ADDIS ABABA UNIVERSITY

COLLEGE OF HEALTH SCIENCE

SCHOOL OF ALLIED HEALTH SCIENCES

DEPARTMENT OF NURSING AND MIDWIFERY

PREVALENCE OF SUBOPTIMAL CHILD SPACING PRACTICE AND ITS ASSOCIATED FACTORS AMONG WOMEN OF CHILD BEARING AGE IN SERBO TOWN,JIMMA ZONE SOUTHWEST ETHIOPIA, 2017

BY: - GIRMA BACHA (BSc)

A THESIS TO BE SUBMITTED TO ADDIS ABABA UNIVERSITY, COLLEGE HEALTH SCIENCE, SCHOOL OF ALLIED HEALTH SCIENCE, DEPARTMENT OF NURSING AND MIDWIFERY, FOR PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE MASTERS OF SCIENCE DEGREE IN PEDIATRICS AND CHILD HEALTH NURSING.

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ADDIS ABABA UNIVERSITY

SCHOOL OF NURSING AND MIDWIFERY GRADUATE STUDIES

I hereby certify that I have read and evaluated this research entitled Prevalence Of Suboptimal Child Spacing Practice And Its Associated Factors Among Women Of Child Bearing Age In Serbo Town,Jimma Zone Southwest Ethiopia, 2017 prepared under my guidance by Girma Bacha.

Girma Bacha _____ _____

Principal Investigator Signature Date

I recommend that it is submitted as fulfilling the requirements of research thesis.

_____ _____ _____

Advisor Signature Date

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Advisor Signature Date

As a member of the MSc thesis Open Defense Examination, I certify that I have read and evaluated the thesis prepared by Girma Bacha and examined the candidate. I recommend that the thesis be accepted as fulfilling the requirements for the degree of Master of Science in Pediatric and Child Health Nursing.

_____ _____ _____

Examiner Signature Date

ABSTRACT

Introduction: Birth spacing is the time gaps between two consecutive life births. Optimal spacing until the next pregnancy is generally understood to refer to resting period that allows the mother time to recover from pregnancy, and labor. Family planning programs have advocated three and more year's intervals between births for infant and child health and survival. Recent research found that the health of mothers and infants with the birth interval of 3 to 5yrs is safer than 2 yrs or less.

Objectives: To assess Prevalence Of Suboptimal Child Spacing Practice And Its Associated Factors Among Women Of Child Bearing Age In Serbo Town,Jimma Zone Southwest Ethiopia, 2017 Ethiopia, from March to April 2017.

Methods: Community based cross sectional study design was used. Samples of 314 women were selected using simple random sampling. Semi structured and pretested questionnaire was used in a face to face interview to collect the data. Data was checked for completeness and analyzed using SPSS V.20. Bi-variable logistic regression and multi- variable regression were done for predictor variables associated at p-value <0.05 with the outcome variable. Finlay the findings were presented using tables, pie charts and graphs accordingly.

Result: The prevalence of short birth interval in this study was 59.9%. Independent predictors like age at first marriage (AOR: 2.10, 95%CI=1.19, 3.69), sex of index child (AOR: 1.964, 95%CI= 1.05 3.96), educational status (AOR: 3.05,95 %CI=1.68, 3.83), duration of breastfeeding (AOR: 3.09, 95%CI=1.38, 6.96) and use of modern contraceptives (AOR: 1.94, 95%CI=1.09, 3.45) were found to be statistically associated with short birth interval.

Conclusion and Recommendation: Majority of the study respondents were practicing short birth interval. Education level, age at first marriage, having female child, short duration of breastfeeding and not using of modern contraceptives were some of the factors associated with the outcome variable. The Woreda Health bureau and Educational bureau should work in collaboration to create awareness so as to minimize the problems accordingly.

Key words: Suboptimal, birth interval, Women of Child Bearing Age, Serbo town

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ABBREVIATIONS AND ACRONYMS

AAU Addis Ababa University

AOR Adjusted Odd Ratio

BF Breastfeeding

COR Crude Odd Ratio

CSA Central Statistics Agency

EDHS Ethiopian Demographic Health Survey

FP Family Planning

IUCD Intrauterine Device

OBS Optimum Birth Spacing

SBI Short Birth Interval

TFR Total Fertility Rate

UNDP United Nations Development Program

UNFPA United Nations Population Fund

UNICEF United Nations Children's Fund

USAID United States Agency for International Development

WHO World Health Organization

1. INTRODUCTION

1.1 Background

Birth spacing is the time gaps between two consecutive life births. Commencing with life birth, it can be classified into postpartum, amenorrhea, menstruating time and the next gestation that has critical effect on the health status of the mother and her child (1). Postpartum amenorrhea refers to the interval between childbirth and the return of menstruation. The length and intensity of breastfeeding influence the duration of amenorrhea, which offers protection from conception. Postpartum abstinence refers to the period between childbirth and the time when a woman resumes sexual activity. Evidences showed that a relationship exists between shorter birth Interval and high infant and child mortality(1).

Optimal spacing until the next pregnancy is generally understood to refer to resting period between pregnancies that allows the mother time to recover from pregnancy to the next pregnancy. Longer time period between births allows the next pregnancy and birth to occur more likely to be at full gestation and Family planning programs have advocated three and more years intervals between births for infant and child health and survival(2).

High fertility rate is one of the concerns for different countries of the world because of it can affect the overall economic, political and social aspects of a given country. In addition, fertility is also a matter of interest to health professionals as it has serious implications on the health of mothers and children for interventions(3).

It can be interpreted as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current observed age-specific rates. If fertility were to remain constant at current levels, a woman from Ethiopia would bear an average of 4.6 children in her lifetime(4).

Studies supported by the United States Agency for International Development have suggested that optimal birth spacing of three to five years is more advantageous. These studies confirm that in less developed countries, if no births occur within thirty-six months of a preceding birth, infant mortality and under five mortality rates would drop by 2% and 35% respectively(3)

To produce healthy children which will be the hope of the nation to rely on, and to have healthy, productive mother, potential birth spacing interventions are mandatory; this intervention should primarily focus on very young mothers (<19yrs) and those with very short birth interval (<24 months) and those who are most at risk of shorter and inconsistent breastfeeding without contraceptive use. postponing the first birth can be ensured via , promoting the time gap at least 2years and more years between births by promoting community involvement and participation which enhances community ownership, build support and legitimacy(1).

Inability to practice birth spacing will have overt health outcome for both the mother and the child in the way that increased risk of being preterm, small for gestational age(SGA), Low birth weight and growth retardation on the child and third-trimester bleeding, puerperal endometritis on the mother; labor difficulty, anemia and premature rupture of membrane may affect both(5).

1.2 Statement of the Problem

Birth spacing refers to the time from one child's birth until the next pregnancy, also known as the inter-pregnancy interval(6). As per USIAD, 3 to 5 years interval is safer for both the mother and child. Globally, Compared to a 36-47 month birth interval, a birth interval of less than 18 months is associated with increased risk for: Neonatal mortality- 3.17 times, Infant mortality-3.16 times, Under-five mortality- 2.81 times. Even when the birth interval is too shorter, it affects the mother in the same way. Compared to a 27-32 month birth interval, intervals less than 15 months are associated with increased risk for: Third trimester bleeding-1.7 times, Premature rupture of membranes- 1.7 times, Anemia-1.3 times and Puerperal endometritis-1.3 times(7, 8).

In USA, Pregnancies that start less than 18 months after birth are associated with delayed prenatal care and adverse birth outcomes, including preterm birth, neonatal morbidity, and low birth weight(9)Short birth spacing continues to be a problem in Uganda and Zimbabwe, resulting in negative infant, child, and maternal health outcomes (10).

The study done in rural community of southern Ethiopia showed that Children born too soon after a previous birth, especially if the interval between the births is less than two years, are at increased risk for health problems and death at a young age(11). The median birth interval is 34 months, implying that half of non-first births to women in Ethiopia occur less than three years after a previous birth(12). Twenty percent have an interval of less than two years, and 9 percent of births are less than 18 months apart. Thirty-six percent of births occur 24-35 months after the previous birth and 44% are at least three years apart (10, 12)

Beyond the health implications, closely spaced birth intervals accelerate population growth and undermining development efforts. It makes difficult for women to become productive members of society, thereby limiting their contribution to economic development. Moreover, when a newborn comes, it is likely that the family will invest more of its limited resources in the form of care to the newborn, while the other children will receive inadequate share of the resources (5) Literatures from different developing countries, especially from African, indicated that factors like maternal education, maternal age, early marriage, inability to breastfeeding practice and inadequate knowledge, Attitude and practice towards modern contraceptives use and different socio-demographic factors were found to be the determinant for the occurrence of short birth interval (1, 14)

To overcome these problems (factors), interventions such as promoting female education and empowerment, awareness creation and enhancing breastfeeding practice and modern contraception usage have been attempted to some extent; thus still those interventions are not well practiced in Ethiopia (15-17).

Despite those interventions, inability to practice optimum birth spacing is still evident in most part of African countries including Ethiopia. for instance, the study report from southern Ethiopia showed that about more than half of (57.5%) women practicing shorter birth interval with the median birth interval length of 33 months. similar study from southern Ethiopia again showed that the median birth was 31 months which is shorter than the recommended birth spacing(11, 13).

Hence further studies need to be conducted to determine factors that contribute negatively to optimum birth spacing practice in Ethiopia. Thus, understanding practice of birth interval and factors which influence women's birth interval is Critical for countries like Ethiopia which is the most populated next to Nigeria in Africa with estimate population size of 102,066,540 and with current fertility Rate of 4.6. Since, no study conducted on optimum birth spacing in Jimma Zone, this study will be carried out to identify associated factors for suboptimal birth spacing among women of child bearing age in serbo Town.

