identify the factors associated with poor uptake amongst the women in the Kavrepalanchowk district of Nepal. By doing this evidence based advocacy programs can be developed which in turn, will help reduce maternal mortality and morbidity in Nepal.

METHODS

This was a community based descriptive cross-sectional study conducted from August to December in 2017.The study population comprised of women aged between 15 and 49 who had their first ANC visit during the fourth month of the pregnancy in a public health facility in the previous two years. The study was conducted in Paanchkhal municipality of Kavrepalanchowk district which lies in Bagmati Province of Nepal.

The sample size of the study was 374 calculated from $n = Z^2pq/d^2$ where Z=1.96, P= 33 percent = 0.33, q= 1-p=0.67, allowable error L=5 percent =0.05, with 10 percent non-response rate. The

prevalence taken was 33% as per the ANC visits dropout of the central development region retrieved from annual report 2072/73. In our study, a total of 363 (97%) provided complete information.

Systematic random sampling was done to select the sample for the study.The sampling frame was obtained from the maternal and newborn service register of all seven public health facilities located at the Paanchkhal municipality. Total 714 study units were identified and sampling fraction was calculated by dividing total study population by desired sample size and then every 2nd study unit was taken as the study population.

Face to face interview was done to collect the data using a structured questionnaire by visiting the households of the participants. The data collection tool was pretested at Dhulikhel municipality of the same district among the 10% of the sample size and necessary changes on the language as well as on chronology of the questions were adjusted. The analysis of economic status was done by the principal component analysis method.

Data entry was done in Epi-data version 3.1 and was imported to SPSS - 20 version for analysis. Bivariate analysis was done by applying a chi square test. Odds ratio and corresponding 95% confidence interval was calculated to test the existence of significant association between ANC visits dropout and independent factors. Those variables with P-value < 0.2 in bivariate analysis and variable of interest were subsequently included in multivariate analysis after controlling confounding factors. Ethical approval from the institutional review committee of Chitwan Medical College, Tribhuvan University and approval letter from District Health Office, Kavrepalanchowk district were obtained. The objective of the study was explained to the respondents and informed consent was taken. Identifiable information were not collected to maintain privacy and confidentiality of the respondents

RESULTS

Prevalence of poor uptake of ANC care: The prevalence of poor uptake of ANC care was 24.2% (CI: 28.6%-19.8%). Poor uptake of ANC care for this study is the discontinuation of the ANC visit after the first visit as per national protocol which is in the fourth month of pregnancy.

Table 1 Prevalence of Poor Uptake of ANC Care (n=363)

ANC Care Visit Dropout	Frequency	Percentage
Dropout of ANC visits	88	24.2
Non-Dropout of ANC visits	275	75.8

Socio-demographic and economic characteristics

The findings showed that the median age of the respondents was 25.53 years ±4.80 years. Majority of the respondents were Janajati accounting 74 % of the total respondents. About 82% respondents were Hindu, and only 41% of the respondents had secondary or higher-level education.

Maternal related factors

Around 36.1% of the respondents were married at the age between 15-19 years. More than half i.e. 55% of respondents were married at the age between 20-24 years.

85% of the respondents had two or lesser live births. Similarly 81.3% of the respondents had been pregnant twice or lesser. More than ninety of the respondents told that their pregnancy was wanted (Table 2).

Table 2 Maternal Related Factors

Variables	Frequency	Percentage
Marital age (n=363)		
15-19	131	36.1
20-24	201	55.4
25-29	27	7.4
>29	4	1.1
Median =20.52±2.986		
Number of live births (n=363)		
Less or equal to 2	309	85.1
More than 2	54	14.9
Gravida (n=363)		
Less or equal to 2	295	81.3
More than 2	68	18.7
Wanted pregnancy (n=363)		
Wanted	337	92.8
Unwanted	26	7.2
Source of Information on ANC*		
FCHV	223	62.3
Family members	179	50.0
Book	102	28.5
Self	51	14.2
Radio	47	13.1
Television	39	10.9
Friends	36	10.1
Health Service Provider	16	4.5
Newspaper	5	1.4
Others	4	1.1

*Multiple responses

Health service factors

The research findings revealed that it took more than 30 minutes for the 60.3% of the respondents to reach the nearest government health facility from their residence. 58.1% shared that the health service provider behavior was fair towards the woman. Half of the respondents expressed that they were extremely satisfied with the health service provider and 86.2% of the respondent shared that they had their ANC at a health facility with the birthing service. Additionally, it was found that 68.6% were moderately informed about the ANC and maternal care during the ANC visits. Among the 80.2% of the women who were in contact with FCHV, 54.6% contacted the FCHV once a month and 80.4% of respondents were moderately informed about maternal care by the FCHV.

Table 3 Health Service Factors

Variables	Frequency	Percentage
Distance to health facility from the residence		
Less or equal to 30 min	144	39.7
More than 30 min	219	60.3
Behavior of the health service providers		
Discriminatory	9	2.5
Fair	211	58.1
Good	143	39.4
Satisfaction toward health service during ANC		
Very Satisfactory	183	50.4
Satisfactory	157	43.3
Not Satisfactory	23	6.3
Birthing service at health facility (Last visited for ANC)		
Yes	313	86.2
No	50	13.8
Level of information received from health facility		
Poor	53	14.6
Moderate	249	68.6
High	61	16.8
FCHV contact		
Yes	291	80.2
No	72	19.8
Times of contact with FCHV (n= 291)		
Daily	22	7.6
Once a week	23	7.9
Once a month	159	54.6
Sometimes	87	29.9
Level of information provided by FCH		
Poorly informed	57	19.7
Moderately informed	186	64.4
Highly informed	46	15.9

Factors associated with poor ANC care

In the multivariate analysis, economic status, level of education of the spouse of the respondent, source on information of ANC: book, contact with FCHV, distance to the health facility and delivery service at the health facility were significantly associated with poor ANC care.

The result showed that the respondents of the poorest category were 8 times more likely (AOR: 8.03, CI: 2.47-26.12) to poorly uptake of ANC care than those who were from the richer category of the wealth quintile.

Likewise, the respondent from the poorer economic status were 7 times (AOR: 7.16, CI: 2.11-24.23) more likely to have poor uptake of ANC in comparison to the respondents from the richer economic status. Similarly, the respondents from the middle economic status were 5 times (AOR: 4.627, CI: 1.31-16.25) more likely to have poor uptake of ANC and respondent who were from the richest economic status are two times (AOR: 4.62, CI: 1.31-16.25) more likely to have poor uptake of the ANC visit than in comparison those who were from the richer economic status. The spouse of the respondent who did not attend school were 2 times (AOR: 2.39, CI: 0.67-8.47) to have poor uptake the ANC visit and those spouse who had completed basic level of education are 3 times (AOR: 2.76, CI: 1.26-6.04) more likely to have poor uptake of the ANC visit in comparison to those whose spouse have completed secondary level of education and

more.

The respondents whose source of information about ANC was other than book is four times more likely (AOR: 3.93, CI: 1.64-9.45) to have poor ANC uptake than those who got the information from the book. The respondents who were not in contact with FCHV during the antenatal period is three times more likely (AOR: 3.07, CI: 1.42-6.66) to have poor ANC uptake than those who were in contact with the FCHV. Similarly, those who reside at the distance of more than 30 minutes far from government health facilities were 10 times more likely to have poor uptake of ANC than those who reside at distance less than 30 minute. Likewise, those respondents who visited health facilities without the birthing service for their last ANC were more likely to have poor uptake the ANC visit by 2 times (AOR: 1.75, CI: 0.92-3.33) in comparison to those respondents who visited health facilities with birthing service. The Variance Inflation Factors of the variables are less than 1.8 implicating the goodness of fit and adequacy of test.

Table 4 Multivariate Analysis

Variables	Unadjusted OR (95%CI)	Adjusted OR (95% CI)	P-value
Economic Status			
Poorest	3.78 (1.664-8.584)	8.036 (2.472-26.123)	0.001*
Poorer	2.71 (1.181-6.256)	7.16 (2.117-24.230)	0.002*
Middle	1.49 (0.616-3.625)	4.62 (1.317-16.254)	0.017*
Richer	1	1	0.008
Richest	1.658 (0.69-3.984)	3.58 (1.026-12.536)	0.045*
Level of education			
School not attended [a]	2.512 (1.329-4.749)	1.041 (0.385-2.815)	0.937
Basic level of school [b]	1.427 (0.811-2.511)	0.834 (0.371-1.872)	0.659
Secondary level and more [c]	1	1	0.843
Level of education of spouse			
School not attended[a]	2.512 (0.715-3.939)	2.392 (0.675-8.478)	0.177
Basic level of school[b]	1.427 (1.463-4.162)	2.762 (1.261-6.048)	0.011*
Secondary level and more[c]	1	1	0.039
Gravida			
<=2	1	1	
>2	1.659 (0.932-2.955)	1.479 (0.702-3.119)	0.304
Source of information			
Book			
Yes	1	1	
No	2.252 (1.222-4.149)	3.938 (1.641-9.451)	0.002*
Radio			
Yes	1	1	
No	2.992 (1.145-7.819)	2.876 (0.875-9.448)	0.082
FCHV			
Yes	1	1	
No	1.649 (1.0152.68)	1.602 (0.819-3.136)	0.169
FCHV Contact			
Yes	1	1	
No	2.26 (1.3 -3.93)	3.078 (1.42-6.66)	0.004*
Distance to Health Facility			
Less or Equal To 30 Min	1	1	
More Than 30min	3.584 (2-6.4)	9.761 (4.09-23.261)	<0.001*
Availability of the Birthing Service			
Yes	1		
No	1.756 (0.92-3.33)	3.124 (1.22-7.94)	0.017*

1 Reference category OR: Odds Ratio [a] includes illiterate and literate [b] includes primary level and basic education level and [c] includes secondary level, higher secondary and higher education level

DISCUSSION

The prevalence of poor uptake of ANC care was found to be 24.2% in this study which corroborates with the national average. Similar study[21] done at Dhanusha district in 2016 showed a 50.4% prevalence rate of poor ANC uptake, which is double than the prevalence observed in this study. Likewise, other earlier researchers have documented higher poor uptake of ANC care compared to the present study.[27-28] This is mainly due to different settings, different economic status and educational status of the participants, and also introduction of various educational programs to enhance maternal health in recent years. The international study by Abbas and colleagues in 2017 found similar results with this study.[29]Other studies done in African countries such as Uganda, Rwanda and Nigeria also showed that poor ANC care was higher than the current study. This also might be due to different economic status, educational level and different health status.[20,22,25,30]

The present study showed no significant association of poor ANC care with the maternal age, which is consistent with other various studies.[17,31] But few studies suggested increases the odds of utilization of the complete ANC visit with increase in the age of the respondents.[26] While incongruent to the above findings some study revealed that age had negative relationship with the utilization of ANC and it was found that the young women were more likely to seek antenatal service.[21,29] The present study showed the significant association between the level of education of the spouse and the ANC care. Poor uptake of ANC care is higher among those whose spouse did not attend school than those whose spouse had completed secondary or higher level of education. It is anticipated that educated men are more well-informed in health information and fully understand the benefits of utilization of ANC service and participate in maternal care. Hence it is suggested to address the issue of dropout more specifically with programs targeting men with less education. This suggests that to increase the continuation of the education and reduce the education dropout among the male as well as female. Our findings also corroborate with other earlier studies which revealed that husband education as a major predictor that influences uptake of ANC.[26,32]

This study indicated that the economic status of the respondent is also one of the determining factors of the uptake of ANC care. Poor uptake of ANC care increased with decrease in the economic status of the respondent. The respondent with poor wealth quintile might face financial difficulties with all the investigations to be carried out throughout the ANC though they get NRs 400 as incentive which is not enough so they face more challenges to attend ANC clinics. Furthermore, when they visit private health facilities the available facilities offer a wide range of services with a range of costs which is beyond their affordability. Other national and international studies also ascribed such findings to the fact that the economic status of the respondent affects in the complete ANC visit.[16-21, 33-35]

There is a significant association between FCHV contact and the uptake of ANC care. Those respondents who were not in contact with FCHV were more likely to drop out from ANC visits than those who were in contact with them. Similarly, other researchers have also stated that contact with FCHV is one of the predictors for utilization of ANC service.[25,36] An interventional study regarding the effectiveness of community based safe motherhood promoters in improving the utilization of obstetric care in Tanzania indicated the increase in the more women who had four or more ANC visits increased post the intervention however, this difference was not significant.[37] This also suggests that the grass root volunteers who promote the maternal care are one of the important factors to increase the recommended ANC visit as they are in continuous contact with members of community and can provide health education in a culturally friendly and cost-effective manner.

With the health information provided from different sources, the women are aware of the number of ANC visits, necessity of ANC visit, complications for mother and the newborn baby which might bring positive behavior change and compliance with ANC visit. The other studies also found that information from different media have a positive impact on ANC

visits.[8, 25] Evidence had shown that every pregnancy is at risk which can be reduced by completing the recommended ANC visits, it is very important to inform and aware the women about the significance of ANC through different means and media.

