BIRTH PREPAREDNESS AND COMPLICATION READINESS AMONG ANTENATAL WOMEN

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ABSTRACT

The present study assessed the Birth Preparedness and Complication Readiness (BPCR) among antenatal women in selected hospital, Ernakulam. The objectives of the study were to assess Birth Preparedness and Complication Readiness among antenatal women and to find the association of Birth Preparedness and Complication Readiness with sample characteristics. Convenience sampling technique was used to select 75 antenatal women from 20 weeks of gestation. The data were collected using Maternal Birth Preparedness and Complication Readiness assessment tool by structured interview technique and was analysed using descriptive and inferential statistics. The results of the study revealed that 72% of antenatal women had good BPCR and 28% had poor BPCR. Among the sample, 28% had good knowledge regarding danger signs and 72% had poor knowledge regarding the danger signs. Significant association was found between BPCR and sample characteristics such as age (χ^2=10.133, p=0.017), gravida (χ^2=8.905, p=0.003) and parity (χ^2=10.825, p=.004) at 0.05 level of significance. Religion (χ^2=2.853, p=0.240), educational status (χ^2=2.185, p=0.335), occupation (χ^2=0.008, p=0.583), profession (χ^2=0.280, p=0.366), type of family (χ^2 =0.265, p=0.224), monthly family income (χ^2=0.307, p=0.959), gestational age (χ2=4.587, p=0.205), regular antenatal visit (χ^2=2.606, p=0.280), history of still birth or IUD (χ^2=0.394, p=0.530), source of knowledge regarding BPCR (χ^2=4.630, p=0.201) and time duration to access antenatal health care facility (χ^2=0.015, p=0.901) had no significant association between BPCR and sample characteristics at 0.05 level.

Key words: Birth Preparedness and Complication Readiness, antenatal women.

CHAPTER 1

INTRODUCTION

Pregnancy is a joyful moment for all women who dream of a safe pregnancy and a healthy baby. Pregnancy is a very sensitive period in which unexpected life-threatening complications may arise at any period, from conception to the postpartum period. Maternal and neonatal mortality is an on-going major public health problem in developing countries. Most maternal death is a consequence of complications during and following pregnancy and childbirth, most of which are preventable or treatable. Although a safe motherhood program is successful in reducing maternal and infant mortality, it does not mean high utilization of maternal health services. The problem may be due to the delay in seeking, reaching and receiving adequate care. In many societies in the world, cultural beliefs and lack of awareness inhibit preparation in advance for delivery and expected baby. Since no action is taken prior to the delivery, the family tries to act only when labour begins. When complications occur, the unprepared family will waste a great deal of time in recognizing the problem, getting organized, getting money, finding transport and reaching the appropriate referral facility. These delay can lead to maternal or neonatal mortality or morbidity[1].

Women and newborns need skilled care during pregnancy, child birth and postpartum/new born period. Birth Preparedness and Complication Readiness (BPCR) is the process of planning for normal birth and anticipating the action needed in case of an emergency[2]. Birth preparedness is a comprehensive strategy to improve the utilization of skilled providers at birth and the key intervention to reduce maternal mortality (JHPIEGO, 2004)[3]. Maternal mortality ratio strongly reflects the overall effectiveness of a health system. According to sample registration system 2007-2009 maternal mortality rate of India was 212 per100000 live births[4].

Background of the study

Birth Preparedness and Complication Readiness is a process of planning for normal birth and anticipating the actions needed in case of an emergency and it is a comprehensive package designed to address delay by empowering women, her family, and the community to improve planning for birth and taking actions in case of an emergency[2].

BPCR was launched by Global Safe Motherhood Initiative as a strategy to promote the timely use of skilled maternal and neonatal care, especially during child birth, based on the theory that preparing for childbirth and being ready for complications reduces delay in obtaining appropriate care. This encourages pregnant women, their families and communities to effectively plan for births and deal with emergencies, if they occur. Components of BPCR plan includes; identifying the place of delivery, saving money, preparing essential items for childbirth, identifying the skilled provider, identifying the mode of transportation, arranging blood donors, arranging the way for communication, designating decision maker on her behalf, identifying emergency funds, being aware of the obstetric danger signs and the need to act immediately[3].

WHO included BPCR as an essential element of the antenatal care package. It is often delivered to the pregnant woman by the health care provider in antenatal care clinic or initiated or followed up through a visit to the home of the pregnant woman by a community health worker[3].

According to World Health Organization the global maternal mortality rate (MMR) was 211 per 100,000 live births (2017)[5] and the neonatal mortality rate (NMR) was 18 per 1000 live births (2018)[6]. In India MMR was 122 per 100,000 live births[7] and NMR was 24 per 1000 live births[8] whereas in Kerala, the MMR was 42 per 100,000 live births[7], and NMR was 6 per 1,000 live births[8].

A retrospective study was conducted by Sageer R et al. (2019) to assess causes and contributory factors of maternal mortality among totally enumerated 77 notified and 45 reviewed maternal deaths using Maternal and Perinatal Deaths Surveillance and Response (MPDSR) data base in Southwest Nigeria. Result showed that haemorrhage and pre-eclampsia or eclampsia account for 43.4% and 36.9% of causes respectively. The leading contributory factors of maternal and perinatal deaths were inadequate manpower 21.6%, delay in seeking help 11.8%, lack of essential equipment/ medications/ blood 7.8%, lack of ambulance/transportation 15.7%, delay in referrals most especially of high risk pregnant women 11.8%, poverty/lack of money 9.8% and lack of awareness of danger signs 5.9%[9].

A community based cross sectional study was conducted by Gashaw Garedew et al. (2019) on knowledge of obstetric danger signs and its associated factors among 563 pregnant women by multistage cluster sampling in Ethiopia. Data were collected using structured questionnaire. Result showed that 37.5% women were knowledgeable about obstetric danger signs. Attending formal education (p=0.001), urban residence (p=0.013), time taken less than 20 min to reach health facility on foot (p=0.001), two or more

history of pregnancies (p=0.04) and receiving health education (p=0.002) were found to be significantly associated with knowledge of obstetric danger signs[10].

Current research evidence suggests that preparation for birth and knowledge of danger signs are essential to enhance readiness towards complications and timely referral to obstetric care units. Exploring the key factors associated with BPCR would be of great use in evidence-based fine-tuning of ongoing maternal and child health interventions to minimize the complications and avert maternal deaths.

Need and significance of the study

According to UNICEF, in India, maternal mortality is considered a key health indicator and the direct causes of maternal deaths are well known and largely preventable and treatable. The major complications that account for nearly two-thirds of all maternal deaths are severe bleeding (mostly bleeding after childbirth), infections (usually after childbirth), high blood pressure during pregnancy (pre-eclampsia and eclampsia), complications from delivery and unsafe abortions. The Government of India has been focusing on initiatives to improve maternal health indicators by promoting BPCR. BPCR emphases on all women need access to antenatal care in pregnancy, skilled care during childbirth and support during the weeks after childbirth. All births should be assisted by skilled health professionals, as timely management and treatment can make the difference between life and death for both the mother and the baby[8].

A cross-sectional study was conducted by Saha Rajib et al. (2013) to assess status of BPCR among 210 rural mothers by cluster sampling in West Bengal, India. Data were collected by structured interview using JHPIEGO Maternal and Neonatal Health Programme survey tool. Results showed that 62.4% mothers were well prepared. Trained birth attendants and health facilities were identified before delivery in 81.9% and 78.1% cases respectively. Mode of transportation for complication management or delivery was pre-decided by 60% and 35.7% saved money for the same purpose[11].

A facility based follow up study was conducted by Shukla M et al. (2016) to assess the effect of BPCR counselling on pregnancy outcome among 130 pregnant women attending tertiary care hospital in Uttar Pradesh, India. The results showed that the overall baseline BPCR index was 45.12%. The post-counselling BPCR index (70.65 ± 19.18) was found to be significantly much higher as compared to pre-counselling baseline BPCR index (41.12 ± 11.34). Knowledge about danger signs of pregnancy,

transportation services provided by government, financial assistance provided in Government schemes, identification of skilled birth attendant, mode of transportation and arrangement of emergency blood donor was found to increase significantly after counselling (p=0.001). Abortion was found to occur significantly higher (about thrice) among those who had post-counselling BPCR index below average, i.e., less than 50% ($p < 0.05$) [12].

A cross sectional study was conducted by Limenih M A, Belay H G and Tassew H A (2016) to assess birth preparedness, readiness planning and associated factors among 676 mothers who gave birth in the last 12 months by multistage sampling technique using structured questionnaire in Ethiopia. The result showed that the percentage of women implementing BPCR was 34%. Residence (AOR: 5.94), educational status (AOR: 2.87), antenatal care follow up (AOR: 3.67), history of stillbirth (AOR: 3.05), knowledge of birth preparedness and complication readiness plans (AOR: 8.83), knowledge of key danger signs during pregnancy (AOR: 3.91), child birth (AOR: 2.22) and postpartum period (AOR: 1.99), were significantly associated with practice of birth preparedness and complication readiness plan[13].

Current research evidence suggests that preparation for birth and knowledge of the danger signs are essential to enhance readiness towards complications and timely referral to obstetric care units. Exploring the key factors associated with BPCR would be of great use in evidence-based fine-tuning of ongoing maternal and child health interventions to minimize the complications and avert maternal deaths.

Statement of the problem

A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.

Objectives of the study

1. To assess Birth Preparedness and Complication Readiness among antenatal women.
2. To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

Operational definitions

Birth Preparedness and Complication Readiness (BPCR): refers to the perception of antenatal mothers regarding the essential elements of safe motherhood programme to reduce maternal and neonatal mortality and morbidity which includes recognition of danger signs, identification of desired place of birth, preparation of transport to a health facility for birth and in emergency, identification of skilled birth attendant, saving money for birth related and emergency expenses, planned/ attended at least four antenatal care visits with a skilled provider, attended first antenatal care visit with a skilled care provider during first trimester, identification and preparation of essential items for child birth and identification of support in looking after the home and children while at the health facility with scores as good BPCR (mentioning minimum of six elements); otherwise, poor BPCR.

Antenatal women: refers to childbearing females from 20 weeks of gestation attending Obstetrical OPDs of a selected hospital, Ernakulam.

Assumptions

The study assumes that,

- women have different levels of Birth Preparedness and Complication Readiness during antenatal period.
- characteristics of antenatal women may influence their Birth Preparedness and Complication Readiness.

Hypothesis

The following hypothesis tested at 0.05 level.

H_1: There will be significant association of Birth Preparedness and Complication Readiness with selected sample characteristics.

Delimitation

The study is delimited to antenatal women,

- from 20 weeks of gestation.
- attending Obstetrical OPDs of Lourdes hospital, Ernakulam.

Conceptual framework

Conceptual framework is a theoretical approach to study the problems that are specifically based and emphasized the selection, arrangement and classification of its concept. The conceptual framework formalizes the thinking process, so that others may read or know the frame of reference basic to research problem. It presents logically constructed concept to provide general explanation of the relationship between the concepts of the research study[3]. The Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO-2004) conceptual diagram of how BPCR may increase the use of skilled care (called the JHPIEGO BPCR model) was modified and used for this study.

The conceptual framework for Birth Preparedness and Complication Readiness illustrates the role of BPCR in improving the use and effectiveness of key maternal and neonatal services through reducing delays. For simplicity, the explanation of the framework focus on the use of a skilled provider at birth, since such a high proportion of life- threatening complications for both mother and newborn arise during this period. However, this framework applies equally to the use of other routine emergency services during the antenatal, intranatal and postpartum periods, which also contribute to maternal and newborn survival.

Multiple levels/ actors of BPCR

The model outlines six levels/actors of BPCR, which can be grouped into **demand side** (the individual woman, household and community) and the **supply side** (provider, facility and the policy making) levels.

On the **supply side**, preparations are primarily the responsibility of the health care delivery system and the policymakers. To be prepared for birth and complications on the supply side, there must be clear functional referral system and human resource that is fit-for-purpose and fit-for-service. Health facilities must constantly have in stock essential medicines such as oxytocin, amoxicillin and intravenous fluids. Facilities can prepare by having the required equipment, supplies, and support systems available. Basic tools such as foetal stethoscopes, clinical oral thermometers and oxygen-filled cylinders with carriers and keys are crucial. At the provider level, clinical personnel can prepare by acquiring the necessary knowledge and skills needed to attend normal childbirth and manage obstetric and newborn complications. Health workers must have the necessary skills and tools to employ sound normal birth practices as well as treat or stabilise and refer women

with complications to secondary/tertiary care facilities. Policymakers can prepare by instituting evidence-based healthcare policies and assuring adequate funding for maternal and newborn healthcare services.

The **demand side** BPCR is the responsibility of individual women, spouses, families and communities. At the individual level, the focus is primarily on postpartum, pregnant and reproductive-age women. Pregnant women and their partners can prepare by learning to recognize danger signs that may indicate life-threatening complications for the mother and baby, identifying a skilled provider and a birth location, saving money, and arranging for transportation. Communities and families can prepare by making arrangements for money, transport, or a blood donor to assist a woman and her family in reaching and receiving care in case of an obstetrical emergency[3]. In this study, family, community and the entire supply side of BPCR is removed but the individual level (antenatal women from 20 weeks of gestation) is maintained in order to suit the study group.

BPCR standard elements/indices or possible pathways

It is based on the premise that efforts by individuals, families and communities would lead to the reduction of preventable maternal and neonatal morbidities and mortalities. If they promote skilled care for all births; encourage early decision-making; encourage savings towards labour; raise awareness of danger signs and provide information of the sources of care, the delays in deciding to seek care and in reaching care will be reduced. Fecund and pregnant women are encouraged to plan for transportation, save money, identify skilled attendants and identify a place of delivery in advance. In addition, pregnant women are expected to attend ANC regularly and identify a place for delivery. Fecund, pregnant and postpartum women should know the danger signs in pregnancy, labour, puerperium and on the neonate. It is only when these indicators (referred to as BPCR indices) are met that the woman can be considered prepared for birth and complications. Similarly, at the community and household/family level, the provision of blood donors, community transportation and financial support system are among the BPCR indices. BPCR is, therefore, a collective responsibility of all stakeholders to ensure the safety of both mother and newborn[3].

In this study antenatal women are assessed for BPCR using the selected ten indices in pregnancy. The selected indices are knowledge of danger sign, identified a desired place of birth, prepared transport to a health facility for birth and in emergency, identified skilled birth attendant/ provider, saving money for birth related and emergency expenses, identified and arranged a compatible blood donor, planned/ attended at least

four antenatal care visits with a skilled provider, attended first antenatal care visit with a skilled care provider during first trimester, identified and prepared essential items for child birth and identified support in looking after the home and children while at the health facility.

Delays reduced at each phase

BPCR also reduces delays in receiving appropriate care. It calls on providers and facilities to be prepared to attend births and ready to treat complications. The delays are reduced in three phases. The delay phase I is deciding to seek care, delay phase II is identifying and reaching medical facility and delay phase III is receiving adequate and appropriate treatment. Delay phase one and two can be reduced if the individual and the family are made aware of the standard elements of BPCR. The third delay can be reduced if service providers, facility managers and policymakers improve supply and create the enabling environment including adequate staffing, equipment and policies, to ensure quality services are always available[3]. In this study the delay phase III was excluded because it was beyond the scope of pregnant women and the selected indices could not directly address it.

Outcome

The outcome of Birth Preparedness and Complication Readiness is increased use and effectiveness of skilled attendance at birth and other key maternal and newborn services[3]. In this study antenatal woman with good BPCR identifies the danger signs and increases the use of skilled birth attendance which could ultimately reduce the maternal and neonatal morbidity and mortality. On the other hand, antenatal women with poor BPCR may have increased maternal and neonatal mortality and morbidity[3].

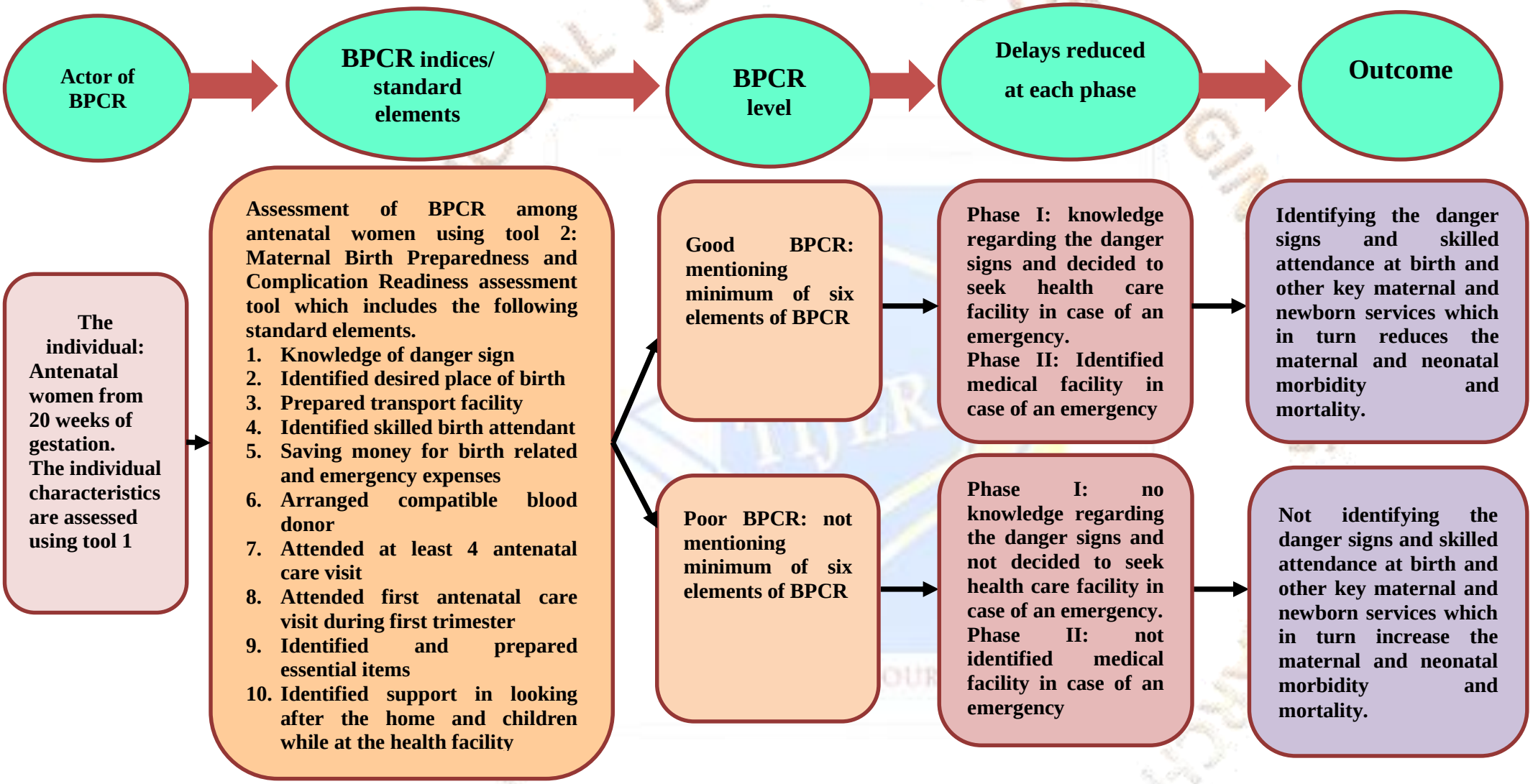

Figure 1: Schematic representation of conceptual frame work for BPCR based on JHPIEGO maternal and neonatal health program (2004)

Summary

This chapter dealt with the background of the problem, need and significance of the study, statement of the problem, objectives, operational definitions, assumptions, hypothesis, delimitations and conceptual framework.

CHAPTER 2

REVIEW OF LITERATURE

A literature review is a body of text that aims to review the critical points of current knowledge including substantial changes as well as theoretical and methodological contributions to a particular topic. Review of literature is an important source for development of research problem and provides information of what has been done previously. A good literature review expands upon the reasons behind selecting a particular research question.

Review of literature can be useful in pointing out the research strategies and specific procedures, measures instruments and statistical analysis that might be productive in pursuing the research problem. It can be also suggest the extraneous variable that should be controlled[14].

The literature relevant to this study was reviewed and organized in the following headings.

Section A: Birth Preparedness and Complication Readiness among antenatal women.

Section B: Knowledge regarding danger signs among antenatal women.

Section C: Association of Birth Preparedness and Complication Readiness with sample characteristics among antenatal women.

Section A: Birth Preparedness and Complication Readiness among antenatal women

A community based cross-sectional study was conducted by Jerry R and Catherin N (2019) to assess Birth Preparedness and Complication Readiness among 60 consecutive sampled antenatal women in a Tribal Area of a Central District, Kerala. Data were collected using questionnaire based interview. The results showed that 96.66% had no Birth Preparedness and Complication Readiness. There was a lack of knowledge regarding danger signs in 91.67%[15].

A cross-sectional descriptive study was conducted by Mbonu and Ebere O (2018) on knowledge, attitude and practice of Birth Preparedness and Complication Readiness among 360 systematically sampled pregnant women in Eti-osa Lga, Lagos. Structured interviewer-administered questionnaire was used to collect the data. The results showed that the mean age of the respondents was 28.9 years, with standard deviation of 5.3 years. The proportion of respondents who were prepared for birth and its possible complication was 33.4%. Among the sample, 72.6% of married women and 83.9% of pregnant women who had attended tertiary education were prepared for birth and its complications (p=0.001) [16].

Descriptive cross-sectional study was conducted by Emeka I. I, Emmanuel O. U, Samuel N. O (2018) to assess the predictors of optimal Birth Preparedness and Complication Readiness among 420 parturient in a tertiary health institution in Nigeria. The data were collected by structured interviewer administered questionnaires. The results showed that 78.6% were booked parturient and 21.4% were unbooked parturient. Among the sample 74.2% of the booked and 50% of the unbooked parturient were knowledgeable about BPCR. Most, 92.4% of the booked parturient were optimally birth prepared at delivery as against 22.2% of the unbooked parturient. Higher parity (AOR = 3.79; 95% CI, p = 0.01), tertiary educational level (AOR = 2.98; 95% CI, p = 0.02), regular antenatal visit (AOR = 2.68; 95% CI, p = 0.04), information received on birth preparedness before delivery (AOR = 0.21; 95% CI, p = <0.01) and booked status (AOR = 0.02; 95% CI, p = <0.001) were significant predictors of optimal BPCR[17].

A cross sectional study was conducted by Karmee M (2018) to assess Birth Preparedness and Complication Readiness among randomly selected 96 pregnant and recently delivered women using semi-structured questionnaire in Odisha, India. The results showed that BPCR index was 44.6% and 45.8%, 27%, 32.3%, 37.5% knew at least one key danger sign in pregnancy, delivery, postpartum and newborn respectively. A significant association was found between maternal education, age and pregnancy (p<0.05) and awareness regarding BPCR[18].

A community based cross-sectional study was conducted by Deogratius B et al. (2014) on Birth Preparedness and Complication Readiness among 428 multistage cluster sampled recently delivered women in Chamwino District, Central Tanzania. A questionnaire based interview was used to collect data. Results showed that 58.4% were prepared for birth and its complication. Regarding the knowledge of obstetrical danger signs 68.7% had no knowledge of obstetric danger signs during pregnancy, labour and postpartum.

The median age of the sample (IQR) was 26.5 (22 to 33) years. After controlling the confounding and clustering effect, significant determinants of Birth Preparedness and Complication Readiness were found to be maternal education (AOR = 2.26, 95 % CI), spouse employment (AOR = 2.18, 95 % CI), booking at ANC (AOR = 2.03, 95 % CI), four or more antenatal visits (AOR = 1.94, 95 % CI) and knowledge of key danger signs (AOR = 4.16, 95 % CI). Birth Preparedness and Complication Readiness was found to be associated with institutional delivery (AOR = 2.45, 95 % CI) [19].