1.3 Significances of the Study

Optimum birth spacing has an invaluable benefit for the world in building capacity to promote healthy and economic independency through balancing and managing the growth of population and budget to ensure the production of fruitful generation. Similarly, it will help health sector officials to work towards awareness creation among women about the importance of breastfeeding and contraceptive use in spacing child birth, which will in turn contribute to the mother's health as well as for the health and wellbeing of child.

Since the population of the world is growing fast, particularly developing country like Ethiopia in which fertility rate alarmingly high, this topic may contribute to show the gaps and may give the direction to take measure according to socially acceptable manner.

The study will also crucial for the mothers in managing her health by spacing the interval between the children so that she will recover from previous birth related health problem and it will guarantee for the survival and growth of her children indirectly.

Furthermore, the study findings could be helpful for other researcher as stepping stone for further investigation in the area.

2. LITERATURE REVIEW

According to WHO recommendation birth spacing should 2-3 years where as USAID recommended 3-5 years, the latter is from recent researched evidence which is more beneficiary than the former for both the mothers and the infants in reducing morbidity and mortality(5)

Reducing high rates of maternal mortality in developing countries has been a major global effort for over 20 years. The adoption of MDGs, which includes a reduction in maternal mortality by 75% by the year 2015, has especially underscored the need for political commitment and effective interventions to prevent such deaths (18)

A cross sectional study carried out in Saudi Arabia among 436 multiporous women depicted that the preference of birth interval varies. About 12(2.8%) women had no preference, 22(5.2%) preferred <2years, 123(28.2%) preferred 2years, 159(36.5%) preferred 3years and 120(27.5%) preferred >3years. Majority of these women (33.5%) had optimum birth interval where as 26.0% had short birth interval and only 5.3% had longer birth interval(15)

2.1 Birth spacing awareness and practice

A cross sectional study conducted in Ghana reveals that, out of 200 sample mothers 98% of study respondent knew about child spacing of which 92% reported it is good to practice child spacing(14)

Another cross sectional study done in Southern Ethiopia, Lemo District shows , from 811 study respondents, 762 (94%) have ever heard about optimum birth spacing between live births(13)

According to a study conducted in Iran in, the mean duration of the inter birth interval was 49.76 (SE=1.82) months (95% CI: 46.19-53.34 months) with a median of 39. Only 28.3% had a birth interval <2 years, and 25% had a birth interval ≥6 years(16).

Another study conducted in Southern Ethiopia showed that more than half 467(57.6%) of the study subjects had short birth interval. Two hundred ninety (35.8%) respondents had optimum birth interval and the remaining had long birth interval. The median duration of actual birth interval was 33 months (SD+/-16.7) whereas; the median duration of preferred birth interval was 38 months (SD+/-19.1) for the last two successive births. *(13)*.

2.2 Determinants of Suboptimal birth spacing

A study done in Southern Jordan, Cox regression analysis indicated that longer birth interval was independently predicted by woman's higher education, longer duration of marriage, more surviving children, presence of boys only or both sexes, breastfeeding for 12 months, use of modern contraception and opinion of the ideal number of children and child spacing that conform to family planning norms. (19) Shorter inter birth interval was independently predicted by younger women's age at the beginning of the interval. Early marriage before the age of 18 had significant association with short birth interval about 0.68 time in this study (20).

According to a study conducted in Northern Iran in 2007, with increasing maternal age at birth, the birth interval increased significantly ($p<0.05$). With increasing maternal education level the birth interval significantly increased ($p<0.05$). The mean birth interval was higher when the index child was a male compared with a female ($p<0.05$). The mean birth intervals were 34.2 and 64.9 months for mothers who breastfed their index child <6 months and ≥24 months, respectively. By increasing the duration of breastfeeding, the mean birth interval increased significantly ($p<0.05$). The mean birth interval in mothers who experienced infant mortality in the index child was 51.5 months and the figure for mothers who did not have infant mortality was 61.1± 25.7 months(21)

Among the widely studied variables that determine birth interval length is education of women. Education is considered to be one of the most important socio economic factors having an indirect influence on birth interval length through its impact on one or more of the biological variables such as contraceptive use, breast feeding practice, frequency of sexual intercourse and sexual abstinence. Female education is strongly associated with fewer children and a lower probability of a recent birth and this partly operates through its effect on marital status. A high education will delay the age of marriage by keeping women in schools and colleges and in the labor market. It was reported as per study in Ethiopia (Arba Minch), educational level of the mothers had strong statistical association with short birth interval, thus mothers no formal education were about 3 times [AOR=3.40, 95% CI: (1.80-6.43)] more likely to have short birth interval as compared to those mothers who attended formal education. Education is positively associated with birth spacing, i.e., the higher the education, the longer the interval between one birth and another. Similar finding was found in study conducted in Arba Minch, Southern

Ethiopia, Mothers whose preceding birth was female were about 7 times (AOR:6.79, 95% CI (3.65–12.63)) more likely to experience short birth interval than those whose child was male(5,17). To generalize this finding in shorter manner, Having no formal education (AOR = 2.36, 95% CL: [1.23–4.52]), duration of breast feeding for less than 24 months (AOR: 66.03, 95%CI; [34.60–126]), preceding child being female (AOR: 5.73, 95%CI; [3.18–10.310]),modern contraceptive use (AOR: 2.79, 95% CI: [1.58–4.940]), and poor wealth index (AOR: 4.89, 95% CI; [1.81–13.25]) of respondents were independent predictors of short birth interval(5).

A study done in Tanzania, showed that the odds of practicing short birth interval was higher among early married women as compared to those who married at older age (AOR=.11.82, 95% CI(8.56,16.33){30}. According to study conducted in the southern postural Ethiopia, Women who had no formal education were 1.9 times more likely to have short birth interval practice as compared to those who had formal education (AOR 1.89, 95% CI(1.15, 3.37)). Mothers whose partners' were engaged in a daily work were twice times more likely to have short birth interval as compared to those engaged in husbandry (AOR 2.19, 95% CI (1.01, 4.79)).The odds of being exposed in age groups of 35–39 and 40–44 have reduced the chance of having short birth interval by 68% and 78% respectively (AOR 0.32, 95% CI (0.17, 0.60), and 0.22, 95% CI (0.10, 0.49)). Mothers who were not using contraception between their last births were 6 times more likely to experience short birth interval (AOR 5 .91, 95% CI (4.02, 8.69)) (11).

In Ethiopia, marriage has been an early and universal social institution. A considerably high proportion of women (over 50%) marry before they reach age 20 and by 30, the proportion of married women exceeds well over 95 %. Child bearing begins early in Ethiopia. Among regions, Addis Ababa has the highest median age at first birth (23.5 years), while the Amhara region has the lowest median age at first birth (18years). This indicates that women in the Amhara region initiated child bearing more than 5 years earlier on average than women in Addis Ababa (22).

According to EDHS 2016, 13 percent of women age 15-19 in Ethiopia have begun childbearing: 10 percent have had a live birth, and 2 percent were pregnant with their first child at the time of interview. As expected, the proportion of women age 15-19 who have begun childbearing rises rapidly with age, from 2 percent among women age 15 to 28 percent among those age 19. Teenage childbearing is more common in rural than in urban areas (15 versus 5 percent, respectively) and among women in Afar (23 percent) and Somali regions (19 percent) compared

with Addis Ababa (3 percent). The proportion of teenagers who have started childbearing decreases with increasing level of education: nearly 3 in 10 women age 15-19 with no education (28 percent) have begun childbearing compared with 12 percent of teenagers who have attained primary education and 4 percent of those who have attained secondary education. (27)

A study conducted in Southern Ethiopia in 2010 revealed Compared to being employee, daily laborers and students had high chance of having short birth interval. Similarly as the duration of breast feeding increases, the probability of short birth interval also increases. Women who were not using contraceptives are [AOR = 1.6(95% CI: 1.1, 2.2)] times more likely to give birth within short period of time than users. Women with highest wealth quartile were 51% more likely to have short birth interval than with the lowest wealth quartile (13).

Female participation in the labour force has often been considered one of the means of promoting the use of contraception and thereby indirectly to reduce fertility .Working women by attaining economic independence do not require support from their children as an old age security. Women's employment is one of the indicators of their status. Different literatures in developing countries highlighted the importance of women's employment to their contraceptive behavior and fertility .For instance, the increasing status of women represented by education and employment decreases the number of children in Kazakhstan. An inverse relationship also exists between age at first marriage and fertility in population where little or no fertility control is practiced and child bearing outside wed lock is uncommon(23).

In Ethiopia, studies found significant higher risk of a conception in the months following the death of an index child, even after controlling for postpartum amenorrhea and breastfeeding status. Most Ethiopian women are more eager to replace a dead child when they are near to reach their desired family size (24).