Distance to the government health facility was shown to have positive association with uptake of ANC care in the study. The women tend to drop out the ANC visit if the health facility is far from their residence. And the result was found to be inconsistent with one of the studies conducted in Nepal.[26]These results could be attributed to the fact that the majority of the mothers lived at the nearest health facility within thirty minutes from their residence as per the study. Onasoga and others also revealed significant association between distance to the health facility and utilization of the ANC service.[15]

In the current study the findings revealed that those respondents who visited health facilities for ANC without birthing services are more likely to drop out from ANC care in comparison to those who visited health facilities with birthing service. This might have occurred because the women who visited their ANC at the health facility without birthing service tend to seek another health facility to continue their ANC that has a birthing center which results in missing the ANC visit in recommended protocol. The study by Singh in 2016 revealed that the dissatisfaction with the health service provided and unreceptive attitude of health workers were associated with poor ANC uptake.[21] However, in this study the respondent may have dropped out from public health facility and moved to private health facility to continue their ANC care but they may not have dropped out completely from the ANC visit schedule. This study was conducted at only one municipality of the district hence the result cannot be generalized to other settings or to the whole country.

CONCLUSION

Around one-fourth of the respondents had poor uptake of ANC care in this study. This study has further shown factors such as socio economic, health system, maternal factors which have led to poor uptake of ANC care by the women. Hence, it is very important to create demand and provide the services as per the demand generated to facilitate full access of complete ANC visits for the positive pregnancy experiences.

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Competing interest

None declared

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Awareness and Practice regarding Birth Preparedness and Complication Readiness among Pregnant Women Attending a Tertiary Hospital

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ABSTRACT

Background: Birth Preparedness and Complication Readiness (BPCR) is a strategy to promote the timely use of skilled maternal and neonatal care, based on the theory that preparing for childbirth and preparations for complications reduces delays in obtaining care. The objective of the study was to assess awareness and practice regarding BPCR among pregnant women attending antenatal OPD in a tertiary hospital.

Methods: A cross sectional study was conducted in Paropakar Maternity and Women's Hospital, Thapathali, Kathmandu, which is a tertiary level referral hospital for reproductive and gynecological health issues. Non-probability purposive sampling was used to recruit 96 pregnant women attending antenatal OPD. Chi-square test was applied to assess the association between socio-demographic variables, obstetric characteristics and awareness and practice of Birth Preparedness and Complication Readiness.

Results: The result showed that the majority of respondents (97.9%) had adequate awareness regarding BPCR and two third of the respondents (67.7%) had sufficient practice regarding BPCR. There was significant association between awareness on BPCR and variables such as gestational age, practice and previous birth outcome and source of information.

Conclusion: Only two third of the pregnant women were prepared for normal birth and complications. Identification of factors hindering BPCR practices among the pregnant women should be sought through future research. The findings may be helpful to government officials, health care providers and organizations working in the areas of maternal and child health to maximize birth preparedness and complication readiness practices.

Keywords: *Awareness; Birth preparedness and complication readiness; Practice; Pregnant women*

INTRODUCTION

The estimated 211 million pregnancies occur worldwideeach year, andevery day approximately 830 women die from causes related to pregnancy and childbirth. In 2015, around 303000 maternal deaths occurred worldwide.[1,2]

There are large disparities in maternal mortality between developed and developing countries, but also within countries, between women with high and low income and those women living in rural versus urban areas, similar findings were shown by different studies conducted in Nepal. [3,4]

The current maternal mortality ratio (MMR) for Nepal is 239 deaths per 100,000 live births.[5] Maternal mortality remains one of the biggest public health problems in Nepal. Lack of access to basic maternal healthcare, difficult geographical terrain, poorly developed transportation and communication systems, poverty, illiteracy, women's low status in the society, political conflict, shortage of healthcare professionals and underutilization of currently available services are major challenges to improving maternal health in Nepal.[4,6]

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Mothers and newborns need timely access to skilled care during pregnancy, childbirth, postpartum and the newborn period for their optimum health.[7,8] However, their access to skilled health care is hindered by three delays- delay in deciding to seek care, delay in reaching care, and delay in receiving care.[8]

World Health Organization (WHO) has strongly recommended birth preparedness and complication readiness (BPCR) interventions to increase the use of skilled care at birth and to increase the timely use of facility care for obstetric and newborn complications.[9]

The BPCR framework was first adopted in the Nepal government's 'SUMATA' programme in 2002.[10] BPCR has now been incorporated into the national safe motherhood program of Nepal and implemented through-out the district health system by the end of 2065/66 (2008/009) in all 75 districts.[11]

Promoting birth preparedness and complication readiness including awareness, is one of the major strategies of the government of Nepal to reduce risks during pregnancy and childbirth, and address factors associated with mortality and morbidity.[11]

A recent meta-analysis demonstrated that exposure to BPCR interventions was associated with an 18% reduction in neonatal mortality risk and a 28% reduction of in maternal mortality risk.[12]

Different studies conducted about awareness and practice of BPCR are mostly focused on rural and peri-urban areas with limited numbers of studies in urban areas, where available health care facilities, socio- demographics and cultural conditions are different.[13] And this information is an utmost requirement for formulating strategies and actions for improvement in MMR. Thus, this study aimed to identify the awareness and practice of Birth Preparedness and Complication Readiness among pregnant women in tertiary hospital.

METHODS

A cross sectional study was conducted at Paropakar Maternity and Women's Hospital in Thapathali, Kathmandu among pregnant women attending antenatal clinics. It is a specialty hospital providing health services to all women for their reproductive health needs and is also a central referral hospital of Nepal for obstetrics and gynecologic treatment.

Sample size was determined by using a single population proportion formula based on Cochran formula: 95% confidence interval, 10% margin of error, 50% of prevalence of BPCR; the final sample size was 96.[14, 15] Non-probability, purposive sampling technique was used.[16] Data was collected from June 30th to July 14th 2019. Ethical approval was obtained from the authority of Institutional Review Committee (IRC) of Paropakar Maternity and Women's Hospital.

Written informed consent was obtained from all respondents before data collection. Participants were given freedom to answer questions, and given autonomy to withdraw from the research at any period. Anonymity of the data was maintained by using code numbers while entering data into the computer. Privacy was maintained as far as possible by collecting data in the separate area of the ANC OPD.

Pregnant women in their second or third trimester, who had visited the health facility for at least 2 times, and who were able to respond in Nepali language, were included in this study. Pregnant women who had medical complications such as hypertension, cardiac disease, severe pre-eclampsia, severe anemia were not included in this study.

Socio-demographic and obstetric characteristics were analyzed using descriptive statistics as frequency and percentage. Chi square test and Fisher's exact test were used to find out the association between socio-demographic and obstetric characteristics and Awareness and practice of Birth Preparedness and Complication Readiness among pregnant Women.

A semi-structured interview schedule was used, and was divided into 3 parts.

PART I: Socio-demographic information, **PART II**: Awareness regarding birth preparedness and complication readiness, **PART III**: Practice regarding birth preparedness and complication readiness. The questionnaire was formulated in

English and then translated into Nepali language and back translated to English to maintain its consistency of meaning.

Scoring Criteria

For each correct response score 1 was given and 0 for incorrect response. The score of participants was compared to the mean score of items.

Adequate awareness: ≥ mean score(≥11)
Inadequate awareness: <mean score (<11)
Sufficient practice: ≥ mean score (≥6)
Insufficient practice: <mean score (<6)

RESULTS

Table 1 Socio-demographic Characteristics of the Respondents (n=96)

Variables	Frequency	Percentage
Age group (in years)		
18 to 20	16	16.7
21 to 25	41	42.7
26 to 30	32	33.3
31 to 35	7	7.3
Mean age in years ±SD 24.91 ± 4.011		
Area of Residence		
Rural	8	8.3
Urban	88	91.7
Ethnicity		
Brahmin	7	7.3
Chhetri	19	19.8
Janjati	49	51.0
Dalit	15	15.6
Madhesi	3	3.1
Thakuri	3	3.1
Religion		
Hinduism	70	72.9
Budhdist	20	20.8
Christian	4	4.2
Muslim	2	2.1
Education level		
Informal education	6	6.3
Primary level	10	10.4
Secondary level	46	47.9
Higher secondary level and above	34	35.4
Occupation		
Homemaker	73	76.0
Service	8	8.3
Business	9	9.4
Agriculture	6	6.3
Average family income		
Hardly sufficient	4	4.2
Sufficient	62	64.6
Surplus	30	31.3
Family structure		
Nuclear family	73	76.0
Joint family	23	24.0
Information about BPCR		
Yes	67	69.8
No	29	30.2
Source of information (n=67)		
Health personnel	46	68.7
Family/friends	14	20.9
Books and online sources	7	10.4

Out of 96 respondents, 42.7% respondents were between age group 21 to 25, while 7.3 % were between age group 31 to 35. The mean age and SD were 24.91 and 4.011 respectively. The majority of respondents (91.7%) stayed in urban areas. Regarding ethnicity, 51 % were Janajatis and 3.1 % were Thakuris. Almost 3/4th of them (72.9%) belonged to Hindu religion. More than two third of respondents (76.0%) were homemakers. Likewise, more than half (64.6%) of the respondents had average family income sufficient for 1 year and more than 3/4th of them (76.0%) belonged to a nuclear family. 69.8% of them had received information on BPCR in the past and 68.7% of them received information from healthcare personnel (Table 1).

Table 2 Obstetric Characteristics of the Respondents (n=96)

Variables	Frequency	Percentage
Gravida		
Primigravida	50	52.1
Multigravida	46	47.9
Gestational age		
Second trimester	17	17.7
Third trimester	79	82.3
Number of living children (n=31)		
1	24	52.2
2	6	13.0
3 or more	1	2.2
Previous birth outcome (n=46)		
Term live birth	26	56.5
Still birth	4	8.7
Abortion	16	34.8

Almost half of the respondents were pregnant for the first time (Table 2). More than two third of the respondents (82.3%) were in their third trimester of pregnancy. Half of the respondents (52.2%) had one living child. Among 46 multigravida respondents, more than half (56.5%) had term live birth babies, 8.7% had still birth, and more than one third of the respondents (34.8%) had an abortion.

Table 3 Level of Awareness and Practice regarding BPCR of Respondents (n=96)

Variables	Frequency	Percentage
Level of Awareness		
Inadequate Awareness (<11 score)	2	2.1
Adequate Awareness (≥11 score)	94	97.9
Level of Practice		
Insufficient Practice (<6 score)	31	32.3
Sufficient Practice (≥6 score)	65	67.7

Most of the respondents (97.9%) were adequately aware of BPCR and two third of the respondents (67.7%) were performing sufficient practice of BPCR (Table 3).

Table 4 Awareness Regarding Danger Signs among the Respondents (n=96)

Variables	Frequency	Percentage
Danger signs in pregnancy#		
Vaginal bleeding	94	98.9
Severe headache	79	83.2
Convulsions and fainting	86	90.5
Swollen hands/face	69	72.6
Severe abdominal pain	92	96.8
Accelerated/ reduced fetal movement	56	58.9
Water broke without labor	80	84.2

Multiple responses

Table 4 shows that 98.9% of the respondents recognized vaginal bleeding as a danger sign during pregnancy and only 58.9 % of them recognized accelerated/reduced fetal movement as a danger sign during pregnancy.

Table 5 Association between Level of Practice and Selected Socio-demographic and Obstetric Characteristics of the Respondents (n=96)

Variables	Level of practice		Level of Awareness		Chi square value	*p*-value
	Poor f (%)	Good f (%)	Adequatef(%)	Inadequate f(%)		
Source of information about BPCR (n=67)						
Health personnel	7 (15.2)	39 (84.8)			12.214	**.002***
Other than health personnel	9 (42.9)	2 (57.1)				
Previous birth outcome(n=46)						
Term live birth	3 (11.5)	23 (88.5)			7.344	**.025***
Poor birth outcome	9 (45.0)	11 (55.0)				
Gestational age (n=96)						
Second trimester			2 (11.8)	15 (88.2)	9.492	**.030** *#
Third trimester			0 (0.00)	79 (100.0)		

#Fisher's exact test

* *P*-value significant at ≤0.05

Table 5 shows that level of awareness regarding BPCR is significantly associated with week of gestation (p value =.030). There is statistically significant association between level of practice and source of information about BPCR and previous birth outcome.