A cross sectional study was conducted by Akshaya K M and Shivalli S (2013) to assess birth preparedness and complication readiness among 217 randomly selected antenatal women using semi-structured interview schedule in Karnataka, India. The results showed that optimal BPCR was observed in 79.3% of the women. Multivariate logistic regression revealed that age less than 26 years (AOR = 2.97), economic status of above poverty line (AOR = 4.3), awareness of minimum two key danger signs in each of the three phases, i.e., pregnancy, childbirth, and postpartum (AOR = 3.98), preference to private health sector for antenatal care/ delivery (AOR = 2.9) and woman's discussion about the BPCR with her family members (AOR = 3.4) as the significant factors associated with optimal BPCR practice[20].

A community based descriptive cross sectional study was conducted by Dimtsu B and Bugssa G (2013) on the knowledge and practice towards Birth Preparedness and Complication Readiness among 220 women who were selected using multistage cluster sampling procedure in Mekelle Town, Northern Ethiopia. Data were collected using pre-tested and structured questionnaire. The results showed that 75% of participants had knowledge and 44% had practice regarding BPCR. Regarding knowledge of danger signs 66%, 66.8% and 54% had knowledge during pregnancy, labour and postpartum respectively[21].

A community based cross sectional study was conducted by Desalegn M and Daniel B (2013) to assess Birth Preparedness and Complication Readiness among 580 women of child bearing age group in Goba woreda, Oromia region, Ethiopia. The data was collected and validated by structured questionnaire through multistage sampling technique. The results showed that 9.9% of the respondents were prepared for birth and its complications and only 14.6% were knowledgeable about Birth Preparedness and Complication Readiness. Variables having statistically significant association with Birth Preparedness and Complication Readiness of women were, attending up to primary education (AOR = 3.24, 95% CI), attending up to secondary and higher level of education (AOR = 2.88, 95% CI), the presence of antenatal care follow up

(AOR = 8.07, 95% CI), knowledge about key danger signs during pregnancy (AOR = 1.74, 95% CI) and knowledge about key danger signs during the postpartum period (AOR = 2.08, 95% CI) [22].

A cross-sectional study was conducted by Acharya A S et al. (2012) to assess Birth Preparedness and Complication Readiness among 417 antenatal mothers by total enumeration sampling using semi- structured interview schedule at Primary Health Centre, Palam, New Delhi. The results showed that level of BPCR index was only 41%. Status of BPCR revealed that, 81.1% had identified a skilled attendant at birth for delivery, 48.9% had saved money for delivery, 44.1% identified a mode of transportation for the delivery, only 42.9% were aware about early registration of pregnancy and only 27.8% women knew about any one danger sign of pregnancy. Education of the women (p=0.01) and husband (p=0.02), parity (p=0.00), type of family (p=0.02) and occupation of husband (p=0.00) were significantly associated with BPCR[1].

A cross sectional study was conducted by Mukhopadhyay D K et al. (2012) to assess Birth Preparedness and Complication Readiness among 360 women in West Bengal. Two-stage, cluster sampling technique was used and data was collected using semi- structured questionnaire. The results showed that 34.5% had BPCR. Awareness of at least one key danger sign each of pregnancy, labour, postpartum and newborn were 20.6%, 20.6%, 12.1%, and 37.2%, respectively. Proportion of women who had their first antenatal visit within first trimester, saved money for delivery, identified vehicle for emergency transport and blood donor beforehand were 50.4%, 40.8%, 27.3% and 9.6% respectively[23].

Section B: Knowledge regarding danger signs among antenatal women.

A community based cross-sectional study was conducted by Mesay H, Abebe G and Fessahaye A (2018) on knowledge of obstetric danger signs among 812 pregnant women in Aleta Wondo district, Sidama Zone, Southern Ethiopia. The objective of this study was to assess pregnant women's knowledge about obstetric danger signs. A structured pre-tested questionnaire was used to collect quantitative data by multistage sampling technique. The results showed that 30.4%, 41.3% and 37.7% knew at least two danger signs during pregnancy, childbirth and postpartum period respectively. Being urban resident was consistently found to be strongly associated with mentioning at least two danger signs of pregnancy (OR=4.1; 95% CI), child birth (OR=3.3; 95% CI) and postpartum period (OR=8.4; 95% CI) [24].

A cross-sectional survey was conducted by Ania S et.al. (2015) on knowledge of obstetric danger signs among 372 women in rural Madagascar. Data were collected using questionnaire through non-random convenience sampling technique. The results showed that knowledge of at least one danger sign varied from 80.9% of women knowing danger sign(s) in pregnancy to 51.9%, 50.8% and 53.2% at delivery, postpartum and in the newborn, respectively. Participation in the health intervention, higher household income and receipt of information about danger signs during pregnancy were associated with knowledge of danger signs during delivery. In bivariate analysis, only higher household income and health project participation were independently associated ($p<0.05$). Higher educational attainment and receipt of information about danger signs in antenatal care were associated with significantly higher odds of knowing danger sign(s) for the new born in both bivariate and multivariate analysis($p<0.05$)[25].

An institutional based cross-sectional study was conducted Gedefa A, Zerfu M, Tewodros S and Hinsermu B (2014) on knowledge about danger signs of obstetric complications and associated factors among 411 postnatal mothers of Mechekel District Health Centers, East Gojjam Zone, Northwest Ethiopia. A pretested structured questionnaire was used to collect data through systematic sampling technique. The result showed that 55.1% participants were knowledgeable about danger signs of obstetric complications. Maternal and husband educational level [(AOR = 1.977, 95% CI) and (AOR = 3.163, 95% CI)], family monthly income ≥1500 (AOR = 2.954, 95% CI), being multipara (AOR = 7.463, 95% CI), ANC follow-up during last pregnancy (AOR = 2.184, 95% CI), and place of last delivery (AOR = 1.955, 95% CI) were variables found to be significantly associated with women's knowledge on danger signs of obstetric complications[26].

Mixed-methods study was conducted by Scovia N M et al. (2014) to assess the association between knowledge of danger signs and birth preparedness among 810 women admitted with pregnancy complications in Ulago hospital, Uganda. The data was collected as an exit interview after hospital discharge through consecutive sampling technique. The results showed that only 33.33% were able to mention at least three of the five basic components of BPCR and regarded as knowledgeable on BPCR. Among the sample, 25% could not mention any of the five components of BPCR. There was a significant association between knowledge of danger signs (during pregnancy, labour and postpartum period) and BPCR (AOR=3.9; 95% CI) [27].

A cross-sectional study was conducted by Omari K. P, Masimba O. Z (2014) to assess the level of knowledge of obstetric danger signs and associated factors among 149 pregnant women attending antenatal care clinics in Bureti Sub-County of Kericho County, Kenya. An exit interview was conducted using a pre tested semi-structured questionnaire and multistage random sampling technique was used to select study design. The result shows that 4.7% of the respondents were knowledgeable about obstetric danger signs. Vaginal bleeding was the most mentioned obstetric danger sign during pregnancy 55%, at birth 32.9% and after delivery 37.6%. There was a declining trend in the proportion of women who were knowledgeable about obstetric danger signs in pregnancy 34.2%, at birth 14.1%, and postpartum 10.1%. Trimester of initiating antenatal care clinic was significantly associated with knowledge of obstetric danger signs ($p=0.027$); however, age, level of education; parity and marital status were not associated[28].

A community survey was conducted by Jerome K K, Per-Olof O, Eleanor T and Karen O P (2010) to assess knowledge of obstetric danger signs and birth preparedness practices among 764 recently delivered women in rural Uganda. Questionnaire was used to collect data through two-stage cluster sampling technique. The result shows that 52% of women knew at least one key danger sign during pregnancy, 72% during delivery and 72% during postpartum. Only 19% had knowledge of three or more key danger signs during the three periods. Of the four birth preparedness practices; 91% had saved money, 71% had bought birth materials, 61% identified a health professional and 61% identified means of transport. Overall 35% of the respondents were birth prepared. The relationship between knowledge of at least one key danger sign during pregnancy or during postpartum and birth preparedness showed statistical significance which persisted after adjusting for probable confounders (OR 1.8, 95% CI: 1.2-2.6, $p<0.05$) and (OR 1.9, 95% CI: 1.2-3.0, $p<0.05$) respectively[29].

Section C: Association of Birth Preparedness and Complication Readiness with sample characteristics among antenatal women

Descriptive cross sectional study was conducted by Dasanayake DLW, Ganewatta SMT, Rathnayaka N (2016) to assess knowledge and practices on Birth Preparedness and Complication Readiness and associated factors among 200 third trimester antenatal mothers; attending antenatal clinic of teaching hospital Mahamodara (THM) Southern province Sri Lanka. Self-administered questionnaire was used to collect the data through consecutive sampling technique. The result shows that BPCR were known concepts by 88.5%

(95% CI: 84.08% to 92.92%) participants. Knowledge on BPCR were reported as above average in 92.5% (95% CI: 88.85 to 96.15%) and 78.0% (95% CI: 72.26% to 83.74%) mothers respectively. Mothers who practiced BPCR were 83.5% (95% CI: 78.36% to 88.64%). Young mothers have better knowledge on Birth Preparedness than older mothers (OR = 3.77; 95% CI: 1.16 to 12.24). Older mothers had statistically significant better knowledge on Complication Readiness (OR = 0.73; 95% CI 0.66 to 0.93). There were statistically significant positive association of knowledge on Complication Readiness with ethnicity (p = 0.03), family income (p = 0.04) and parity (p = 0.03). There was statistically significant positive association with better educational level (OR=0.31, 95% CI=0.11 to 0.91) and planned pregnancy (OR=0.26, 95% CI=0.10 to 0.70) with level of practice on BPCR[30].

A cross sectional study was conducted by Nitika S et al. (2016) to assess the status and socio demographic determinants of Birth Preparedness and Complication Readiness among 200 women who have experienced motherhood recently in a rural block of Haryana. Predesigned and pretested close and open-ended questions were used through multistage cluster sampling. The result shows that BPCR index came out to be 66.93 and 58.5% women were well prepared for BPCR. Education (p=0.010) and occupation (p=0.002) of participants, education of participant's husband (p=0.016), socioeconomic status (p=0.005), and caste (p=0.017) were found to be significantly associated with BPCR[31].

A community based cross-sectional study was conducted by Yewondwossen B, Worku A and Simachew C (2014) on Birth Preparedness and Complication Readiness Practice and Associated Factors among 845 pregnant women who were selected using systematic sampling procedure in Northwest Ethiopia. A face-to-face interview using structured questionnaires was adapted to collect the data. The results showed that pregnant women who were prepared for at least three elements of BPCR were 24.1%. Pregnant women knowing at least three key danger signs during pregnancy, delivery, and postnatal period were 23.2%, 22.6%, and 9.6%, respectively. Women having secondary education and higher were (AOR=6.20; 95% CI, p<0.05) more likely to be prepared than illiterates. Women having a lifetime history of stillbirth (AOR=5.80; 95% CI, p<0.05), attending ANC for last child pregnancy (AOR=5.44; 95% CI, p<0.05), participating in community BPCR group discussion (AOR=4.36; 95% CI, p<0.05) and having their male partner involved in BPCR counselling during ANC follow-up (AOR=4.45; 95% CI, p<0.05) were significantly associated with BPCR[32].

A community survey was conducted by David P. U, Andrea B. P and Fatuma M (2005) to assess Birth Preparedness and Complication Readiness with associated factors among 600 women in Mpwapwa district in Tanzania. The data were collected by structured interview through a multistage cluster random sampling technique. The result shows that the age (OR; 1.4 95% CI) of the woman, education, marital status (OR; 2.0 95% CI), number of antenatal care visits (OR;1.6 95% CI) and knowing ≥3 obstetric danger signs (OR; 4.1 95% CI) were associated with Birth Preparedness and Complication Readiness[33].

Summary

This chapter presents the review of literature related to various areas of Birth Preparedness and Complication Readiness, association of Birth Preparedness and Complication Readiness with sample characteristics and knowledge of danger signs among antenatal women. Literature shows various sample characteristics that increases Birth Preparedness and Complication Readiness among antenatal women.

CHAPTER 3

METHODOLOGY

The methodology of research indicates the general pattern of organizing the procedure of gathering valid and reliable data for the problem under investigation[14].

This chapter describes the methodology adopted for the study. The methodology of the study included research approach, research design, variables, setting of the study, population, sample, sampling technique, sampling criteria, description of the tool, content validity and reliability of the tool, pilot study, data collection process and plan for data analysis. On the whole it gives general pattern for gathering and processing research data.

Research approach

Research approach indicates the basic procedures for conducting research[14]. In the present study quantitative research approach was used to assess Birth Preparedness and Complication Readiness among antenatal women and association of Birth Preparedness and Complication Readiness with sample characteristics.

Research design

Research design is the blueprint for conducting a study that maximizes control over factors that could interfere with the validity of the findings[14]. Research design adopted for the study was cross sectional descriptive research design.

Variables

Variables are concept at different levels of abstraction that is concisely defined to promote their measurement or manipulation with in a study[14]. The following variables were identified in the present study

Research variable: Birth Preparedness and Complication Readiness (BPCR).

Demographic variables: Age of the mother, religion, educational status, occupation, profession, type of family, monthly family income, gestational age, gravid, parity, regular antenatal visit during present pregnancy, history of still birth or IUD, source of knowledge regarding BPCR and time duration to access antenatal health care facility.

Schematic representation of study design

Schematic representation of study is presented in figure 2.

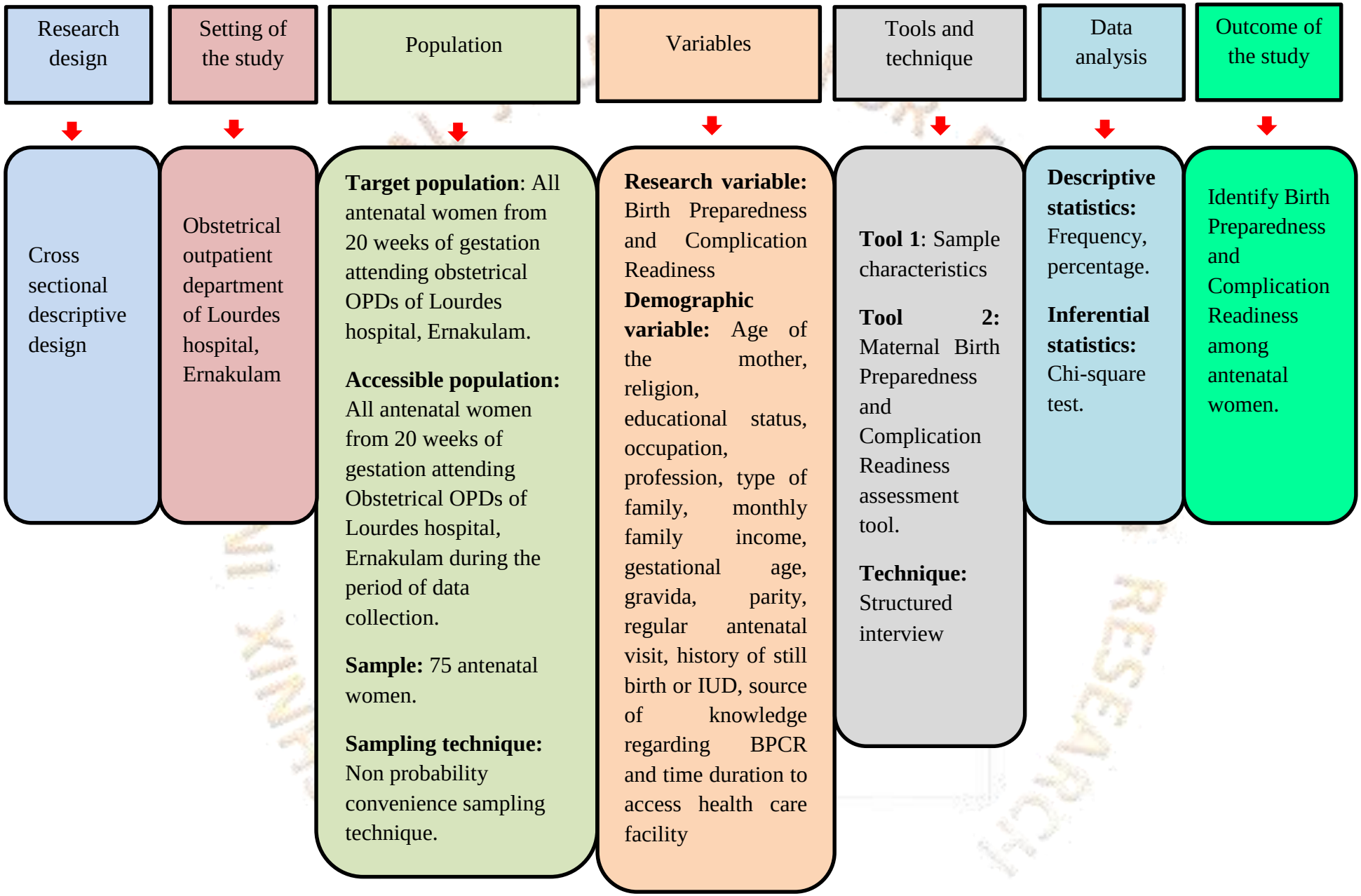

Figure 2: Schematic representation of present study

Setting of the study

Setting refers to the physical location and condition in which data collection take place in a study[14]. The present study was conducted at Obstetrical Outpatient Departments (OPDs), Lourdes hospital, Ernakulam.

Population

The entire set of individuals or objects having some common characteristics selected for a research study, sometime referred to as the universe of the research study. Population includes all possible elements that could be included in research. Population is of two type target population and accessible population. Target population is the aggregate of cases about which the investigator would like to make generalization. Accessible population is the aggregate of cases that confirm to the designated criteria and which is accessible to the investigator as a pool of subjects for conducting the study[14].

Target population: All antenatal women from 20 weeks of gestation attending Obstetrical OPDs of Lourdes hospital, Ernakulam.

Accessible population: All antenatal women from 20 weeks of gestation attending Obstetrical OPDs of Lourdes hospital, Ernakulam during the period of data collection.

Sample

Sample is a subset of population selected to participate in a research study. Sampling is the process of selecting a portion of the population to represent the entire population[14]. In this study the sample were antenatal women from 20 weeks of gestation attending Obstetrical OPDs of Lourdes hospital, Ernakulam.

Sampling technique

Non probability convenience sampling technique was adopted for this study.

Sample size

The sample size was determined based on the study conducted by Akshaya K M and Shivalli S (2013) to assess BPCR among antenatal women in Karnataka, India[20], using the formula;

$n = Z^2Pq/d^2$ where,

P= 79.3%,

q=20.7% (100-79.3)

z of 95%=1.96

d=10 %

The calculated sample size was 63.06 and the sample size adopted for the present study was 75.

Sample selection criteria

Inclusion criteria: the criteria that specify the characteristics the people in the population must possess are referred as inclusion criteria[14].

This study includes antenatal women who were,

- from 20 weeks of gestation.

Exclusion criteria: the criteria that specify the characteristics the people in the population must not possess are referred as exclusion criteria[14].

The study excludes antenatal women who were,

- not willing to participate in the study.
- having mental disorders.

Tool/ instruments

Data collection tools are the procedures or instruments used by the investigator to observe or measure the key variable in the research problem[14].

The following instruments were used for data collection.

Tool 1: Sample characteristics.

Tool 2: Maternal Birth Preparedness and Complication Readiness assessment tool.

Development of the tool/ selection of the tools

The initial draft of the tool was prepared by the investigator with the help of literature review and discussion with nursing experts. Clinical experience of the investigator had also helped in determining the different aspects of the tool. The first draft of the tool was modified after extensive discussion with experts and guide.

Description of the tool

Tool 1: Sample characteristics of antenatal women

Sample characteristics data sheet consist of 14 items such as age, religion, educational status, occupation, profession, type of family, monthly family income, gestational age, gravida, parity, regular antenatal visit during present pregnancy, history of still birth or IUD, source of knowledge regarding BPCR and time duration to access antenatal health care facility. (APPENDIX O)

Tool 2: Maternal Birth Preparedness and Complication Readiness assessment tool.

This tool was prepared on the basis of monitoring Birth Preparedness and Complication Readiness Tools and indicators for maternal and new born health by Johns Hopkins Program for International Education in Gynaecology and Obstetrics (JHPIEGO). The tool assesses BPCR among antenatal women based on the 10 indices or standard elements among antenatal women during pregnancy to compact maternal and neonatal mortality and morbidity. Total 10 questions are arranged with yes or no options. (APPENDIX O) Based on the options BPCR and knowledge regarding danger signs are categorized as,

Good BPCR: mentioning minimum of six elements of Birth Preparedness and Complication Readiness.

Poor BPCR: not mentioning minimum of six elements of Birth Preparedness and Complication Readiness.

Good knowledge of danger signs: Mentioning a total of six danger signs from all four subcomponents with at least one from each subcomponent i.e., the respondent have to mention one danger sign during pregnancy, delivery, puerperium and for newborn along with at least two more danger signs from any of the three stages of childbirth.

Poor knowledge of danger signs: not mentioning six danger signs as per the criteria.

Technique

tool 1: Structured interview for collection of sample characteristics.

tool 2: Structured interview for Birth Preparedness and Complication Readiness assessment tool.

Content validity

Content validity refers to the degree to which an instrument measures what it is supposed to measure[14]. The prepared data collection tool was validated by seven experts, two obstetrician and five obstetrics nurse specialist. The experts were requested to give their opinions and suggestions regarding the relevance, adequacy, and appropriateness of the tool. Content validity index of the tool was 0.8856 and modifications were made as per the suggestions given by the experts. (APPENDIX I)

Reliability

Reliability of the research instrument is defined as the extent to which the instrument yields the same results on repeated measures. It is concerned with consistency, accuracy, precision, stability, equivalence and homogeneity[14]. In this study reliability was established by split half method using Spearman prophecy formula (r=2r/I+r). The reliability coefficient of the tool was 0.89, which showed that the tool was reliable. The content validity index and reliability of the tool is presented in table 1.

Table 1: Content validity index and reliability of the tool.

Sl. No	Tool	CVI	Reliability
1	Sample characteristics	0.948	
2	Birth preparedness complication readiness assessment tool	0.8856	0.89

Ethical consideration

The proposed study was conducted after the approval of the institutional ethics committee, on 17th July 2020 and letter no. LH/DIR/2020-1155 (APPENDIX B). An informed consent was obtained from all participants after explaining the purpose of the study (APPENDIX M, N). Confidentiality of the information given by the sample was ensured. The sample were informed that the participation was voluntary and they can terminate from the study at any point of time.

Pilot study

Pilot study is a small preliminary investigation of the same general character of the major study. The main aim was to assess the feasibility, practicability and assessment of adequacy of instrument[14].

After getting permission from ethics committee of Lourdes hospital, Ernakulam, the pilot study was conducted during the month of December 2020. The investigator collected the data from 10 antenatal women from 20 weeks of gestation attending Obstetrical OPDs of Lourdes hospital, Ernakulam, who fulfilled the inclusion criteria. Individual consent was taken and the sample was informed regarding the maintains of confidentiality.

Data collection process

Data collection process was commenced after obtaining approval from the institution ethics committee and formal written permission from concerned authorities of Lourdes hospital, Ernakulam. Data were collected during the month of January 2021. Convenience sampling technique was used to select 75 antenatal women who fulfilled the inclusion criteria. Data were collected from six to eight sample per day. The investigator had approached sample individually, explained the purpose of the study and obtained informed consent from them after ensuring confidentiality.

The sample were made comfortable and the investigator administered tool 1: sample characteristics and tool 2: Maternal Birth Preparedness and Complication Readiness assessment tool by interview technique. It took an average of 20 minutes to complete Tool 1 and Tool 2. Sample were thanked by the investigator for their participation and co-operation throughout the study.

Obtained approval from Ethics committee of Lourdes hospital, Ernakulam

↓

Permission obtained from concerned authority of the Lourdes hospital, Ernakulam

↓

Identified antenatal women from 20 weeks of gestation from antenatal visit record in Obstetrical OPD

↓

Based on the ascending number of tokens, six to eight sample were selected per day

↓

Purpose of the study was explained and obtained informed consent from them after ensuring confidentiality

↓

The investigator administered Tool 1: sample characteristics and Tool 2: Maternal Birth Preparedness and Complication Readiness assessment tool. (interview technique)

Taken 20 minutes per sample for 75 sample

Figure 3: Schematic representation of data collection process

Data analysis

The data was decided to analyze the data using descriptive and inferential statistics on the basis of objectives of the study.