A cross sectional study done in Addis Ababa, Ethiopia showed that short birth to pregnancy interval (<24months) is influenced by mothers educational status of tertiary education level, having previous mode of delivery through Cesarean section and having chronic medical problem. Long birth to pregnancy interval (>60 months) is also influenced by planned pregnancy and preceding birth delivered through spontaneous vaginal delivery(25)

Studies have shown that the death of a preceding child leads to a shorter birth interval than when the preceding child survived. The median birth interval is more than 8 months shorter for children whose sibling is dead than for children whose previous sibling is alive (26.1months and 34.6 months respectively). It is presumed that the difference in the birth interval is related to the desire of parents to replace a dead child as well as to the loss of fertility delaying effects of breastfeeding (22)

Family planning refers to a conscious effort by a couple to limit or space the number of children they have through the use of contraceptive methods. According to the report of EDHS 2016, 36% of currently married women are using a method of family planning: Among currently married women, the most popular methods are injectables (23 percent), implants (8 percent), IUD, and the pill (2 percent each). The contraceptive prevalence rate (CPR) among married women increases with age, peaking at age 25-29 (41%) before declining steadily to 19 percent among women age 45-49. Urban women are much more likely than their rural counterparts to use any method of contraception (52% versus 33 %). By region, contraceptive prevalence rate ranges from 2 percent in Somali to 56 percent in Addis Ababa. Contraceptive use increases with women's education and household wealth. For instance, 31 percent of women with no education are using a contraceptive method compared with 55 percent of women with more than a secondary education. Women with no living children (30 percent) and those with five or more children (28 percent) are the least likely to use any method of contraception.(27)

2.3 CONCEPTUAL FRAMEWORK

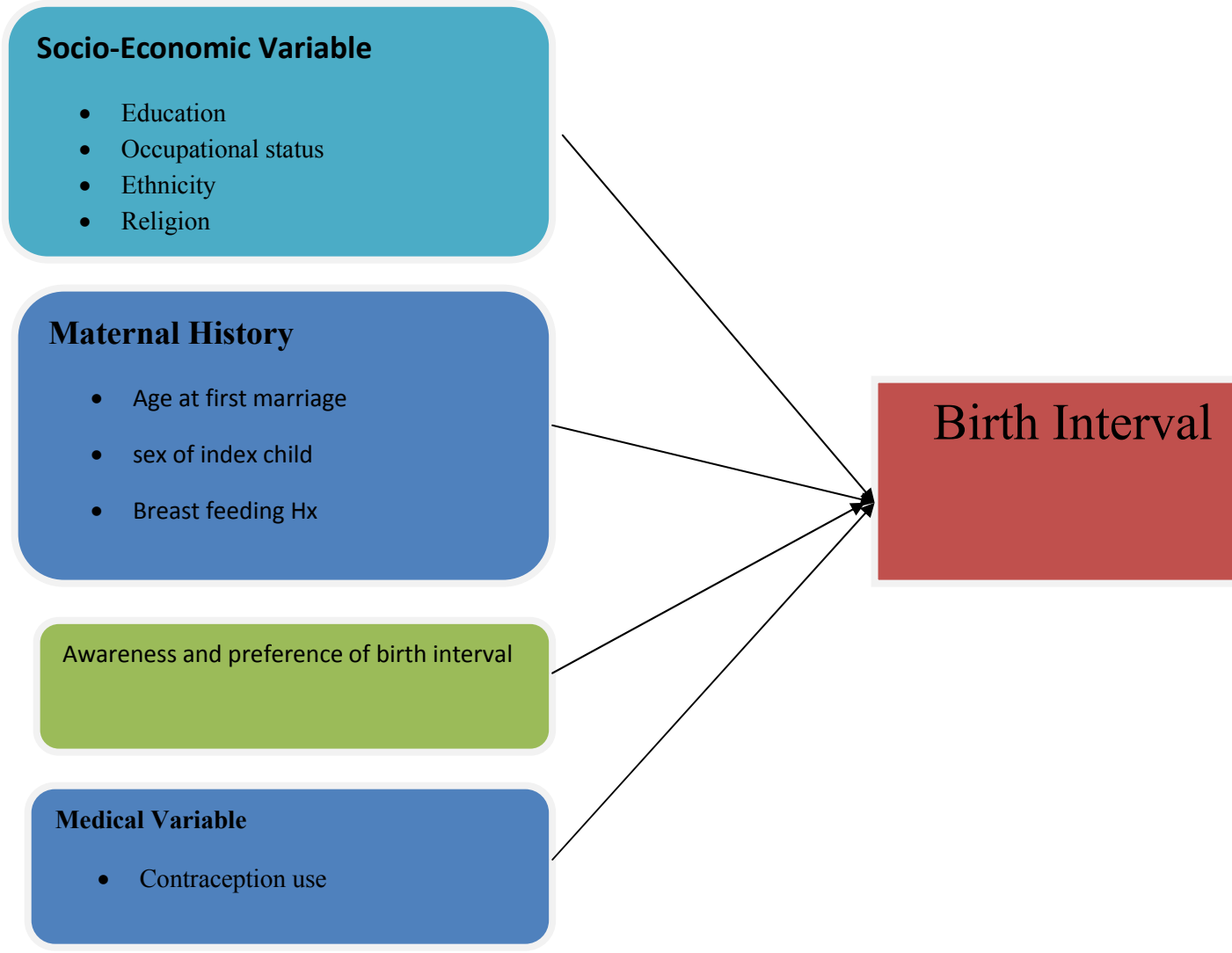

Figure 1: Conceptual frame work: constructed by modifying literatures that reviewed and showed the determinants of optimal child spacing(5, 15)

3. OBJECTIVES

3.1 General Objective

To assess Prevalence Of Suboptimal Child Spacing Practice And Its Associated Factors Among Women Of Child Bearing Age In Serbo Town, Jimma Zone Southwest Ethiopia, from March to April 2017 from March 01 to April 01 2017.

3.2 Specific objectives

- To determine the prevalence of suboptimal child spacing among women of childbearing age.
- To identify factors associated with suboptimal child spacing among women of childbearing age.

4. METHODS AND MATERIALS

4.1 Study Area and Period

This community based cross - sectional study was conducted from March to April 2017 in Serbo Town Jimma Zone Oromia Regional state, south - West Ethiopia.

Serbo town is located in kersa woreda, Jimma Zone of Oromia regional state. The town is located 345 km apart from Addis baba, which is the capital city of Ethiopia and about 18km from Jimma town. The town has two kebele and a total population of **7450** from which female was **3650**. Child bearing age mothers in the town are **1649** (**923** of Wayu kebele's and **726** of Omo Ticho kebele's). The town has a total of 1665 households. There are one governmental Health Center, one High school and Two Elementary School in the town. The town's elevation is 1640 km above sea level.

4.2 Study Design

Community based cross - sectional study design was employed.

4.3 Population

4.3.1 Source Population

Source population were all women in child bearing age groups (15–49) of Serbo Town

4.3.2 Study population

All sampled women of child bearing age and have children and who that fulfilled the inclusion criteria

4.4 Inclusion and Exclusion criteria

4.4.1 Inclusion criteria

Volunteers women in reproductive age group (15-49) having at least two children

4.4.2 Exclusion criteria

Women having health problem and unwilling to participate were excluded.

4.5 Sample Size determination

Sample size was determined using the formula for single population proportion by considering, 35.8 % proportion of optimal birth interval in Lemo District, Southern Ethiopia women(13) 95% level of confidence, 5 % margin of error to be tolerated and 10 % none response rate.

$$n = \frac{z\alpha/_{2^2} * p(1-p)}{d^2}$$

$$\underline{n = (1.96)2 * .358(1-.358)}$$
$$(.05)^2$$

n =353

When 10% contingence is added n =35.3+353

n =<u>388</u>

n= the required sample size

Z=Standard score corresponding to 95% confidence interval

p= Assumed proportion of fertility desire

d = the margin of error (precision) 5 %

Non response rate =10%

Since the total population of reproductive age mothers in serbo town is **7450** that is less than 10,000, the sample was determined by using correction formula;

nf= $\frac{n}{1+\frac{n}{N}}$

=$\frac{388*16\ 4\ 8}{388+16\ 4\ 8}$

==**<u>314</u>**

4.6 Sampling techniques

Systematic random sampling was used to select households from 2 kebeles in the town. The calculated sample size was allocated proportionally to the size of populations in each kebeles. House hold was selected with an interval of K for each kebele, where K was the total number of house hold in each kebeles divided by the total number study subjects in each kebeles which was found to be **5** for both kebeles and the first house hold to be started from was selected by lottery method.

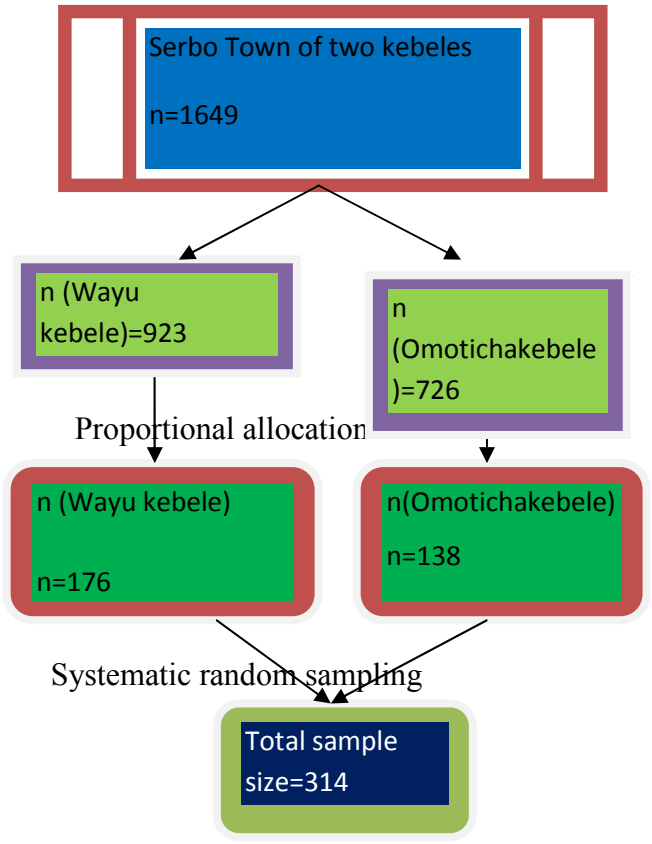

Figure 2: Schematic representation of sampling procedure

4.7 Data Collection tool and procedures

4.7.1 Data collection instruments (tool)

The data was collected using pre-tested interview guided semi-structured questionnaire in 2 kebeles of Serbo Town. The questionnaire contains: socio-demographic characteristic of the study respondents, Awareness of the study respondents on birth spacing, birth history of the study respondent, practice of breastfeeding and use of modern contraceptives. The questionnaire was prepared in English and was translated to Afan Oromo versions and checked for its consistency by translating it back to English by those who are well oriented with the stated languages (language Professionals or experts).The instrument was adopted from different literatures developed for similar purpose by different authors and tools designed by various organizations(13).