DISCUSSION

The study shows most of the respondents (97.9%) are adequately aware regarding BPCR. Similar findings were shown in a study conducted in Teaching Hospital Mahamodara, where 88.5 % respondents were aware of BPCR. More than two third of respondents (67.7%) had sufficient practice regarding BPCR in this study but BPCR was practiced in a study conducted in Teaching Hospital Mahamodara by 83.5%.[17]

In this study, 42.7% respondents were between the age group 21 to 25, mean age ±SD was 24.91 ±4.011. 72.9% of respondents were Hindus. More than two third of respondents (76.0%) were homemakers. 52.1 % were primigravida. These findings are similar to the study conducted in India, among 600 pregnant women, where the mean age was 25.2 (±4) years. Among them, 70% were homemakers, 61.83 were Hindus, and 52% were primigravida.[18]

Regarding awareness of BPCR, more than two thirds of the respondents (69.8%) received information about BPCR, and among them 68.7% received information from healthcare personnel. Similar finding were discovered by a study conducted in Cottage Hospital Nigeria, where

79.1% of respondent knew about BPCR and 69% of the respondents received information on birth preparedness and complication readiness from their healthcare providers.[19]

Regarding awareness of danger signs during pregnancy, vaginal bleeding, severe headache, severe abdominal pain and sluggish or absent fetal movement were recognized by respondents in the current study (98.9%, 83.2%, 96.8% and 58.9% respectively), where descriptive cross sectional study conducted in eastern region of Nepal, awareness of danger signs during pregnancy, vaginal bleeding, severe headache, severe abdominal pain and sluggish or absent fetal movement of were mentioned by respondents, 60.2%, 34.4%, 61.3% and 8.6 % respectively.[20] This might be due to the characteristics of respondents where in current study participants were pregnant women attending ANC OPD, and in another study participants were postnatal mothers, who delivered in last 12 months.

This study identified that there is a statistically significant association between gestational age and level of awareness of respondents (p value ≤ 0.05 = .030). In the practice domain, the level of practice from respondents has statistically significant association with previous birth outcomes and sources of information of BPCR p value ≤ 0.05 =.025 and .002 respectively. Similar findings were identified by a study conducted in Northwest Ethiopia, where BPCR was found to be significantly associated with gestational age, and a lifetime history of still birth.[21] Awareness of BPCR increased with the progressing pregnancy and the practice of BPCR is impacted positively when information was provided by a healthcare professional. Poor previous birth outcomes influences the practice of BPCR.

CONCLUSION

Almost all of the respondents were aware of BPCR and the majority of pregnant women had sufficient practice. Also, there is a significant association between awareness regarding BPCR and gestational age, practice regarding BPCR and previous birth outcome and source of information. Thus, it is crucial to promote the awareness and practices regarding BPCR among pregnant women.

Competing interest

None declared.

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Health Care Students' Experiences and Perceptions of the Presence of a Birth Companion in a Birth Center, Nepal

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ABSTRACT

Background: The continuous presence of a support person during labor and birth is termed as having a birth companion. The World Health Organization (WHO) has recommended women have a companion during birth. Acompanion can be any person chosen by the woman to provide her with continuous support during labor and childbirth for improving labor outcomes and women's satisfaction with care. Birth companions are recognized as a key element in the WHO vision of quality of care for pregnant women and newborns, yet it is practiced only in some of the co-located birth centers in Nepal. The objective of the study is to explore the students' experience and perception of the presence of birth companions in the birth centre.

Methods: The study population were all Bachelor in Midwifery Sciences students studying in their2nd year and PCL Nursing students, also studying in their 2nd year at the Bir Hospital Nursing Campus (BHNC). Heideggerian hermeneutical phenomenology was chosen as the approach to explore how the students experienced birth companions in their own words and ascribe meaning to their experiences. The data obtained was analyzed using Colaizzi's (1978) content seven steps analysis.

Results: From analysis of the data, it was found firstly, that most of the womenprefertheir husband at birth. Secondly, In the Nepalese setting, the presence of a birth companion was found to be beneficial for both care receivers and the care providers. The third finding was that more sensitivity and advocacy is needed for changing the attitude and values of health care personnel toward the birth companionship.

Conclusion: A woman's right to birth companionship should be available to all the childbearing women. To address women's rights, health care personnel are ideally placed to help birth companions during the birth which may improve the quality of care and contributes to the positive childbirth experience of the couple.

Key words: *Birth companion; Experience; Health care students; Perception.*

INTRODUCTION

The Sustainable Development Goals (SDG), which have replaced the Millennium Development Goals (MDG), identified 17 goals. Within these SDG 3 states *Ensure Healthy lives and promote well-being for all at all ages* and section 3.1: specially targeted at the reduction of the global maternal mortality ratio to less than 70 per 100,000 live births by 2030.[1] The World Bank, 2010 states: many maternal deaths are caused due to complications of pregnancy which can be prevented by timely referral to EmONC facilities to save the lives of mothers and babies. Therefore, for saving the lives of mothers and babies, the

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Safe Motherhood Initiative emerged as a powerful campaign for women's health. This commitment towards Global safe motherhood was reinforced at the ICPD conference held in Cairo, 1994 with an aim to reduce the same issue by at least 50%. By this time, Safe motherhood was recognized as the key component of reproductive health. The safe motherhood initiative has subsequently been adopted by most developing countries.

The Nepal government policy has consistently promoted facility based birth. Continuous presence of a support person during labor and birth is termed as birth companion.[2] Birth companions are recognized as a key element in the World Health Organization (WHO) vision of quality of care for pregnant women and newborns.[3] Continuous support during childbirth, companion of choice at birth and during labor, emotional support during birth are the different words that address the birth companion. Companions can be anyone of the woman's choice such as her spouse/partner, a female friend or relative, a community member or a doula as recommended by the World Health Organization.[4]

According to the MMM study in 1998, MMR was 539 per 100,000 live births in Nepal. To address this issue, MOH published the Reproductive Health Strategy in 1998, which includes safe motherhood in the integrated RH care package.[5]The government of Nepal launched various programs for encouraging birth in a health facility. This clearly visualizesthe picture that the target of health facility births has not yet been achieved.

The World Health Organization (WHO) has recommended a companion that can be any person chosen by the woman to provide her with continuous support during labor and childbirth for improving labor outcomes and women's satisfaction with care. Therefore, the next purpose of this study was to explore what the presence of the birth companion means to the service provider. Midwives perceive birth companion as facilitators, irrespective from woman's family or social network.[6] Companion supports by providing security and bridging the communication gap that contributes to pain relief and is a non-pharmacological technique used by midwives for pain management during childbirth.[6,7] Furthermore, the literature suggests that companions overcome limitations in relation to maternity care and relieves the pressure on the service provider by bridging the communication gap and by being in the delivery room throughout the childbirth.[6] However the birth companion should not replace the one to one care provided by the midwife.

Women cherish the continuous presence of support persons because of the benefit of individualized respect, reassurance and comfort provided.[8] Even though the presence of a companion of the woman's choice had a positive influence on her satisfaction with the birth process, cultural insensitivity might be an additional stressor for the woman, for example, it would not be acceptable for the woman to be uncovered herself in front of her mother-in law.[9,10] Different views was found on accepting the role of a supportive companion.[2] Most of the companions shared their advantageous experience and suggested for continuity of intervention and also shared their views about attending in the labor ward gave them an opportunity to learn how to attend to a delivery.[2,11]

Some of the co-locating birthing centers in the valley as well as some in the periphery of our country, have already started to encourage the presence of a birth companion for encouraging the home birth to facility birth by facilitating the birth in a homely environment for the positive experience of childbirth for a woman and a couple. Therefore, the rationale for this study was to develop an understanding of the knowledge and practices related to the presence of the birth companion. Students learn in the clinical practice environment by providing one to one care to women during labor. Therefore, the rationale of taking health care students as participants was that these are the one who are having maximum exposure with birth companions.

METHODS

An interpretive approach utilizing qualitative interviews was selected for the research design.

Heideggerian hermeneutical phenomenology was chosen as the approach to explore how the students experienced birth companions in their own words

and ascribe meaning to their experiences. The study was conducted in Bachelor in Midwifery Science and PCL Nursing students studying in 2nd year of Bir Hospital Nursing Campus (BHNC), Gaushala, Kathmandu. Purposive sampling technique was used for the selection of the sample. As the groupis homogenous, 6 sample size was adequate.

The researcher had training in conducting in-depth interviews prior to the data collection which ensures that the interviewer was skilled in managing the interview. Verbal and written consent was obtained, permission for use of digital recording of interview was obtained. Confidentiality of all respondents was maintained by providing the pseudo names to the participants. In case any of the participants were emotionally distressed as a result of the interview, details of a support person were made available.

Approval was takenfrom the Research committee of Bir Hospital Nursing Campus (BHNC). Verbal and written consent was obtained from each participant. The researcher herself interviewed using a semi structured interview guide. The date and the time for the interview was set according to the participant's feasibility.

Collection and analysis of data was done side by side. On the same day of the interview, code number or pseudo name was assigned to the information sheet and recorded information. The recording was listened to repeatedly until the clear meaning was extracted from it. Transcribing was done to create the verbatim soon after the interview. The entire interview was translated to English. After that, data was analyzed using Colaizzi's (1978) content analyzed seven steps.

RESULTS AND DISCUSSION

From the thematic analysis, five sub themes emerged from the data which were organized under two main themes (1) Participants' view on experiences of companionship (2) Health care students' experiences

Participants' view on experiences of companionship

Sub theme I: Choice of birth companion

The finding of this study shows that women greatly valued the presence of a husbandin the childbirth process who they know and trust during labor, which satisfies their need for empathy to cope with the process of childbirth. Almost all the participants shared most of the women in a birth center prefer husband as a companion. However, some participants stated that they were also instructed by the ward staff to call the husband as a companion.

Junu said*;"A woman doesn't express anything in front of other visitors but when these visitors are out for an instance, then the woman used to tell us to call her husband for a companion, then we used to do so."*

"*I (participant) think that wife are more comfortable to showcase their vulnerability to her husband compared to her siblings like own brother or sister."*said Diya.

In a meta-synthesis; Women's experiences of continuous support during childbirth concluded, in general, a female support person was preferred. Key findings from meta-analysis suggests that women are preferred because instinctively she knows and anticipates what another woman needs during childbirth.[8]In contrast in this study, almost all the participants shared most of the women in a birth center prefer husband as a companion.

Sub theme II: activities of birth companion

In this study, the greater number of the participants perceived birth companions as effective tools in supporting, encouraging, instructing and reducing the anxiety level of a mother. However few participants have stated, they observed more pain is expressed by a mother in presence of a husband.

"whoever is the companion they used to take proper care like by back massaging, providing foods and drinks, helping in ambulation and many more because of which she felt very encouraged and happy." said Alisha

"*I also felt that rather than others, if the companion is a husband, the expression of pain is more*." said Esha.

This research findings supports the findings of the systematic review on perception and experiences of labour companionship: a qualitative evidence synthesis(review) which reveals that women valued

the non-pharmacological pain relief measures that companions helped to facilitate, including a soothing touch (holding hands, massage and counter pressure), breathing and relaxation techniques.[3] Conversely Emelonye et al., 2017 found only a few (5%) saw partner presence as negative and as increasing pain.

Sub theme III: responses of birth companion

In this study, more than half of the participants experienced that most of the husband readily accepted companionship. Yet, some husbands, including other relatives were not ready to stay.

"*most of the husbands were taking care and supporting the mother feeling that it was their responsibility. However some of them were anxious and scared. Even some of them left the room feeling uneasy and dizzy*."said Alisha

These finding supports the recently published Cochrane database of systematic review on **perception and experiences of labour companionship: a qualitative evidence synthesis (review)** which reveals; *"Men who acted as a labour companions for their female partners felt that their presence made a positive impact on themselves as individual.""Men who acted as a labour companions for their female partners may feel scared, anxious or helpless when witnessing their partner in pain during labour and childbirth."*[3]

Health care students' experiences

Sub theme I: impact on caring role

In settings where companions are allowed, the majority of the participants perceived positively for the presence of a birth companion which was helpful for both care provider and care receiver. Besides, participants believed that the presence of the birth companion will help in the prompt management if any complication arises. Whereas some of the participants were uncertain about their role in presence of companion

"*they will be witnessing each and every activity, so we don't need to allocate separate time to tell them what is going on with the mother and baby which will help in the prompt management if any complication arises*." reported Binu

"*In the present context, health professionals are blamed if anything goes wrong.so, in my view the presence of the birth companion will help in reducing these trends and develop trust in the society."* said Alisha.

Similarly In 2017, a descriptive cross-sectional quantitative study conducted in Abuja, Nigeria with an objective of midwives' perception of the use of partner presence in the management of childbirth pain concluded its findings as, the majority (90%) had a positive view of partner presence contributing to pain reduction through emotional and psychological support as well as activities carried out by partners.[7]

Sub theme II: views of health care students' on birth companion

Health care students' have constructive views about the birth companion whereas some of the nursing staff thought the presence of birth companions were helpful.

