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Practice of child spacing and its associated factors among women of child bearing age (15 to 49 years) in Illubabor zone, South West Ethiopia

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Optimal birth spacing refers to resting period between pregnancies that allows the mother time to recuperate from pregnancy, labor and lactation. Long time period between births allows the next pregnancy and birth to be at full gestation and growth for years. This study aimed to assess practice of child spacing and its associated factors among women of child bearing age in Ilubabor Zone of Oromia National Regional State, South West Ethiopia, from January to June 2016. A community based cross sectional quantitative study design was used. A stratified multistage sampling procedure and face to face interview with Afan Oromo and Amharic version was done by administering questionnaire on 826 women of child bearing age. Women from rural areas were about 3 times more likely to have short birth interval than their urban counterparts [AOR =3.39 (95% CI: 1.13, 4.10)]. Respondents with no formal education were 2.56 times more likely to practice short birth interval than those with higher education [AOR = 2.56, 95% CI (1.60, 3.42)]. As compared to mothers whose husbands were employee, women whose husbands were farmers were more likely to have short birth interval [AOR = 3.50, 95% CI (1.29, 4.42)]. Mothers who breast fed their child for less than 12 months were 5 times more likely to practice short birth interval than those who breast fed for 24 months or more [AOR = 5.36, 95% CI ((3.43,6.34)]. Women who were not using contraceptives were 4.42 times more likely to give birth within short period of time than contraceptive users [AOR = 4.12 (95% CI: 2.71, 5.82)]. Women with fourth wealth quartile were 3.18 times more likely to have short birth interval than those with the lowest wealth quartile [AOR = 3.18(95% CI: 1.75, 4.56)]. Birth interval was short in this study. Therefore, greater attention should be given to contraceptive use and paternal education in addition to infant and child mortality prevention.

Key words: Birth spacing, knowledge, contraceptive, women.

INTRODUCTION

Scholars defined optimal birth spacing as resting period between pregnancies that allows the mother time to recuperate from pregnancy, labor and lactation. Longer time period between births allows the next pregnancy and birth to be at full gestation and growth for years. Family planning programs support two years intervals between

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births for infant and child health and survival (RamaRao et al., 2006; Orji et al., 2004). But recent studies recommend that birth intervals of 3 to 5 years are safer for mothers and babies as compared to birth intervals of two years or less (Yohannis et al., 2003; Orji et al., 2004).

Inter birth interval (IBI) has significant effect on the health status of the mother and her child (Cleland et al., 2008). It was indicated to be linked with increased risk of maternal morbidity and mortality, preterm birth, low birth weight, small for gestational age (SGA), labor dystocia, premature rupture of membranes, third-trimester bleeding, anemia and puerperal sepsis (USAID, 2005; WHO, 2005).

According to the Ethiopian Demographic and Health Survey (EDHS, 2014) report, with the exception of first birth, there is an inverse relationship between the length of the preceding birth interval and proportion of child who are stunted. The shorter the interval, the higher the proportion of children stunted. In Ethiopia, 40% of children under age five are stunted, and 18% of children are severely stunted. In general, the Central Statistical Agency (CSA) provide the prevalence of stunting increases as the age of a child increases, with the highest prevalence of chronic malnutrition found in children age 24-35 months (52%) and lowest in children between age six and eight months (9% percent) (CSA, 2014).

Besides the health implication, closely spaced birth intervals accelerate the population growth and challenge the development efforts of a country. By limiting women contribution to economic development, it makes difficult for them to become productive members of society. Moreover, when a newborn baby comes, that family will invest more of its limited resources to care for the newborn, while the other children will be left behind to receive insufficient share of the resources (USAID, 2005). On the contrary, optimal birth spacing (OBS) yields the greatest health, social and economic benefits for the family. Although, previous research findings advocate an interval length of 2 years between two consecutive births for a better maternal and child health (WHO, 2005), current evidence shows that births should be spaced at three to five years apart to ensure the greatest health benefits for mothers, newborns and older children (WHO, 2005; USAID, 2005).