4.7.2 Pre test

The data collection instrument was pretested on Jimma town Gunjo Guduru kebele for its relevance, completeness and clarity to answer the research question and problem and has been corrected prior to the actual data collection period. The pretest was carried out in five percent of final sample size outside of the study setting.

4.7.3 Data collection procedure

To collect the data 4 diploma Nurses and 2 Environmental Bsc were recruited as data collectors with 2 Bsc nurses for supervising and coordinating. Following recruitment, information has been provided about the data collection instruments in depth and to re-visit for closed houses on the second day and considering for replacement if absent on the second day. The supervisors were supervised the day to day data collection activity together with the principal investigator. Training was given to data collectors and supervisors on the objectives of the study and how to interview, how to fill the questionnaire and handle questions asked by respondents during interviewing.

4.8. Data quality control

To keep the quality of data, the English version questionnaire was translated in to Amharic, Afan Oromo and then back to English to maintain its consistency for actual data collection purpose with great emphasis given to local vocabularies. Detail training for data collectors and supervisor was given by the principal investigator in detail. Furthermore, the principal investigator and supervisor gave feedback and correction on daily basis for the data collectors before they deployed to the field and completeness, accuracy, and clarity of the collected data was checked carefully. Any errors, ambiguity, incompleteness encountered had been addressed on the following day before starting next day activities and the data was entered on daily bases.

4.9. Data analysis

After the collected data checked for consistency and completeness, and then entered into Epi Data Version 3.1 and was analyzed using SPSS version 22.0. Bi-variable logistic regression analysis was used to see significance of association between dependent and each independent variable. P-Value less than 0.05 has been taken as statistically significant and Multi-variable logistic regression model to control for possible confounding variables, to examine association and to produce adjusted odds ratio along with their Corresponding confidence limits (95% CI).Variables that had significant association with the outcome variables in the crude analysis was entered in to multivariable logistic model. In a Multivariable logistic regression model using adjusted odds ratio (AOR) independent predicators of child spacing practices among childbearing mothers was identified through controlling the confounding effects of other variables. Descriptive statistics were calculated and finally, the findings were presented in the form of text, tables and graphs as appropriate.

4.10. Study Variables

4.10.1 Dependent variables
Suboptimal birth spacing

4.10.2 Independent variables
Socio-demographic variables, (Age, marital status, educational level, religion, occupation,), fertility history, contraceptive use, inconsistent breastfeeding

4.11 Operational Definitions
Optimal birth interval: it denotes to 3–5 years' birth interval (including 3 and 5 years) between the birth of the child under study and the immediately preceding live and surviving birth to the mother

Suboptimal birth interval: it refers to less than 3 years' birth interval between the birth of the child under study and the immediately preceding live and surviving birth to the mother

Long birth interval: it refers greater than 5 years' birth interval between the birth of the child under study and the immediately preceding live and surviving birth to the mother

4.12 Ethical Clearance
After approval of the proposal by Addis Ababa University department of nursing and midwifery Research and Ethical reviewing committee, clearance letters was written to Oromia Health bureau and Oromia Health bureau wrote to kersa Woreda health office Karsa Woreda wrote letter of cooperation Serbo town health bureau. Written informed consent was obtained from individual participants by the data collectors. The data collectors would respect the client's right to choose, make decision, and change in the light of her own beliefs, values and circumstances. The individual could refuse or interrupt at any step of the participation. Whether or not responding, no harm to the individuals with regard to the service they intend to get.

The study respondents were convinced that the information they gave would be kept private, secret and not divulged to a third party except the principal investigator. The data collectors have explained about the objective of the study and confidentiality ahead of each interview. The study subjects have been told that the information from respondents would not be used for purpose other than this research.

4.13 Dissemination of Results

After the result of the study defended on annual student research seminar of Addis Ababa University College of health sciences, Department of Nursing and Midwifery, both hard and soft copies of the document will be given to Addis Ababa University College of health sciences, Department of Nursing and Midwifery. Further attempt will be made to publish it on national and international scientific journals.

5. RESULT

A total of 314 mothers were participated in this study, and all (314) of them were interviewed for collecting the data giving the response rate of 100%.

5.1. Socio-demographic characteristic of mothers of child bearing age in Serbo Town

One hundred nine (34.7%) of the study participants were in the age group of 25-29 with mean (±SD) age of **30.84(±5.956) years**. Most, 292(93.0%) of the respondents were married while the rest 22(7.0%) were others include, single, divorced and widowed. Age at first marriage for majority 215 (68.5%) is 18 years and above with mean 18.38(SD**±2.41)** years of age. whereas nearly one third (31.5%) were married at age less than 18years with mean (± SD) = **18.38(±2.41**). Two hundred thirty five (74.8%), two hundred sixty four (84.1%) were Muslim followers and Oromo ethnic group respectively. A third of, 115(36.6%) of the respondents were illiterate, while 51(16.2%) attended secondary and above education. The occupation of majority of the respondents is housewife, followed by employ of the government and NGO accounting for 66.6 %(209) and 13.7 %(23) respectively. More than half, 171(54.5%) of the study respondents were found in the first quartile of <1000Ethiopian Birr monthly income **(Table 1)**

Table 1:-Socio-demographic characteristic of mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017(n=314)

Variables N=314	Category	Frequency	Percent
Age of the mother	15-19	2	.6
	20-24	32	10.2
	25-29	109	34.7
	30-34	78	24.8
	35-39	59	18.8
	>=40	34	10.8
	Total	314	100.0
Marital status	Married	292	93.0
	Others *	22	7.0
	Total	314	100.0
Age at first marriage	<18 years	99	31.5
	>=18 years	215	68.5
	Total	314	100.0
Religion	Orthodox	34	10.8
	Protestant	34	10.8
	Muslim	235	74.8
	Others**	11	3.5
	Total	314	100.0
Ethnicity	Oromo	266	84.7
	Amhara	18	5.7
	Gurhage	17	5.4
	Tigray	6	1.9
	Others **[a]	7	2.2
	Total	314	100.0
Education	Illiterate	115	36.6
	Read and write	37	11.8
	Elementary	111	35.4
	Secondary and above	51	16.2
	Total	314	100.0
Occupation	Employ of gov't or NGO	43	13.7
	House wife	209	66.6
	Merchant	41	13.1
	Others **[b]	21	6.7
	Total	314	100.0
Monthly income	<1000	171	54.5
	1000-1999	91	29.0
	2000-2999	37	11.8
	>= 3000	15	4.8
	Total	314	100.0

***others: single, Divorced & widowed. **others: Wakefata & Catholic. **[a]Others :Wolayita, Silte & Dawuro. **[b]others: Farmer, Student and daily workers**

5.2. Birth History and awareness about birth spacing among mothers of child bearing age in Serbo Town

Most, 286 (91.1%) of the study respondents were informed about modern contraceptives methods used by male and female to space and limit child birth. Among those informed, they were responded vary numbers of months as appropriate time length between two births that were 149(52.1%), 36-60 months; 121(42.3%), less than 36 months; and 16(5.5%), above 60 months.. Majority 265(84.4%) of the study respondents agreed that an optimal birth interval has health advantages both for the mother and child where as particularly 260(82.8%) were reported short birth interval has health disadvantages both for mother and the child. Regarding to the possessed number of children, about half of the respondents 159 (50.6%) have three to four children and less than one third of them have five children and above, however about thirty eight (12.1%) mothers reported child death soon after birth. Majority of the index child were female which accounts for 204(65.0%), whereas 110 (35.0%) were male. Concerning the preference of birth interval among mothers; above half, 163 (51.9%) prefer an optimal birth interval and 13(4.1%) mentioned no preference. Majority of the index child were female which accounts for 204(65.0%), whereas 110 (35.0%) were male (**Table 2).**

Table 2:- Birth History and knowledge about birth spacing among mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017(n=314)

Variables N=314	Category	Frequency	Percent
mothers heard b/n two consecutive births	Yes	286	91.1%
	No	28	8.9%
	Total	314	100.0%
health adv. of OBI	Yes	265	84.4%
	No	39	12.4%
	I don't know	10	3.2%
	Total	314	100.0%
health disadvantage of short birth interval	Yes	260	82.8%
	No	47	15.0%
	I don't know	7	2.2%
	Total	314	100.0%
number of children born alive	2	110	35.0%
	3-4	159	50.6%
	>=5	45	14.3%
	Total	314	100.0%
children died soon after birth	Yes	38	12.1%
	No	276	87.9%
	Total	314	100.0%
mother's need to have more children after last pregnancy	Yes	191	60.8%
	No	123	39.2%
	Total	314	100.0%
time to become pregnant after last child	Soon after	47	24.6%
	Wait until later	144	75.4%
	Total	191	100.0%
mother's preference of birth interval (BI) in years	<36 months	113	36.0%
	36-60 months	163	51.9%
	≥60 months	25	8.0%
	I don’t know	13	4.1%
	Total	314	100.0%
sex of the last child	Male	110	35.0%
	Female	204	65.0%
	Total	314	100.0%

5.2.1. Distribution of birth intervals by duration in months among mother of child bearing age in Serbo Town

As shown in figure 3 below, more than half, 188(59.9%) of the mothers were practicing short birth interval less than 36 months, followed by 112 (35.7%), and 14(4.5%) practicing optimal and long birth interval between their last two children respectively (**Figure 3).**