"*talking about our country, we hardly have 1:1 nurse client ratio so, in my opinion, a birth companion is needed for our setting for both service receiver and the provider*." Said Binu

Binisha said, *"through my experience ,I think a companion should be kept with a mother, I really felt that while working in **XYZ HOSPITAL,** the ratio of the nurse and the patient are not equal when there is more patient flow, so we still lack some of the care while trying our best to give. For example: a mother is thirsty, water is kept there for her to drink but she cannot drink it by herself due to her unbearable pain.so, if she had a companion there with her then she would have drunk with his/her help."*

Participants also commented on how they observed staff's views. For example;

Diya said; "*it differs from situation to situation. When the delivery goes smoothly, the other staff are also pleased with the procedure and the companion. But when the delivery is delayed and full of screams and cries, the other staff feels irritated and would show their anger towards the birth companion."*

This finding is not reflected in other published studies. Therefore, this experience of ambivalence

towards the birth companion needs further research. However participants' own views were more positive about the presence of the birth companion.

The Limitation of study is that the findings of this research could not be generalized. Next, there might have been more participants and the range of views might have been collected if the focus group discussion could have been done as a data collection method.

CONCLUSION AND IMPLICATION

Three main findings were emerged as a conclusion after this research project;

After the analysis of data, the first findings on preference of birth companion was husband by most of the women. In Nepalese setting, the presenceof a birth companion is beneficial for both care receivers and the care provider, was the second finding that a researcher concluded. The last finding that a researcher concluded as more sensitization and advocacy is needed for changing the attitude and values of health care personnel toward the birth companionship.

This women's right of birth companionship should be made available to all the childbearing women. For addressing women's rights, health care personnel are ideally placed to help a companion to find a role and encourage participation at birth which may improve the quality of care and contributes for the positive childbirth experience of an expected couple.

Competing interest

None declared.

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Awareness of Contraception and its Associated Factors among Recently Delivered Postpartum Women at Seti Provincial Hospital: A Cross-sectional Study

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ABSTRACT

Background: Since there has been a low acceptance rate of contraception and limited research in postpartum contraception in Nepal, this study aimed to assess the level of awareness of contraception and its associated factors among postpartum women who recently delivered on a public provincial hospital.

Methods: A cross-sectional study was conducted at Seti Provincial Hospital, located in the Sudurpaschim province of Nepal. This study recruited 105 postpartum women through non-probability purposive sampling. Data was collected using a previously validated questionnaire. Descriptive and inferential statistics (Chi –square) was used to measure the association between awareness of postpartum women about contraception and socio-demographic variables.

Results: The majority of postpartum women (76.2%) were aware of postpartum contraception. Postpartum women, who had at least a secondary level of education, had a higher level of awareness on postpartum contraception. A husband's level of education was positively associated with the awareness level of postpartum women on contraception. Further, women who belonged to Brahmin and Chhetri, and the women who were paid job holders had a higher level of awareness on contraception.

Conclusion: One third of postpartum women were unaware of contraception. There is a need for the advocacy programme for raising awareness on contraception among postnatal women in a hospital setting.

Key words: *Awareness; Contraception; Postpartum women; Nepal*

INTRODUCTION

Postpartum contraception is crucial to improve maternal and child health. Using contraceptive measures to space pregnancies for more than two years can avert at least 30% of maternal deaths and 10% of child mortality.[1] Although only 5% of women wanted to have another pregnancy within a year,[2] the unmet need for family planning among postpartum mothers was 61% as evidenced by the analysis of demographic and health surveys' data from 21 countries.[3] Surprisingly, many women do not realize that they are at risk of pregnancy during this period.[4]

In Nepal, the overall contraception use is low, and the contraceptive prevalence rate of modern methods was almost stagnant between 2006 and 2016 (43%).[5,6] Almost every woman had knowledge about family planning; however, only one in two used family planning methods. Moreover, the unmet need for family planning was found to be 24%.[6]The postpartum period is a crucial time for counseling and services of contraception by skilled providers. Yet, as demonstrated by Nepal Demographic Health Survey 2016, the first postnatal care from a doctor, nurse, or auxiliary nurse midwife was 53%.[6] Further, only 13% of women were given information on

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family planning during their postpartum period.[7]

One of the strategic areas of the national family planning strategy is the demand generation which consists of disseminating information on postpartum contraception.[8]To encourage contraception use after childbirth, postpartum family planning programs are functional in the majority of districts. Moreover, Nepal has committed to achieving the contraceptive prevalence rate of 60% according to the target of the Sustainable Development Goal.[9] Despite various efforts, the acceptance rate of the postpartum family planning method among the expected postpartum women having live births was only 0.7%.[10]

In the past, limited research has been conducted in the area of awareness of contraception among postpartum women in Nepal.[11–13] Moreover, to the best of our knowledge, this topic has not been studied in the Sudurpaschim province of Nepal. Therefore, we aimed to assess the level of awareness of postpartum women about contraceptive methods and associated socio-demographic factors in a public provincial level hospital.

METHODS

A cross-sectional study was conducted at Seti Provincial Hospital (SPH), a referral hospital of Sudurpaschim province of Nepal. The hospital provides a range of services that includes outpatient, inpatient, emergency, laboratory, and radiology services along with preventive and promotive health services such as, family planning and immunization.[8]

In this study the sample size was estimated by using a single population proportion formula.[14]A previous study in India showed that the prevalence of awareness among postpartum women was 56%.[15] Applying a 95 % confidence interval, 5 % margin of error, 56% of patient satisfaction, and a 10% non-response rate, the final sample size was 105. A non-probability, purposive sampling technique was used for the study. We recruited postpartum mothers who were in the postnatal ward and had a full-term live birth (a gestational age of 37 to 42 weeks) within 2 to 24 hours. Women who had multiple births, who delivered stillbirth, or fetuses with congenital anomalies were excluded. Women suffering major complications such as postpartum hemorrhage, severe pre-eclampsia, eclampsia, severe anemia, and other women who suffered substantially deteriorated health were excluded. A semi-structured questionnaire was prepared and used for the data collection based on the objectives. The questionnaire had two sections: **Part I**: Basic socio-demographic and obstetrics information of the postpartum women. **Part II:** Awareness of postpartum women around contraception. Some questions were based on Nepal Demographic Health Survey (NDHS, 2016),[7]and others were abstracted from previous studies.[11,12]

The questionnaire was formulated first in English, and then translated into the Nepali language; it was again back-translated to English to retain its original meaning. For the correct response—which was predetermined— to each question, we assigned a score of '1', and for the incorrect response, we assigned a score of '0'. The total score obtained by each participant was calculated by summing the score they obtained for each question. Since we had 22 questions, a participant could score the maximum score of 22. Any respondent who scored more than or equal to 11 was considered "aware of contraception" and below 11 was considered as "unaware of contraception". Data was collected from June 30 to July 13, 2019. Privacy and confidentiality was maintained while collecting the data. The study was approved by the research committee of the Bir Hospital Nursing Campus, Kathmandu, Nepal and from the administrative department of SPH. Informed written consent was obtained from each participant. For data security, the entire data was stored in a password-protected computer. Bivariate analyses in the form of chi-square tests were applied to explore the association of awareness of postpartum women about contraception with socio-demographic and obstetrics variables. Significance was set at 5%.

RESULTS

Our study had a response rate of 96%. Among 105 respondents, 45.7% of postpartum mothers were in the age group of 20-24. The majority of the participants were residents of urban municipalities

(75.2%). The most common ethnic group was Brahmin and Chhetri (55.2%). Regarding religion, almost all participants were Hindu. Nearly one in two postpartum mothers were homemakers (52.4%), and more than two-thirds of the respondents (67.6%) stated they had sufficient income for their livelihood. All other socio-demographic characteristics are described in Table 1.

Table 1 Socio-demographic Characteristics of the Postpartum Women (n=105)

Variables	Frequency (Percentage)
Age groups in years	
15-19	12 (11.4)
20-24	48 (45.7)
25-29	34 (32.4)
30-34	11 (10.5)
Residence	
Urban	79 (75.2)
Rural	26 (24.8)
Ethnicity	
Dalit	20 (19)
Janajati	26 (24.8)
Brahmin/Chhetri	58 (55.2)
Others	1 (1)
Religion	
Hindu	103 (98)
Buddhist	1 (1)
Christian	1 (1)
Type of family	
Nuclear	29 (27.6)
Joint	76 (72.4)
Educational status of women	
Illiterate	4 (3.8)
Informal education	5 (4.8)
Primary education	31 (29.5)
Secondary education	30 (28.6)
More than secondary	35 (33.3)
Educational status of spouse	
Illiterate	3 (2.9)
Informal education	1 (1)
Primary education	35 (33.3)
Secondary education	33 (31.4)
More than secondary	33 (31.4)
Occupation	
Homemaker	55 (52.4)
Service	6 (5.7)
Business	5 (4.8)
Agriculture	39 (37.1)

Continuation of table 1

Variables	Frequency (Percentage)
Economic Status of Family	
Insufficient	6 (5.7)
Sufficient	71 (67.6)
Surplus	28 (26.7)
Walking distance from home to the nearest health facility	
Less than 30 minutes	72 (68.6)
30 minutes to 2 hours	26 (24.8)
More than 2 hours	7 (6.7)
Duration of Marriage	
Less than 5 years	71 (67.6)
5-10 years	23 (21.9)
More than 10 years	11 (10.5)

Table 2 describes the obstetric characteristics of postpartum women. Half of the postpartum women were primigravida, and 5.7% of women were grand multigravida. The majority of mothers (77%). had no history of miscarriage in the past.

Table 2 Obstetric Characteristics of the Respondents (n=105)

Variables	Frequency (percentage)
Gravida	
Primigravida	52 (49.5)
Multigravida (2-4)	47 (44.8)
Grand multigravida (>4)	6 (5.7)
Number of miscarriage	
No miscarriage	81 (77.0)
1-2 miscarriage	20 (19.1)
More than 2 miscarriages	4 (3.9)
Number of children women want to have	
One child	27 (25.7)
Two children	75 (71.4)
Three children	3 (2.9)
Number of children husband planned to have (n=80)	
One child	18 (22.5)
Two children	60 (75)
Three children	2 (2.5)

Table 3 elaborates on the knowledge of postpartum women about contraceptive methods available. All postpartum mothers had heard about at least one form of contraception. All postpartum mothers heard about condoms whereas only 75.2% of postpartum mothers heard about female sterilization.

Table 3 Knowledge about Contraceptive Methods among the Postpartum Women (n=105)

Variables	Frequency (percentage)
Female sterilization	
Yes	79 (75.2)
No	26 (24.8)
Male sterilization	
Yes	76 (72.4)
No	29 (27.6)
Intrauterine contraceptive device	
Yes	91 (86.7)
No	14 (13.3)
Depo Provera	
Yes	103 (98.1)
No	2 (1.9)
Implant or Norplant	
Yes	95 (90.5)
No	10 (9.5)
Oral Pills	
Yes	94 (89.5)
No	11 (10.5)
Condoms	
Yes	105 (100)
No	0 (0)

Table 4 shows that 76.2 % of postpartum women were aware of contraception. Ethnicity, educational status of women and their spouses, and occupation of women had a statistically significant association with the awareness level of postpartum contraception. Women who had the educational attainment of secondary level or above were more likely to have awareness of contraception. (p<0.001).

Similarly, women whose husband had a secondary or higher level of education were more likely to have a higher level of awareness (p=0.001). Further, postpartum women who had paid jobs had higher awareness levels as compared to home-maker postpartum women (p=0.024).

Table 4 Awareness of the Postpartum Women and its association with Socio-demographic and Obstetrics Variables

Variables	Unaware of postpartum contraception *n=25*	Aware of postpartum contraception *n=80*	p-value
Category of age			0.643
Below 20	4 (16.0%)	8 (10.0%)	
Age 20 years or higher	21 (84.0%)	72 (90%)	
Ethnic groups			0.001**
Brahmin/Chhetri	6 (24.0%)	52 (65.0%)	
Non-Brahmin/Chhetri	19 (76.0%)	28 (35.0%)	
Religion			1.000
Hindu	25 (100%)	78 (97.5%)	
Non-Hindu	0 (0.00%)	2 (2.50%)	
Educational status of women			<0.001**
Below secondary	18 (72.0%)	22 (27.5%)	
Secondary or above	7 (28.0%)	58 (72.5%)	
Educational status of spouse			0.003**
Below secondary	16 (64.0%)	23 (28.7%)	
Secondary or above	9 (36.0%)	57 (71.2%)	
Category of occupation			0.043*
Homemaker	18 (72.0%)	37 (46.2%)	
Non-Homemaker	7 (28.0%)	43 (53.8%)	
Economic status of women's household			1.000
Sufficient	24 (96.0%)	75 (93.8%)	
Insufficient	1 (4.00%)	5 (6.25%)	
Duration of marriage			0.418
Less than 5 years	17 (68.0%)	45 (56.2%)	
More than or equal to 5 years	8 (32.0%)	35 (43.8%)	
Walking distance of health facility from residence			0.417
Less than 30 min	15 (60.0%)	57 (71.2%)	
More than 30 min	10 (40.0%)	23 (28.7%)	
Duration of marriage			0.757
Less than 10 years	22 (88.0%)	66 (82.5%)	
More than or equal to 10 years	3 (12.0%)	14 (17.5%)	
Gravida			1.000
Primigravida	12 (48.0%)	40 (50.0%)	
Multigravida	13 (52.0%)	40 (50.0%)	
History of miscarriage			0.227
No Miscarriage	22 (88.0%)	59 (73.8%)	
At least one miscarriage	3 (12.0%)	21 (26.2%)	

*p< 0.05; **p<0.01

The age of women, residence, religion, type of family, and the economic status of women had no statistically significant association with the awareness level of postpartum women on contraception. Similarly, obstetric variables such as the number of gravida and miscarriage had no statistically significant association with the awareness level of postpartum women on contraception.