- Sample characteristics will be analyzed in terms of frequency and percentage distribution.
- Chi-square test will be used to determine association of Birth Preparedness and Complication Readiness with sample characteristics.

Summary

The research methodology gives an overall view of taking a research problem in a systematic and scientific manner. This chapter dealt with research design, variable, setting, population, sample, data collection instrument, development of the instrument, description of the tool, content validity and reliability of the tool, pilot study, data collection process and plan for data analysis which provided an overall structure for the study.

CHAPTER 4

ANALYSIS AND INTERPRETATION

Statistical analysis enables the researcher to organize, interpret and communicate numeric information. Statistical analysis is the process of organization and analysis of quantitative data using statistical procedures, including both descriptive and inferential statistics[14].

This chapter deals with the analysis and interpretation of data. The data were collected from 75 antenatal women who are from 20 week of gestation. The data collected was subjected to descriptive and inferential statistical analysis to assess the Birth Preparedness and Complication Readiness among antenatal women. The data were analyzed according to the objectives formulated for the study.

Objectives of the study

1. To assess Birth Preparedness and Complication Readiness among antenatal women.
2. To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

Null hypothesis

The following null hypothesis is stated for data analysis.

H_0 : There is no significant association between Birth Preparedness and Complication Readiness and selected sample characteristics.

The data were analyzed using Statistical Package for Social Science (SPSS 20 version).

Organization of the findings

Section 1: Distribution of sample characteristics.

Section 2: Birth Preparedness and Complication Readiness among antenatal women.

Section 3: Distribution of elements of Birth Preparedness and Complication Readiness among antenatal women.

Section 4: Knowledge regarding danger signs among antenatal women.

Section 5: Birth Preparedness and Complication Readiness among antenatal women based on sample characteristics.

Section 6: Association of Birth Preparedness and Complication Readiness among antenatal women with sample characteristics.

Section 1: Distribution of sample characteristics.

This section deals with sample characteristics like age, religion, educational status, occupation, profession, type of family, monthly family income, gestational age, gravida, parity, regular antenatal visit during present pregnancy, history of still birth or IUD, source of knowledge regarding BPCR and time duration to access antenatal health care facility. Data pertaining to the sample characteristics were presented and analyzed in terms of frequency and percentage.

Table2: Distribution of sample based on age, religion and education.

n = 75

Variables	Category	Frequency (f)	Percentage (%)
Age	≤20 years	1	1.3
	21-25 years	21	28
	26-30 years	27	36
	≥30 years	26	34.7
Religion	Christian	46	61.4
	Hindu	22	29.3
	Muslim	7	9.3
Educational status	High school	4	5.3
	Higher Secondary	6	8
	Graduation	65	86.7

Table 2 displays the frequency and percentage distribution of sample according to age, religion and education status. With regard to age of sample, 36% belongs to 26 to 30 years, 34.7% belongs to ≥ 30 years, 28% belongs to 21 to 25years and 1.3% belongs to ≤ 20 years. Regarding the religion, 61.4% are Christians, 29.3% are Hindus and 9.3% are Muslims. With regard to education status, 86.7% are graduates, 8% have higher secondary education and 5.35% have high school education.

Table 3: Distribution of sample based on occupation, profession and type of family.

n = 75

Variables	Category	Frequency (f)	Percentage (%)
Occupation	Employed	22	29.3
	Unemployed	53	70.7
Profession	Medical profession	17	22.7
	Non-medical profession	58	77.3
Type of family	Nuclear family	13	17.3
	Joint family	62	82.7

Table 3 displays the frequency and percentage distribution of sample according to occupation, profession and type of family. Based on occupation, 70.7% are unemployed and 29.3% are employed. When considering profession of the sample, 77.3% belongs to non-medical profession and 22.7% belongs to medical profession. Distribution of sample based on type of family shows that, 82.7% are from joint family and 17.3% are from nuclear family.

Table 4: Distribution of sample based on monthly family income and gestational age.

n = 75

Variables	Category	Frequency (f)	Percentage (%)
Monthly family income	≥30000	40	53.3
	20000-29999	21	28
	10000-19999	11	14.7
	≤10000	3	4
Gestational age	20 - 25 weeks	11	14.7
	26 - 30 weeks	20	26.7
	31 - 35 weeks	25	33.3
	36 - 40 weeks	19	25.3

Table 4 displays the frequency and percentage distribution of sample according to monthly family income and gestational age. With respect to monthly family income, 53.3 % are having ≥ 30000 per month, 28% are having 20000 to 29999 monthly family income, 14.7% are having 10000 to19999 per month and 4 % are having below 10000 monthly family income. Regarding gestational age, 33.3% belongs to 31 to 35 weeks, 26.7% belongs to 26 to 30 weeks, 25.3% belongs to 36 to 40 weeks and 14.7% belongs to 20 to 25 weeks of gestational age.

Table 5: Distribution of sample based on gravida, parity and regular antenatal visit during present pregnancy.

n = 75

Variables	Category	Frequency (f)	Percentage (%)
Gravida	Primigravida	33	44
	Multigravida	42	56
Parity	Nullipara	38	50.7
	Primipara	31	41.3
	Multipara	6	8
Regular antenatal visit during present pregnancy	Yes	74	98.7
	No	1	1.3

Table 5 displays the frequency and percentage distribution of sample according to gravida, parity and regular antenatal visit during present pregnancy. Based on gravida, 44% are primigravida and 56% are multigravida. When considering parity, 50.7% are nullipara, 41.3% are primipara and 8% are multipara. Regarding regular antenatal visit during present pregnancy, 98.7% have regular antenatal visits and only 1.3% have no regular antenatal visit.

Table 6: Distribution of sample based on history of still birth or IUD, source of knowledge regarding BPCR and time duration to access antenatal health care facility.

n = 75

Variables	Category	Frequency (f)	Percentage (%)
History of still birth or IUD	Yes	1	1.3
	No	74	98.7
Source of knowledge regarding BPCR	Previous experience	24	32
	Media	4	5.3
	Family members	24	32
	Health care professionals	23	30.7
Time duration to access antenatal health care facility	Less than 30 minutes	33	44
	More than 30 minutes	42	56

Table 6 displays the frequency and percentage distribution of sample according to history of still birth or IUD, source of knowledge regarding BPCR and time duration to access health care facility. Based on history of still birth or IUD, 98.7% has no history and only 1.3% has history. When considering source of knowledge regarding BPCR, 32% have knowledge from previous experience and family members, 30.7% have knowledge from health care professionals and 5.3% have knowledge from media. Regarding time duration to access antenatal health care facility, 44% have less than 30 minutes and 56% have more than 30 minutes to reach nearby antenatal health care facility.

Section 2: Birth Preparedness and Complication Readiness among antenatal women.

n = 75

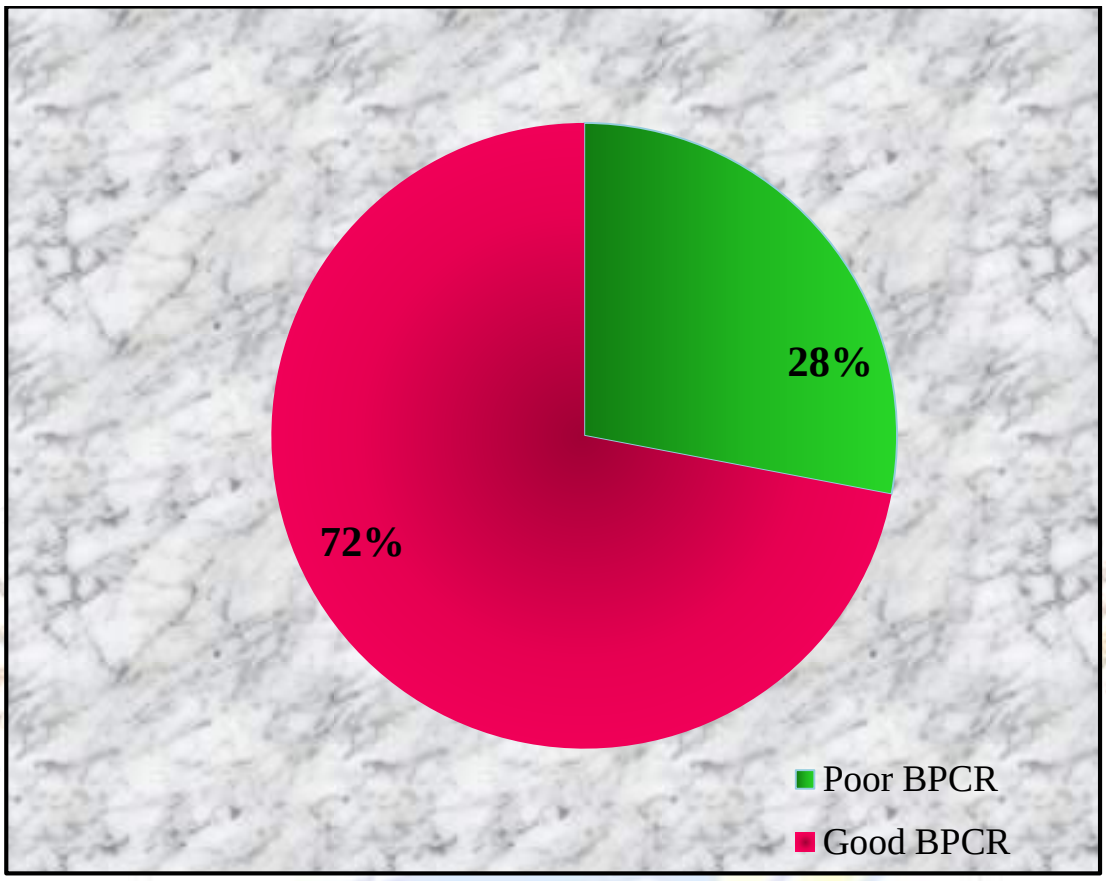

Figure 4: Birth Preparedness and Complication Readiness among antenatal women.

Figure 4 shows that among the sample, 72% have good BPCR and 28% have poor BPCR.

Section 3: Distribution of elements of Birth Preparedness and Complication Readiness among antenatal women.

n = 75

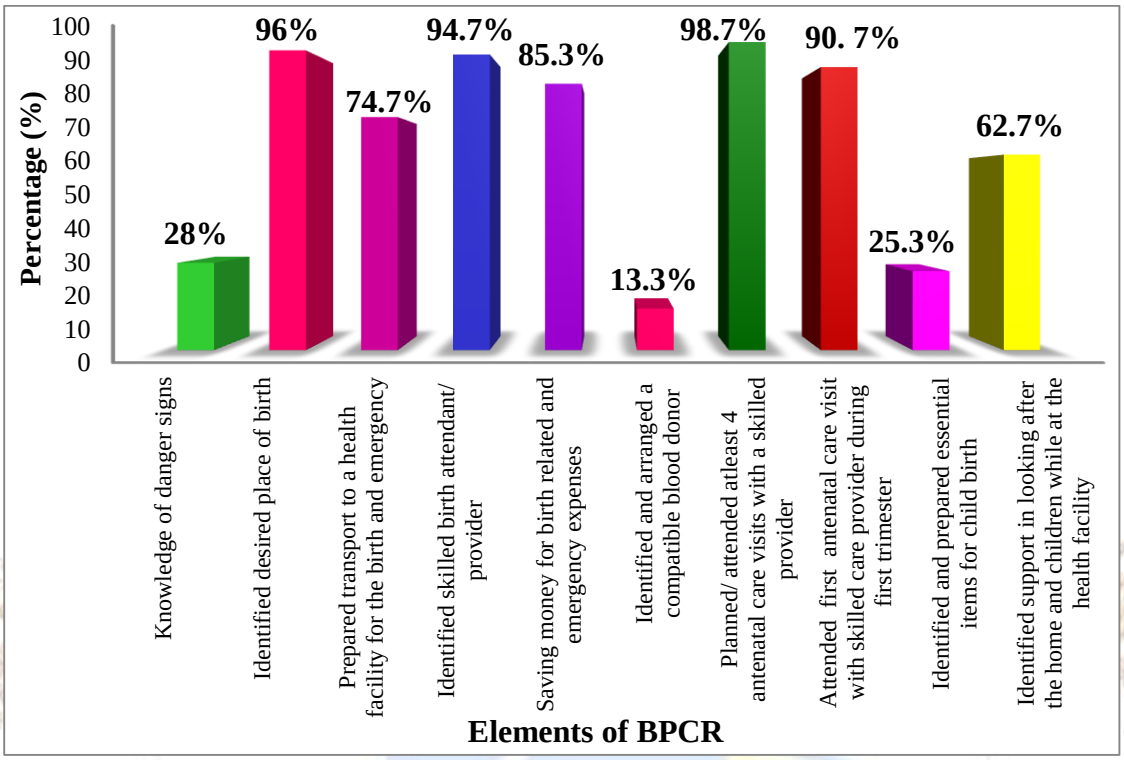

Figure 5: Elements of BPCR among antenatal women

Figure 5 shows distribution of components of BPCR among antenatal women which includes, 28% have knowledge of danger sign, 96% of women identified desired place of birth, 74.7% prepared transport to the health care facility for the birth and emergency, 94.7% identified skilled birth attendant/ provider, 85.3% are saving money for birth related and emergency expenses, 13.3% identified and arranged a compatible blood donor, 98.7% planned/ attended at least 4 antenatal care visit with a skilled provider, 90.7% women attended first antenatal care visit with skilled care provider during first trimester, 25.3% antenatal women identified and prepared essential items for child birth and 62.7% identified support in looking after the home and children while at the health facility.

Section 4: Knowledge regarding danger signs among antenatal women

n = 75

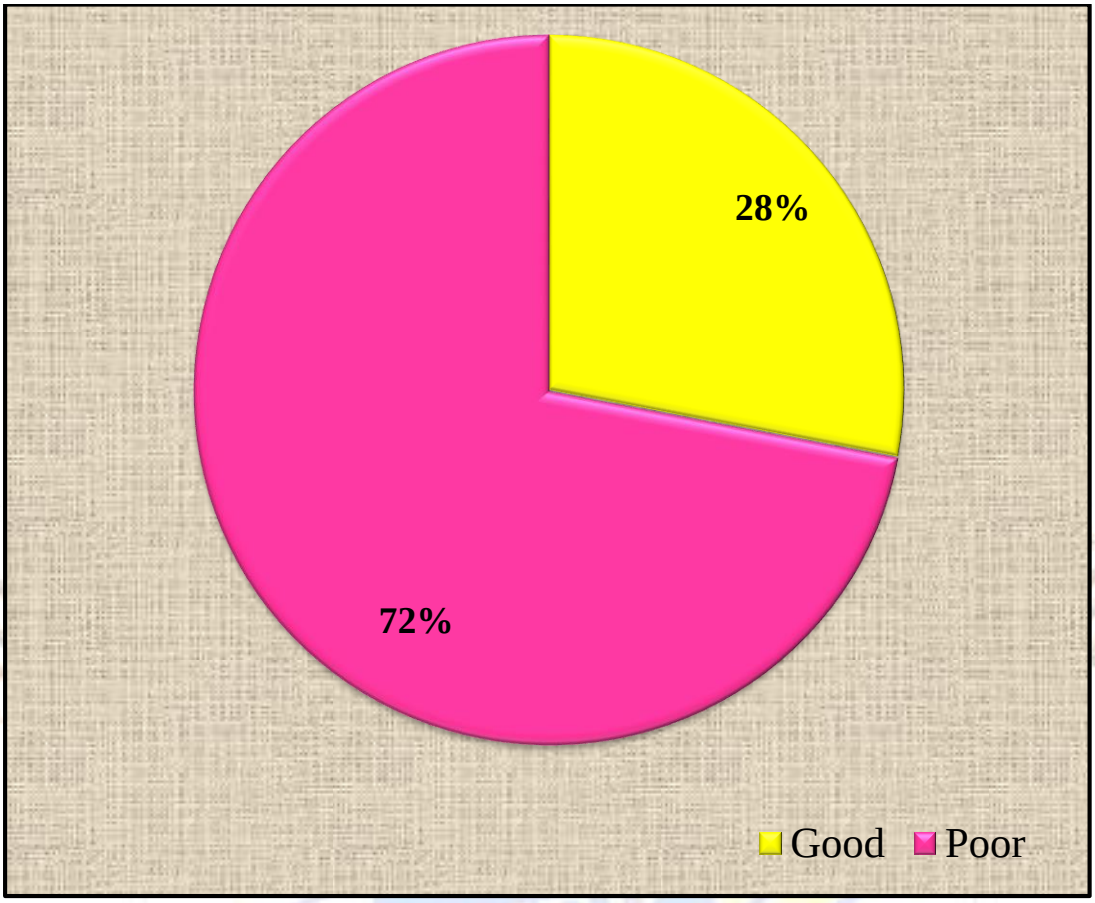

Figure 6: Knowledge regarding danger signs among antenatal women

Figure 6 shows that among antenatal women, 72% of have poor knowledge regarding danger signs and 28% have good knowledge regarding danger signs.

n = 75

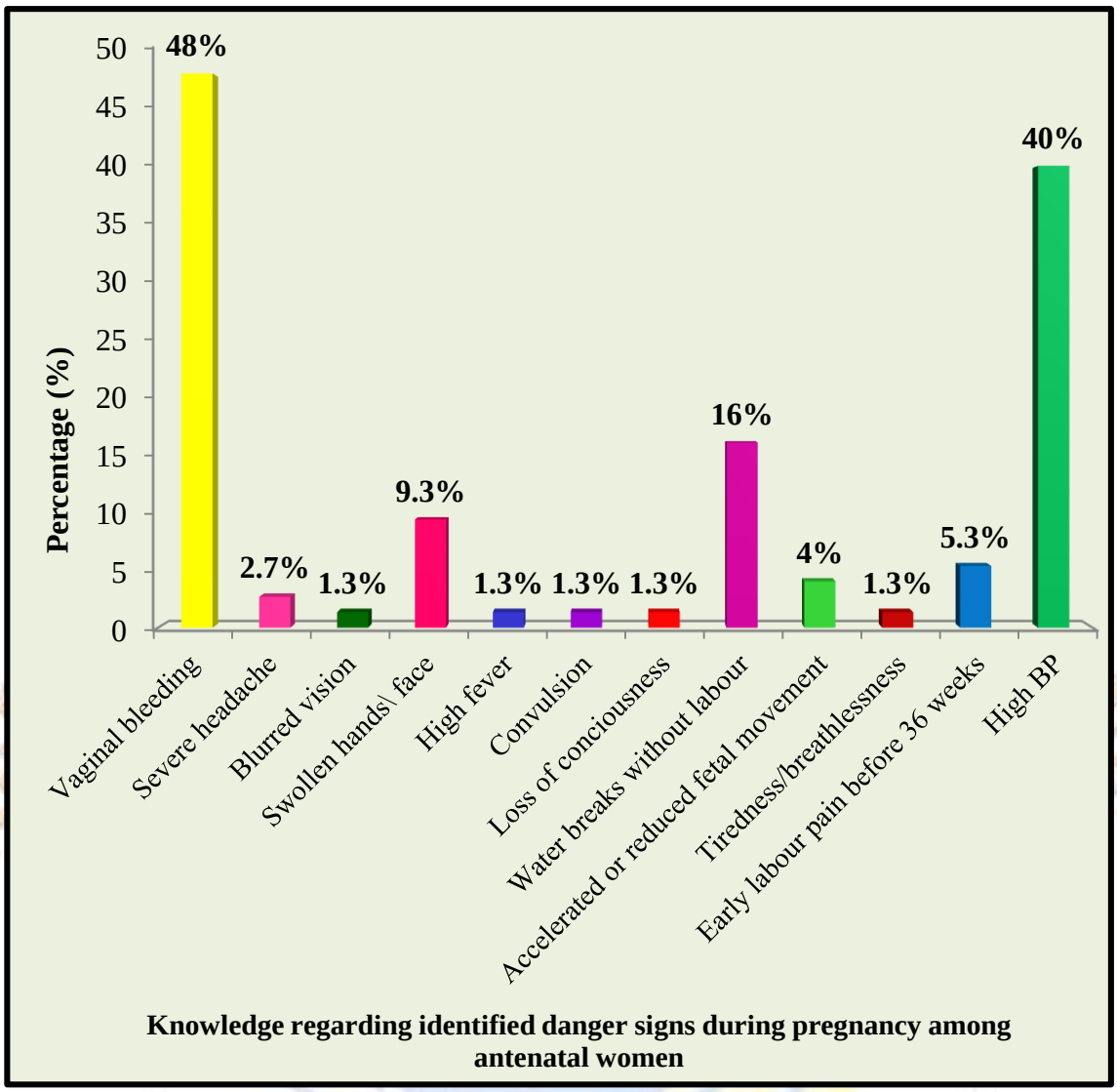

Figure 7: Knowledge regarding identified danger signs during pregnancy among antenatal women

Figure 7 shows that 48% identified vaginal bleeding, 40% identified high BP, 16% identified water breaks without labour, 9.3% identified swollen hands or face, 5.3% identified early labour pain before 36 weeks, 4% identified accelerated or reduced fetal movements, 2.7% identified severe headache and 1.3% identified blurred vision, high fever, convulsion, loss of consciousness, tiredness or breathlessness as the danger signs during pregnancy.

n = 75

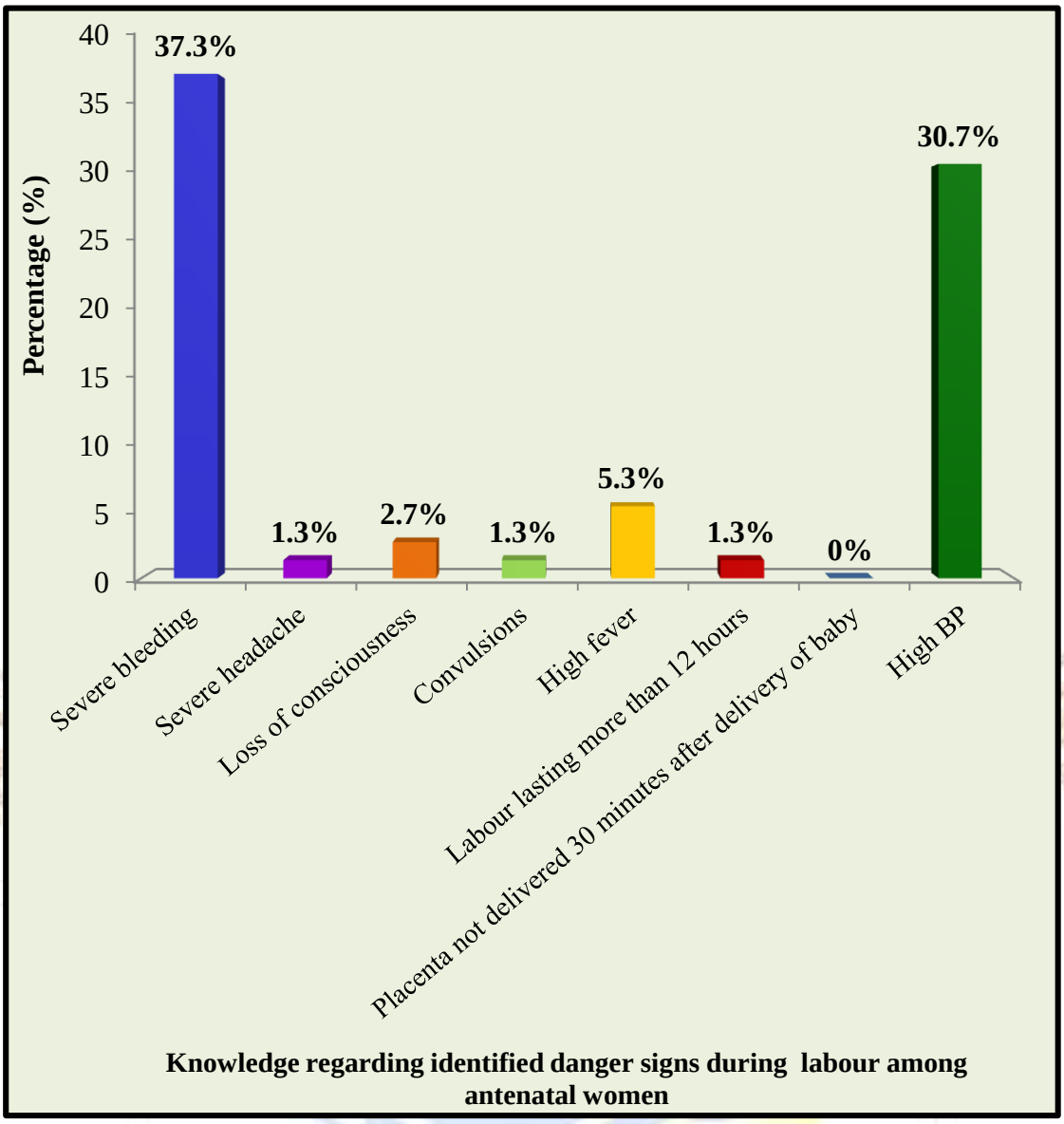

Figure 8: Knowledge regarding identified danger signs during labour among antenatal women