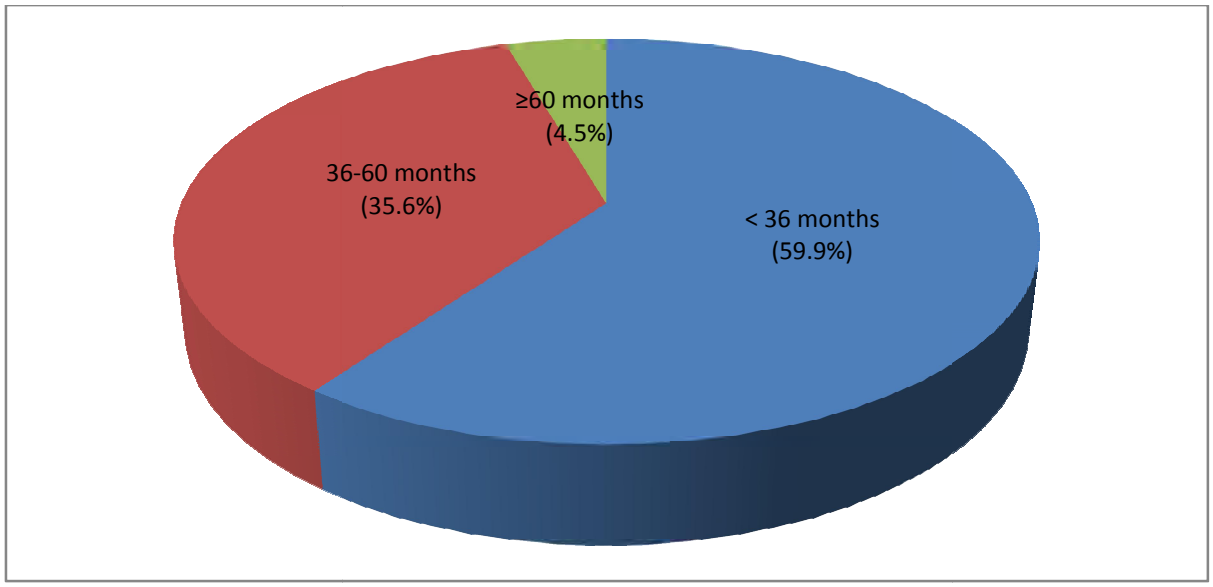

Figure 3 Distribution of birth intervals by duration among mother of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017(n=314)

5.3. Breastfeeding practice among mothers of child bearing age in Serbo Town.

Majority, two hundred eighty three (90.1%) of mothers in child bearing age in serbo town have breastfed their last child, but about 31(9.9%) of them have not yet breastfed their last child due to different reasons they have mentioned. Among those who breastfed their last child, above three forth, 217(76.4%) breastfed their last child for 24 months and above whereas18 (6.3%) for less than 24 months (Table 3).

Table 3:- Breastfeeding practice among mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017(n=314)

Variables N=314	Category	Frequency	Percent
breastfeed previous to last child	Yes	283	90.1%
	never breastfeed	31	9.9%
	Total	314	100.0%
Duration of breastfed the previous child in months	0-11 months	19	6.7%
	12-23 months	49	17.3%
	>=24 months	217	76.0%
	Total	283	100.0%
Reasons why mother never breastfed previous child	new pregnancy	5	16.1%
	mother was sick	14	45.2%
	Other*	12	38.7%
	Total	31	100.0%
Mother's agreement on duration when BF should stop in months.	<24 months	57	17.9%
	>=24 months	257	82.1%
	Total	314	100.0%

*others include, mothers don't have breast milk b/c of unknown reason, the child refused to suck

5.4 Awareness and use of modern contraceptive practice among mothers of child bearing age in Serbo Town.

Two hundred sixty six (84.7%) of the study respondents had information about modern contraceptives used to space and limit birth. nearly two third (62.7%) of the study respondents had used those methods before the last child, 162(82.2%) for spacing and 35(17.8%) for limiting birth. one hundred fifty three (89.5) of them were getting the service form health center and 51(35.7%) of them mentioned religion as the main reason for not using modern contraceptives **(Table 4)**

Table 4 :- Awareness and use of modern contraceptive practice among mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017. (N=314)

Variables N=314	Category	Frequency	Percent
mother's knowledge about modern Cont of both M&F	Yes	266	84.7%
	No	48	15.3%
	Total	314	100.0%
If mother used modern contraceptives b/r last child	Yes	197	62.7%
	No	117	37.3%
	Total	314	100.0%
purpose of using modern contraceptives	birth spacing	162	82.2%
	birth limiting	35	17.8%
	Total	197	100.0%
current use of modern contraceptives by mother	Yes	171	54.5%
	No	143	45.5%
	Total	314	100.0%
the place where mother gets modern contraceptives	health post	14	8.2%
	health center	153	89.5%
	Hospital	25	14.6%
	private sector	5	2.9%
	Total	197	100.0%
Reason of the mother not to use modern contraceptives	desire to have more children	27	18.9%
	health problem	15	10.5%
	religious reason	51	35.7%
	husband not willing	20	14.0%
	Other**	30	21.0%
	Total	143	100.0%

** Others include, lack of service, lack of information, no husband, naturally adjusted spacing, lack of interest of modern contraceptives.

5.5. Birth Spacing methods known and used by the study respondents

As figure below has depicted, more than half the study respondents knew different modern contraceptives used to space and limit child birth, however a few of them used some of those contraceptives. This indicates that the awareness level about modern contraceptives of the study respondents was high while their actual use of the methods was too low. The most frequently known contraceptive was injectable 259 (97.4%) followed by pills 233 (87.7%), Implants 214(80.5%) and IUCD 140 (52.6). Again injectable was the most frequently used 116 (58.9%) and IUCD was the least frequently used 6(3.0%). more than half, 177 (66.5%) of the study respondents knew condom, but none of them were using (**Figure 2**).

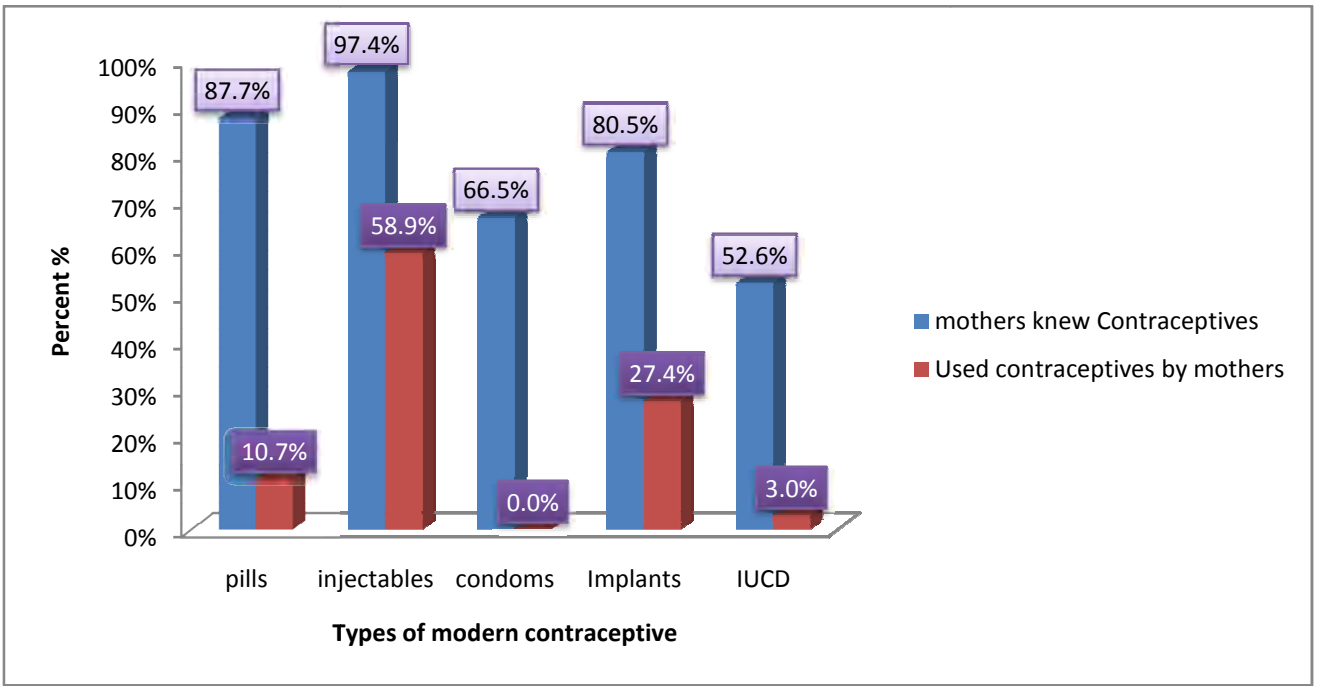

Figure 4:- Awareness & used modern contraceptives among mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017

5.5. Predictors of short birth interval among mothers of child bearing age in Serbo Town

In Bi-variable logistic regression, age at first marriage, sex of the index child, death of child soon after birth, mother's preference of birth interval, knowledge of the interval b/n to consecutive births, duration of breast feeding and use of modern contraceptives were the variables that showed statistically significant association with the outcome variable that is short birth interval. In order to control the effect of confounders, multiple logistic regressions forward condition method was performed and computed the adjusted odds ratio. Age at first marriage, sex of the index child, death of child soon after birth, mother's preference of birth interval, Duration of breast feeding and use of modern contraceptives were found to be the independent predictors of short birth interval.