DISCUSSION

Women's awareness of postpartum contraception is crucial for proper birth spacing or limiting, thereby improving overall reproductive health. Our study found that more than three quarters of postpartum women were aware of contraception. Their awareness level on contraception was associated with various socio-demographic factors such as ethnicity, the educational status of women and their husbands, and the occupation of postpartum women.

Our finding of 76.2% postpartum women being aware of contraception is consistent with the finding of a cross-sectional study of postpartum women conducted at Koshi Zonal Hospital. That study stated 79% of postpartum women had awareness of postpartum contraception.[12] Similarly, a hospital-based cross-sectional study conducted in India showed 65.2% of postpartum women were aware of contraception.[16] However, a study at Kathmandu Medical College demonstrated that 90.8% of postpartum women were aware of contraception.[17] These differences might be due to socio-demographic differences in postpartum women who were included in these studies. Further, it may also be due to the variation in the scoring system applied to calculate the awareness level of contraception among postpartum women.

We found that all postpartum women had knowledge of at least one of the contraceptive methods. Similar findings were depicted in the prospective study conducted in Nigeria,[18] and a Nepal Demographic Health Survey (NDHS-2016).[6] Further, in our study, all respondents (100%) heard about condoms. Similar to our finding, NDHS-2016 showed 96% of women of 15-49 years heard about male condoms.[6] However, a cross-sectional study conducted at Kathmandu medical college demonstrated that only 84% of the respondents had heard about condoms.[17]It is quite surprising that about 16% of postpartum women who delivered at Kathmandu Medical College had not heard about condoms. This might be due to the hesitancy of women to talk about condoms. The most common source of information for the postpartum women in our study was provided by a Female Community Health Volunteer (FCHV) (78.1%). However, a study in Kathmandu demonstrated that media was the most common source from which postpartum women heard about contraception (55.7%).[17] This difference might be due to the reason that postpartum women in our study were majorly from the rural municipality or urban municipality of Sudurpaschim province where access to FCHVs is greater.[8,19] However, being the capital city of Nepal, Kathmandu is heavily crowded where access to FCHVs is comparatively difficult. At the same time, women who are better off do not usually visit FCHV for health counseling as evidenced by a study by Pandey et al.[20]

In this study, we did not find statistically significant associations of age and gravida of postpartum women with their awareness of contraception, but the studies conducted at Kathmandu Medical College[17] and Koshi Zonal Hospital[12] showed a relationship of age and parity with the awareness of contraception among postpartum women. With the increase in age, they showed an increased level of awareness among postpartum women. Another study conducted in India also observed a statistically significant association with parity.[15]In the bivariate analysis performed in our study, the association of age and parity of women with awareness of contraception might be confounded by other variables; we could not decipher it clearly because we did not perform multivariable analysis, a limitation of our study.

We observed a highly significant association of the educational status of women and their spouses with the awareness of postpartum contraception. The better the educational status of postpartum women and their husbands, the higher was their awareness level of contraception. Similar to this

finding, a study in India showed that there was a strong association between educational status and level of awareness about contraception.[21] Other studies in India observed education of postpartum women was a strong factor for the awareness of contraception.[15,22]This is likely to be because women who had attained high-level education are more conscious of their overall health and future compared to women who have a lower level of education. Further, our study also revealed that the educational status of spouses also had a strong association with the level of awareness about contraception of postpartum women. This might be due to the fact that men's role in contraceptive decision-making is crucial as evidenced by prior studies conducted in Nepal.[23–25] To our knowledge, we did not find any previous studies in Nepal exploring the association between husbands' education and awareness of postpartum women about contraception. But, in India, one study showed husband's education had a highly significant association with spousal's awareness on postpartum contraception.[26]

Ethnicity is another socio-economic characteristic that has a statistically significant association with the awareness of contraception among postpartum women. We found that advantaged ethnic groups had a higher level of awareness than disadvantaged ethnic groups. A previous study in a tertiary care hospital in India demonstrated similar findings where the social class had a significant association with awareness level.[15] It is highly likely that advantaged ethnic groups such as Brahmin and Chhetri normally have better access to resources such as education, as a result of which they have a higher level of awareness. The woman's occupation was another factor found to have a highly significant association with women's awareness of postpartum contraception in our study. Those women who had paid jobs were likely to have a higher level of awareness compared to homemakers. Similar to the finding, a study in India revealed a strong association of occupation of women and their awareness of contraception.[15] Women's involvement in paid work means they are more empowered and have greater access to resources.[27,28] Similarly, women's autonomy is directly linked with their health care decision making.[29] Despite some of the important findings, this study has some limitations. First, this is a cross-sectional study; therefore, it is difficult to establish a causal association between independent variables and awareness of postpartum women. Further, we did not perform multivariable analysis; bivariate analyses might have masked the association between independent and dependent variables. Second, we interviewed recently delivered women at a hospital within 48 hours of birth; hence it would be difficult to generalize our study's findings among the postpartum women who delivered at home. Third, this study is conducted in a provincial hospital setting. Usually, the provincial hospital is located in semi-urban areas, meaning our findings may not be generalized for the women who reside in the rural areas of the country. Despite such limitations, our study's findings have brought some insightful evidence in the awareness of contraception among postpartum women in Nepal.

CONCLUSION

This study observed one third of women with a low level of awareness of contraception among those who delivered at a hospital setting. A special focus should be given to hospital settings to counsel women about postpartum contraception. Targeted interventions that focus on women who belong to the disadvantaged ethnic group, those with a lower level of education, and homemakers are important to increase the awareness on postpartum contraception.

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Competing interest

All authors declare that they have no competing interests.

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Pregnancy, Childbirth, Breastfeeding and Coronavirus Disease: What is Known So Far?

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ABSTRACT

COVID-19 which was officially declared pandemic on 11th March 2020 by the World Health Organization (WHO) has resulted in thousands of deaths globally. Since it's a new disease which was known since December 2019, there are limited evidence available on whether pregnant women are at higher risk of getting Coronavirus Disease (COVID-19) than the general public and the evidence of transmitting the virus from mother to baby is inconclusive.

This review article aims to capture the current evidence regarding pregnancy, childbirth, breastfeeding and COVID-19. The review included articles that discuss pregnancy and childbirth during COVID-19, available in English language and published between December 2019 and August 2020.

All women have the right to high quality maternity care, regardless of their COVID-19 status During pregnancy and childbirth, women have the right to be treated with respect, dignity, confidentiality, information and informed consent; the right to the highest attainable standard of health, and freedom from discrimination and ill-treatment.

The paper presents three major themes linking COVID-19 with: (1) pregnancy, (2) childbirth and (3) breastfeeding. Followed by two alerts, one to clinicians: with the current focus on COVID-19 do not to ignore other public health issues affecting pregnant women and new mothers. Secondly, reminder to policy-makers and politicians: measure to reduce the risk of spreading COVD-19, such as self-isolation and avoiding public spaces and public transport can lead to an increase in other risk factors for pregnant women, including worse mental health and lower uptake of preventative services such as antenatal care and institutional birth.

Key words: *Breastfeeding; Childbirth; Covid-19; Coronavirus; Pregnant women*

INTRODUCTION

On December 2019 an outbreak of novel coronavirus (COVID-19) started in Wuhan, China and rapidly became a public health threat.[1] Only three months after the outbreak began, the World Health Organization (WHO) officially declared COVID-19 as a pandemic on 11th March 2020.[2] As of August 10, there have been 21,240,915 confirmed cases and -760,320 deaths globally due to COVID-19.[3]

METHODS

This review article aims to capture the knowledge regarding pregnancy, childbirth, breastfeeding and coronavirus disease (COVID-19). The literature search was conducted using search

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terms: 'breastfeeding', 'childbirth', 'COVID-19', 'pandemic' and 'pregnancy'. Database used for the literature search were Medline, Google scholar, WHO and Center for Disease Control and Prevention (CDC) website. The articles that discussed pregnancy, childbirth and breast feeding during COVID-19, available in English language and published between December 2019 and August 2020 were included.

Risk of COVID-19 for pregnant women

With the limited available evidence, it is currently not known whether pregnant women are at higher risk of getting COVID-19 than the general public.[4] However, during pregnancy the immune system becomes less aggressive so as not to attack the genetically different baby growing inside the mother, making mother more susceptible to infections. When pregnant women do get this disease, it could be more severe especially in the second and third trimester, as the size of chest cavity decreases leaving lungs with less space to function due to growing womb.[5] Critical care management (such as airway management) of pregnant women is much more difficult.[6] The data from other viral illnesses such as influenza, Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS), suggests pregnant women are more likely to develop viral pneumonitis with higher morbidity and mortality.[4,6] Higher risk of miscarriages was also reported during the first trimester during the SARS epidemic.

The International Society of Infectious Disease in Obstetrics and Gynaecology (ISIDOG) has classified pregnant women to be at high risk for severe illness with COVID-19 because the altered immune response may be higher, disease course may be severe and delivering intensive care is more difficult.[6]

Effects of COVID-19 on pregnant women and their babies

The data available on maternal outcomes in COVID-19 is limited and the evidence of transmitting the virus from mother to baby is inconclusive. To date only one study suggested that COVID-19 can pass from an infected mother to her foetus, no major harmful effects was recorded in the babies.[7] More studies have not found evidence of vertical transmission, for example Schwartz 2020, studies 38 pregnant women with COVID-19 in China whilst Chen et al. 2020, had the similar findings from a small clinical study of COVID-19 infection in nine pregnant women in China.[8,9]

Current data also show that morbidity and mortality for pregnant women with COVID-19 is lower compared to the SARS epidemic. The disease tends to be mild and similar to non-pregnant women and the symptoms are usually similar to flu, with cough and occasionally dyspnea.[5,6] So far, no cases of first trimester miscarriages has been published, but further research is necessary.[6] There is also some evidence that the presence of comorbidity, such as obesity, high blood pressure and diabetes in pregnant women had more severe infections.[5] The ISIDOG guidelines suggests protecting pregnant women above 24 weeks of gestation age from infection and advises removing pregnant women working in high risk exposure workplaces.[6]

Table 1 Key Measures to Prevent the Spread of COVID-19 to Pregnant Women

- Social distancing –remain at least six feet from anyone who doesn't live with you
- Hand washing with soap and water for at least 20 seconds frequently (before and after eating or handling food, after using toilets, when you blow your nose, cough or sneeze)
- Using alcohol-based hand rub where soap water is not available
- Covering cough or sneeze using your elbow
- Avoiding people who are sick or suspected Covid-19 cases
- Drinking plenty of fluid and maintain hydration
- Eating healthy food
- Having adequate rest
- Postponing any social events planned for new coming baby such as baby shower
- Avoiding non-essential use of public transport
- Avoiding touching your eyes, nose, and mouth with unwashed hands

Sources: CDC 2020, Morris et al., 2020, Tamang et al., 2020

Protecting pregnant women from getting COVID-19

The general advice given to the public is also applicable to pregnant women.[10] The ISIDOG guidelines suggest women to take extensive preventative measures including maintaining social distancing, disinfecting surfaces with >60% ethanol and practicing hand hygiene.[6] Table 1 lists key preventative measures against the spread of COVID-19.