The figure 8 shows that 37.3% identified severe bleeding, 30% identified high BP, 5.3% identified high fever, 2.7% identified loss of consciousness, 1.3% identified severe headache, convulsion, labour lasting more than 12 hours and none of them identified placenta not delivered within 30 minutes after delivery of baby as the danger signs during labour.

n = 75

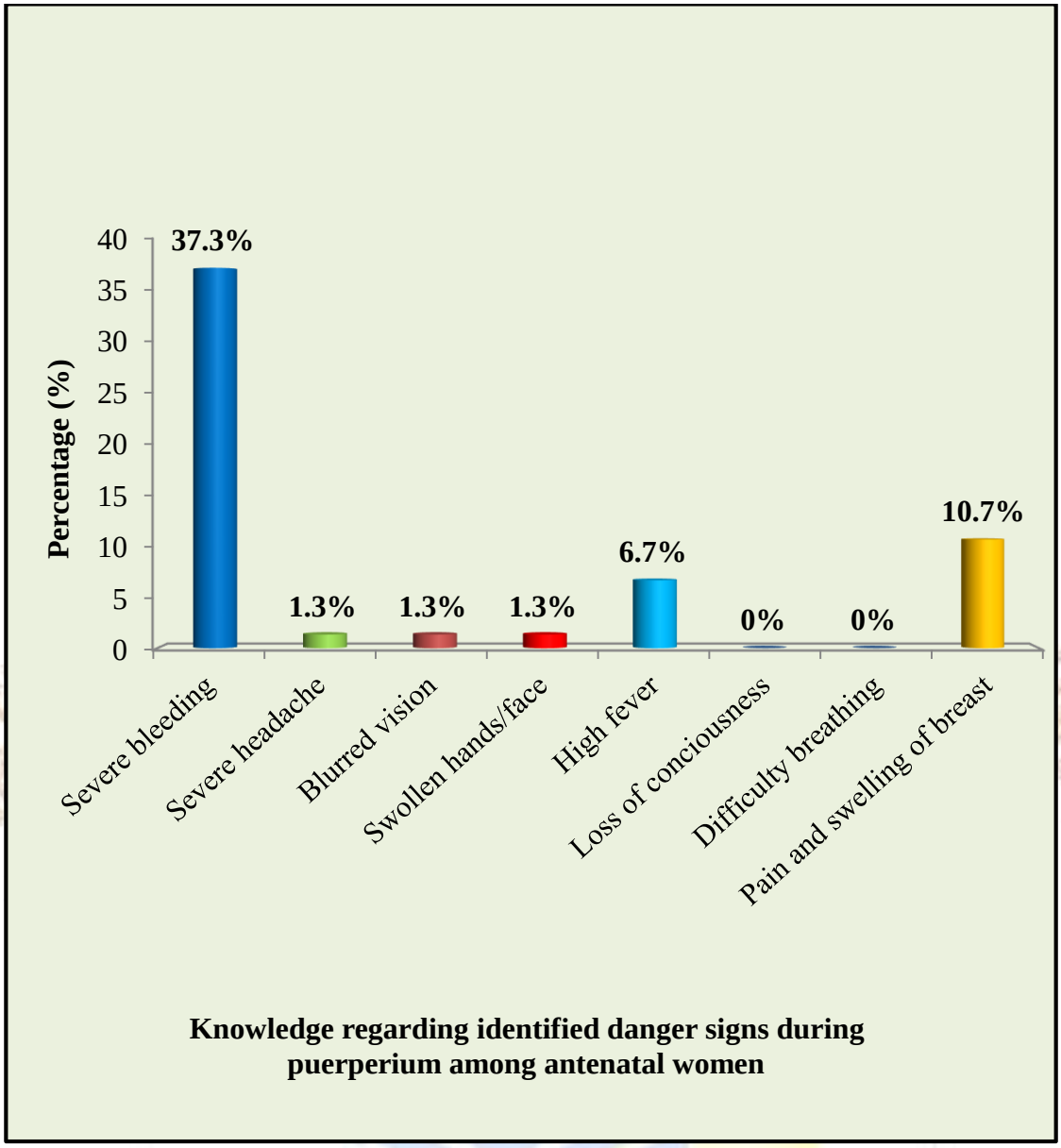

Figure 9: Knowledge regarding identified danger signs during puerperium among antenatal women

The figure 9 shows that 37.3% identified severe bleeding, 10% identified pain and swelling of breast, 6.7% identified high fever, 1.3% identified severe headache, blurred vision, swollen hands/ face and none of them identified difficult breathing, loss of consciousness as the danger signs during puerperium.

n = 75

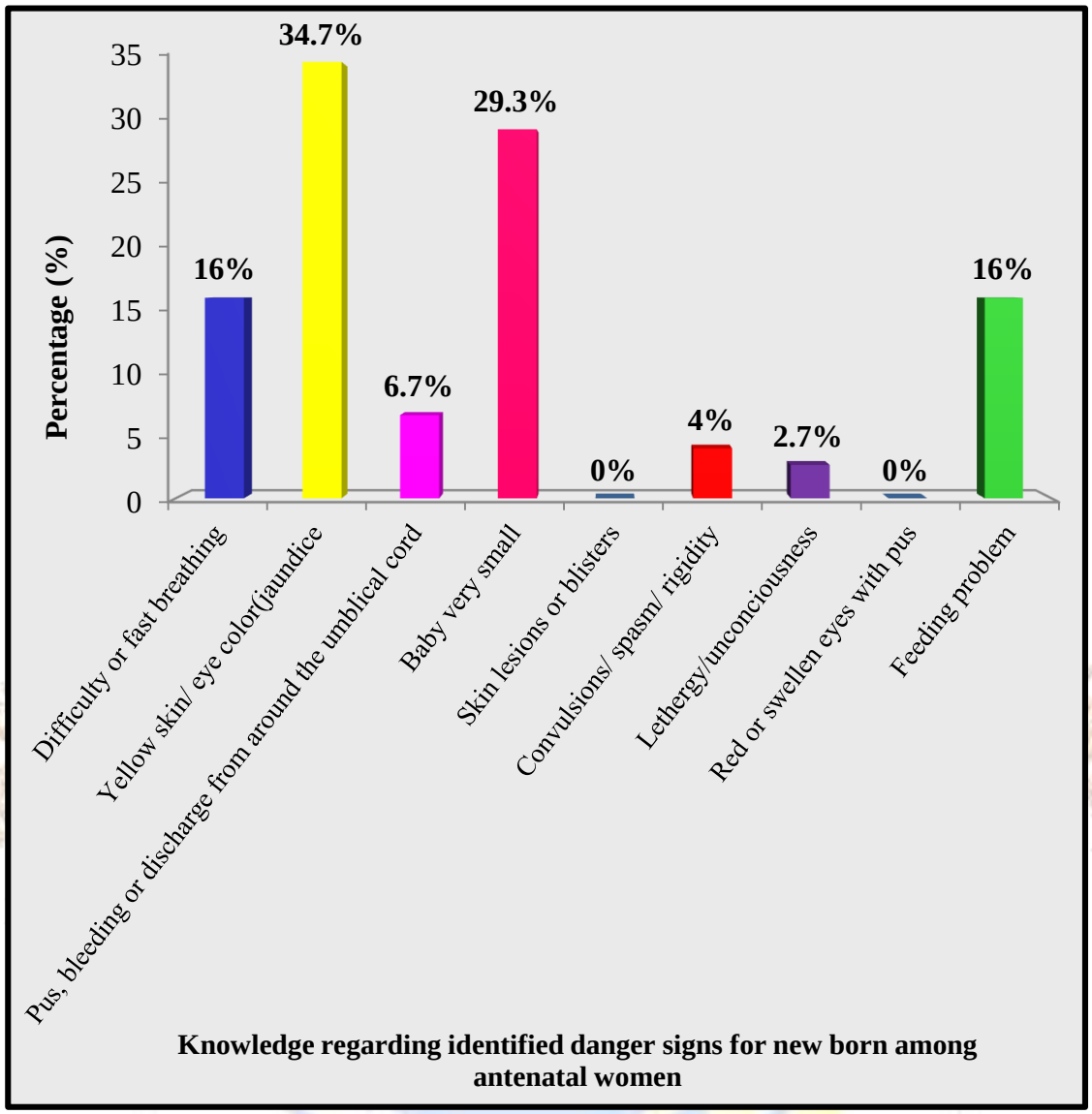

Figure 10: Knowledge regarding identified danger signs for new born among antenatal women

The figure 10 shows that 34.7% identified yellow skin or eye color (jaundice), 29.3% identified baby very small, 16% identified difficulty or fast breathing, feeding problems, 6.7% identified pus, bleeding or discharge from around the umbilical cord, 4% identified convulsion\ spasm \rigidity, 2.7% identified lethargy or unconsciousness and none of them identified skin lesions or blisters, red or swollen eyes with pus as the danger signs for newborn.

Section 5: Birth Preparedness and Complication Readiness among antenatal women based on sample characteristics.

n = 75

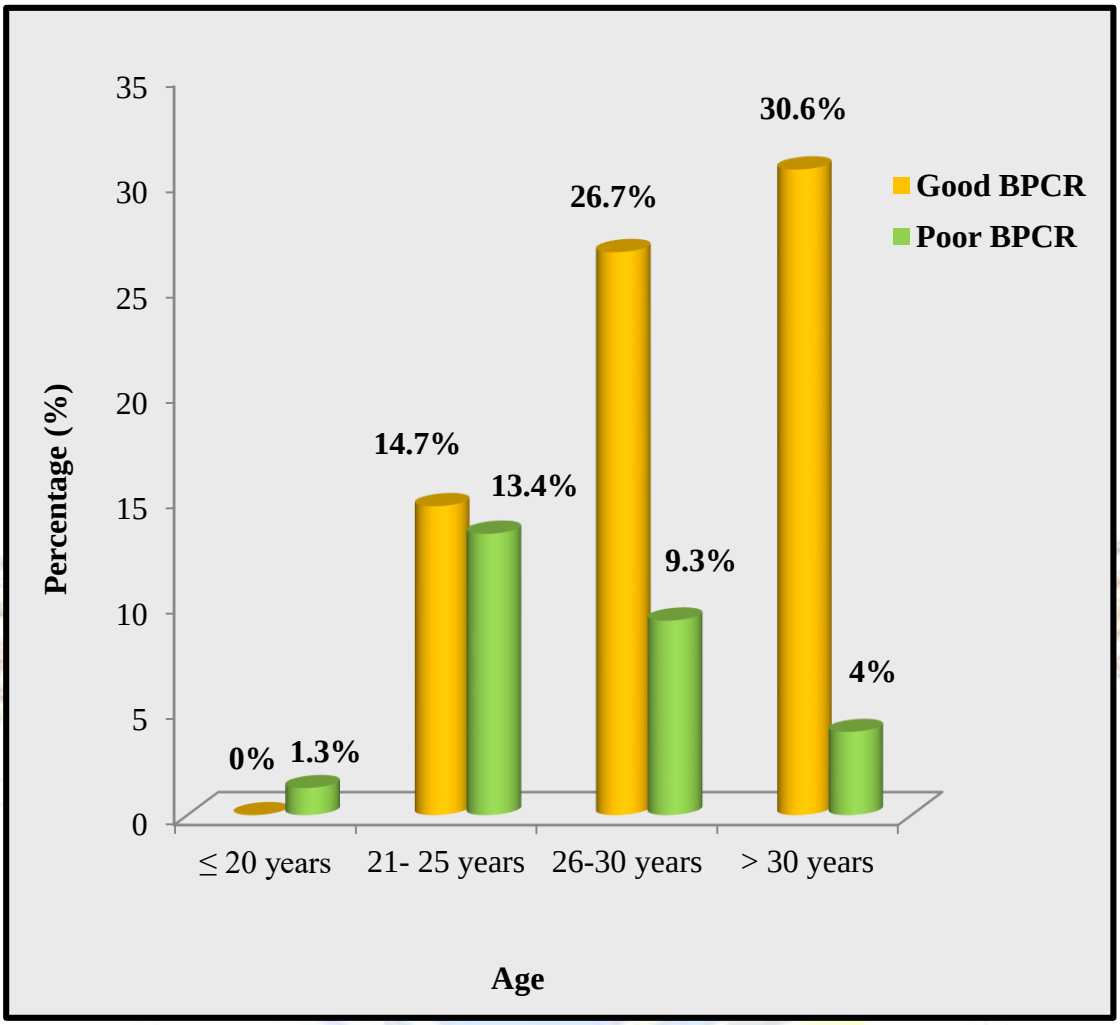

Figure 11: Birth Preparedness and Complication Readiness among antenatal women based on age.

Figure 11: shows BPCR among an women based on age. Among antenatal women with good BPCR, 30.7% belongs to >30 years, 26.7% belongs 26 to 30 years and 14.6% belongs to 21 to 25 years of age. Among antenatal women with poor BPCR, 13.4% belongs to 21 to 25 years, 9.3% belongs to 26 to 30 years, 4% belongs to >30 years and 1.3% belongs to ≤ 20 years of age.

n = 75

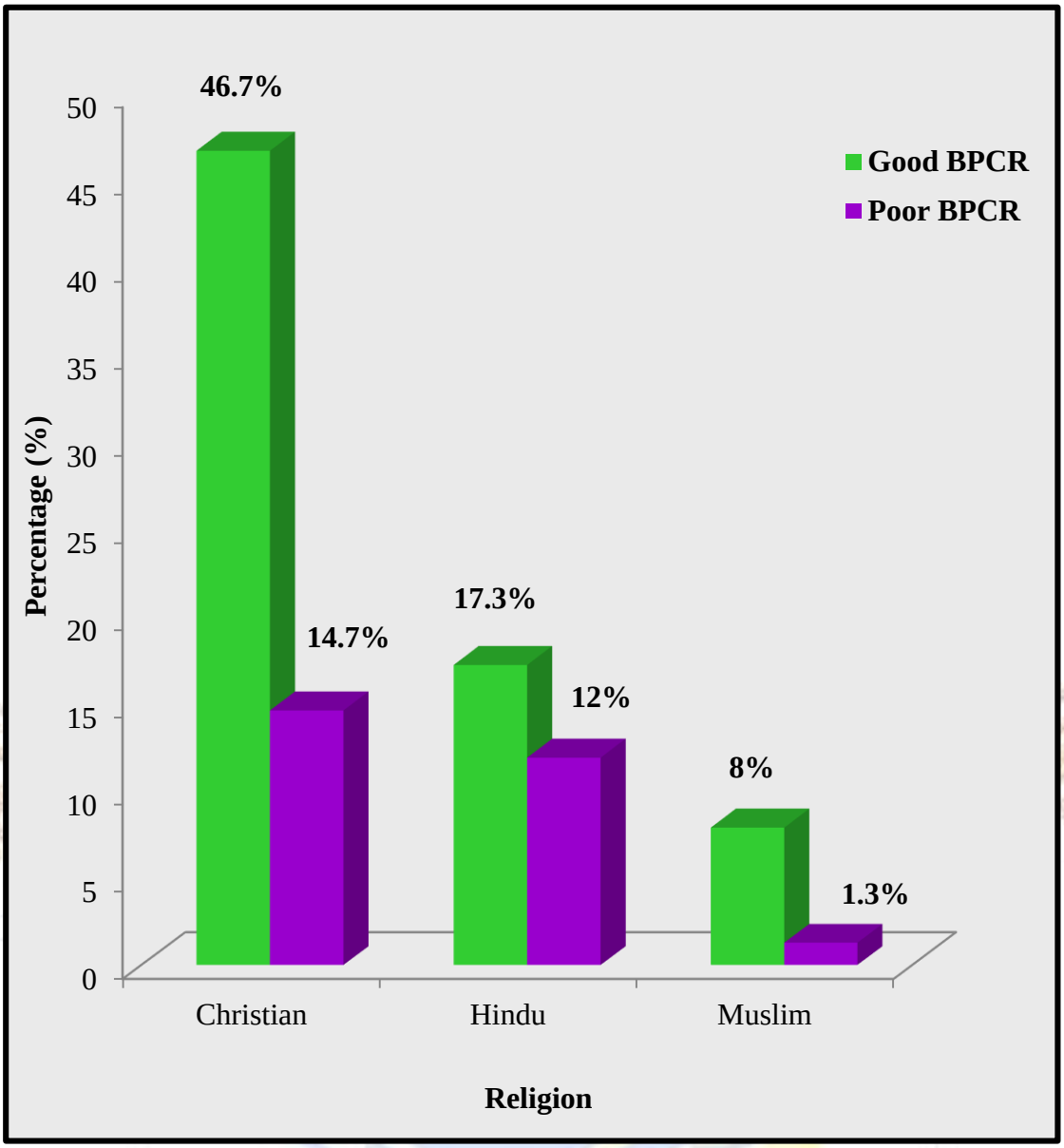

Figure 12: Birth Preparedness and Complication Readiness among antenatal women based on religion.

Figure 12 shows BPCR among an women based on religion. Among antenatal women with good BPCR, 46.7% belongs to Christians, 17.3% belongs to Hindus and 8% belongs to Muslims. Among antenatal women with poor BPCR, 14.7% belongs to Christians, 12% belongs to Hindus and 1.3% belongs to Muslims.

n = 75

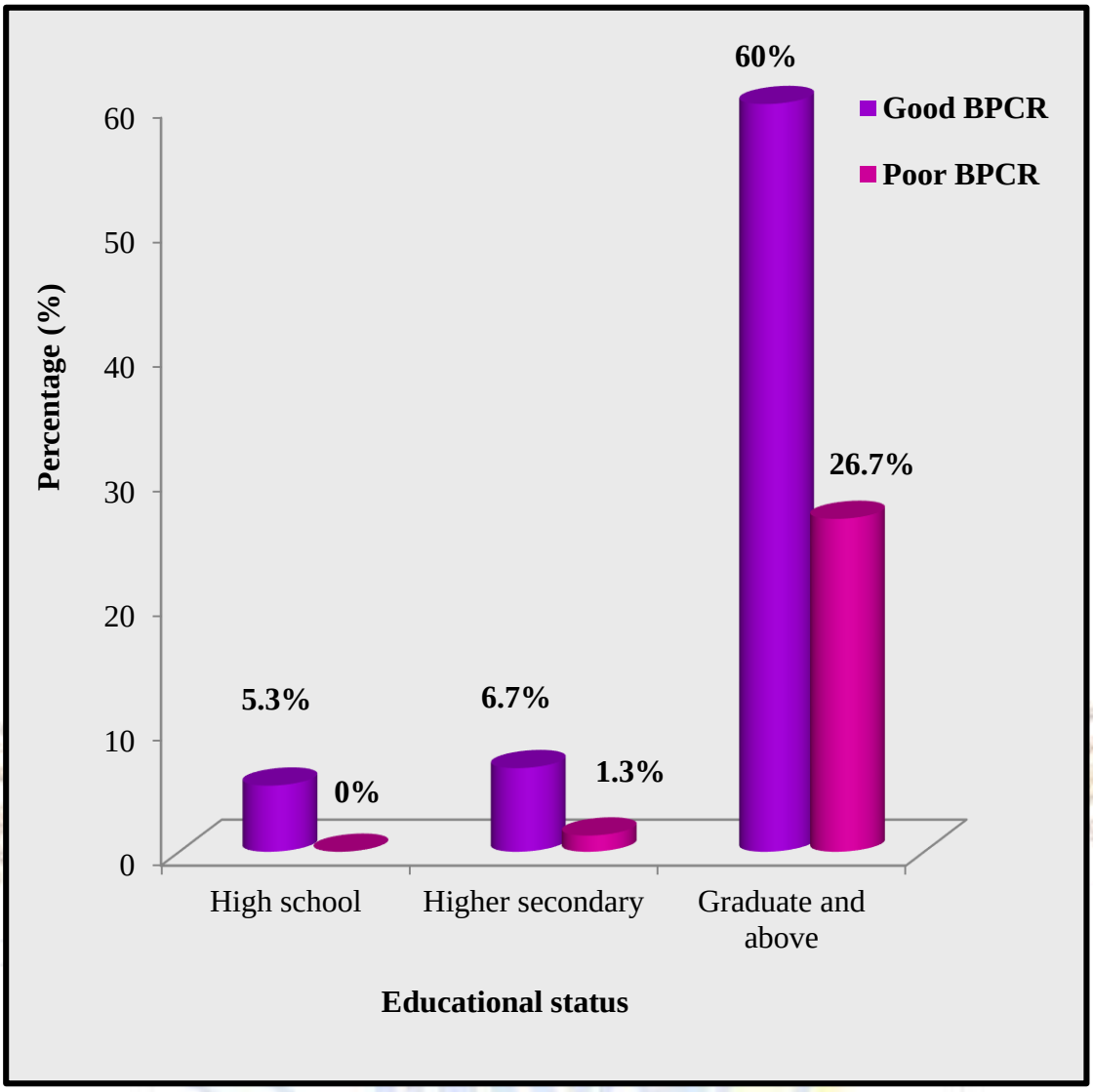

Figure 13: Birth Preparedness and Complication Readiness among antenatal women based on educational status.