Davanzo et al. (2004) attributes the adverse consequences of a short birth interval for infant and child survival and maternal mortality to the biological effects related to the “maternal syndrome “or more generally, the women not fully recovering from one pregnancy before supporting the next one (which may lead, for e.g., to anaemia and premature rupture of membranes).

Ethiopia is one of the countries with the highest maternal mortality ratios in Africa and the world, estimated at 673 per 100,000 live births in 2011. This is associated with the low levels of antenatal care and birth attendance by health professionals in Ethiopia, especially among the poor-as well as early age at marriage and first birth. Among the 20 to 35 years old, about 30% of all female adult deaths are from maternal deaths at birth (CSA, 2006 cited in World Bank, 2007).

Addressing these issues is vital because short birth interval is a modifiable risk factor and is potentially within the control of individuals and couples. Birth spacing is a public health intervention that can use available modern contraceptive methods and technologies. The birth spacing programs, using contraception in combination with revised and strengthened birth spacing education and counseling messages, can be mainstreamed into existing health and non-health programs in both clinical setting and community setting. Therefore, understanding practice of birth interval and its associated factors among women of reproductive age is critical for countries like Ethiopia with a population policy aiming at reducing fertility.

MATERIALS AND METHODS

Study design

A community based quantitative cross-sectional study design was used. All married women in reproductive age group (15 – 49 years) having at least two children available at their household during the data collection period were included in the study.

Sample size determination

The sample size was determined using the formula for single population proportion and considering 36.8% proportion of optimal birth interval in Lemo District, Southern Ethiopia (Yohannes et al., 2011), 95% CI 5% margin of error, design effect of 2 and 10% non response rate yielding the total sample size of 826.

An attempt was made to adopt a three stage sampling technique. The first stage involved the selection of districts by simple random sampling technique. The second stage was selection of Kebeles from the selected districts again using simple random sampling technique. Then, the third stage was selection of households using systematic random sampling technique.

Data collection procedures

The data were collected using pre-tested interview guided semi-structured questionnaire. The questionnaire was prepared in English and translated to Amharic and Afan Oromo versions. It was checked for its consistency and then translated back to English by different individuals. The translations were made by those who are well oriented with the stated languages (language professionals). The instrument was adopted from different literatures developed for similar purpose by different authors and tools designed by various organizations.

Data analysis

The data were double entered onto EPI data version 3.1 and exported to SPSS (SPSS Inc. version 20.0, Chikago, Illiois) computer software for further analysis. Errors related to inconsistency of data such as missing values and outliers were

checked and well thought-out during data cleaning. Descriptive statistics were used to give clear picture of the dependent and independent variables. Frequency distributions of the variables were worked out using tables and figures. Logistic regression model fitness was checked by using Hosmer Lemshow test of significance and omnibus test.

A two-step logistic regression (bivariate and multivariable) analysis was done to see the effect of independent variables on practice of child spacing in married women of child bearing age (15-49 years). In the first step, bivariate analyses were done to assess the association between each independent variable and the outcome variables. All variables with p-value less than or equal to 0.25 in the bivariate logistic regression model were entered into the multivariable logistic regression model using backward elimination method to control for all possible confounders. At this step, odds ratio along with 95% CI was estimated to identify factors associated with optimum child spacing.

Data quality control

The appropriateness of the questionnaire in terms of content, consistency, language and organization was checked meticulously and was modified in line with standards, guidance and suggestion from peer reviewers. A pretest was employed in Bedele 01 kebele on a total of 42 (5%) of respondents five days prior to the actual data collection. Findings were discussed among data collectors and supervisors in order to ensure the quality of data.

Based on the pretest, questions were revised, edited and those found to be unclear or confusing were modified. Finally, structured closed ended Afan Oromo and Amharic version questionnaire were used for data collection.