Changes to antenatal care and routine appointments

Routine obstetric follow up of pregnant women during a pandemic is limited to strict minimum in order to minimise exposure risk for both patients and health care providers (social and physical distancing).[6] For example, in the United Kingdom (UK) there are fewer face-to-face appointments with their midwife or other health workers and more contact by telephone or online. Although routine tests and scans are proceeding as planned, those pregnant women who have signs of COVID-19 or who are self-isolating are advised not to attend their antenatal appointment. Instead they should inform their midwife and follow COVID-19 guidance about when to seek medical assistance. Some routine appointments can be delayed for a few weeks and this needs to be discussed with your midwife.[11]

All pregnant patients contacting health providers with COVID-19 symptoms should be directed by telephone to a specific COVID-19 triage unit (as per regional protocol) for further evaluation and testing for COVID-19. Depending on clinical presentation, patients will be either admitted to hospital with isolation measures or transferred to home isolation, results pending.[6]

Current guidance on mode of delivery

Research on pregnant women with COVID-19 has focused mainly on those in their third trimester and requiring hospital stay with medical treatment. In this study, the babies were commonly delivered before the due date and although vaginal birth was possible, more than 91% of women had a caesarean section. The reason for this, although unclear, was possible foetal distress due to lack of oxygen to the unborn baby.[5] If the maternal condition is stable and proper foetal monitoring can be assured, vaginal delivery is preferred.[5] There have also been calls for increasing the number of home births to avoid pregnant women coming into hospital. The safety of homebirth for healthy women having their second or subsequent baby supported by midwives was highlighted in the Birthplace study.[12]

WHO reminds us that the mode of delivery should be based on woman's preferences alongside obstetric indications and that caesarean sections should only be chosen when medically justified.[13] However, COVID-19 has been detected in faecal samples of some people, therefore, in order to reduce transmission to the baby, birth in water is not recommended for pregnant women who have tested positive for COVID-19.[14] The timing of delivery needs to be determined by a multi-disciplinary team on a case-by-case basis based on maternal and foetal clinical presentation.[6] The UK advice is to consider the availability of ambulance services to allow for rapid transfer to hospital if a woman with COVID-19 opts for home birth or in a midwife-led unit that is not co-located with an obstetric unit. Right kind of staff should also be present to keep mother and baby safe.[15] All women need to be encouraged to call the health facility (where possible) for advice in early labour and to inform the maternity care provider of any respiratory or other COVID-19 related symptoms, which can then assist in planning further care or potential referral.[16]

Care during pregnancy and childbirth

One key message everywhere should be that all pregnant women have the right to high quality maternity care, regardless of their COVID-19 status (confirmed or suspected infections).[13] During pregnancy and childbirth, woman have the right to be treated with respect, dignity, confidentiality, information and informed consent; the right to the highest attainable standard of health, and freedom from discrimination and ill-treatment.[17]

Postnatal transmission from parents or other

caretakers to the baby is possible. Therefore, it is important to maintain hand hygiene and physical distancing as far as possible.[6] Engaging fathers and families in maternal and newborn health care saves lives. The International Confederation of Midwives (ICM) states that a single, asymptomatic birth partner should be permitted to stay with the women during delivery.[14] People around the world have launched campaigns to reverse hospital decisions to exclude birth partners.[18]

Every mother and baby have the right to remain together at all times, hence no mother should be separated from her baby without her informed consent.[16] The risk of separating the mother and baby to reduce infection transmission, may considerably outweigh the benefits of keeping mothers and babies together. There is evidence that supports keeping mother and baby together, promotes the health and well-being of both mother and baby. Kangaroo care helps mothers to bond with their baby and support the better physical and developmental outcomes for the baby.[19]

COVID-19 and breastfeeding

Transmission of infection from breast milk is unlikely. Advantages of bonding and breastfeeding outweigh the risk of neonatal infection.[6]Hence, women with COVID-19 can breastfeed if they wish to do so. According to the WHO,[20] they should:

- Wash hands frequently with soap and water or use alcohol-based hand rub before and after touching the baby;
- Wear a medical mask during any contact with the baby, including while feeding;
- Sneeze or cough into a tissue and then dispose of it immediately and wash hands again;
- Routinely clean and disinfect surfaces they have touched.

Breastfeeding women should not be separated from their newborns. If the mother is unwell to breastfeed baby due to COVID-19 or other complications, they should be supported to safely provide their baby with breastmilk in a way possible, available, and acceptable to them such as expressing milk; re-lactation; or donor human milk.[20] Expressed breastmilk can be labelled and stored for later use if not immediately given to the infant. Table 2 shows recommendations from the Centre for Disease Control (CDC) regarding storage of expressed breast milk: at room temperature for up to 4 hours, refrigerated (not in door shelf) for 4 days and in the freezer for 6-12 months.[14]

Table 2 Human Milk Storage Guidelines

	Storage Location and Temperatures		
Type of Breast Milk	**Countertop 77°F (25°C) or colder (room temperature)**	**Refrigerator 40°F (4°C)**	**Freezer 0°F (-18°C) or colder**
Freshly expressed or pumped	Up to 4 Hours	Up to 4 Days	Within 6 months is best Up to 12 months is acceptable
Thawed, previously frozen	1–2 Hours	Up to 1 Day (24 hours)	NEVER refreeze human milk after it has been thawed
Leftover from a feed (baby did not finish the bottle)	Use within 2 hours after the baby is finished feeding		

Source: CDC 2020[4]

All mothers should receive practical support to enable them to initiate and establish breastfeeding and manage common breastfeeding difficulties, including Infection Prevention Control (IPC) measures by appropriately trained health care professionals and community-based lay and peer breastfeeding counsellors.

CONCLUSION

With all the current focus on COVID-19 we must be aware not to ignore other health and public health issues affecting pregnant women and new mothers. For example, pregnant women may present with respiratory symptoms or coughs due to TB or lung cancer, maternity care providers must keep an open mind to differential diagnoses. In terms of Public Health, remember that poor pregnant women will have less money to eat well, fewer ways to reduce their stress levels or keep a social distance from those who are infected with COVID-19. There is also a growing literature that the Public Health measures to reduce the spread of COVID-19 (Table 1) such as social distancing and avoiding the use of public transport, themselves have unintended consequences. For example, KC and colleagues highlighted that during lock down in Nepal birth in institutions dropped by more than half, whilst stillbirth and neonatal mortality rates rose and quality of care decreased. They argue that society needs to protect access to high quality intrapartum care and prevent excess deaths, especially for the most vulnerable health system users during this pandemic period.[23] More generally there are key issues around health inequality and poverty which poor countries such as Nepal needs to address[23], and not just for pregnant women and new mothers but for everyone.

Competing interest

None declared.

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Landmark Action for Establishment of Professional Association of Midwives in Nepal: Tracing History

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ABSTRACT

The establishment of a professional association of midwives is a historical landmark in Nepal to take forward the long-term strategy of the national policy on skilled birth attendants that envisioned producing a professional midwife in providing service and leadership in midwifery in the country. A group of 11 dedicated nurses involved in sexual, reproductive, maternal, newborn and adolescent health in diverse settings came together to establish a national professional association of the midwifery workforce of the country, and successfully established in 2010. Strengthening midwifery competencies of nurses working in maternity care and striving to develop a separate professional cadre of midwife has been the major focus of the association besides providing technical support on midwifery to the government of Nepal. This paper narrates the milestones, efforts and discussion behind the birth of the national professional association in the country.

Keywords: *Milestones; Nepal; Professional midwife*

INTRODUCTION

In October 2009 while attending a month-long *"International Training Program on Strengthening Midwifery Competence in Sexual Reproductive Health and Services"* organized by Karloniska Institutet from 5-30 October 2009 in Sweden there was a strong felt need of establishing professional association of midwifery cadre. This was ignited in order to advocate in producing and mobilizing professional midwifery workforces as envisioned in the long-term (pre-service) strategy of the National Policy on Skilled Birth Attendants 2006. The policy has stated that *"Ministry of Health and Population is in the process of initiating a new cadre of Professional Midwife as a crucial human resource for safe motherhood, providing service and leadership in midwifery for the country."*[1]

Triggering

The robust idea of formation of professional association of midwifery cadre triggered while a group of nurses from Nepal namely, Ms. Rita Pokharel together with Ms. Sarada Shah from Nick Simon Institute and Ms. Geeta Sharma from Jhpiego including the author representing GIZ attended a conference on *"Asia Pacific Midwives' Conference"* held in Hyderabad, India from 19-22 November 2009. This conference was hosted by the Society of Midwives India (SOMI) and Academy for Nursing Studies Hyderabad, and was attended by more than 10,000 nurses from across India working in maternity sector and midwifery faculty, including UNFPA and International Confederation of Midwives (ICM) representatives. We were impressed to see so many nurses passionate about maternity care and midwifery. At the conference the author made the presentation on *"Factors that persuaded nurses to establish a maternity care center: Experience from Nepal"*.[2] After the presentation ICM representatives together Dr. Geeta Lal, Midwifery Programme Coordinator for UNFPA headquarter approached Nepali delegates and asked whether Nepal has midwives' association. We quietly said no and told them that Nepal only has a nurses' association. They told us that the challenges

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can be addressed only if Nepal has a midwives' association like in India and elsewhere. We told them that Nepal does not have a separate midwifery professional in the country, however, they inspired us saying that even India does not have a midwife, but Indian nurses established SOMI in 2000 to raise the voices to strive for independent status for midwifery in India.

Approaches

On returning from the conference the insightful ideas gained had been narrated to Ms. Rashmi Rajopadhyaya, Chairperson of APS Prasuti Tatha Prajanna Swasthya Kendra about the importance of establishing professional association of midwifery workforces. Then it was decided to establish a professional association of midwifery cadre in the country. To do this, we both internalised the needs to have a solidarity between nurses working in maternity care and nursing educators teaching midwifery subjects to the nursing students. Such realization came from the experiential learning gained managing our birth centre established in 2007 from the own out of pocket expenses of 15 female health professionals including other women. One of the officer level founding members of our centre, working more than 20 years in the maternity ward of the renowned hospital of Nepal, who also used to do part-time volunteer basis shift duty at the centre, one day shared her experience saying that how challenging it is to work at this centre taking all the responsibility for risk assessment and management, and making the decision independently. In the case of a hospital such responsibility and pressure is taken by an obstetrician. This made us wonder how in rural and remote settings an assistant level health worker with 18 months training on maternal and child health after grade 10, known as Auxiliary Nurse-Midwife (ANM) has been working independently. In Nepal, still the majority of health workers, who are involved in providing maternal and child health services are ANMs with limited midwifery essential competencies and paramedics with no training on maternity skills, thus, considered them non-skilled health providers. However, ANMs have not been included as part of the skilled birth attendants according to the definition of World Health Organisation, Federation of Obstetricians and Gynaecologists, and International Confederation of Midwives.[3]

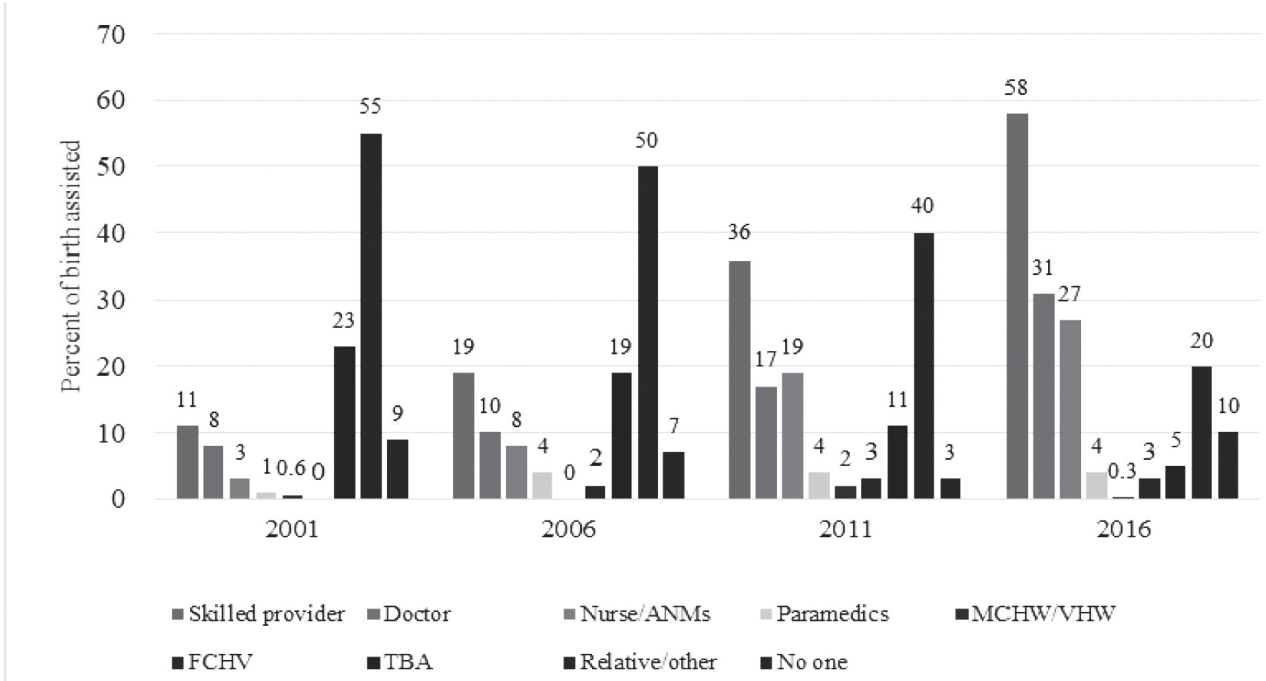

Figure 1. Assistance during Childbirth in Nepal, 2001-2016

Source: NDHS 2001, 2006, 2011, 2016

Exploring with Ms. Rashmi Rajopadhyaya, about the potential person to lead as a President of the professional association, informed that nursing educator teaching midwifery subjects for nursing education programme at Tribhuvan University, Maharajgunj Nursing Campus, then Associate Professor Kiran Bajracharya could be the one. After personally approaching her and having a couple of meetings, she agreed to lead the organisation. Thereafter, we together approached Paropakar Maternity and Women's Hospital Nursing Director, Ms. Sajana Ranjit and Supervisor, Ms. Maiya Manandhar. Both of them happily agreed to join the team. Moving on, Associate Professor, Kiran Bajracharya approached her colleague, Ms. Sanu Tuladhar, who happened to be a former President of Nursing Association of Nepal (NAN). In order to expand the team, Ms Sanu approached then NAN President, Associate Professor Sarala KC along with two future NAN presidents, Associate Professor Pramila Dewan and Associate Professor Tara Pokharel to be part of the team. Two other members, Ms. Rita Pokharel from Nick Simon Institute and Ms. Subhadra Pradhan from APS Prasuti Tatha Prajanan Swasthya Kendra were approached, and finally 11 members of the ad hoc committee was formed for the establishment of the Midwifery Society of Nepal.[4]

Dream became reality

The dream of establishing a professional association of midwifery workforce became a reality on 17 February 2010 by officially registering the organisation at the District Administration Office, Kathmandu.[4]Our contact point was stationed in a very historical and prestigious maternity service delivery facility in the country, Paropakar Maternity and Women's Hospital. In the beginning, it was rather challenging to establish a separate association for midwifery workforce as there was strong resistance and opposition from nursing leaders, who feared it would divide nurses into two groups.[5] Since the establishment phase, and to date, strengthening midwifery competencies, striving to develop a separate new cadre of professional midwife, and providing technical support to the government of Nepal in midwifery related matters, are the major activities of MIDSON.