Figure 13 shows BPCR among an women based on educational status. Among antenatal women with good BPCR, 60% belongs to graduates and above, 6.7% belongs to higher secondary and 5.3% belongs to high school education. Among antenatal women with poor BPCR, 26.7% belongs to graduate and above and 1.3% belongs to higher secondary education.

n = 75

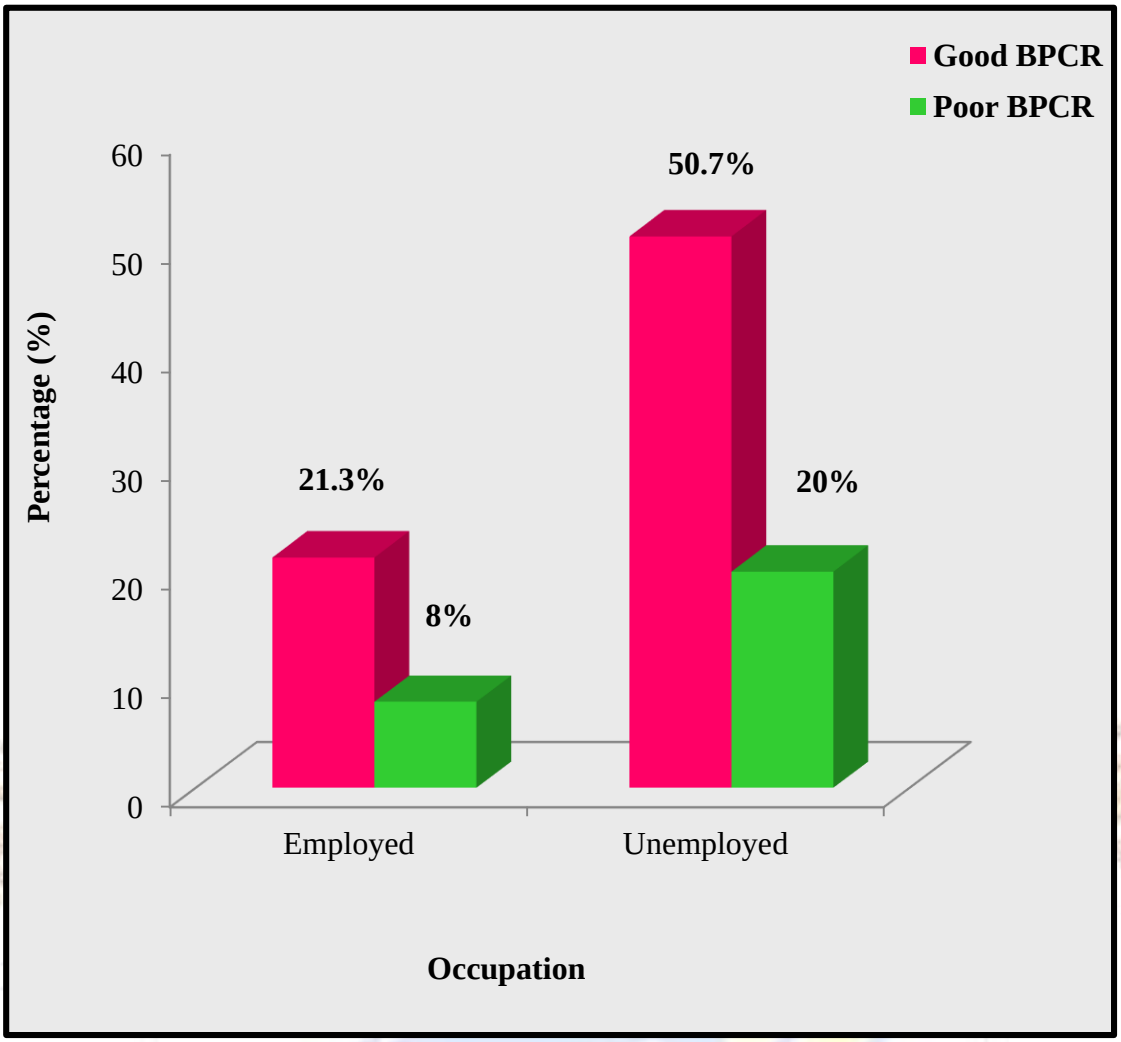

Figure 14: Birth Preparedness and Complication Readiness among antenatal women based on occupation.

Figure 14 shows BPCR among an women based on occupation. Among antenatal women with good BPCR, 50.7% belongs to unemployed category and 21.3% belong to employed category. Among antenatal women with poor BPCR, 20% belong to unemployed status and 8% belong to employed status.

n = 75

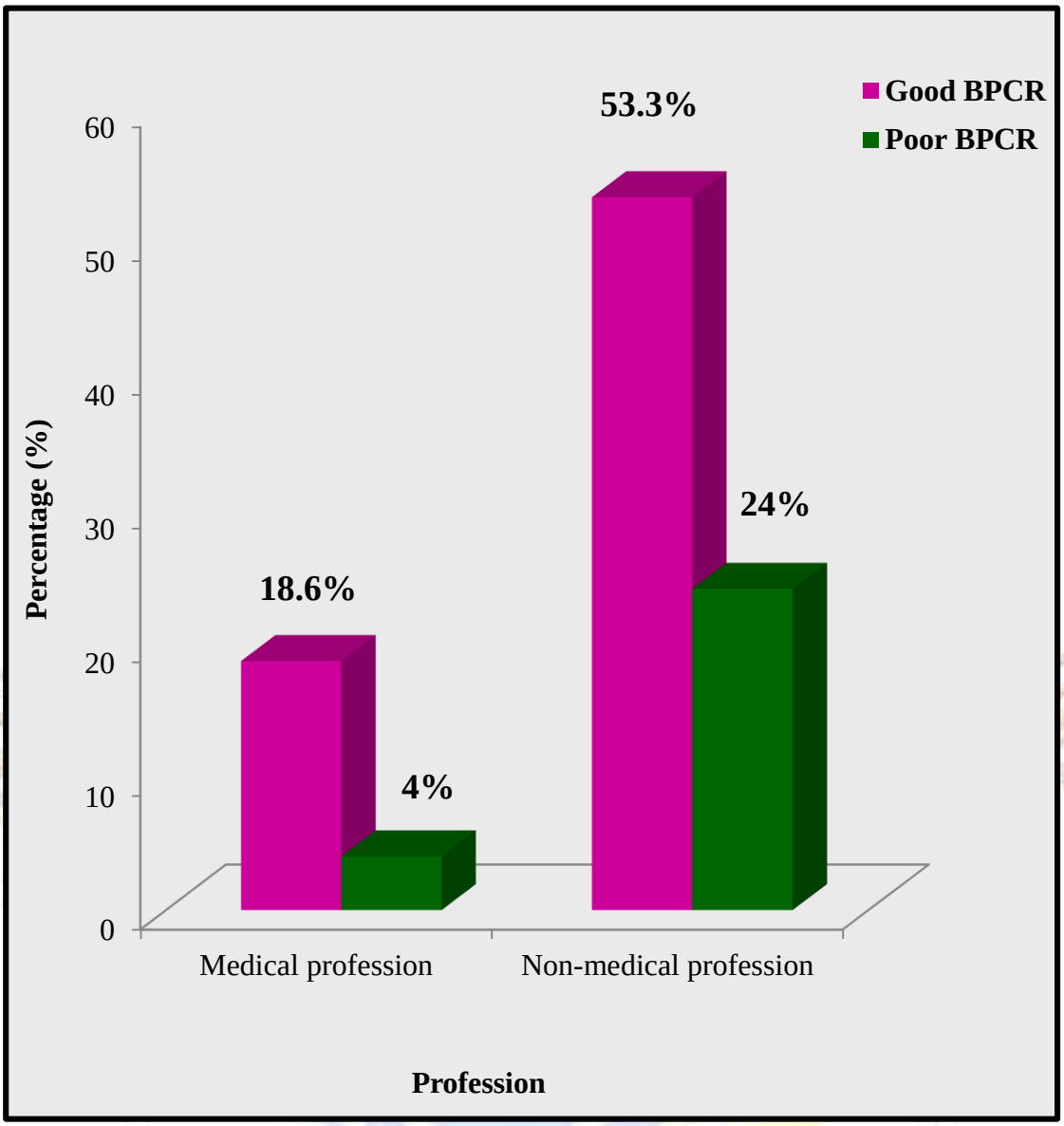

Figure 15: Birth Preparedness and Complication Readiness among antenatal women based on profession.

Figure 15 shows BPCR among an women based on profession. Among antenatal women with good BPCR, 53.3% belong to non-medical profession and 18.7% belong to medical profession. Among antenatal women with poor BPCR, 24% belong to non-medical profession and 4% belong to medical profession.

‘

n = 75

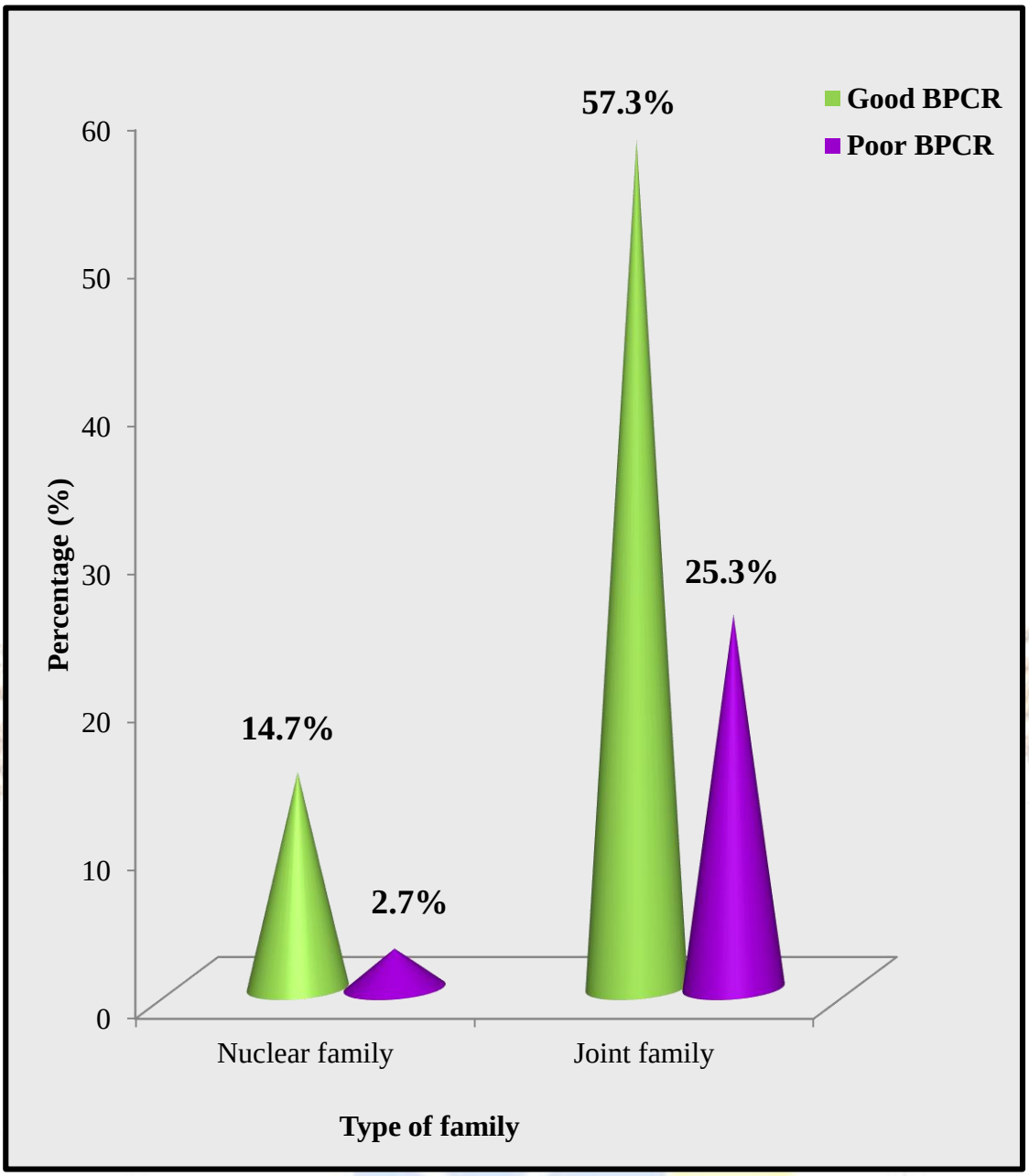

Figure 16: Birth Preparedness and Complication Readiness among antenatal women based on type of family.

Figure 16 shows BPCR among an women based on type of family. Among antenatal women with good BPCR, 57.3% belong to joint family and 14.7% belong to nuclear family. Among antenatal women with poor BPCR, 25.3% belong to joint family and 2.7% belong to nuclear family.

n = 75

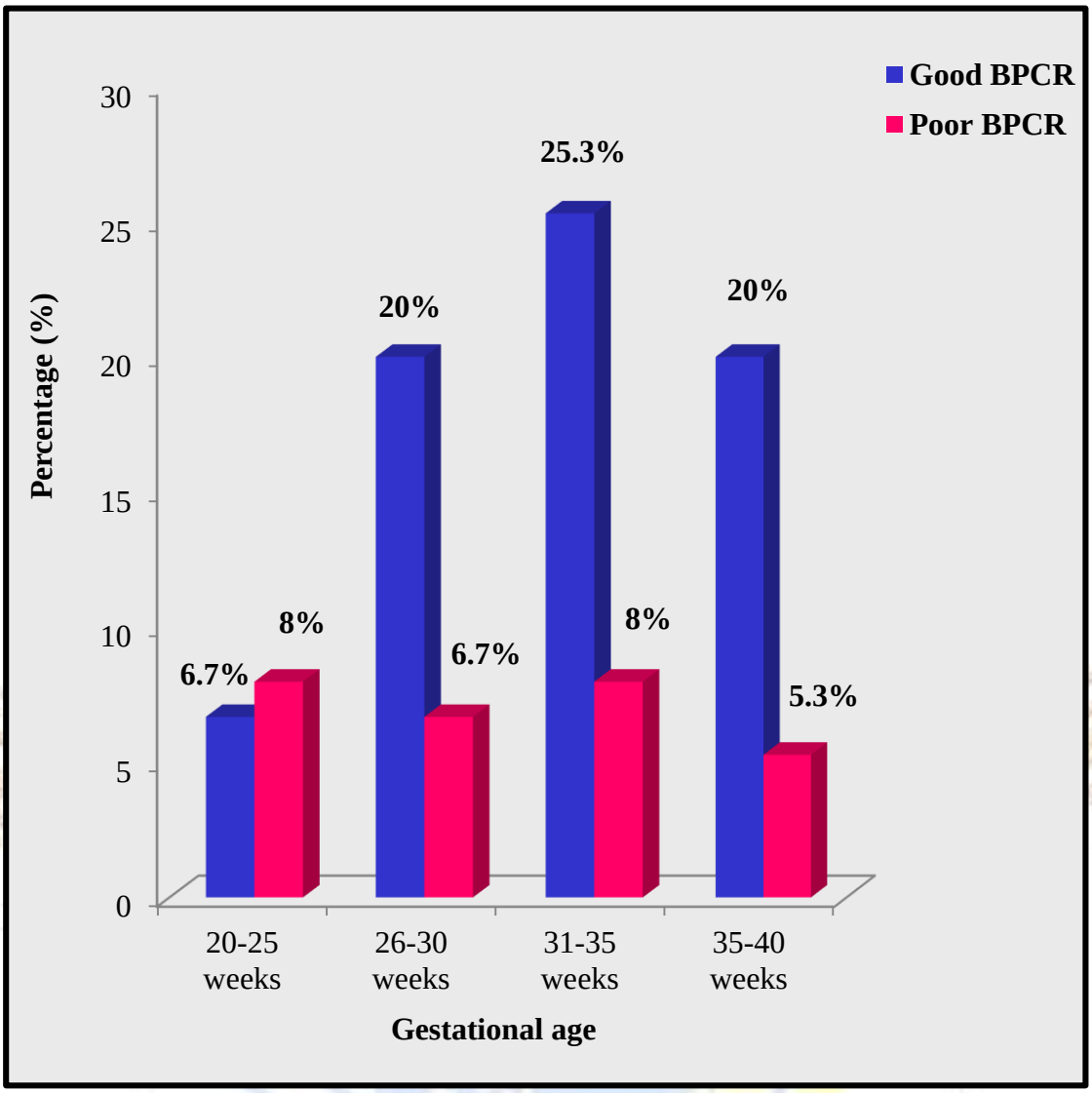

Figure 17: Birth Preparedness and Complication Readiness among antenatal woman based on gestational age

Figure 17 shows BPCR among an women based on gestational age. Among antenatal women with good BPCR, 23.3% belong to 31 to 35 weeks, 20% belong to 26 to 30 weeks and 35 to 40 weeks and 6.7% belong to 20 to 25 weeks of gestation. Among antenatal women with poor BPCR, 8% belong to 31 to 35 weeks and 20 to 25 weeks, 6.7% belong to 26 to 30 weeks and 5.3% belong to 35 to 40 weeks of gestation.

n = 75

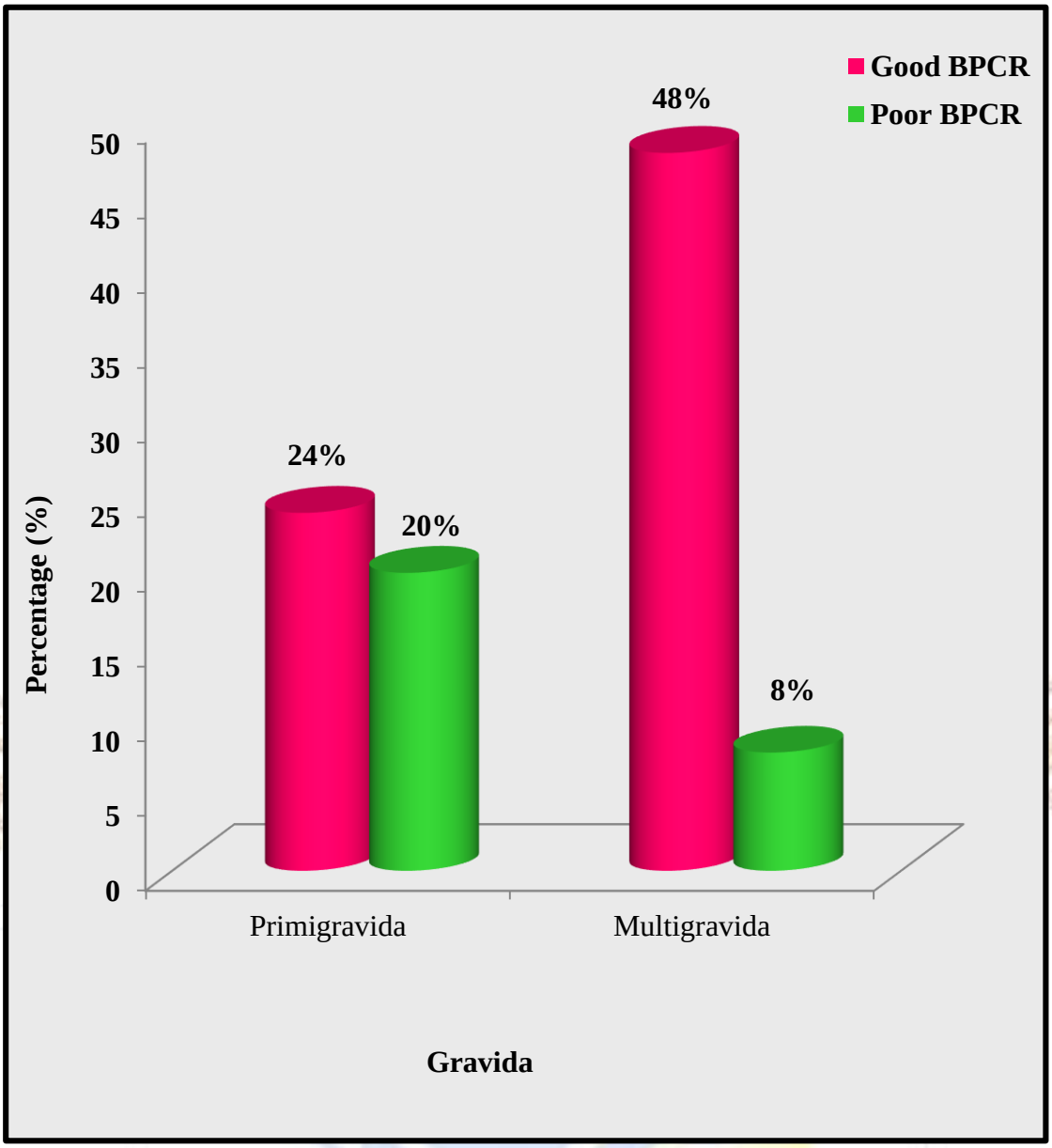

Figure 18: Birth Preparedness and Complication Readiness among antenatal women based on gravida.

Figure 18 shows BPCR among an women based on gravida. Among antenatal women with good BPCR, 48% belong to multigravida and 24% belong to primigravida women. Among antenatal women with poor BPCR, 20% belong to primigravida and 8% belong to multigravida women.

n = 75

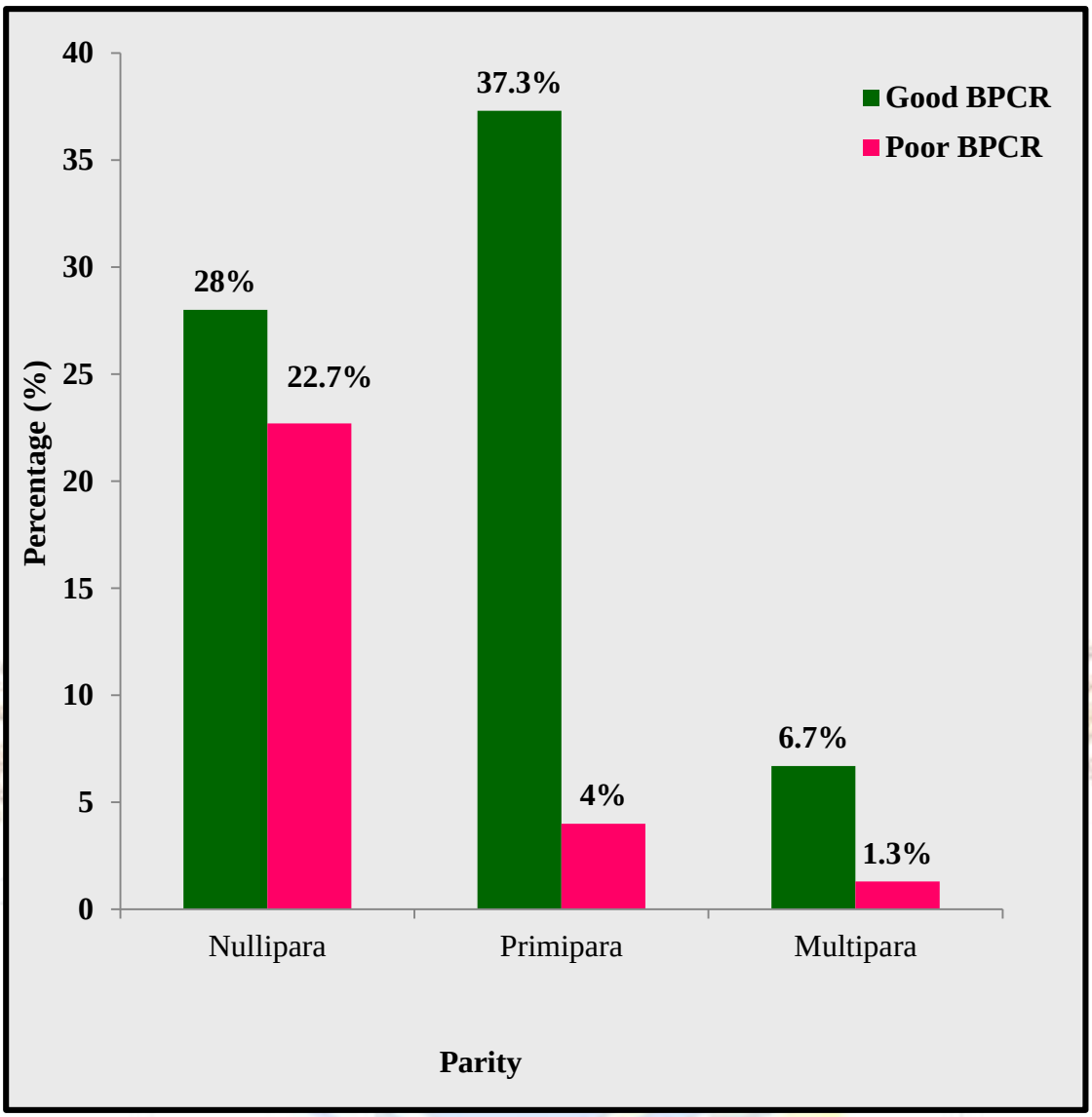

Figure 19: Birth Preparedness and Complication Readiness among antenatal women based on parity.