The likelihood of practicing short birth interval was about 2 times more likely in mothers who were married at age less than 18 years as compared to mothers who were married at age 18 years and above (AOR=2.10,95%CI=1.19, 3.69). The odds of practicing short birth interval was about 3 times more likely in respondents who had no formal education as compared to those who had formal education (AOR: 3.09,95 %CI=1.68, 3.83). In the same way, the probability of having female index child was about 2 times more likely to increase the chance of getting short birth as compared to those mothers who had male index child(AOR=1.96,95%CI=1.046, 3.96). Study respondents who preferred birth spacing of less than 36 months were about 4 times more likely to have short birth interval as compared to those who preferred 36-60 months(AOR=4.71,95%CI=2.46,7.53). study respondent who had not used modern contraceptives were 2 times more likely to practice short birth spacing as compared to those who had used modern contraceptives (AOR;1.93,95%CI=1.09,3.45) (**(Table 5).**

Table 5:- Factors associated with short birth interval among mothers of child bearing age in Serbo Town Jimma Zone Southwest Ethiopia, 2017

Variables N=314	category	Short Birth Interval		COR(95%CI)*P<0.05	AOR(95%CI)*P<0.05
		Yes	No		
		N (%)	N (%)		
Age at first marriage	<18 years	72(22.9%	27(8.6%)	**2.28(1.36,3.82)**	**2.09(1.19,3.69)*/0.01**
	≥18 years	116(36.9%)	99(31.5%)	1.00	1.00
Sex of index child	Male	33(10.5%)	30(9.6%)	1.00	1.00
	Female	93(29.6%)	158(50.6%)	**1.87(1.07,3.26)**	**1.96(1.05,3.96)0.00**
Death of child soon after birth	Yes	29(9.2%)	9(2.9%)	1.00	
	No	159(50.6%)	117(37.3%)	2.371(1.08,5.19)	
Preference of BI	<36 months	73(23.2%)	90(28.7%)	**5.733(3.23,10.17)**	**4.71(2.46,7.53)*/0.00**
	≥60 months	15(4.8%)	10(3.2%)	**1.85(0.78,4.36)**	**0.26(0.08,0.90)**
	I don't know	7(2.2%)	6(1.9%)	**1.44(1.46,4.47)**	**0.27(0.077,0.920)**
	36-60 months	93(29.6%)	20(6.4%)	1.00	1.00
Educational status	No formal education	136(43.3%)	92(29.3%)	**3.09(1.68,3.71)**	**3.05(1.60,3.83)*/0.03**
	Formal educated	52(16.6%)	34(10.8%)	1.00	1.00
Breastfed previous to last child	Yes	120(38.2%)	163(51.9%)	1.00	
	No	6(2%)	25(8.0%)	3.07(1.22,7.71)	
Duration to of BF	<24 months	47(15.0%)	10(3.2%)	**3.84(1.83,7.83)**	**3.09(1.38,6.96)*/0.02**
	≥24 months	141(44.9%)	116(36.9%)	1.00	1.00
Use of modern contraceptives	No	86(27.4%)	31(9.9%)	**2.58(1.57,4.25)**	**1.94(1.09,3.45)*/0.01**
	Yes	102(32.5%)	95(30.3%)	1.00	1.00

***Significant at p-value <=0.05**

6. DISCUSSION

In this study, majority of the study respondents were practicing short birth interval. The study had also identified as significantly associated factors with short birth interval such as, educational level, age at first marriage, sex of index child, mother's preference of birth interval, Duration of breast feeding and use of modern contraceptives.

The prevalence of short birth interval in this study was found to be **59.9%.** The remaining, 35.7 % and 4.5% were practicing optimal and long birth interval respectively. Although, 36-60 months of interval between births is the currently recommended still the prevalence of short birth interval outweighs the optimal one. The finding of study conducted in southern Ethiopia, 57.6% of mothers were practicing short birth interval and 35.8% were practicing optimal birth interval and the remaining were Long birth interval. Thus, it can be concluded that almost consistent with current findings may be because of relative similarity in socio-economic background of the study respondents. Again, this finding was relatively similar with the study conducted in Mozambique in which 46%, 35% and 19% of the women were practicing short, optimal and long birth interval respectively. However, in the current study, long birth interval was lower than study conducted in Mozambique (13, 14). The difference might be the demographic background of the study respondents of the two countries.

In the current study, factors such as age at first marriage, sex of the index child, duration of breastfeeding and use of modern contraceptives were found to be significantly associated with short birth interval. those women who had married at age less 18 years were about 2 times more likely to practice short birth interval as compared to those who had married at age 18 years or above (AOR=2.09,95%CI=1.19.3.69). This finding was consistent with the study done in Uganda, Zimbabwe and Jordan (20, 30).

Sex of the index child was associated with short birth interval. According to result of this finding women's who had female index child about 3 times more likely to have short birth interval as compared to mothers who had male index child(AOR= 1.96, 95%CI=1.04, 3.96). Similar findings were obtained from study done in Arba-minch Zuria district and southern postural Ethiopia (5, 11).

In this study education had also significant association with short birth interval. Having formal education is protective of practicing short length. According to respondents who had no formal education were about 3 times more likely to practice short birth interval (AOR=3.08, 95%CI=1.68, 3.83). Similarly study conducted in Arba-Minch showed the same finding with the current study [AOR=3.40, 95% CI: (1.80-6.43)] (5, 11).

The other predictor of short birth interval was duration of breastfeeding. Mothers who breastfed their child for less than 24 months were about 3 times more likely to practice short birth interval as compared to those who breastfed ≥24 months (AOR=3.09,95%CI=1.38,6.96). Also study conducted in Southern postural Ethiopia revealed breastfeeding for less than 24 months was 30.8 time more likely to practice short birth interval (11).

Another important factor that determine short birth interval was use of modern contraceptives. The odds of not using modern contraceptive was about 2 times to practice short birth interval was compared to those users of modern contraceptives (AOR=1.94, 95%CI (1.09, 3.45)). This is again similar with study conducted in Arba- Minch district and rural communities of southern postural Ethiopia (5, 11, and 13).

7. STRENGTH AND LIMITATION OF THE STUDY

7.1. Strength

- ✓ Since this study was community based, the findings of the study could be generalized to the target population.
- ✓ All the sampled respondents were interviewed that giving 100% response rate and since the design used was cross-sectional it was possible to collect representative population with short period of time.

7.2. Limitation

The following limitation should be considered while referring this study.

- This data was collected through self report of the respondents where there could be social desire bias.
- There were significant variables showing association with the outcome variable but it needs qualitative exploration of the factors to justify their reason behind.
- Finally, there could be a recall bias since women were asked for information about events that occurred in the distant past though different life events were used to memorize the past.

8. CONCLUSION AND RECOMMENDATION

8.1. Conclusion

The prevalence of birth spacing was 59.9% in this study which is an indication that still majority of mothers in serbo town were practicing short birth interval.

Age at first marriage, sex of the index child, mother's preference of birth interval, educational status, and duration of breast feeding and use of modern contraceptives were the variables that showed statistically significant association with the outcome variable that is short birth interval. The highest percent of Mothers in child bearing age in Serbo town had not had formal education as a result a few of them were using family planning methods when compared with their knowledge about the methods

8.2. Recommendations

- Education needs to be intensified to ensure that more mothers accept and practice spacing births using the current approved birth spacing interval (36-60 months). So the educational bureau of Jimma zone particularly of serbo town should encourage and promote female education through adult education and other opportunities that can access them to the community of the town.
- Serbo town of health office higher official should give attention and work on creating awareness about the importance of spacing child. They should better induce the child bearing age mothers that birth spacing is the most crucial intervention for the health of both mother and the child born to her, even helpful in building ones economic condition of individual to the country level at large.
- Jimma Zone of health bureau particularly, MCH should escalate their program on persuading mothers through giving information about the necessity of using modern contraceptive in spacing child and to recuperate their health as well as the child especially.
- Furthermore, Zonal and Woreda health officials, and HEW should provide information on the importance of BF for 24 months and above, the effect of early marriage They should strongly ensure the mothers in the town as FP is cost free and even make available the those contraceptive methods so that mothers will get access to use easily.

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ANNEX I: INFORMATION SHEET AND TOOLS

Addis Ababa University, College of Health Sciences, Department of Nursing and Midwifery

Code number: _____

Date: _____

Information sheet and consent form of study participant on the Practice and determinants of suboptimum child spacing among women of bearing age at Serbo town.

Hello, my name is _____. I am here to collect data for the study conducted by Girma Bacha who is student in Addis Ababa University for Masters degree of Child Health Nursing. This study is a partial requirement for his MSc degree.

Purpose of the study The purpose of this study is to assess Prevalence Of Suboptimal Child Spacing Practice And Its Associated Factors Among Women Of Child Bearing Age In Serbo Town,Jimma Zone Southwest Ethiopia, 2017 Ethiopia, from March to April 2017.

The finding of this study will contribute much for the improvement of mothers health particularly those who are vulnerable for short birth spacing, whom are playing a great role in socio economic improvement as well as related issues.

If you are willing to participate in this study, you based on your good will and you need to understand and sign the agreement form and then you will be part of the study by giving your honest response on time of the data collection.

Right: Throughout the process of data collection you have a full right to withdraw yourself totally or partially at any time or you may reserve to response some parts of the questionnaire.

Confidentiality: All the responses given by the participants and results obtained will be kept confidential using coding system whereby no one will have access to your response. You will not provide any incentives to take part in this study. You are not expected to give your name or phone number. Every data obtained from you will be kept confidential. Without permission from you and legal body any part of this study will not be disclosed to other third person.