Supervisors and data collectors were trained on the data collection process, accuracy and completeness for three consecutive days. The overall activity was closely monitored by principal investigators of the study during data collection. To reduce non-response rate and unwanted confusion, necessary information and description was given to the study participants before initiating the interview. The data quality was controlled by designing ideal data collection tools and close supervision with aggressive monitoring. The information obtained was checked and cleaned up before and after data entry.

RESULTS

Socio-demographic characteristics

Out of 811 study population, 582 (71.8%) were rural residents and the rest 229 (28.2%) were urban residents. One-third (32.2%) were in the age ranges of 25-29 years. About three-fourth (72.6%) were Muslim. Out of the total participants, nearly two-third (61.4%) cannot read and write, whereas 52.7% of the respondent's husband attended primary education. About one third of the participants (66.5%) were from Oromo ethnic group. Greater parts of the respondents (84.0 %) were housewives and 72.7% of the respondent's husbands were farmers. More than half, 472 (58.2%) were in the third wealth quartile (Table 1).

Knowledge of birth spacing

Almost all (97.7%) of the respondents have ever heard about optimal birth interval between two successive live births. Among those who have the awareness, less than one-fifth (16.4%) reported the optimal birth interval between two consecutive births to be between 36 and 60 months. The results showed that almost all (98.2%) of the respondents, reported the presence of health advantages of birth spacing.

Birth history of the respondents

More than one-third (36.3%) of the respondents gave birth to live child. The intention to become pregnant before the conception of the last child was asked. Accordingly, 321 (41.2%) of the respondents wanted to become pregnant then and 459 (56.6%) desired to postpone the pregnancy to sometime later. Sex and status of the last child was also asked. Accordingly, 588 (72.5%) of the mothers had male and 764 (94.2%) of the children were alive.

Practice of birth spacing

More than half (51.2%) of the study subjects had short birth interval. More than one-third (34.9%) respondents had optimum birth interval and the remaining had long birth interval (Figure 1).

Breast feeding practices

The study revealed that 366 (45.1%) of the respondents breast fed their children for 24 months or more and the reason for stopping breast feeding for about three–fourth (72.5%) of the respondents was the child was too old.

Use of contraceptives

More than half (55.1%) of the respondents have not been using contraceptive methods before conception of the last child. Nearly three–fourth of the respondents reported that the reason for not using contraceptive was desire for more children.

Predictors of birth interval

In the multivariable logistic regression analysis, women from rural residents were 3.39 times more likely to have short birth interval than their urban counterparts [AOR =3.39 (95% CI: 1.13, 4.10)]. Respondents who cannot read and write were 2.56 times more likely to practice short birth interval than those with secondary education and above [AOR = 2.56, 95% CI (1.60, 3.42)]. As compared to mothers whose husbands were employee, women whose husbands were farmers more likely to

Table 1. Socio-demographic characteristics of the respondents in Illubabor Zone, South West Ethiopia, 2016.

Variable	Categories	Frequency (n=811)	Percent
Residence	Rural	552	68.1
	Urban	299	31.9
Maternal age	20 - 24	122	15
	25 - 29	262	32.2
	30 - 34	201	24.8
	35 - 39	102	12.6
	40 - 44	124	15.3
Marital status	Married	768	94.7
	Divorced	18	2.2
	Widowed	25	3.1
Religion	Protestant	61	7.5
	Orthodox	161	19.9
	Muslim	589	72.6
Ethnicity	Oromo	539	66.5
	Amhara	272	33.5
Maternal education	Cannot read and write	489	61.4
	Primary	192	23.7
	Secondary and above	121	14.9
Husband's education	Cannot read and write	294	36.3
	Primary	427	52.7
	Secondary and above	90	11.1
Maternal occupation	Employee	60	7.4
	Housewife	681	84.0
	Merchant	30	3.7
	Others	40	4.9
Husband's occupation	Employee	130	16.0
	Merchant	30	3.7
	Farmer	590	72.7
	Others	61	7.5
Wealth Index	Lowest quartile	92	11.3
	Second quartile	148	18.2
	Third quartile	472	58.2
	Highest quartile	99	12.2