Figure 19 shows distribution of BPCR based on parity. Among antenatal women with good BPCR, 37.3% belong to primipara, 28% belong to nullipara and 6.7% belong to multipara women. Among antenatal women with poor BPCR, 22.7% belong to nullipara, 4% belongs to primipara and 1.3% belong to multipara women.

n = 75

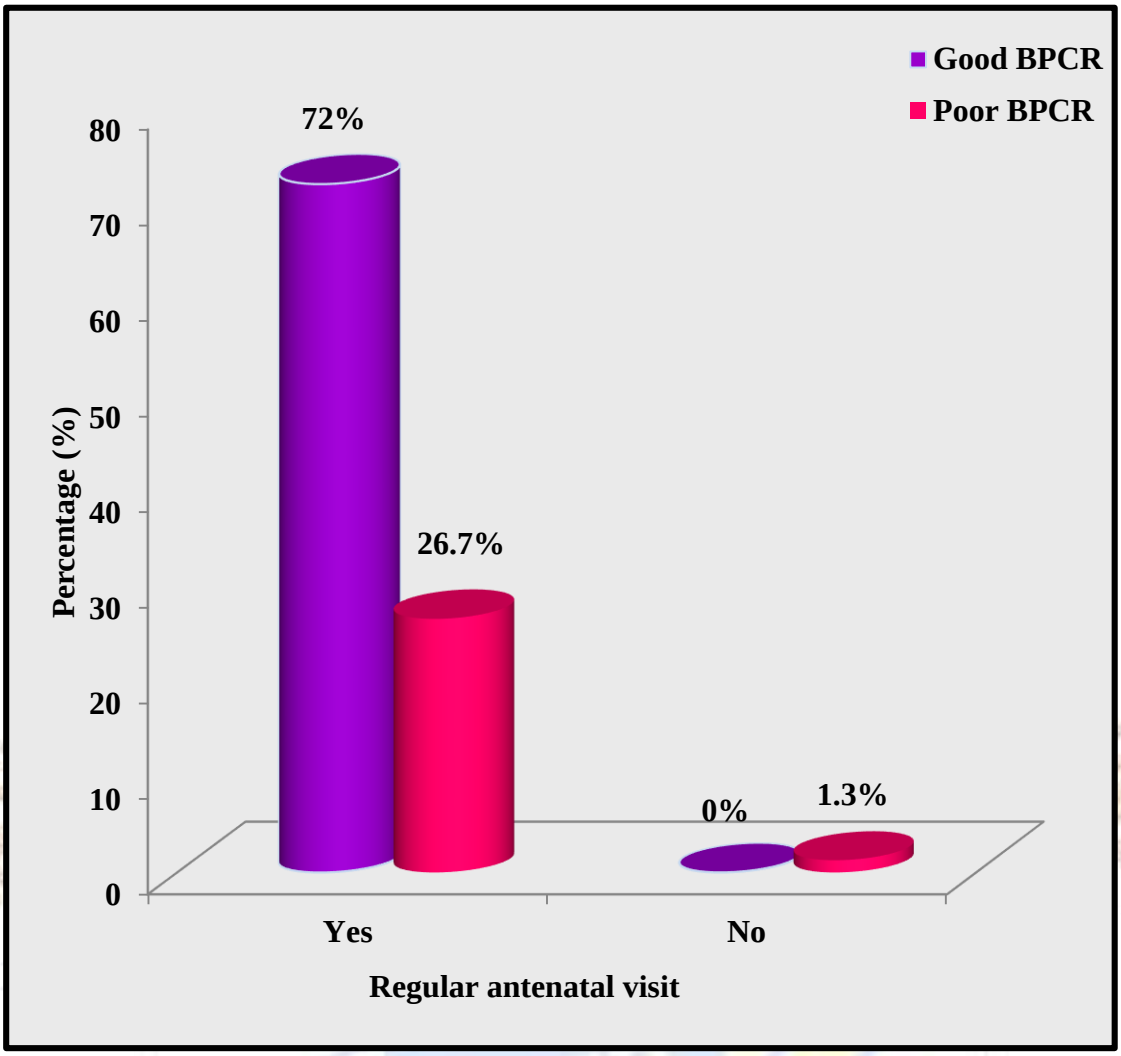

Figure 20: Birth Preparedness and Complication Readiness among antenatal women based on regular antenatal visits during present pregnancy.

Figure 20 shows BPCR among an women based on regular antenatal visits during pregnancy. Among antenatal women with good BPCR, 72% have attended regular antenatal visit. Among antenatal women with poor BPCR 26.7% have attended regular antenatal visit and 1.3% have not attended regular antenatal visit.

n = 75

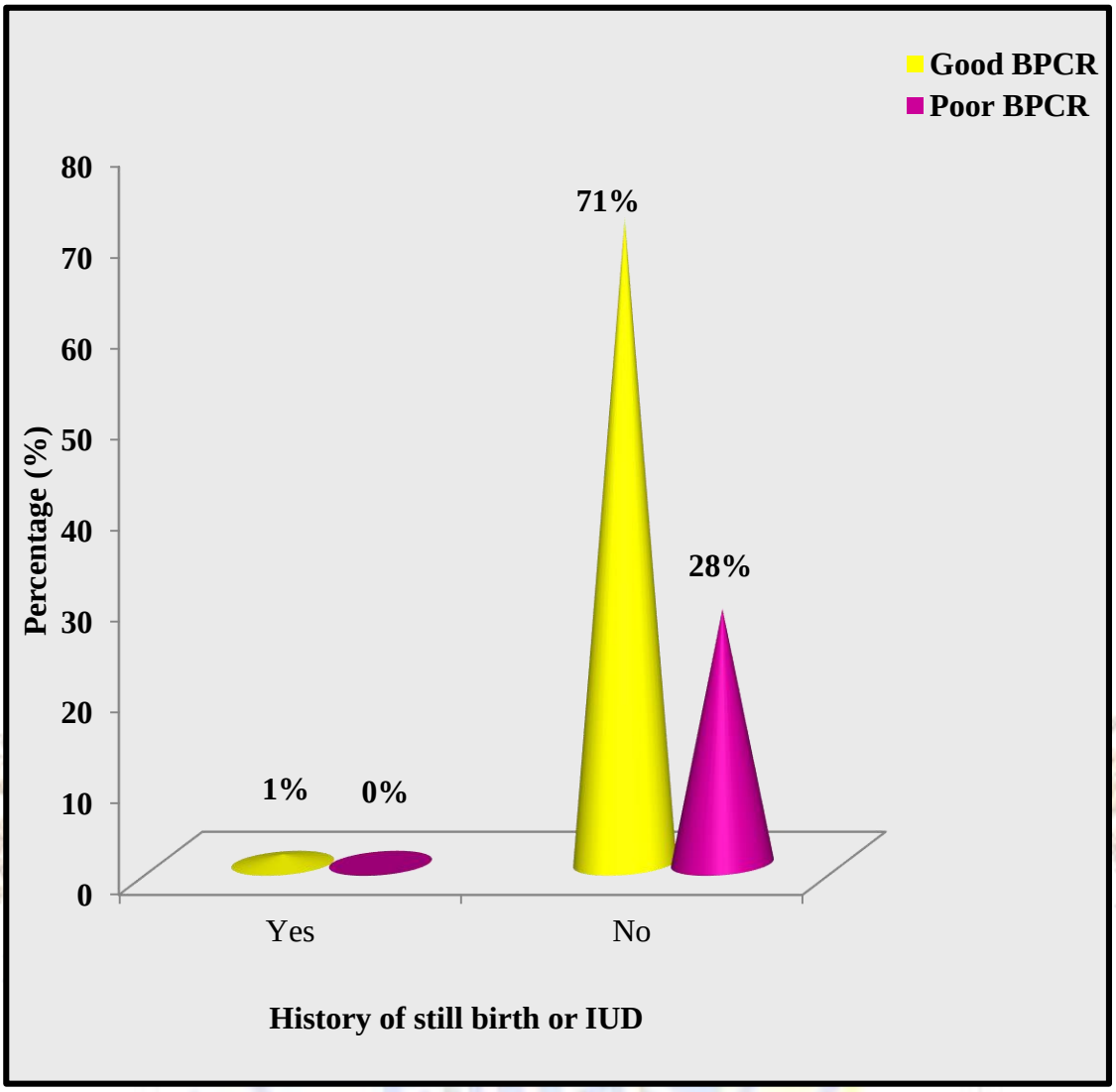

Figure 21: Birth Preparedness and Complication Readiness among antenatal women based on history of still birth or IUD.

Figure 21 shows distribution of BPCR among antenatal women based on history of stillbirth or IUD. Among antenatal women with good BPCR, 71% belong to no history of still birth or IUD and 1% belong to history of stillbirth or IUD. Among antenatal women with poor BPCR, 28% belong to no history of stillbirth or IUD.

n = 75

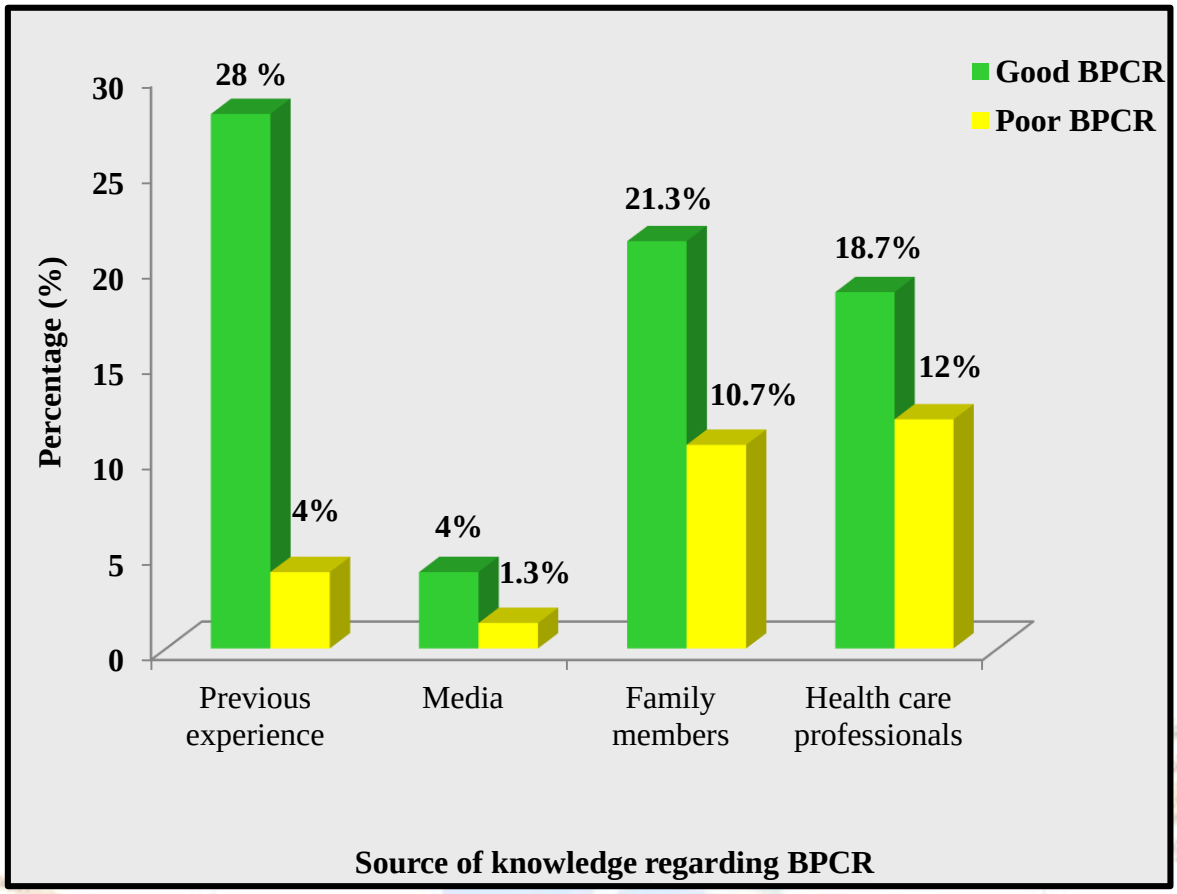

Figure 22: Birth Preparedness and Complication Readiness among antenatal women based on source of knowledge regarding BPCR.

Figure 22 shows distribution of BPCR among antenatal women based on source of knowledge regarding BPCR. Among antenatal women with good BPCR, 28% gained knowledge from previous experience, 21.3% gained knowledge from family members, 18.7% gained knowledge from health care professionals and 4% from media. Among antenatal women with poor BPCR, 12% gained knowledge form media, 10.7% gained knowledge from family members, 4% gained knowledge from previous experience and 1.3% gained knowledge from media.

n = 75

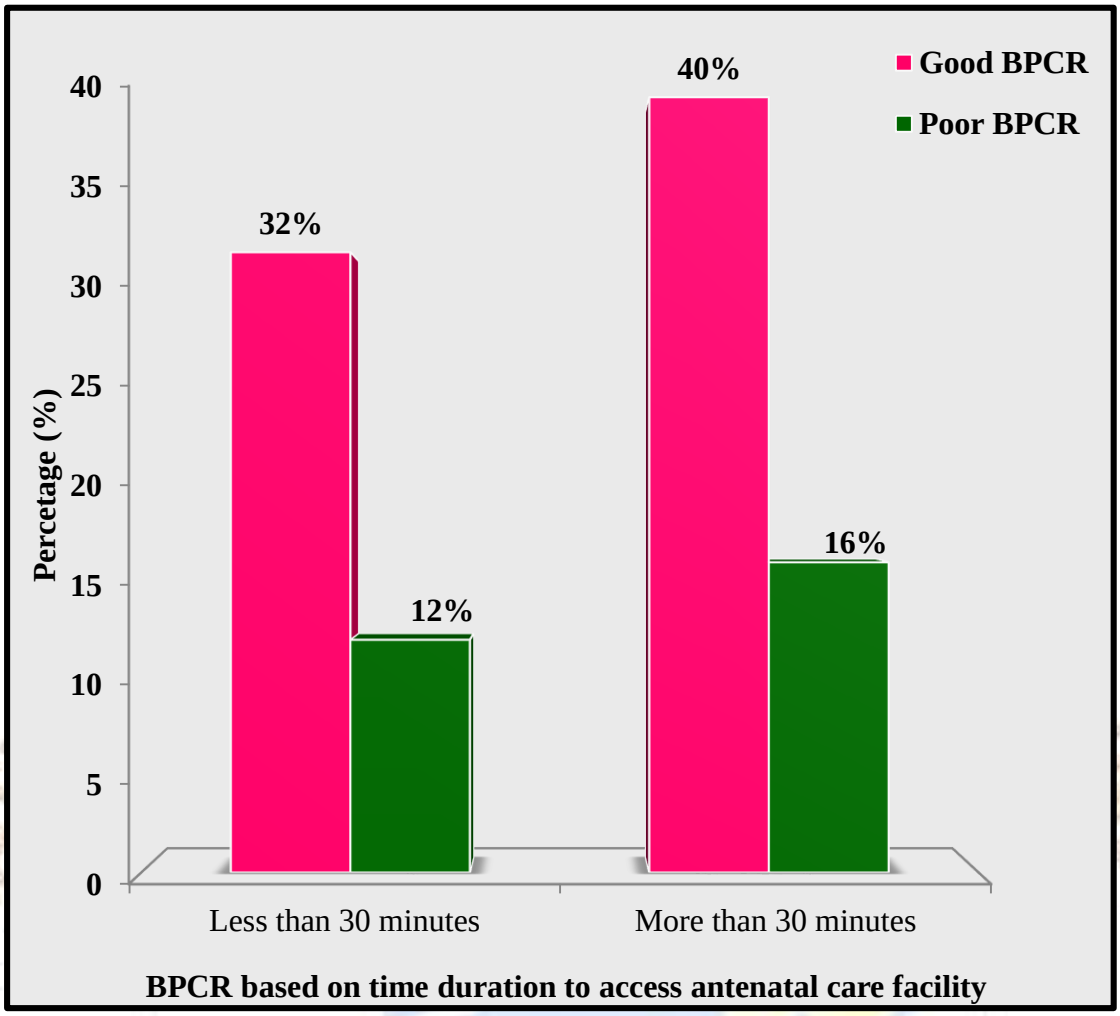

Figure 23: Birth Preparedness and Complication Readiness among antenatal women based on time duration to access antenatal care facility.

Figure 23 shows distribution of BPCR among antenatal women based on time duration to access antenatal health care facility. Among antenatal women with good BPCR, 40% have more than 30 minutes time duration to access antenatal health care facility and 32% have less than 30 minutes time duration to access antenatal health care facility. Among antenatal women with poor BPCR, 16% have more than 30 minutes time duration to access antenatal health care facility and 12% have less than 30 minutes time duration to access antenatal health care facility.

Section 6: Association of Birth Preparedness and Complication Readiness among antenatal women with sample characteristics.

To find the association of Birth Preparedness and Complication Readiness with selected sample characteristics, χ^2 value is computed. The significance level selected for testing hypothesis is 0.05.

H_0: There is no significant association between Birth Preparedness and Complication Readiness with sample characteristics.

Table 7: Association of Birth Preparedness and Complication Readiness with age.

n = 75

Age	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor(f)	Good (f)		
≤20 years	1	0	10.133	0.017*
21-25 years	10	11		
26-30 years	7	20		
≥30 years	3	23		

* Significant at 0.05 level

Table 7 shows association of Birth Preparedness and Complication Readiness with age. Obtained χ^2 value is statistically significant at 0.05 level. Hence the research hypothesis is accepted and there is significant association between Birth Preparedness and Complication Readiness and age.

Table 8: Association of Birth Preparedness and Complication Readiness with religion.

n = 75

Religion	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor(f)	Good (f)		
Christian	11	35		
Hindu	9	13	2.853	0.240^{ns}
Muslim	1	6		

ns non significant

Table 8 shows association of Birth Preparedness and Complication Readiness with religion. Obtained χ^2 value is statistically not significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and religion.

Table 9: Association of Birth Preparedness and Complication Readiness with educational status.

n = 75

Educational status	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
High school	0	4		
Higher Secondary	1	5	2.185	0.335^{ns}
Graduation and above	20	45		

ns non significant

Table 9 shows association of Birth Preparedness and Complication Readiness with educational status. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and educational status.

Table 10: Association of Birth Preparedness and Complication Readiness with occupation.

n = 75

Occupation	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Yes	6	16	0.008	0.583
No	15	38		

ns non significant

Table 10 shows association of Birth Preparedness and Complication Readiness with occupation. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and occupation.

Table 11: Association of Birth Preparedness and Complication Readiness with profession.

n = 75

Profession	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Medical profession	3	14	0.280	0.366^{ns}
Non-medical profession	18	40		

ns non significant

Table 11 shows association of Birth Preparedness and Complication Readiness with profession. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and profession.

Table 12: Association of Birth Preparedness and Complication Readiness with type of family.

n = 75

Type of family	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Nuclear family	2	11	0.265	0.224^{ns}
Joint family	19	43		

ns non significant

Table 12 shows association of Birth Preparedness and Complication Readiness with type of family. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and type of family.

Table 13: Association of birth preparedness and complication readiness with monthly family income.

n = 75

Monthly family income	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
≥30000	12	28		
20000-29999	5	16		
10000-19999	3	8	0.307	0.959^{ns}
≤10000	1	2		

ns non significant

Table 13 shows association of Birth Preparedness and Complication Readiness with type of family. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and monthly family income.

Table 14: Association of Birth Preparedness and Complication Readiness with gestational age.

n = 75

Gestational age	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
20 - 25 weeks	6	5	4.587	0.205^{ns}
26 - 30 weeks	5	15		
31 - 35 weeks	6	19		
36 - 40 weeks	4	15		

ns non significant

Table 14 shows association of Birth Preparedness and Complication Readiness with type of family. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and gestational age.

Table 15: Association of Birth Preparedness and Complication Readiness with gravida.

n = 75

Gravida	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Primigravida	15	18	8.905	0.003*
Multigravida	6	36		

* Significant at 0.05 level

Table 15 shows association of Birth Preparedness and Complication Readiness with gravida. Obtained χ^2 value is statistically significant at 0.05 level. Hence the research hypothesis is accepted and there is significant association between Birth Preparedness and Complication Readiness and gravida.

Table 16: Association of Birth Preparedness and Complication Readiness with parity.

n = 75

Parity	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Nullipara	17	21		
Primipara	3	28	10.825	0.004*
Multipara	1	5		

* Significant at 0.05 level

Table 16 shows association of Birth Preparedness and Complication Readiness with parity. Obtained χ^2 value is statistically significant at 0.05 level. Hence the research hypothesis is accepted and there is significant association between Birth Preparedness and Complication Readiness and parity.

Table 17: Association of Birth Preparedness and Complication Readiness with regular antenatal visit during present pregnancy.

n = 75

Regular antenatal visit during present pregnancy	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Yes	20	54	2.606	0.280^{ns}
No	1	0		

ns non significant

Table 16 shows association of Birth Preparedness and Complication Readiness with regular antenatal visit during present pregnancy. Obtained χ^2 value is statistically not significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and regular antenatal visit during present pregnancy.

Table 18: Association of Birth Preparedness and Complication Readiness with history of still birth or IUD.

n = 75

History of still birth or IUD	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Yes	0	1	0.394	0.530^{ns}
No	21	53		

ns non significant

Table 18 shows association of Birth Preparedness and Complication Readiness with history of still birth or IUD. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association of Birth Preparedness and Complication Readiness and history of still birth or IUD.

Table 19: Association of Birth Preparedness and Complication Readiness with source of knowledge regarding BPCR.

n = 75

Source of knowledge regarding BPCR	Birth preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Previous experience	3	21	4.630	0.201^{ns}
Media	1	3		
Family members	8	16		
Health care professionals	9	14		

ns non significant

Table 19 shows association of Birth Preparedness and Complication Readiness with source of knowledge regarding BPCR. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and source of knowledge regarding BPCR.

Table 20: Association of Birth Preparedness and Complication Readiness with time duration to access antenatal health care facility.

n = 75

Duration to access antenatal health care facility	Birth Preparedness and Complication Readiness		χ^2value	p value
	Poor (f)	Good (f)		
Less than 30 minutes	9	24	0.015	0.901^{ns}
More than 30 minutes	12	30		

ns non significant

Table 20 shows association of Birth Preparedness and Complication Readiness with time duration to access antenatal health care facility. Obtained χ^2 value is not statistically significant at 0.05 level. Hence the null hypothesis is accepted and there is no significant association between Birth Preparedness and Complication Readiness and time duration to access antenatal health care facility.

Summary

This chapter describes the analysis of the research data with the help of descriptive and inferential statistics and the interpretation of research data. In this study, 72% of antenatal women have good BPCR and 28% have poor BPCR. Also 28% of antenatal women have good knowledge regarding danger signs and 72% have poor knowledge regarding danger signs. There is significant association between Birth Preparedness and Complication Readiness and age, parity and gravida.

CHAPTER 5

RESULT

The present study assessed the Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs of selected hospital, Ernakulam. The data obtained from 75 antenatal women are analyzed and finding are presented based on the objectives.

Objectives

1. To assess Birth Preparedness and Complication Readiness among antenatal women.
2. To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

Results

The results of the present study were discussed as per the objectives.

Description of sample characteristics.

- With regard to age of the sample, 36% belong to 26 to 30 years, 34.7% belong to ≥ 30 years, 28% belongs to 21 to 25 years and 1.3% belongs to ≤ 20 years of age.
- Regarding the religion, 61.3% were Christians, 29.3% were Hindus and 9.3% were Muslims.
- Considering educational status, 86.7% were graduates and above, 8% were having higher secondary education and 5.3% were having high school education.
- Regarding occupation, 29.3% were employed and 70.7% were unemployed.
- Considering profession, 22.7% were medical professionals and 77.3% were non-medical professionals.
- With regard to type of family, 17.3% belong to nuclear family and 82.7% belongs to joint family.
- Considering monthly family income, 53.3% were having ≥30000 rupees, 28% were having 20000-29999 rupees, 14.7% were having 10000-19999 rupees and 4% were having ≤10000 rupees.
- Regarding gestational age, 33.3% belong to 31 to 35 weeks, 26.7% belong to 26 to 30 weeks, 25.3% belong to 36 to 40 weeks and 14.7% belong to 20 to 25 weeks of gestation.

- Considering gravida, 56% were multigravida and 44% were primigravida.
- Regarding parity, 50.7% were nullipara, 41.3 % were primipara and 8% were multipara women.
- Considering regular antenatal visit during present pregnancy, 98.7% had regular antenatal visits and 1.3% had no regular antenatal visits.
- Regarding history of still birth or IUD, 98.7% had no history of still birth or IUD and 1.3% had history of still birth or IUD.
- Considering source of knowledge regarding BPCR, 32% gained knowledge from previous experience and family members, 30.7% got knowledge from health care professionals and 5.3% got knowledge from media.
- Regarding time duration to access antenatal health care facility, 56% had more than 30 minutes and 44% had less than 30 minutes to access the health care facility.