If you have any question you can contact the principal investigators:

Name: ***Girma*** *Bacha*

Tel: +251913416448 Mails: mugher88@gmail.com

Are you voluntary to participate in the interview? Yes No

If you agree to be involved in this study please sign below. Signature: _____

Name and signature of supervisor _____Date _____

Name and signature of data collector _____Data _____

Questionnaires of English Version

Part ISocio-demographic Characteristics of the respondents {just encircle to your responses and write on the space given for answer where necessary}

S.N	Questions	Response and Coding	Skip
101	House code	_____	
102	Age of the mother in years	_____	
103	Marital status	1. Married 2. Single 3. Divorced 4. Widowed	
04	Age at first marriage	……	
105	Religion	1. Orthodox 2. Protestant 3. Muslim 4. Catholic 5. Others (specify)_____	
106	Ethnicity	1. Oromo 2. Amhara 3. Guragie 4. Tigray 5. Others (specify)_____	
107	Education of the mother	1. Illiterate 2. Able to read and write 3. Elementary (1 - 6) 4. Junior (7 - 8) 5. Secondary (9 - 12) 6. Tertiary (12+)	
108	Occupation of the mother	1. Employee (GO/NGO) 2. Merchant 3. Student 4. Farmer 5. Daily worker 6. Others (Specify)___	Skip to
109	Income of the mother per month	----------ETB	

Part II Knowledge on Birth Interval (**{just encircle to your responses and write on the space given for answer where necessary}**

S.N	Questions	Response and Coding	Skip
201	Have you heard about optimal birth interval between two consecutive births?	1. Yes ☐ ⟶ 2. No ☐	If no go to Q203
202	If yes to question no 201, what is the optimum number of months or years between two successive births?	1.Below three years 2.Three to five years 3.Above five years 4. I don't know	
203	Does adequate/optimum birth spacing have a health advantages?	1. Yes 2. No ⟶ 3. Don't Know	If no or DK go to Q205
204	If yes to question no 203, to whom do you think have a health advantages?		
	204.1. The mother?	1. Yes 2. No 3. Don't Know	
	204.2. The child?	1. Yes 2. No 3. Don't Know	
	204.3. Both?	1. Yes 2. No 3. Don't Know	
205	Does short birth interval have a health disadvantages?	1. Yes 2. No 3. Don't Know	If no or DK go to Q301
206	If yes to question no 205, to whom do you think have a health disadvantages?		
	206.1. The mother?	1. Yes 2. No 3. Don't Know	
	206. 2. The child?	1. Yes 2. No 3. Don't Know	
	206. 3. Both?	1. Yes 2. No 3. Don't Know	

Part III Birth History of the respondents {just encircle to your responses and write on the space given for answer where necessary}

S.N	Questions	Response and Coding	Skip
301	How many children have you ever born alive?	Males ____ Females_____	
302	Have you ever given birth to any child who died soon?	1. Yes 2. No ⟶	If no go to Q304
303	If yes, how many of your children died?	Males _____ Females_____	
304	At the time you became pregnant with the last child did you want to have any more child?	1. Yes 2. No ⟶	If no go to Q308
305	If yes to question no 304, was your preference to become pregnant soon after or wait until later?	1. to become pregnant soon after 2. to wait until later ⟶	If "2" go to Q308
307	If your preference is to wait until later, how long did you prefer to wait?	_____ in months	
	From those given birth intervals which one do you prefer?	1. Less than three years 2. 3 to 5 years 3 More than 5 years 4. I prefer none of the above	
308	What was the reason to become pregnant then while preferring to wait until later (soon after)	_____	

309. Birth Order	1. Sex 1. Male 2. Female	2. In what month and year did (name) born?	3. Is he /she alive? 1. Yes 2. No	4. If died, how old was (name) he/she died 1----------year 2---------Month	5.Current age	310. Birth interval in months
309.1.Last child						
309.2. previous to last child						

Part IV Breast feeding practices ({just encircle to your responses and write on the space given for answer where necessary}

S.N	Questions	Code and Response)	Skip
401.	Did you breast fed previous to last child (name)?	1. Yes 2. Never breast fed	If "never" go to Q404
402.	If yes to question 401, for how long was (name) breastfed?	_____months	
403.	Reason for stopping breast feeding?	1. The child being old enough 2. New pregnancy 3. The mother was sick 4. Other(specify)_____	
404.	When do you think breast feeding should stop completely?	After _____ months.	

Part V. Knowledge and practice of modern contraceptive use ({just encircle to your responses and write on the space given for answer where necessary}

S.N	Questions	Response and Coding	Skip
501	Do you know any modern method that women and men can use to delay or avoid pregnancy?	1. Yes 2. No	
502	If yes for q501, which of the following methods do you know about?		
	502.1. Pills	1. Yes 2. No	
	502. 2.Injectable	1. Yes 2. No	
	502. 3. Condom	1. Yes 2. No	
	502. 4. Implants	1. Yes 2. No	
	502. 5. IUD	1. Yes 2. No	

503	Have you been using any of the modern methods before the conception of your last child?	1. Yes 2. No →	If no go to Q506
504	If yes to question no 503, what was the purpose?	1. Birth spacing 2. Limiting birth	
505	If yes to question no 503, which of the following modern methods did you use?	1.Pills 2.Injectables 3.Condom 4.Implants 5.IUCD	
506	Are you using any of the modern methods now?	1. Yes 2. No →	If no go to Q508

507	If yes to question 503 or 506, from where have you got family planning service?	1. Health post 2. Health center 3. Hospital 4. Private sector	
508	If you were not using any contraceptive method to delay or avoid pregnancy, would you tell me the main reason?	1.Desire for more children 2. Health problem 3.Religious reason 4.Husband not willing 5.Moral and cultural reason 6.Lack of information about contraception 7.FP service not available 8.Others /specify/_____	

GUCA QORANNOO DHIMMA HAADHOLIIN DA'UMSA ADDAAN FAGEESSANII DA'UU FI HAALOTA KANAAF SABABA TA'ANADDA BAASUUN HUBACHUUF ILAALCHISEE MAGAALAA SARBOOTI RAGAA FANAANUUF DHIHAATE

DUREE– UNKAA EEYYAMA HIRMAATOTA GAAFACHUUF QOPHAA'E

Waraqaa eyyamaa qorannoo magaala Sarboo irratti dhimma haadholiin addaan fageessanii da'uu fi haalota kanaaf sababa ta'an adda baasuun ilaaluu ta'a

Seensa: akkam jirtu maqaan koo_____. kaayyoon as dhufeef odeeffannoo qorannoo barataa Girmaa Baacaa Yuunivarsiitii Addis Ababatti Barnoota Maastireetii isaaf hojjachaa jiru irratti gaaffileewwan qorannoo kanaaf barbaachisoo ta'an isin irraa argachuufi yoo ta'u, qorannoo dhimma haadholii umurii Wal hormaata keessa jiran waa'ee daa'imman addaan fageessanii da'uu fi haalota kanaaf sababa ta'an adda baasuu irratti gaaffileewwan qopha'an kannin isin gaafachuufi

Kaayyoo qorannoo – kaayyoon qorannnoo kanaa haala shaakalaa haadholii fi haalota addaan fageessanii da'uu irratti gahee taphatan haadholii umurii walhormaataaf gahan keessatti magalaa Sarboo, godina Jimma Kibba –lixaa Itoophiyaatti qorachuuf ta'a. qorannoon kunis digrii 2^{ffaa} Yuuniveristii Addis Ababa irraa argachuu fi dhiimmi qoratamu kunis ummataaf akkasumas haadholii kanninif ba'uu qaba jedhamee yaaddameetu.

Adeemsa – gaaffilee waliigalaa waa'ee keeti fi akkasumas ijoolleewwan gara dhumaa dhalatan lamanii irrattii gaaffilee qophaa'an isin gaafachhun ta'a

Iccittii – deebiin isin deebiftan hunduu iccittin akka qabamuu isinitti himuu barbaada maqaan keessan waraqaaa kana irratti hin katabamu akkasumassagaleen keessan hin waraabamu

Bu'aa fi midhaa qorannoo – qorannoo kenarratti hirmaachuu keessanif qofa kaffaltiin kallattin

argatan hin jiru. Garuu hirmaachun keessan waa'ee tajaajila qusannoo maatii akkasumas daa'imman addaan fageessanii da'uun haadholiista'ee daa'immaniif barbaachisu ni hubattuu jedheen yaada

Mirga – hirmannan keessan fedhii keessan irratti kan hundaayee dha, kanaafuu waan isiinif hin

gallee yeroo kamiyyuu jidduutti gaafachuu dandeessu.hirmannan keessan fedhii irratti kan hundaaye yoo ta'u garuu muuxxennoon keessen hadhoolee biraaf gargaara.

Yoo gaaffii dabalataa qabaattan lakkoffsa armaan gadiin ni argamna.

Tel: 0934446419

Mail mugher@gmail.com

Unkaa eeyyamaa

Wantoota armaan olitti ibsaman kana dubbisee jira. Gaaffii gaafachuufis carraa gafadheeraa. Hirmannaan koos fedhii kootin waan ta'eef yeroon barbaadetti hirmannaa koos dhaabuu akkan danda'u hubadheen jira.

Mallattoo hirmaattotaa_____ guyyaa_____
Mallattoo nama odeeffannoo guuree_____ guyyaa_____

Kutaa I; Gaaffilee odeeffannoo dhuunfaa hirmattotaa illaalatu (deebii sirriitti mari ykn barreessi)

Lakk	Gaaffilee	Deebii	Irra-darbi
101	Koodii Mana	_____	
102	Umurii Haadha waggaan	_____	
103	Haala Ga'elaa	1. kan heerumte 2. kan hin heerumin 3. kan wal-hiikte 4. kan dhiirsi jalaa du'e	
104	Umurii meeqatti Herumtee?	_____	
105	Amaantii	1. Ortoodoksii 2. Protestaantii 3. Musliima 4. Kaatolikii 5. kan biraa (yaa ibsamu)_____	
106	Sabummaa	1. Oromoo 2. Amharaa 3. Guraagee 4. Tigraayi 5. Kan biraa (Yaa Ibsamu)_____	
107	Sadarkaa barnoota Haadha	1. Kan hin baraanne 2. Barresuu fi dubbisuu dandeessu 3. Sadarkaa 1ffaa (1 - 6) 4. Sadarkaa giddugaleesaa (7 - 8) 5. Sadarkaa 2ffaa (9 - 12) 6. Sadarkaa olaana (12+)	
108	Haala hojii Haadha	1. Hojjetuu Moottumaa ykn Mit-Moottumaa 2. Haadha warraa manaa/Giftii Manaa 3.Daldaaltuu 4. Baratuu 5. Qoteebultuu 6. Hojjetuu hojii guyyaa 7. Kan biraa (Yaa Ibsamu)_____	
109	Galii haadhaa Ji'aan	Qarshii----------	

Kutaa: II Hubannoo wal-irraa fageessanii Da'uu ilaalchise (deebii sirritti mari ykn barreeessi)