have short birth interval [AOR = 3.50, 95% CI (1.29, 4.42]. Mothers who breast fed their child for less than 12 months were more likely to practice short birth interval than those who breast fed for 24 months or more [AOR = 5.36, 95% CI ((3.43,6.34)]. Women who were not using contraceptives were 4.42 times more likely to give birth within short period of time than contraceptive users [AOR = 4.12 (95% CI: 2.71, 5.82)]. Women with fourth wealth

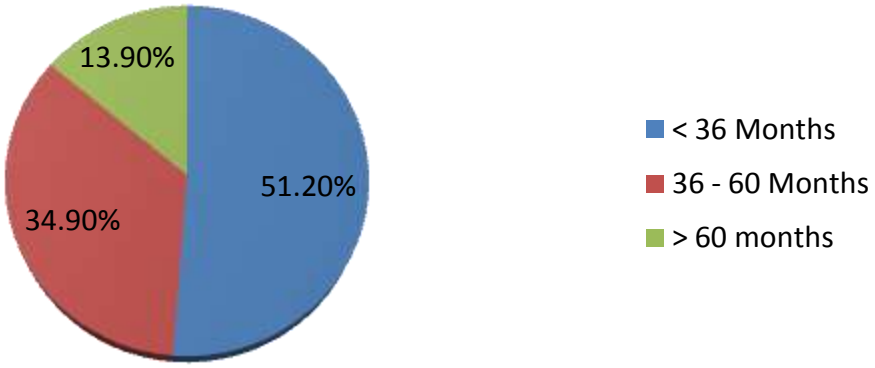

Figure 1. Proportion of birth interval among women of reproductive age (15 - 49 years) in Illubabor Zone, South West Ethiopia, June, 2016.

quartile were 3.18 times more likely to have short birth interval than those with the lowest wealth quartile [AOR = 3.18(95% CI: 1.75, 4.56)]. (Table 2)

DISCUSSION

This study tried to assess the practice and determinants of child spacing among women of child bearing age in Illubabor Zone, South West Ethiopia. More than half (51.2%) of the respondents had short birth interval. Place of residence, maternal education, husband's occupation, wealth quartile, duration of breast feeding, contraceptive use and status of index child, were independent predictors of child spacing among women of reproductive age.

A study conducted in Southern Ethiopia in 2010 indicated that more than half (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 (Yohannes et al., 2011). This study also revealed similar result in that more than half, 415 (51.2%) of the study subjects had short birth interval. Two hundred and eighty three (34.9%) respondents had optimum birth interval and the remaining had long birth interval.

Similarly, the study conducted in Southern Ethiopia revealed that rural women were more likely to have short birth interval than urban women (Yohannes et al., 2011). This study also revealed similar result that rural women were more likely to have short birth interval than urban women. This study found out that respondents who cannot read and write were 2.56 times more likely to practice short birth interval than those with secondary education and above. This finding is also consistent with a study conducted in Northern Iran in 2007, where with increase in maternal education level, the birth interval significantly increased (Hajian-Tilaki et al., 2009).

The study conducted in Dabat district showed that women whose husbands were farmers had about 2.3 times more likely to have subsequent birth after the index child as compared to women whose husbands were employees (Tessema et al., 2013). This study also found out those women whose husbands were farmers had high chance of having short birth interval.

Women with the fourth wealth quartile were more likely to have short birth interval than those with the lowest wealth quartile. This finding is similar to a study conducted in Southern Ethiopia that revealed women with highest wealth quartile were more likely to have short birth interval than those with lowest wealth quartile (Yohanes et al., 2011). The reason might be women with the lowest wealth quartile might be busy on their daily earning to fulfill their basic needs which might have resulted in delay of becoming pregnant.