Competing interest

None declared.

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Facilitating Learning for Auxiliary Nurse Midwives around Maternal Mental Health in Southern Nepal

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ABSTRACT

Mental health, in particular maternal mental health, has been low on the global agenda until relatively recently. Consequently, it has not featured much in Nepal on the curriculum for maternity care workers.

Auxiliary Nurse Midwives are key maternity care providers in rural Nepal. They are sources of information and potential agents for change in their communities. To increase awareness of maternal mental health, training was designed by Nepali and UK experts. Training was run by UK-based volunteers (some ex-pat Nepalis) with Nepali interpreters - all health care and/or education professionals. This paper describes the planning and a reflexive and responsive approach to workshops based on the needs of participants.

Keywords: *Community; Depression; Education; Maternity; Stigma*

INTRODUCTION

Auxiliary Nurse Midwives (ANMs) are key maternity care providers in rural Nepal. They receive 18 months' training which includes little on maternal mental health issues. Although mental health is an important issue in maternity care, this has not been widely recognised in low-income countries such as Nepal.

Any intervention to improve knowledge about maternal mental ill health must begin with local awareness-building and reducing stigma. Suicide among women in Nepal (20 per 100 000) is estimated to be the 3rd-highest rate in women in the world.[1] However the true number is unknown owing to the absence of reliable national statistics. It has been estimated that 16% of all maternal deaths were attributed to indirect causes such as homicide.[1] Mental illness is often stigmatised in a country that has fewer than two psychiatrists per million people and even fewer psychologists. Mental health services are limited to a few hospitals in larger cities.

To begin to fill the gap in ANM training, a team from Nepal's Tribhuvan University and Bournemouth University and Liverpool John Moores University in the United Kingdom (UK) collaborated in 2015-17. Funded by the Tropical Health & Education Trust (THET), the team focused on basic training needs of around 80 ANMs.

In addition to delivering an innovative training programme, the team recognised the importance of designing a curriculum for future use. With logistical support from the charity Green Tara Nepal, training took place in classroom settings in Nawalparasi. Each programme was delivered three times by the volunteers so that the local health posts were able to remain staffed, releasing ANMs on different days. This paper outlines the contribution

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and experiences of three UK health professionals. They were the third team (of six) to travel to Nepal.

Training was co-designed by UK – based Nepali staff using the results of a needs assessment done as part of the first round of workshops.[2] Having Nepali team members helped ensure the cultural competency of the intervention. UK volunteers brought experience in mental health education/ practice and a commitment to cultural competence. Volunteers had gathered from the literature and the ANMs that: (1) time with service users was short; and (2) that mothers-in-law usually control attendance and accompany women. The team had knowledge of Kolb's learning styles[3] and chose a range of teaching and learning methods to reach all learners: (1) practical exercises; (2) lecture; (3) reflective narrative approach and (4) Participant-led practical exercise: forum theatre.

Overview

Training focused on six-related issues:

1. Everyone can experience poor mental health at any period in their lives
2. Poor mental health and suicide is a global issue
3. Pregnancy, childbirth and parenthood can exacerbate poor mental health and can have severe consequences
4. ANMs are role models and are best placed to minimise stress and anxiety in women
5. ANMs can minimise their own stress by taking time for themselves to relax and support each other
6. This in turn, can lead to them being more compassionate to women, listen and build trusting relationships where women feel safe to share feelings and prevent anxiety and stress.

1. PRACTICAL EXERCISES

(i) The Five Aspect model[4] (Figure 1) is a psycho-social model which aligns with the midwifery/ social model of childbirth.[5] Its simplicity helps to make problems seem less overwhelming and allows practitioners to apply such problem solving in their own lives.

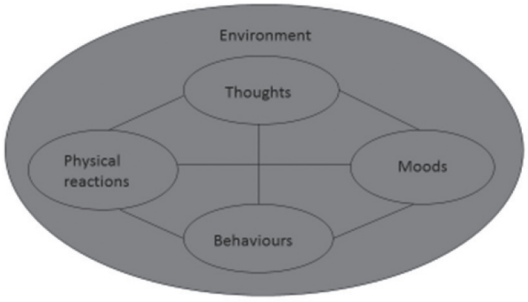
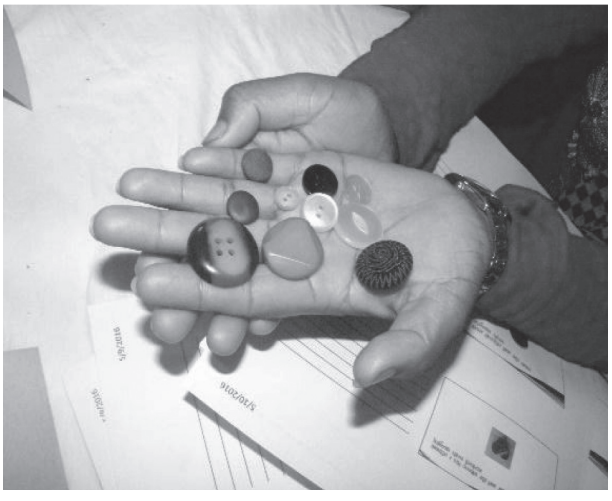


Figure 1 The Five Aspects Model[3]

Photograph 1 Sampada Translating during the Dession



Photograph 2 ANM Holding Buttons

(ii) Using a selection of buttons, the ANMs were asked to select buttons and build up a progressively larger representation of the supporting people and resources in their lives. This is also the subject of a separate paper.[6]

2. TRADITIONAL LECTURE

Presenting a lecture using slides required planning around the timing of electricity supply. In UK practice, clinical guidelines recommend using the two Whooley questions (see Box 2) for 'case finding' of depression.[7]Routinely asking these questions may help reduce stigma. ANMs discussed how they may find opportunities to ask these questions without a mother-in-law or partner present.

The Whooley questions are a starting point - a 'no' to both questions helps to rule out major depression, but it will not pick up major anxiety disorders. This opened a discussion about how ANMs can ask questions about mental wellbeing and was practised during the Forum Theatre activity.

3. REFLECTIVE NARRATIVE APPROACH

One of the facilitators (AL) recalled her own experiences of interactions with maternity staff when she was pregnant (before she had become a midwife). She shared how attitudes and approaches of some staff had provoked anxiety in her because it had undermined her self-confidence. Others had built trusting and empowering relationships by showing her compassion. This allowed her to share her anxieties. This had lessened her fears and helped her to feel in control. This simple message was powerful and encouraged a lot of comments from participants, several of whom clearly want to practice with compassion and have found it difficult to do in their present roles.

The group shared ideas amongst themselves about their attempts to alter their birth centre environments to make them 'homely' and how they could use gentle tones of voice and encourage active birth. AL and translator (SG) led a relaxation session and a discussion of how cared for staff are more likely to be able to give compassionate care to women.

4. PARTICIPANT-LED EXERCISE: FORUM THEATRE[8]

Forum theatre is used to act out problems and solutions as suggested by the audience who are not merely spectators but 'spectactors'. We co-created several scenarios which the ANMs told us occurred in their practice.

Two ANMs acted as the parts of a young pregnant woman and her mother-in-law. Mothers-in-law often decide how much (if any) maternity care the woman receives.[9] A third volunteer acted as ANM at the local health post. The UK facilitator applauded the courage of the 'spectactors' reminding everyone that stepping in to suggest what may seem like a simple or obvious idea from the audience is actually very difficult to play out in person. The facilitator also ensured that no 'magic' solutions are allowed. For example, in our role play, a spectactor could not suggest that the daughter-in-law should 'stand up to' her mother-in-law as this would simplify a complex cultural construct. The facilitator may remind the spectactor that this may make home life very difficult and ask 'is there a realistic way that this character might try to achieve the same goal?

In a brief follow-up the players provided feedback: they shared ways that worked well for them. One outcome is that ANMs now routinely ask to speak to each pregnant woman in private during at least one appointment when they address issues which may be difficult for women to discuss with their mother-in-law present.

Conclusion

We spent breaks together, singing, dancing and playing traditional instruments, which was as important as the planned activities.[10] The team felt that putting theory into practice worked well when it was based on feedback from ANMs and evaluations at the end of the sessions. Despite the potential of 'losing' some subtlety in translation[11] the UK team felt that with our translator (SG) we shared a lot of learning in the groups rather than simply delivering information.

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Competing interest

None declared.

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A Success Case Report of Birth Asphyxia following Vaginal Breech Delivery in Jajarkot Hospital, Nepal

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ABSTRACT

Skilled birth care is a key indicator of maternal and neonatal health.[1] According to WHO, 4 million neonatal deaths occur each year due to birth asphyxia.[2] Vaginal delivery of term infant in breech presentation is associated with significantly increased risk of perinatal death and neonatal morbidity. This is a case report of a 26 years old mother and her severely birth asphyxia newborn following vaginal breech delivery, whose life was saved by skilled birth attendants at one of the most remote areas.

Keywords: Vaginal breech delivery; Birth asphyxia; Skilled birth; Remote area

Case Report

A mother of (with history of three pregnancies, two deliveries and one alive child) full-term pregnancy with labour pain in the breech (Footling) presentation was admitted to Jajarkot Hospital on 6th of August, 2017 at 9:55 pm. with a history of artificial rupture of membranes before one hour of admission. Maternal observations were taken: Temperature 98.8 Degree Fahrenheit, Blood Pressure: 110/80 mm of Hg, Pulse: 92b/min. No jaundice, slight pallor and no edema. The fetal heart rate was 126/min, and the mother had irregular but strong uterine contractions. On vaginal examination, it was noted that full dilatation of the cervix, and that there was a breech presentation. There was thick meconium, from the baby opening its bowels as is usual in breech presentation, and the cord could be felt pulsating. *Mother was crying due to strong and painful uterine contractions, saying "Please help me, I am going to die, please save me."*

There was neither Comprehensive Emergency Obstetric Care (CEOC) Service nor the Sick Newborn Care Unit. The decision was made to refer to the nearest hospital where CEONC service was available. However, due to some constraints like ambulance's unavailability, heavy rainfall, thunderstorms, mid-night and no supply of electricity in the Jajarkot region, referral was not possible. So, after discussing the condition of the mother with her husband and relatives, preparations were made for birth after obtaining their informed consent. Due to the continuous efforts of skilled birth attendants (on duty doctor, nursing in-charge and on duty nursing staff), a male baby was born at 10:40 pm with APGAR Scores of 2/10 and 3/10 within 1 and 5 minutes respectively, weight 3200gm. There was no response, and no cry, and its heart rate was 70 -80 b/m. The mother's condition was managed as per Skilled Birth Attendant's Training Guideline. The team immediately started resuscitation of the newborn under a radiant warmer within a minute of birth. Despite having 20 minutes of continuous resuscitation with drying, stimulating, and positive pressure ventilation with bag and mask, the heart rate fell below 60b/m. Cardiac compression was then commenced. After 30 minutes from birth, the newborn cried and established regular respiration with support of oxygen. The heart

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rate increased to 100 -110b/m, and Saturation of Pulse Oxygen (SPO2) increased to 80-85%. An intravenous 24Gauze cannula was inserted, and 10% Dextrose, Ampicillin and Gentamycin were administered as per Sick Newborn Management Protocol. The newborn required resuscitation for 2 hours. His condition gradually improved, and SPO2 increased to 85- 93%. The newborn was kept under a radiant warmer for the whole night, then kept in touch with his mother. The newborn was re-evaluated by checking Temperature Airway Breathing Circulation like Heart Rate, Respiratory Rate, Capillary Refilling Time, observed for Seizure, and restricted breast feeding. Laboratory investigation revealed Random Blood Sugar 1.89mg/dl, Haemoglobin 15mg. The situation and the baby's condition were explained to the parents. The next day, at about 5 pm, the newborn developed Seizures; bicycling movement of his limbs, and was pale and lethargic. So injection 10% Dextrose, 6 ml over 10 minute's bolus and 30ml Normal Saline over 30 minutes was infused. But the seizures did not subside. Injections of Phenobarbitone and cardiac monitoring were not available, so the baby was referred to a higher centre; Bheri Hospital, Banke, with detailed information. The sick newborn was admitted to NICU for five days and discharged after his conditions improved. After 8 days, the mother and her husband came to the Jajarkot Hospital for postnatal follow up. The couple expressed great happiness and were grateful towards the hospital team.