S.N	Gaaffilee	Deebii fi Koodechuu	Irra-darbi
201	Da'umsa lamaan walitti anaan gidduu hangam wal-irraa fagaachuu akka qabu dhagessani beektu?	1. Eeyyee ⟶ 2. Miti	Yoo Miti jette gara gaafii 203 tara
202	Gaaffi 201 eeyyeen yoo ta'e, daa'imman laman walitti aananii dhufan gidduu garaagarumma yeroo hagam ta'uu qaba jettanii yaadduu?	1.Waggaa 3(Ji'a 36) gadi 2.Waggaa 3-5 (ji'a 36-60) 3.Waggaa 5 oli (ji'a 60 oli) 4. Hin yaadadhu	
203	Da'umasa yeroo ga'aa ta'eef wal-	1. Eeyyee ⟶	Yoo deebiin Miti/ hin

	irra fageessanii da'uun fayyaa irratti faayyida qaba jettanii yaadduu?	2. Miti 3. Hin barre	beeku ta'e gara gaafii 205 tara
204	Deebiin gaaffii Lakk. 203,Eeyyeen yoo ta'e,faayidaa fayyaa eenyuuf qabaa jettanii yaadduu?		
	204.1. Haadhaaf?	1. Eeyyeen 2. Miti /lakki 3. Hin beeku	
	204.2. Da'imaaf?	1. Eeyyeen 2. Miti/lakki 3. Hin beeku	
	204.3. Lamaniifu?	1. Eeyyeen 2. Miti/lakki 3. Hin beeku	
205	Daa'imman ykn ijoollee walittii dhiyeessanii da'uun fayyaa irratti midhaa qabaa?	1. Eeyyeen 2. Miti /lakki 3. Ani hin beeku	Yoo deebiin kee Miti/Ani beeku ta'e gara gaafii 301
206	Yoo deebiin kee gaafii Lakk. 205, Eeyyeen ta'e eenyuu irratti midhaa fayyaa qaba?		
	206.1. Haadha irratti?	1. Eeyyeen 2. Miti 3. Ani hin beeku	
	206. 2. Da'ima irratti?	1. Eeyyeen 2. Miti 3. Ani hin beeku	
	206. 3. Lamanuu irratti?	1. Eeyyeen 2. Miti 3. Ani hin beeku	

Kutaa III Seenaa Da'umsa Hirmaatotaa (deebii sirritti mari ykn barreessi)

S.N	Gaaffilee	Deebii fi koodechuu	Irra-darbuu
301	Da'imaan meeqa osoo lubbuun jiranii deessee?	Dhiira ____ Dhalaa_____	
302	Daa'ima erga deessee kaatee booda du'e in jiraa?	1. Eeyyeen ——→ 2. Miti	Yoo deebiin kee Miti ta'e gara gaafii 304
303	Yoo deebiin kee Eeyyeen ta'e, Daa'immaan meeqatuu sii jalaa du'e.	1. Dhiira____2. Dhalaa____	
304	Yeroo mucaa kee isaa dhumaa ulfaa taaate turteetti, ijoollee baayy'ee qabachuu barbaadda turtee?	1 Eeyyeen ——→ 2. Miti	Yoo deebiin kee Miti ta'e

						gara gaaffii 308
305	Mucaan kee inni dhumaa			1.Dhiira____2. Dhalaa ____		
306	Yoo deebiin gaafiin lakk.304, feedhiin ulfaa ta'uu kee kanaatti ansuu/fufuu moo kanaan boodee hanga tokko eeguudha?			1.kanaatti ansuu/fufuu 2.hanga tokko eeguu/turuu		Yoo "1" ta'e gara gaaffii 308 deemi
307	Yoo fedhiin kee hanga tokko eeguu/turuu ta'e yeroo hangamii turuu feeta?			_____		
308	Wal irraa fageenya kanneen keessaa isa kam filattuu			1.waggaa 3 gadi 2.waggaa 3-5 3.waggaa 5 oli 4. kamuu hin filadhu		
309	Sababiin itti ansitee da'urraa hanga tokkoo eeguu ykn turuu barbaadeef maal?			_____		
310	Tartiiba Da'umsa kan (darbe)					
	Daa'ima	Kan jalaqaba	2ffaa	3ffa	4ffa	
310.1	Saala	1 Dhiira	1 Dhiira	1 Dhiira	1 Dhiira	
		2 Dubara	2 Dubara	2 Dubara	2 Dubara	
310.2	Ji'afi bara kam dessan?	Ji'a___	Ji'a____	Ji'a___	Ji'a___	
		Bara ___	Bara ___	Bara ___	Bara ____	
310.3	Inni/isheen lubbuun jiruu?	1. Eeyyeen	1. Eeyyeen	1. Eeyyeen	1. Eeyyeen	
		2. Miti	2. Miti	2. Miti	2. Miti	
310.4	Yoo du'e ta'e umurii meeqatti du'e/du'ute	1.Waggaa___ _	1.Waggaa___ _	1.Waggaa_ ___	1.Waggaa__ __	
		2. Ji'a_____	2. Ji'a_____	2. Ji'a_____	2. Ji'a_____	
310.5	Umuriin isanii inni ammaa	1.Waggaa___ _	1.Waggaa___ _	1.Waggaa_ ___	1.Waggaa__ __	
		2. Ji'a_____	2. Ji'a_____	2. Ji'a_____	2. Ji'a_____	
310.6	Wal-irraa fageenyi gidduu da'umsaa lamman darbee jiru Ji'a___n hammam ta'a (wagga yookin ji'an)		Da'ima 1ffa fi 2ffaa gidduu___	Da'ima 2ffa fi 3ffaa gidduu ___	Da'ima 3ffa fi 4ffaa gidduu ___	

Kutaa IV: Shaakala ykn Gocha(practice) Harma Hoosisuu (deebii sirritti mari ykn barreessi)

S.N	Gaaffiilee	Deebii fi koodechuu	Irra-tarii
401.	Mucaan keessan inni isa dhumaatti aanee jiru harma hoosiftani jirtu?	1. Eeyyee 2.waa tokko hin hoone	Yoo waa tokkoo hin hoone ta'e gara gaafii lakk.404 deem
402.	Deebiin gaaffii lakk. 401 Eeyyeen yoo ta'e, hanga yoomitti hodhe?	Ji'a_____	
403.	Deebiin gaaffii 401 waa tokkoo hin hoone yoo ta'e, Sabaaba harma hoosisuu dhaabdaniif maali?	1. Mucaan guddanaan 2. Ulfa haaraaf 3. Haati waan dhukkubsateef 4. kan bira(yaa ibsamu)_____	
404.	Harma hoosisuun yeroo kam guutuumaatti dhaabachuu qaba jettani yaadduu?	Ji'a _____ booda.	

Kutaa V. Beekumsaa fi Gocha itti fayyadama karoora maatii Ammayaa (Modern)

S.N	Gaaffilee	Deebii fi koodechuu	Irra-tari
501	Karoora maatii Ammayaa dubartootinii fi dhiroon ulfa dhowwuu fi tursissuu itti fayyadamaan beektuu?	1. Eeyyee 2. Miti	
502	Deebiin gaafii lakk.501 Eeyyeen yoo ta'e, Karoora maatii armaan gadii keessa isa kam beektu?		
	502. Piilsii	1. Eeyyee 2. Miti	
	502. isa limoon kennamu	1. Eeyyee 2. Miti	
	502. kondoomii	1. Eeyyee 2. Miti	
	502. Implaantii	1. Eeyyee 2. Miti	
	502. Ayuusiidii	1. Eeyyee 2. Miti	

503	Osoo mucaa kee isa dhumaa hin ulfaa'in karoora maatii Ammayaa fayyadamaa turtanii?	1. Eeyyee 2. Miti	Yoo miti ta'e gara gaaffii lakk. 506
504	Deebiin gaafii lakk.503 Eeyyeen yoo ta'e, karoora maatii Ammayaa kanneen keessaa isa kam fayyadamtu?	1. Piilsii 2. Kan limoon kennamu 3. kondoomii 4. Implaantii 5. Ayuus	
505	Deebiin gaaffii lakk.503 Eeyyeen yoo ta'e, Fayyidaan isa maal ture?	1. Addaan faggesaanii da'uu 2. Qusanoodhaaf	

506	Karoora maatii Ammayaa kana Amma fayyadamaa jirtuu?	1. Eeyyee 2. Miti	Yoo miti ta'e gara gaafii lakk. 508
507	Deebiin gaaffii lakk. 506 Eeyyeen yoo ta' e, tajaajjila karoora maatii eessaa argachaa turtani?	1. keella Fayyaa 2. Buufata Fayyaa 3. Hospitaala 4. Dhaabbata dhuunfaa	
508	Yoo karoora maatii ammayaa kan ulfa itisuu fayyadamaa hin ture ta'e sababii isa maal ture, nuuf himuu dandeesuu?	1.Ijoollee baay'ee qabachuu 2.Rakkoo fayyaa 3.Sabaaba amaantii 4.Dhirsi eeyyamuu diduu 6.Sabaaba duudhaa fi Aadaa 7.Hanqina Odeefannoo karoora maatii 8.Argamuu dhabuu Tajaajjila karoora maatii 9.Kan bira /yaa ibsamu/_____	

GUDDAA GALATOOMAA HIRMAANNAA KEESSANIIF!

ANNEX II: DECLARATION

I declare that this research paper titled as Prevalence Of Suboptimal Child Spacing Practice And Its Associated Factors Among Women Of Child Bearing Age In Serbo Town,Jimma Zone Southwest Ethiopia, 2017 Ethiopia, from March to April 2017.

is my original work and has not been presented for master's degree in this or another university and that all sources of materials used for this paper have been fully acknowledged.

Name of investigator: Girma Bacha (BSc.N) Signature: _____ Date:_____

This thesis work has been submitted for examination with my approval as university advisor.

Name of Advisor's

1. Name Of Principal Advisor: _____

   Signature:_____ Date_____

2. Name Of Co-Advisor_____

   Signature_____ Date_____