Mothers who breast feed their children for less than 12 months were more likely to practice short birth interval than those who breast feed their children for 24 months or more. This finding is again consistent with a study conducted in Northern Iran that showed, with increased duration breast feeding, the mean birth interval increased significantly (Hajian-Tilaki et al., 2009).

In a study in Southern Ethiopia, women who were not using contraceptives were more likely to give birth within short period of time than users (Yohannes et al., 2011). The finding of this study is consistent with this similar finding that showed women who were not using contraceptives were more likely to give birth within short period of time than contraceptive users.

In Ethiopia, different studies showed 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 close to their desired family size (Lindstrom and Kiros, 2007). This study also revealed that mothers whose index chid were alive were more likely to have long birth interval than mothers whose index child died. It is alleged that the difference in the birth interval is related to the desire of parents to replace a dead child as well as

Table 2. Multivariable logistic regression analysis indicating factors associated with birth spacing among respondents in Illubabor Zone of Oromia National Regional State, 2016.

Characteristics	Birth interval		AOR 95% CI
	Optimal N (%)	Sub optimal N (%)	
Residence			
Urban	30(13.1)	199(86.9)	1.00
Rural	283(43.5)	328(56.5)	3.29 (1.13, 4.10)
Maternal education			
Cannot read and write	167(33.6)	330(66.4)	2.56(1.60, 3.42)
Primary education	55(28.6)	137(71.4)	0.79(0.55, 1.14)
Secondary and above	61(50.4)	60(49.6)	1.00
Education of husband			
Cannot read and write	68(23.2)	225(76.8)	2.53(0.82, 3.53)
Primary education	185(43.3)	242(56.7)	1.65(0.49, 2.77)
Secondary and above	30(33.3)	60(66.7)	1.00
Occupation of husband			
Employee	74(51.0)	71(49.0)	1.00
Farmer	178(31.0)	396(69.00	3.50 (1.29, 4.42)
Others*	31(34.10	60(65.9)	0.49(0.28, 1.850
Wealth quartile			
Lowest quartile	26(28.30)	66(71.7)	1.00
Second quartile	509(34.00)	979(66.0)	1.31(0.74, 2.310
Third quartile	1729(36.40)	300(63.60	1.45(0.89, 2.370
Fourth quartile	35(35.40)	64(64.6)	3.18(1.75, 4.56)
Duration of breast feeding (months)			
0 - 6	29(15.8)	154(84.20)	2.36(0.37, 4.06)
7 - 12	40(30.8)	90(69.2)	5.36(3.43, 6.39)
13 - 23	30(22.90	101(77.1)	1.57(0.89, 2.78)
≥24	1849(50.3)	182(49.7)	1.00
Contraceptive use			
Yes	61(37.20	103(62.8)	1.00
No	10(15.2)	56(84.8)	4.12(2.71,5.82)
Status of index child			
Alive	19(41.3)	27(58.7)	1.00
Dead	264(34.6)	500(65.4)	3.75(1.41, 4.37)

*Merchants, students, daily laborers; AOR =adjusted odds ratio, CI = confidence interval. The bolded values are the variables in the final model.

to the loss of fertility delaying effects of breastfeeding.

Readers shall take into contemplation, the following limitations when interpreting the findings of this study. First, the cross-sectional nature of the study had made it impossible to reach at causal relationship between different independent variables and birth interval. Second, the source of data for this study was based on the self-report of respondents, and provided no validation of obtaining information with objective source such as health facility cards. But it is logical to assume that biasis

are less likely in delivery related events as compared to sensitive issues such as sexual behavior and drug abuse and respondents were informed about the importance of giving accurate responses and also assured confidentiality of their responses.