DISCUSSION

Vaginal breech deliveries are associated with a 10-fold increase in prenatal mortality when compared with vaginal cephalic deliveries.[3] There is an increased risk to breech babies because of cord compression.[4] A breech fetus faces an increased risk of asphyxia from cord compression and also of traumatic injury during delivery.[5]The management of this complicated Vaginal Breech Delivery was possible due to availabilityof trained doctor and nurses (Skilled Birth Attendants). This case is a good example on how we can save perinatal deaths and neonatal morbidity as highlighted in Ngowa's article.[6] Neonates suffering from severe birth asphyxia may develop hypoxic-ischemic encephalopathy, some of which develop permanent neurological damage.[7] The experience of the health care provider remains a critical element in the decision to pursue a vaginal breech delivery.[8] Although skilled birth care contributes significantly to the prevention of maternal and newborn morbidity and mortality, utilization of such care is poor in mid- and far-western Nepal.[9] It is also important to update the knowledge of obstetricians, nurses, midwives, and all personnel conducting deliveries, through continuous medical education on how to support women to birth their babies in the breech position, and conduct vaginal breech deliveries where necessary.[6]

CONCLUSION

Skilled birth attendants play a vital role in saving the life of the mother and newborn, especially in the remote areas. Nepal Government should deploy motivated skilled birth attendants and midwives with service readiness of birthing centers in remote areas.

Acknowledgement

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Competing interest

None declared.

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INTRODUCTION

Journal of Midwifery Association of Nepal (JMAN) is a multispecialty peer reviewed scientific journal published annually by Midwifery society of Nepal (MIDSON) since 2018. It publishes articles on Sexual, Reproductive, Maternal, Neonatal and Adolescent Health (SRMNAH) on the following categories: Original Articles, Review Articles, Case Report, Perspective/Viewpoint. The aim of the JMAN is to increase visibility of scientific articles on SRMNAH in order to promote evidence based midwifery practice and its impact in Nepal and beyond.

SCOPE OF THE JOURNAL

The journal accepts scientific articles from researchers who addresses important issues related to SRMNAH through their research, perspectives/ viewpoint and case studies. The journal publishes peer reviewed original research articles, review articles, case reports, perspectives/viewpoints which are solicited by the editorial board. Preference is given to original research articles conducted rigorously using scientific methodology and written clearly and concisely.

EDITORIAL PROCESS

Original articles, review articles, case reports, and perspectives/viewpoints will be considered for publication only after a clear indication from author/s that the manuscript has not been submitted elsewhere for publication. All articles are evaluated by the criteria of originality and scientific content by the editorial board and peer reviewers, and preference will be given to original research articles.

All manuscripts received will be duly acknowledged. The manuscripts will be sent for blind review to two peer reviewers after an initial screening. It will be subsequently reviewed by the JMAN editors based on the comment from the reviewers. Editorial board will make a final decision on the manuscript. The contributor/s or author/s will be informed about the outcome of the review, which could be one of the followings:

- Acceptance without any changes;
- Request for minor or major changes;
- Rejection

Articles accepted will go through final edits for grammar, punctuation, print style and formatting based on the JMAN criteria. Final proof version will be sent to the corresponding author for approval. Non response to the proof copy may result in publication on next issue or may even get rejected from the editorial board. The editorial board reserves the right of refusing to publish articles that have been submitted. JMAN has a policy to discourage articles that have conflict of interest in terms of financial assistance or sponsorship.

MANUSCRIPT SUBMISSION

Manuscripts must be written in clear, concise English, and submitted to the 'Editorial Board' of JMAN. Digital submission through email is required according to the guidelines issued by the journal. The manuscript should also include a declaration letter duly signed. Author/s should clearly mention address along with email address and phone number/s. The manuscript should be sent to editorjmidson@gmail.com.

INSTRUCTIONS TO AUTHORS

Format of the manuscript

1. Article should be written in English.
2. Focus of the article should be on Sexual, Reproductive, Maternal, Neonatal and Adolescent Health (SRMNAH), and should be one of the following areas.
   - Research article
   - Review article
   - Case reports
   - Perspective/Viewpoint
3. It should be written with Times New Roman, font size 12 and formatted with double line spacing.

4. Manuscript should be submitted to editorjmidson@gmail.com
5. Referencing should be in Vancouver style.
6. Abstract should not exceed 250 words. Similarly, the body of manuscript should not exceed 3000 words for original and review articles, and 1000 words for case report and perspective/view point, excluding tables, graphs and references.

MANUSCRIPT PREPARATION

Title page

Title page of the manuscript should contain:

1. Type of manuscript: Original article, Review article, Case report, Perspective/Viewpoint
2. Title of the article should be concise (reflect population/sample, variables and setting)
3. Name of the author(s): first name/middle name followed by surname.
4. The name(s) of the department(s) or institution(s) affiliated to the author(s). The affiliation should comprise the department, institution, city and nation from which the work is originated.
5. Clear marking of corresponding author- Mention the name and full mailing address (including telephone, e-mail address) of the corresponding author.
6. Word count- Please mention word count for abstract and manuscript

Abstract

This should be within 250 words in a structured format, and should cover followings:

a) Background and study objective/s

b) Methods: Design, selection of setting, sampling and analysis methods

c) Results: covers major findings from the study

d) Conclusions: emphasize new body of knowledge based on study findings, and its implications.

e) Key words: Not more than 5 words and should be arranged alphabetically.

Introduction

Provide a context or background for the study (i.e., what is already known and what is the gap that research is going to address). It should also include rationale of the study with citation of the relevant literature/s following Vancouver style. State the specific purpose or objective of the study.

Methods

The method section should contain: Study design, duration, setting, population, sample size, sampling technique, measures, data collection and analysis. Ethical consideration should be clearly mentioned.

Results

Results should be presented in logical sequence in the text, as well as in the tables with illustrations.

We do not accept more than five tables/illustrations in one manuscript. All tables, illustration (if any) should be numbered and labelled with sub- heading and be referred in the text. Do not repeat the information in the text and in the tables/illustration; summarize only important observations.

Discussion

Emphasize the new and important aspects of the study.

Compare the findings of present study with other relevant past studies, provide explanation whether it supports your findings, if it differs give probable justification. Also, include limitation/s of your methodology briefly.

Conclusion

Draw conclusions from the major findings of your study based on stated objective/s and state future implication of your findings.

References

References should be in Vancouver style. Number them consecutively in the order in which they are first mentioned in the text (not in alphabetical order).

Identify references in text, tables, and legends by Arabic numerals in superscript after the punctuation marks. Appropriate links of the references should be provided for the verification and authentication purpose. Provide source of the references with full text links wherever applicable/available.

Add pubmed identification number and/or doi number whenever possible. Include the last names and initials of the authors, title of article, name of publications, year published, volume number, and inclusive pages. The style and punctuation of the references should conform to the following examples.

Journal

1. Dangal G, Paudel BD, & Jha AK. Palliative Care in Resource-poor Settings: Inequalities, Challenges, and Opportunities. J Nepal Health Res Counc. 2017;15(37):I-II. doi:https//dx.doi.org/10.3126/jnhrc.v15u3.18837

Book

1. Magar A, Shrestha RK, Palikhey S, Shrestha S,k, & Dhakal A. Angel`s Conscise Clinical Methods. Kathmandu: Makalu Publication; 2006.

Tables

They should be numbered (with Arabic numerals) and each table/graph/pictures should be typed on a separate sheet of paper. Number the tables, in Arabic numerals, consecutively in the order of their first citation in the text. Identify statistical measures of variations, such as standard deviation and standard error of the mean. Table heading in title case and text (body) in left alignment.

Illustrations (Figures)

Figures should be numbered consecutively according to the order in which they have been cited in the text like table.

CHECKLISTS

1. Title page contains all the desired information.
2. Manuscript is drafted according to author guidelines.
3. Contribution of author/s clearly mentioned.
4. Letter of declaration of conflict of interest, including confirmation that the manuscript has not been submitted elsewhere for consideration to publication, has been duly signed.
5. Word count confirmed the word limitation.

PRESENTATION AND FORMAT

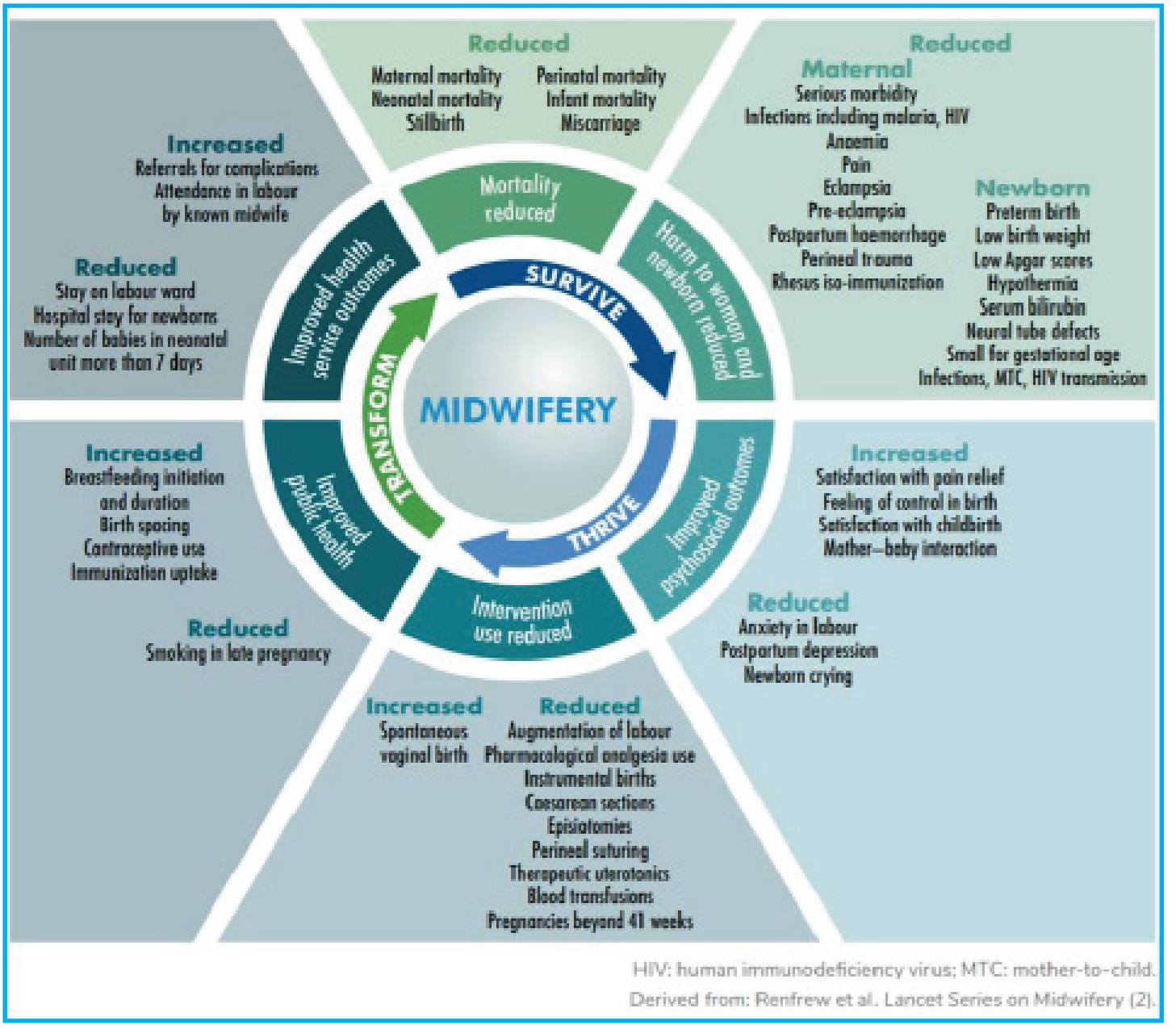
Font- Times New Roman

Double spacing

Margins 2 cm in all sides

American English

Over 50 outcomes improved by quality midwifery education and care



Source: WHO 2019. Strengthening quality midwifery education for Universal Health Coverage 2030: Framework for action

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