Objective 1: To assess Birth Preparedness and Complication Readiness among antenatal women.

- The Birth Preparedness and Complication Readiness among antenatal women was found that 72% had good BPCR and 28% had poor BPCR.
- Regarding the elements of BPCR, 28% had knowledge of danger signs, 96% had identified a desired place of birth, 74.7% prepared transport to the health care facility for the birth and emergency, 94.7% identified skilled birth attendant/ provider, 85.3% saved money for birth related and emergency expenses, 13.3% identified and arranged a compatible blood donor, 98.7% planned/ attended at least 4 antenatal care visit with a skilled provider, 90.7% women attended first antenatal care visit with skilled care provider during first trimester, 25.3% identified and prepared essential items for child birth and 62.7% identified support in looking after the home and children while at the health facility.
- The knowledge regarding danger sign among antenatal women was found that 72% had poor knowledge and 28% had good knowledge.
- With regard to knowledge of identified danger signs during pregnancy, 48% identified vaginal bleeding, 40% identified high BP, 16% identified water break without labour, 9.3% identified swollen hands or

face, 5.3% identified early labour pain before 36 weeks, 4% identified accelerated or reduced fetal movements, 2.7% identified severe headache and 1.3% identified blurred vision, high fever, convulsion, loss of consciousness and tiredness or breathlessness.

- Considering knowledge of identified danger signs during labour, 37.3% identified severe bleeding, 30% identified high BP, 5.3% identified high fever, 2.7% identified loss of consciousness, 1.3% identified severe headache, convulsion, labour lasting more than 12 hours and none of them identified placenta not delivered within 30 minutes after delivery of baby.
- Regarding knowledge of identified danger signs during puerperium, 37.3% identified severe bleeding, 10% identified pain and swelling of breast, 6.7% identified high fever, 1.3% identified severe headache, blurred vision, swollen hands/ face and none of them identified difficult breathing or loss of consciousness.
- With regard to knowledge of identified danger signs for newborn, 34.7% identified yellow skin or eye colour (jaundice), 29.3% identified baby very small, 16% identified difficulty or fast breathing, feeding problems, 6.7% identified pus, bleeding or discharge from around the umbilical cord, 4% identified convulsion\spasm\rigidity, 2.7% identified lethargy or unconsciousness and none of them identified skin lesions or blisters, red or swollen eyes with pus.
- Among the sample, highest percentage of good BPCR was identified among >30 years of age group 30.7%, Christians 46.7%, graduates and above 60%, unemployed women 50.7%, non-medical professionals 53.3%, joint family 57.3%, 31 to 35 weeks of gestation 23.3%, multigravida women 48%, primipara women 37.3%, regular antenatal visits during present pregnancy 72%, no history of stillbirth of IUD 71%, knowledge of BPCR from previous experience 28% and time duration of less than 30 minutes to access health care facility 32%.

Objective 2: To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

- The sample characteristics such as age (χ^2=10.133, p=0.017), gravida (χ^2=8.905, p=0.003) and parity (χ^2=10.825, p=0.004) have significant association between Birth Preparedness and Complication Readiness and sample characteristics at 0.05 level. Hence null hypothesis was rejected and research hypothesis was accepted.
- Religion (χ^2=2.853, p=0.240), educational status (χ^2=2.185, p=0.335), occupation (χ^2=0.008, p=0.583), profession (χ^2=0.280, p=0.366), type of family(χ^2 =0.265, p=0.224), monthly family income (χ^2=0.307, p=0.959), gestational age (χ^2=4.587, p=0.205), regular antenatal visit (χ^2=2.606, p=0.280), history of still birth or IUD (χ^2=0.394, p=0.530), source of knowledge regarding BPCR (χ^2=4.630, p=0.201) and time duration to access antenatal health care facility (χ^2=0.015, p=0.901) have no significant association between birth preparedness and complication readiness and sample characteristics at 0.05 level. Hence the null hypothesis was accepted and research hypothesis was rejected.

Summary

This chapter dealt overall view of entire findings of the study. The results were presented based on the objectives such as to assess the Birth Preparedness and Complication Readiness and to find the association of Birth Preparedness and Complication Readiness with sample characteristics.

CHAPTER 6

DISCUSSION, SUMMARY AND CONCLUSION

The findings of the study were discussed based on the objectives and assumptions. The study was focused to assess Birth Preparedness and Complication Readiness among antenatal women and the data were collected using structured interview from 75 antenatal women and analyzed using descriptive and inferential statistics.

Objectives

1. **Objective 1:** To assess Birth Preparedness and Complication Readiness among antenatal women.
2. **Objective 2:** To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

Objective 1: To assess Birth Preparedness and Complication Readiness among antenatal women.

The results of the present study show that 72% of antenatal women have good Birth Preparedness and Complication Readiness and 28% have poor Birth Preparedness and Complication Readiness.

It also supports the cross-sectional study conducted by Saha Rajib et al. (2013) to assess status of BPCR among 210 rural mothers by cluster sampling in West Bengal, India. Data was collected by structured interview using JHPIEGO Maternal and Neonatal Health Programme survey tool. Results showed that 62.4% mothers had good BPCR[11].

It supports the cross sectional study conducted by Karmee M (2018) to assess Birth Preparedness and Complication Readiness among randomly selected 96 pregnant and recently delivered women using semi-structured questionnaire in Odisha, India. The results showed that BPCR index was 44.6% [18].

The results of the present study support the community based descriptive cross sectional study conducted by Dimtsu B and Bugssa G (2013) on knowledge and practice towards Birth Preparedness and Complication Readiness among 220 women who were selected using multistage cluster sampling procedure in Mekelle Town, Northern Ethiopia. Data were collected using structured questionnaire. The results showed that 75% of participants had knowledge and 44% had practice regarding BPCR [21].

The present study shows that 28% of antenatal women have good knowledge and 72% have poor knowledge regarding the danger sign.

It supports the community based cross-sectional study conducted by Mesay H, Abebe G and Fessahaye A (2018) on knowledge of obstetric danger signs among 812 pregnant women in Aleta Wondo district, Sidama Zone, Southern Ethiopia. A structured questionnaire was used to collect quantitative data by multistage sampling technique. The results showed that 30.4%, 41.3% and 37.7% knew at least two danger signs during pregnancy, childbirth and postpartum period respectively[24].

It also supports the cross-sectional survey conducted by Ania S et.al. (2015) on knowledge of obstetric danger signs among 372 women in rural Madagascar. Data were collected using questionnaire through non-random convenience sampling technique. The results showed that knowledge of at least one danger sign varied from 80.9% of women knowing danger sign(s) in pregnancy to 51.9%, 50.8% and 53.2% at delivery, postpartum and in the newborn, respectively[25].

The present study shows that, regarding the standard elements of BPCR, 28% had knowledge of danger signs, 96% had identified a desired place of birth, 74.7% prepared transport to the health care facility for the birth and emergency, 94.7% identified skilled birth attendant/ provider, 85.3% saved money for birth related and emergency expenses, 13.3% identified and arranged a compatible blood donor, 98.7% planned/ attended at least 4 antenatal care visit with a skilled provider, 90.7% women attended first antenatal care visit with skilled care provider during first trimester, 25.3% identified and prepared essential items for child birth and 62.7% identified support in looking after the home and children while at the health facility.

The results of the present study was supported by the cross-sectional study conducted by Ennegrace Nkya (2017) on factors affecting level of awareness of Birth Preparedness and Complication Readiness among 737 women attending reproductive and child health clinics in Nyamagana district. Data was collected by using a structured questionnaire adapted from the JHPIEGO through random sampling technique. The result shows that awareness on danger signs was 40%, preferred birth attendant 0.3%, identified compatible blood donors are 0.7%, location of the closest appropriate health care facility 6.5%, identified desired place of giving birth 7.9%, support in looking after the home and children while at the health facility 18.9%,

arranged transport to the health facility for birth 30%, saving birth related emergency expenses 57.3% and identified essential items for clean birth 94.6%[34].

This study is supported by the cross-sectional study conducted by Acharya A S et al. (2012) to assess Birth Preparedness and Complication Readiness among 417 antenatal mothers by total enumeration sampling using semi- structured interview schedule at Primary Health Centre, Palam, New Delhi. The results showed that level of BPCR index was 41%. Status of BPCR revealed that, 81.1% had identified a skilled attendant at birth for delivery, 48.9% had saved money for delivery, 44.1% identified a mode of transportation for the delivery, 42.9% were aware about early registration of pregnancy and 27.8% women knew about any one danger sign of pregnancy[1].

Objective 2: To find the association of Birth Preparedness and Complication Readiness with sample characteristics.

The present study shows that the sample characteristics such as age (χ^2=10.133, p=0.017), gravida (χ^2=8.905, p=0.003) and parity (χ^2=10.825, p=0.004) have significant association with Birth Preparedness and Complication Readiness among antenatal women. Religion (χ^2=2.853, p=0.240), educational status (χ^2=2.185, p=0.335), occupation (χ^2=0.008, p=0.583), profession (χ^2=0.280, p=0.366), type of family (χ^2 =0.265, p=0.224), monthly family income (χ^2=0.307, p=0.959), gestational age (χ2=4.587, p=0.205), regular antenatal visit (χ^2=2.606, p=0.280), history of still birth or IUD (χ^2=0.394, p=0.530), source of knowledge regarding BPCR (χ^2=4.630, p=0.201) and time duration to access antenatal health care facility (χ^2=0.015, p=0.901) have no significant association with Birth Preparedness and Complication Readiness among antenatal women at 0.05 level.

The results of the present study is supported by the descriptive cross sectional study conducted by Dasanayake DLW, Ganewatta SMT, Rathnayaka N (2016) to assess knowledge and practices on Birth Preparedness and Complication Readiness and associated factors among 200 third trimester antenatal mothers; attending antenatal clinic of Teaching Hospital Mahamodara (THM) Southern province, Sri Lanka. Self-administered questionnaire was used to collect the data through consecutive sampling technique. The results showed that there were statistically significant positive association of knowledge on BPCR with ethnicity (p = 0.03), family income (p = 0.04) and parity (p = 0.03). There was statistically significant

positive association with better educational level (OR=0.31, 95% CI=0.11 to 0.91) and planned pregnancy (OR=0.26, 95% CI=0.10 to 0.70) with level of practice on BPCR[30].

The present study is also supported by a cross sectional study conducted by Nitika S et al. (2016) to assess the status and socio demographic determinants of Birth Preparedness and Complication Readiness among 200 women who have experienced motherhood recently in a rural block of Haryana. Predesigned and pretested close and open-ended questions were used through multistage cluster sampling. The result showed that education (p=0.010) and occupation (p=0.002) of participants, education of participant's husband (p=0.016), socioeconomic status (p=0.005) and caste (p=0.017) were found to be significantly associated with BPCR[31].

Summary

The present study assessed the level of Birth Preparedness and Complication Readiness among antenatal women by interview technique. The study was carried out in Obstetrical OPDs of Lourdes hospital, Ernakulam among 75 antenatal women from 20 weeks of gestation by non-probability convenience sampling. The tools used for the study were sample characteristics and maternal Birth Preparedness and Complication Readiness assessment tool. The results of the study revealed that among antenatal women, 72% of have good BPCR and 28% have poor BPCR whereas, 72% of have poor knowledge regarding danger sign and 28% have good knowledge regarding danger signs. There is significant association between Birth Preparedness and Complication Readiness with age, parity and gravidity.

Conclusion

Good Birth Preparedness and Complication Readiness among antenatal women give an opportunity to reduce maternal and neonatal mortality rate at the maximum and provide optimal care of mother and the baby. The present study assessed level of Birth Preparedness and Complication Readiness, knowledge of danger signs and associated factors among antenatal women using a simple and cost effective tool.

Nursing implication

The findings of the study have several implications for nursing education, nursing practice, nursing administration and nursing research.

Implication of nursing practice

- Nurse should assess the Birth Preparedness and Complication Readiness among antenatal women and collaborate with appropriate antenatal education and care.
- The nurse must be efficient in communicating with clients, participating in briefing session and clear their concerns and queries on prevention and management of danger signs during pregnancy, intrapartum, puerperium and for the newborn.

Implication of nursing education

- Nursing students should be equipped with current knowledge on BPCR in reduction of maternal and neonatal mortality and morbidity rates.
- Conduct health teaching program in early identification of danger signs among antenatal women.
- Nurses should participate in continuing education to update knowledge on BPCR.
- The nurse should be equipped with up to date knowledge and importance of maternal Birth Preparedness and Complication Readiness and prevention of complication during pregnancy, labour, puerperium and for newborn.

Implication of nursing administration

- Nursing administrators can arrange programs on awareness of Birth Preparedness and Complication Readiness for antenatal women to improve maternal and neonatal outcome.
- Nursing administrators should take initiation in creating policies and plans in providing education on prevention, early detection and management of danger signs among antenatal women.
- Initiation on development of medical camps especially in rural areas for improving BPCR among antenatal women.
- In service education should be organized to all nursing personnel to update knowledge regarding BPCR and related factors.

Nursing research

- The study findings can be used as reference to health workers to implement awareness on BPCR among antenatal women.
- The results of the present study can be used as a guide for further nursing research.

- Assessment tool prepared by the researcher can be used by health care provider.

Limitation

- The findings of the study were limited for generalization because of the unequal distribution of sample characteristics and small sample size.

Recommendation

On the basis of the present study, the following recommendations have been made for future study.

- A similar study can be conducted for a larger sample which might yield more reliable result.
- The similar study can be conducted in a community setting.
- A comparative study can be conducted among urban and rural population.
- An interventional study can be undertaken with control group.
- A study can be conducted to assess factors which affect the Birth Preparedness and Complication Readiness.

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Muhimbili University of Health and Allied Sciences).

APPENDIX –A

ABBREVIATONS

f : Frequency

% : Percentage

OPD : Outpatient department

WHO : World Health Organization

BPCR : Birth Preparedness and Complication Readiness

UNICEF : United Nations Children's Fund

MMR : Maternal Mortality Ratio

NMR : Neonatal Mortality Rate

JHPIEGO : Johns Hopkins Program for International Education in Gynaecology and Obstetrics

AOR : Adjusted Odds Ratio

CI : Confidence Interval

APPENDIX –B

APPROVAL LETTER FROM ETHICS COMMITTEE

APPENDIX –C

LETTER REQUESTING PERMISSION FROM DIRECTOR, LOURDES HOSPITAL FOR CONDUCTING PILOT AND RESEARCH STUDY

Enlightened to lighten

LOURDES COLLEGE *of* NURSING ERNAKULAM

Sidhi Sadan

LCN M/08/118/2020 **01.12.2020**

To,

Rev. Fr. Shaiju Augustine Thoppil
Director
Lourdes Hospital, Ernakulam.

Respected Father,

Sub: Requesting permission for conducting the pilot study and research study.

Ms. Delphy Varghese, postgraduate student of our institution. She has selected the below mentioned topic for research study to be submitted to the Kerala University of Health Science as a partial fulfilment for the degree of Master of Science in Nursing.

Topic: A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.

Besides, synopsis of the above study was submitted to the Institutional Ethics Committee and obtained ethics clearance on 17-07-2020.

Kindly permit her to conduct the pilot study during the month of December 2020 and main study during January 2021 at Obstetric OPDs of Lourdes Hospital, Ernakulam. The faculty of our college will ensure that the student will adhere to the confidentiality and discipline involved in conducting the above research study. Further details of the study if required will be furnished by the student personally. Please do the needful.

Thank you

Yours faithfully

Josy A Mathew

Prof. Josy A Mathew
VICE PRINCIPAL

LOURDES COLLEGE OF NURSING SIDHI SADAN CHEMBUMUKKU, ERNAKULAM - 682021 ENLIGHTENED TO LIGHTEN

Sanctioned
2/12/20

A unit of
Lourdes Hospital
Ernakulam

Recognized by; Govt. of Kerala
Approved by; Indian Nursing Council, New Delhi
Kerala Nurses' & Midwives Council, Tvm
Affiliated to; Kerala University of Health Sciences, Thrissur
M.G. University, Kottayam

Chembumukku, Thrikkakkara P.O., Kochi-682021
Kerala, India. Phone: +91-484-2422143, 2421998
Fax: 0484-2422114
Email: lourdescollegeofnursing@gmail.com
www.lourdescollegeofnursing.in

APPENDIX –D

LETTER REQUESTING PERMISSION FROM NURSING SUPERINTENDENT, LOURDES HOSPITAL FOR CONDUCTING PILOT AND RESEARCH STUDY

Enlightened to lighten

LOURDES COLLEGE *of* NURSING ERNAKULAM

Sidhi Sadan

LCN M/08/120/2020 **01.12.2020**

To,

Sr. Sarita Philip
Nursing Superintendent
Lourdes Hospital, Ernakulam.

Respected Sister,

Sub: Requesting permission for conducting the pilot study and research study.

Ms. Delphy Varghese, postgraduate student of our institution. She has selected the below mentioned topic for research study to be submitted to the Kerala University of Health Science as a partial fulfilment for the degree of Master of Science in Nursing.

Topic: A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.

Besides, synopsis of the above study was submitted to the Institutional Ethics Committee and obtained ethics clearance on 17-07-2020.

Kindly permit her to conduct the pilot study during the month of December 2020 and main study during January 2021 at Obstetric OPDs of Lourdes Hospital, Ernakulam. The faculty of our college will ensure that the student will adhere to the confidentiality and discipline involved in conducting the above research study. Further details of the study if required will be furnished by the student personally. Please do the needful.

Thank you

Yours faithfully

Josy A Mathew
Prof. Josy A Mathew
VICE PRINCIPAL

LOURDES COLLEGE OF NURSING SIDHI SADAN CHEMBUMUKKU ERNAKULAM - 682021

SR. SARITA PHILIP
Nursing Superintendent
LOURDES HOSPITAL
KOCHI-682 012
KERALA, INDIA

A unit of
Lourdes Hospital
Ernakulam

Recognized by; Govt. of Kerala
Approved by; Indian Nursing Council, New Delhi
Kerala Nurses' & Midwives Council, Tvm
Affiliated to; Kerala University of Health Sciences, Thrissur
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APPENDIX –E

LETTER REQUESTING PERMISSION FROM HOD, OBSTETRICS AND GYNAECOLOGY DEPARTMENT, LOURDES HOSPITAL FOR CONDUCTING PILOT AND RESEARCH STUDY

Enlightened to lighten

LOURDES COLLEGE *of* NURSING ERNAKULAM

Sidhi Sadan

LCN M/08/119/2020 **01.12.2020**

To,

Dr. Praveena Elizabeth Joseph
HOD, Obstetrics and Gynaecology Department
Lourdes Hospital, Ernakulam.

Respected Madam,

Sub: Requesting permission for conducting the pilot study and research study.

Ms. Delphy Varghese, postgraduate student of our institution. She has selected the below mentioned topic for research study to be submitted to the Kerala University of Health Science as a partial fulfilment for the degree of Master of Science in Nursing.

Topic: A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.

Besides, synopsis of the above study was submitted to the Institutional Ethics Committee and obtained ethics clearance on 17-07-2020.

Kindly permit her to conduct the pilot study during the month of December 2020 and main study during January 2021 at Obstetric OPDs of Lourdes Hospital, Ernakulam. The faculty of our college will ensure that the student will adhere to the confidentiality and discipline involved in conducting the above research study. Further details of the study if required will be furnished by the student personally. Please do the needful.

Thank you

Yours faithfully

Josy A Mathew

Prof. Josy A Mathew
VICE PRINCIPAL

LOURDES COLLEGE OF NURSING SIDHI SADAN CHEMBUMUKKU, ERNAKULAM - 682021 ENLIGHTENED TO LIGHTEN

Dr. PRAVEENA ELIZABETH JOSEPH
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Approved by; Indian Nursing Council, New Delhi
Kerala Nurses' & Midwives Council, Tvm
Affiliated to; Kerala University of Health Sciences, Thrissur
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APPENDIX –F

CERTIFICATE FOR ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work "A study to assess **Birth Preparedness and Complication Readiness** among antenatal women attending obstetrical OPDs in a selected hospital, Ernakulam" has been edited by me and the use of English in this dissertation is found to be appropriate.

Place: Karukutty

Date: 16.4.2021

Signature of the expert

Designation and address

HST, (English)
CBA, BEd. MA.Lit.
Star Jesus H.S.
Karukutty.

STAR JESUS HIGH SCHOOL ★ KARUKUTTY ★ PIN-683576

APPENDIX –G

LANGUAGE CORRECTION CERTIFICATE (ENGLISH)

I hereby certify that I have done the language correction of the tool (English) of Delphy Varghese 2nd year MSc nursing student, Lourdes College of Nursing who is undertaking the study. "A study to assess **Birth Preparedness and Complication Readiness** among antenatal women attending obstetrical OPDs in a selected hospital, Ernakulam"

Place: Karukutty

Date: 16.10.2020

Signature of the expert

Designation and address

HST (English)
[BA, BEd, MA Lit
Star Jesus HS.
Karukutty.

STAR JESUS HIGH SCHOOL PIN-683576 KARUKUTTY

APPENDIX –H

LANGUAGE CORRECTION CERTIFICATE (MALAYALAM)

APPENDIX –I

LIST OF EXPERT FOR CONTENT VALIDITY

1. Dr. Rani Prasad
   HOD, Obstetrics &Gynaecology
   ESI hospital, Ernakulam
2. Dr. Divya Jose
   Obstetrics & Gynaecologist
   Lourdes hospital, Ernakulam
3. Mrs. Sindumol N T
   Assistant Professor
   Govt. College of Nursing, Kottayam.
4. Mrs. Elby Paul
   Assistant Professor
   Govt. College of Nursing, Ernakulam.
5. Mrs. Anu Paul
   Assistant Professor
   SGCON, Parumala
6. Mrs. Aneesha V B
   Assistant Professor
   Amala College of Nursing, Thrissur
7. Mrs. Resna Simon
   Assistant Professor
   Jubilee Mission College of Nursing, Thrissur

APPENDIX – J

LETTER REQUESTING EXPERTS TO VALIDATE THE TOOL

From,

Ms. Delphy Varghese

2nd year M.Sc. Nursing

Lourdes College of Nursing

Chembumukku, Ernakulam.

To,

Respected Madam,

Subject: Requesting the opinion and suggestions of experts for establishing content validity of the research data collection tool.

I Ms. Delphy Varghese 2nd year MSc Nursing student in Lourdes College of Nursing, Chembumukku have selected the following topic for the research to be submitted to Kerala University of Health science in partial fulfilment of the requirement of Master of Science in Nursing.

STATEMENT OF THE PROBLEM

A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.

Here with I have enclosed:

1. Statement of the problem, Objective of the study, operational definitions and hypothesis
2. Tool
3. Criteria checklist
4. Content validity certificates

With regard to this I kindly request you to validate my research tool for its appropriateness and relevancy.

I would be highly obliged and thankful for your valuable guidance and suggestions.

Thanking you

Yours faithfully

Date: Delphy Varghese

Place:

APPENDIX –K

ACCEPTANCE FORM FOR TOOL VALIDATION

Name:…….

Designation:…….

College/ Institution name:…….

STATEMENT OF THE ACCEPTANCE / NON-ACCEPTANCE

I give my acceptance / non-acceptance to validate the tool.

Topic: ***A study to assess Birth Preparedness and Complication Readiness among antenatal women attending Obstetrical OPDs in a selected hospital, Ernakulam.***

Date: Signature:

Place:

APPENDIX – L

CONTENT VALIDITY CERTIFICATE

This is to certify that the tool constructed by Ms. Delphy Varghese, M.Sc. Nursing student of Lourdes college of Nursing has been validated by me and found to be appropriate for use for the concerned study with the suggested modifications.