CONCLUSION AND RECOMMENDATIONS

Almost all the respondents have ever heard about optimal birth interval between two successive births. However, more than half (57%) of the participants in the reproductive age group have been practicing short birth interval below the recommended duration of optimal birth spacing. Place of residence, maternal education, husband's occupation, wealth quartile, duration of breast feeding, contraceptive use and status of index child, were independent predictors of optimal child spacing among women of reproductive age.

Hence, in the interventions designed to address optimal birth spacing, use of contraceptive methods and maternal education should be given greater attention in addition to prevention of infant and child mortality.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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REFERENCES

Central Statistical Agency of Ethiopia (CSA) (2006). Ethiopian demographic and health Survey, Addis Ababa, Ethiopia and Calverton, Mary land USA.

Central Statistical Agency of Ethiopia (CSA) (2014). Ethiopian demographic and health survey Addis Ababa, Ethiopia and Calverton, Mary land USA.

Cleland J, Bernstein S, Ezeh A, Faundes A, Glasier A, Innis J (2006). Family planning: the unfinished agenda. Lancet 368(9549):1810-1827.

Davanzo J, Razzaque A, Rahman M, Hale L (2004). The Effects of Birth Spacing on Infant and Child Mortality, Pregnancy Outcomes, and Maternal Morbidity and Mortality in Matlab, Bangladesh. Available at: http://s3.amazonaws.com/academia.edu.documents/41477680/RAND_WR198.pdf?AWSAccessKeyId=AKIAIWOWYYGZ2Y53UL3A&Expires=1497866961&Signature=EhcvHYZxJhOPz88t6TBca2PbD8c%3D&response-content-disposition=inline%3B%20filename%3DThe_effects_of_birth_spacing_on_infant_a.pdf

Ethiopia Mini Demographic and Health Survey (EDHS) (2014). Ethiopia Mini Demographic and Health Survey 2014. Central Statistical Agency Addis Ababa, Ethiopia. Available at: https://www.unicef.org/ethiopia/Mini_DHS_2014__Final_Report.pdf

Hajian-Tilaki KO, Asnafi N, Aliakbarnia-Omrani F (2009). The patterns and determinants of birth intervals in multiparous women in babol, Northern Iran. Southeast Asian J. Trop. Med. Public Health. 40(4):852-60.

Lindstrom DP, Kiros GE (2007). The impact of infant and child death on subsequent fertility in Ethiopia. Popul. Res. Policy Rev. 26(1):31-49.

Orji E, Shittu A, Makinde O, Sule S (2004). Effect of prolonged birth spacing on maternal and prenatal outcome. East Afr. Med. J. 81(8):388-391.

RamaRao S, Townsend J, Askew I (2006). Correlates of inter-birth intervals: implications of optimal birth spacing strategies in Mozambique. Frontiers in Reproductive Health, Population Council. Available at: http://pdf.usaid.gov/pdf_docs/PNADG133.pdf

Tessema GA, Zeleke BM, Ayele TA (2013). Birth interval and its predictors among married women in Dabat District, Northwest Ethiopia: A retrospective follow up study. Afr. J. Reprod. Health 17(2):39-45.

USAID (United States agency for International Development) (2005). Strengthening family planning policies and programs in developing countries: An Advocacy Toolkit, USA. Available at: http://www.policyproject.com/pubs/manuals/Family%20Planning%20Toolkit%20final.pdf

World Health Organization (WHO) (2005). Report of a WHO technical consultation on birth spacing: Geneva, Switzerland, 13-15 June 2005. Geneva: WHO. Department of Making Pregnancy Safer. Department of Reproductive Health and Research. Available at: http://apps.who.int/iris/bitstream/10665/69855/1/WHO_RHR_07.1_eng.pdf

Yohannes S, Wondafrash M, Abera M, Girma E (2011). Duration and determinants of birth interval among women of child bearing age in Southern Ethiopia. BMC Pregnancy Childbirth 11:38.

Yohannis F, Yemane B, Alemayehu W (2003). Differentials of fertility in rural Butajira. Ethiop. J. Health Dev. 17(1):17-25.