Signature:

Name:

Designation and official address:

Place:

Date:

APPENDIX –M

INFORMED CONSENT (ENGLISH)

I (Name) …….. is giving consent to be a part of the study by Ms. Delphy Varghese, MSc. Nursing student, Lourdes College of Nursing, focuses on **"A study to assess birth preparedness and complication readiness among antenatal women attending obstetrical OPDs in a selected hospital, Ernakulam".**

I have been informed that the participation is voluntarily and I can terminate the study at any point. I have also been informed that my participation or my refusal to answer will have no effect on health services provided to me. I have been told that this will be used only for the study purpose and also informed about the confidentiality of my responses. So that I voluntarily agree to join this study.

Place:

Date:

Signature of investigator : Signature of the participant:

Name of investigator : Name of the participant:

APPENDIX –N

INFORMED CONSENT (MALAYALAM)

ഗവേഷണത്തിൽ പങ്കെടുക്കുന്ന ആളുടെ സമ്മത പത്രം

ഞാൻ ..... ലൂർദ്ദ് കോളേജ് ഓഫ് നേഴ്സിംഗിലെ എം എസ് സി നേഴ്സിംഗ് വിദ്യാർത്ഥിനി ശ്രീ ഡെൽഫി വർഗ്ഗീസ് നടത്തുന്ന പഠനത്തിന്റെ ഭാഗമാകാൻ സമ്മതം നൽകുന്നു. തിരഞ്ഞെടുത്ത മേഖലയിലെ ഗർഭിണികളായിരിക്കുന്ന അമ്മമാരുടെ ജനനതയ്യാറെടുപ്പ്, സങ്കീർണ്ണത തടയുവാനുള്ള സന്നദ്ധത എന്നിവയെകുറിച്ചുള്ള വിലയിരുത്തുന്നതിനുള്ള ഒരു പഠനം.

പങ്കാളിത്തം സ്വമേധയയുള്ളതാണെന്നും എനിക്ക് എപ്പോൾ വേണമെങ്കിലും പഠനത്തിൽ നിന്ന് പിന്മാറാമെന്നും അറിയിച്ചിടുണ്ട്. ഇത് പഠനാവശ്യത്തിനായി മാത്രമേ ഉപയോഗിക്കു എന്നും എന്റെ പ്രതികരണത്തിന്റെ രഹസ്യാത്മകതയെകുറിച്ചും എനിക്ക് ഉറപ്പുണ്ട്. അതിനാൽ ഇതിൽ ചേരാൻ ഞാൻ സ്വമേധയാ സമ്മതിക്കുന്നു

സ്ഥലം :

പങ്കെടുക്കുന്ന ആളുടെ ഒപ്പ്:

തീയതി : പേര്:

APPENDIX –O

RESEARCH TOOL

Tool – 1: Sample characteristics

1. Age of the mother
    a. ≤ 20 years
    b. 21-25 years
    c. 26-30 years
    d. > 30 years
2. Religion
    a. Christian
    b. Hindu
    c. Muslim
    d. Others/ Specify

3. Educational status
    a. Primary
    b. High School
    c. Higher Secondary
    d. Graduate or above
4. Occupation
    a. Employed
    b. Unemployed
5. Profession
    a. Medical profession
    b. Non-medical profession
6. Type of family
    a. Nuclear family
    b. Joint family
    c. Extended family
7. Monthly family income
    a. ≥ 30,000 rupees
    b. 20,000 – 29,999 rupees
    c. 10,000 – 19,999 rupees
    d. < 10,000 rupees
8. Gestational age
    a. 20 - 25 weeks
    b. 26 - 30 weeks
    c. 31 - 35 weeks
    d. 36 - 40 weeks
9. Gravida
    a. Primigravida
    b. Multigravida
10. Parity
    a. Nullipara
    b. Primipara
    c. Multipara
11. Regular antenatal visit during present pregnancy
    a. Yes
    b. No
12. History of still birth or IUD
    a. Yes
    b. No

13. Source of knowledge regarding BPCR
    a. Previous experience
    b. Media
    c. Family members
    d. Health care professionals
14. Time duration to assess antenatal health care facility.
    a. Less than 30 minutes
    b. More than 30 minutes

Tool – 2: Maternal Birth Preparedness and Complication Readiness assessment tool.

Sl No	Essential components	Yes	No
1	**What are the danger signs during pregnancy, labour, puerperium and for newborn?**		
	➢ **During pregnancy** a. Vaginal bleeding b. Severe headache c. Blurred vision d. Swollen hands/face e. High fever f. Convulsions g. Loss of consciousness h. Water breaks without labor i. Accelerated/reduced fetal movements j. Tiredness/breathlessness k. Early labour pain before 36 weeks l. High blood pressure ➢ **During labour/ delivery** a. Severe bleeding b. Severe headache c. Loss of consciousness d. Convulsions e. High fever f. Labor lasting >12 hours g. Placenta not delivered 30 minutes after baby h. High blood pressure ➢ **During puerperium** a. Severe bleeding b. Severe headache c. Blurred vision d. Swollen hands/face		

	e. High fever f. Loss of consciousness g. Difficulty breathing h. Pain and swelling of breast ➢ **For newborn** a. Difficulty or fast breathing b. Yellow skin/eye color (jaundice) c. Pus, bleeding or discharge from around the umbilical cord d. Baby very small e. Skin lesions or blisters f. Convulsions/spasm/rigidity g. Lethargy/unconsciousness h. Red or swollen eyes with pus i. Feeding problem		
2	**Have you identified a desired place of birth?**		
3	**Have you prepared transport to a health facility for birth and in emergency?**		
4	**Have you identified skilled birth attendant/ provider?**		
5	**Are you saving money for birth related and emergency expenses?**		
6	**Have you identified and arranged a compatible blood donor?**		
7	**Have you planned/ attended at least 4 antenatal care visits with a skilled provider?**		
8	**Have you attended 1st antenatal care visit with a skilled care provider during first trimester?**		
9	**Have you identified and prepared essential items for child birth?**		
10	**Have you identified support in looking after the home and children while at the health facility?**		

Scoring:

1. **Good BPCR:** mentioning minimum of 6 elements of birth preparedness and complication readiness.
2. **Poor BPCR:** not mentioning minimum of 6 elements of birth preparedness and complication readiness.
3. **Good knowledge of danger signs**: Mentioning a total of six danger signs from all four subcomponents with at least one from each subcomponent i.e., the respondent have to mention one danger sign during pregnancy, delivery, puerperium and for newborn along with at least two more danger signs from any of the three stages of childbirth.
4. **Poor knowledge of danger signs**: not mentioning six danger signs as per the criteria.

APPENDIX –P

TOOL – MALAYALAM

നിങ്ങളുടെ അടിസ്ഥാന വിവരങ്ങളെ വിലയിരുത്തുന്നതിന് ആവശ്യമായ ചില ചോദ്യങ്ങളാണ് ചുവടെ ചോദിക്കുന്നത് . ചോദിക്കുന്ന ചോദ്യത്തിന് ഉത്തരം പറയുക. നിങ്ങൾ നൽകിയ വിവരങ്ങൾ രഹസ്യമായി സൂക്ഷിക്കപ്പെടും.

ഉപകരണം – 1 സാമൂഹ്യ ജനസംഖ്യാപരമായ വിവരങ്ങൾ

1. അമ്മയുടെ പ്രായം
   a. ≤ 20 വയസ്സ്
   b. 21–25 വയസ്സ്
   c. 26–30 വയസ്സ്
   d. ≥ 30 വയസ്സ്

2.മതം
   a. ക്രിസ്ത്യൻ
   b. ഹിന്ദു
   c. മുസ്ലിം
   d. മറ്റുള്ളവ/വ്യക്തമാക്കുക

3. വിദ്യാഭ്യാസനില
   a. പ്രാഥമികം
   b. ഹൈസ്കൂൾ
   c. ഹയർ സെക്കൻ ഡറി
   d. ബിരുദ ധാരിയോ അതിൽ കൂടുതലോ

4. തൊഴിൽ
   a. അധ്വാനി
   b. തൊഴിലില്ലാത്തവർ

5. തൊഴിൽ അധിഷ്ഠിത
   a. വൈദ്യശാസ്ത്രസംബന്ധിയായ തൊഴിൽ
   b. വൈദ്യശാസ്ത്ര ഇതര തൊഴിൽ

6. കുടുംബത്തിന്റെ തരം
   a. അണുകുടുംബം
   b. സംയുക്ത കുടുംബം
   c. വിസ്തൃതമായ കുടുംബം

7. പ്രതിമാസ കുടുംബ വരുമാനം

a. ≥30000

b. 20000–29000

c. 10000–19999

d. ≤10000

8. ഗർഭകാല പ്രായം

a. 20–25 ആഴ്ച

b. 26–30 ആഴ്ച

c. 31–35 ആഴ്ച

d. 36–40 ആഴ്ച

9. ഗർഭധാരണം

a. ആദ്യത്തേത്

b. രണ്ടിലധികം തവണ

10. എത്രാമത്തെ പ്രസവം

a. ആദ്യത്തെ

b. രണ്ടാമത്തെ

c. രണ്ടിലധികം തവണ

11. ഇപ്പോഴത്തെ ഗർഭകാലത്തിന് പുറമെ ഗർഭകാല സമയത്തെ

a. ഉണ്ട്

b. ഇല്ല

12. നിലവിലെ ജനനത്തിന്റെ ചരിത്രം

a. ഉണ്ട്

b. ഇല്ല

13. ജനനത്തെയോടുള്ള സങ്കീർണ്ണത തടയുവാനുള്ള സന്നദ്ധത എന്നിവയെക്കുറിച്ചുള്ള അറിവിന്റെ ഉറവിടം

a. മുൻ കാല അനുഭവം

b. മാധ്യമങ്ങൾ

c. കുടുംബാംഗങ്ങൾ

d. ആരോഗ്യപരിപാലന വിദഗ്ധർ

14. ഗർഭകാലാരോഗ്യപരിപാലന സൗകര്യത്തെ ലഭ്യമാക്കുന്നതിനുള്ള സമയപരിധി

a. 30 മിനിറ്റിൽ താഴെ

b. 30 മിനിറ്റിലധികം

ഉപകരണം --2

മാതൃ ജനനത്തോടൊപ്പം സങ്കീർണ്ണത തടയുവാനുള്ള സന്നദ്ധത വിലയിരുത്തൽ ഉപകരണം

ക്രമ സംഖ്യ	ആവശ്യഘടകങ്ങൾ	അതെ	ഇല്ല
1	അപകട സൂചനകളുടെ തിരിച്ചറിയൽ		
	ഗർഭാവസ്ഥയിൽ		
a)	യോനിയിൽ നിന്നുള്ള രക്തസ്രാവം		
b)	കടുത്ത തലവേദന		
c)	മങ്ങിയ കാഴ്ച		
d)	കൈയ്യിൽ/മുഖത്തുള്ള നീർവീക്കം		
e)	കടുത്ത പനി		
f)	അപസ്മാരം		
g)	ബോധം നഷ്ടപ്പെടുക		
h)	പ്രസവത്തിനു മുൻപ് വെള്ളം പോവുക		
i)	കുട്ടിയുടെ അനക്കം കൂടുകയോ കുറയുകയോ ചെയ്യുക		
j)	ക്ഷീണം/ശ്വാസതടസ്സം		
	പ്രസവസമയത്ത്		
a)	കടുത്ത രക്തസ്രാവം		
b)	കടുത്ത തലവേദന		
c)	ബോധം നഷ്ടപ്പെടുക		
d)	അപസ്മാരം		
e)	കടുത്ത പനി		
f)	പ്രസവം 12 മണിക്കൂറിൽ കൂടുതൽ നിണ്ടു നിൽക്കുക		
g)	കഞ്ഞുങ്ങിനു 30 മിനിറ്റിനുള്ളിൽ മറുപിള്ള പ്രസവിക്കാതിരിക്കുക		

പ്രസവാനന്തരം			
a.	കടുത്ത രക്തസ്രാവം		
b.	കടുത്ത തലവേദന		
c.	മങ്ങിയ കാഴ്ച		
d.	കൈകളിൽ/മുഖത്തുള്ള നീർവീക്കം		
e.	കടുത്ത പനി		
f.	ബോധം നഷ്ടപ്പെടുക		
g.	ശ്വസിക്കാൻ ബുദ്ധിമുട്ട് അനുഭവപ്പെടുക		
നവജാതശിശുവിന്			
a.	ശ്വസിക്കാൻ ബുദ്ധിമുട്ട് അല്ലെങ്കിൽ വേഗത്തിൽ ശ്വസിക്കുക		
b.	മഞ്ഞപ്പിത്തം		
c.	പൊക്കിൾകൊടിയിലെ ചുറ്റും പഴുപ്പ്/രക്തസ്രാവം		
d.	കുഞ്ഞ് വളരെ ചെറുതാണ്		
e.	ചർമ്മത്തിലുള്ള പാടുകളും കുരുക്കളും		
f.	അപസ്മാരം		
g.	ക്ഷീണം/അബോധാവസ്ഥ		
h.	ചുവന്ന വീർത്ത/പഴുപ്പുള്ളതായ കണ്ണുകൾ		
2.	ആഗ്രഹിക്കുന്ന ജനനസ്ഥലം തിരിച്ചറിയുക		
3	ജനനത്തിനും അടിയന്തിരാവസ്ഥയ്ക്കും ഒരു ആരോഗ്യകേന്ദ്രത്തിലേക്ക് ഗതാഗതം ഏർപ്പാടാക്കി വെക്കുക		
4.	വിദഗ്ദ്ധ ജനന പരിചാരകനെ/ദാതാവിനെ തിരിച്ചറിയുക		
5	ജനന സംബന്ധിയായതും അടിയന്തിരവുമായ ചെലവുകൾക്കായി പണം സൂക്ഷിച്ചു വെയ്ക്കുക		
6	അനുയോജ്യമായ രക്തദാതാവിനെ തിരിച്ചറിയുകയും ക്രമീകരിക്കുകയും ചെയ്യുക		
7	ഒരു വിദഗ്ദ്ധ ആരോഗ്യ ദാതാവിനൊപ്പം കുറഞ്ഞത് 4 ഗർഭകാല സന്ദർശനങ്ങൾ ആസൂത്രണം ചെയ്യുക/പങ്കെടുക്കുക		
8	ആദ്യ ത്രിമാസത്തിൽ ഒരു വിദഗ്ദ്ധ ആരോഗ്യ ദാതാവിനൊപ്പം ഒന്നാം ഗർഭകാല സന്ദർശനത്തിൽ പങ്കെടുത്തു		
9	കുട്ടിയുടെ ജനനത്തിന് ആവശ്യമായ വസ്തുക്കൾ തിരിച്ചറിയുകയും തയ്യാറാക്കുകയും ചെയ്യുക		
10	ആരോഗ്യ കേന്ദ്രത്തിലായിരിക്കുമ്പോൾ വീടിനെയും മറ്റു കുട്ടികളെയും പരിപാലിക്കുന്നതിനുള്ള ആളുകളെ തിരിച്ചറിഞ്ഞു വെയ്ക്കുന്നു.		

APPENDIX –Q MASTER DATA SHEET

Tool 1 : Sample Characteristics														
Sample	Age	Religion	Educational status	Occupation	Profession	Type of family	Monthly family income	Gestational age	Gravida	parity	Regular antenatal visit during present pregnancy	History of still birth or IUD	Source of knowledge regarding BPCR	Time duration to assess
1	4	2	4	2	2	2	3	2	2	2	1	2	1	1
2	4	2	4	2	2	2	3	4	2	2	1	2	1	2
3	2	1	4	2	2	1	2	3	2	2	1	2	1	2
4	3	1	4	2	2	2	2	2	2	2	1	2	1	2
5	3	1	4	2	2	2	1	2	1	1	1	2	2	2
6	3	1	3	2	2	2	4	2	2	3	1	2	1	2
7	4	1	2	2	2	1	2	3	2	3	1	2	1	1
8	3	1	4	2	2	2	1	2	1	1	1	2	3	2
9	3	3	4	2	2	2	1	3	2	2	1	2	3	1
10	2	1	4	2	2	2	2	3	1	1	1	2	3	1
11	4	1	4	1	2	2	1	4	4	2	1	2	1	1
12	4	1	4	1	2	2	1	4	2	2	1	2	4	1
13	3	1	3	1	2	2	1	4	1	1	1	2	4	2
14	4	2	4	1	2	2	1	3	2	2	1	2	1	1
15	4	1	4	2	2	1	1	3	2	2	1	2	1	2
16	3	1	4	2	2	2	1	2	1	1	2	2	4	2
17	2	3	4	2	2	2	3	2	1	1	1	2	4	2
18	3	1	4	2	1	2	1	2	1	1	1	2	4	2
19	2	1	4	2	2	2	1	3	1	1	1	2	4	1
20	2	2	4	2	2	2	2	4	1	1	1	2	4	2
21	2	2	4	2	2	2	2	3	1	1	1	2	4	2
22	3	1	4	2	1	2	3	4	1	1	1	2	4	2
23	2	1	4	1	2	2	1	3	1	1	1	2	4	2
24	4	2	4	1	2	2	1	4	2	2	1	2	1	1

25	2	3	4	2	2	2	1	3	1	1	1	2	3	1
26	3	2	4	2	2	2	1	3	1	1	1	2	1	1
27	4	1	4	1	2	2	1	4	2	2	1	2	1	1
28	3	2	3	2	2	1	2	4	2	2	1	2	1	1
29	3	1	4	1	2	2	1	3	1	1	1	2	2	1
30	3	1	4	2	1	2	1	1	2	2	1	2	4	2
31	2	3	3	2	2	2	1	3	1	1	1	2	3	2
32	4	1	4	1	1	2	1	3	2	2	1	2	4	1
33	2	1	4	1	2	2	1	1	1	1	1	2	3	2
34	2	1	4	2	2	2	2	2	2	2	1	2	3	1
35	4	1	4	2	2	1	2	3	2	3	1	2	1	2
36	4	2	4	1	1	1	1	3	2	2	1	2	4	1
37	1	2	4	2	2	2	1	4	2	1	1	2	4	1
38	4	1	4	1	2	2	1	2	2	2	1	2	1	1
39	2	1	4	2	1	2	1	3	1	1	1	1	3	2
40	3	2	4	2	1	2	1	1	1	1	1	2	3	1
41	2	2	4	2	1	2	1	2	1	1	1	2	4	1
42	4	1	4	2	1	2	1	2	2	2	1	2	1	1
43	3	2	4	1	2	2	2	3	1	1	1	2	4	2
44	2	2	4	2	1	2	1	2	1	1	1	2	2	2
45	2	2	4	2	2	2	1	1	1	1	1	2	3	2
46	3	3	4	1	1	2	1	4	2	1	1	2	4	1
47	4	1	4	1	2	2	1	3	2	2	1	2	3	2
48	3	2	4	1	2	2	2	1	2	2	1	2	1	1
49	3	1	4	2	2	2	2	3	1	1	1	2	3	2
50	4	2	4	1	1	2	1	4	2	2	1	2	1	2
51	2	1	4	2	1	2	2	4	2	1	1	2	4	2
52	4	1	4	2	2	1	1	3	2	3	1	2	1	2
53	3	1	4	1	2	2	1	2	1	1	1	2	3	2
54	2	2	4	2	2	2	4	2	1	1	1	2	3	1
55	4	3	4	2	2	2	4	2	2	2	1	2	3	2
56	4	1	4	2	2	2	1	3	2	3	1	2	1	1
57	4	1	2	2	2	2	3	3	2	2	1	2	4	2
58	3	1	4	1	1	2	1	4	1	1	1	2	3	2

59	3	1	4	2	2	1	1	4	2	2	1	2	1	2
60	2	1	4	2	2	2	2	1	1	1	1	2	4	2
61	4	2	3	2	2	1	2	2	2	2	1	2	2	2
62	4	2	2	1	2	1	3	4	1	1	1	2	3	2
63	3	1	4	2	1	2	2	2	2	1	1	2	4	1
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65	4	1	4	2	2	2	2	3	2	2	1	2	3	1
66	3	1	4	1	1	1	2	1	2	2	1	2	4	2
67	2	1	4	2	2	2	3	1	1	1	1	2	3	1
68	4	1	2	2	2	2	3	3	2	2	1	2	3	1
69	4	2	3	2	2	2	2	4	2	2	1	2	1	2
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71	3	1	4	2	2	2	1	2	1	1	1	2	3	1
72	2	2	4	2	2	2	1	2	2	1	1	2	3	2
73	3	3	4	2	2	1	3	1	2	3	1	2	1	1
74	3	1	4	2	2	1	3	1	2	2	1	2	1	1
75	2	1	4	2	2	2	2	4	1	1	1	2	3	2

Sample	Tool 2: Maternal Birth Preparedness and Complication Readiness									
	1	2	3	4	5	6	7	8	9	10
1	1	1	1	1	1	0	1	1	0	1
2	1	1	1	1	0	1	1	1	1	1
3	1	1	1	1	1	0	1	1	0	1
4	1	1	1	1	1	0	1	1	1	1
5	0	1	1	1	1	0	1	0	0	1
6	1	1	1	1	1	0	1	1	0	1
7	1	1	1	1	1	0	1	1	0	1
8	0	1	0	1	1	0	1	1	0	0
9	1	1	1	1	1	0	1	1	0	1
10	0	1	0	1	1	0	1	1	0	0
11	1	1	1	1	1	0	1	1	0	0
12	0	1	1	1	1	0	1	1	0	0
13	0	1	1	1	0	0	1	0	0	1
14	1	1	0	1	1	0	1	1	0	1
15	0	1	1	1	1	0	1	1	0	0
16	0	1	0	1	1	0	0	0	0	0
17	0	1	1	1	1	0	1	1	0	0
18	1	1	1	1	1	0	1	1	0	0
19	0	1	1	1	1	0	1	1	0	0
20	0	1	0	1	1	0	1	1	0	0
21	0	1	1	1	0	0	1	1	0	0
22	1	1	1	1	1	0	1	1	0	0
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24	0	1	0	1	1	0	1	0	0	0
25	0	1	0	1	0	0	1	1	0	0
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27	0	1	1	1	1	0	1	1	1	1
28	1	1	1	1	1	1	1	1	1	1
29	0	1	1	1	1	0	1	1	1	1

30	1	1	1	1	1	0	1	1	1	1
31	0	1	1	1	1	0	1	1	1	1
32	1	1	1	1	1	1	1	1	1	1
33	0	1	0	1	0	0	1	1	0	1
34	0	1	1	1	1	0	1	1	1	1
35	1	1	1	1	1	0	1	1	0	1
36	1	1	1	1	1	1	1	1	1	1
37	0	1	1	1	1	0	1	0	0	0
38	0	1	1	1	1	0	1	1	0	1
39	0	1	1	0	1	0	1	1	1	1
40	0	0	1	0	0	0	1	1	0	1
41	0	1	1	1	1	0	1	1	0	0
42	0	1	1	1	1	1	1	1	1	1
43	0	1	0	1	1	0	1	0	0	1
44	0	1	0	1	1	0	1	1	0	0
45	0	0	0	1	1	0	1	1	0	0
46	1	1	1	1	1	1	1	1	1	1
47	0	1	1	1	1	0	1	1	1	1
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49	0	1	1	1	1	0	1	1	0	1
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53	0	1	1	1	1	0	1	1	0	1
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56	1	1	1	1	1	0	1	1	0	1
57	0	1	0	1	1	0	1	1	0	1
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61	0	1	0	1	1	0	1	1	0	1
62	0	1	1	1	1	0	1	1	0	1

63	0	1	0	1	1	0	1	1	0	0
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65	0	1	1	1	1	0	1	0	0	1
66	1	1	1	1	1	1	1	1	0	1
67	0	0	0	0	0	0	1	1	0	0
68	0	1	1	1	1	0	1	1	1	1
69	0	1	0	1	1	1	1	1	1	1
70	0	1	1	1	1	1	1	1	0	1
71	0	1	1	1	1	1	1	1	0	1
72	0	1	1	1	1	0	1	1	0	1
73	0	1	1	1	1	0	1	1	0	1
74	0	1	1	1	0	0	1	1	0	0
75	0	1	1	0	1	0	1	1	1	1