Original article

High-risk birth, fertility intention, and unmet need in Addis Ababa

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Abstract: In 1993 a survey was conducted to examine family planning knowledge, attitude and use in Addis Ababa. One of the objectives of the survey was to look at those women who were exposed to high-risk birth (HRB), their contraceptive behaviour and the unmet HRB need for family planning. About 88 % of the women were found to be exposed to at least one bio-demographic risk factor. Most of the women in the high risk category (70.6 %) were exposed to high parity, followed by old age (56.6 %) and closely spaced births (15.2 %). A substantial number of women falling in the too old and too many bio-demographic risk categories expressed a desire to stop childbearing compared to women at no risk. Women in the too frequent category of high-risk birth significantly expressed a desire to space the next birth for at least two years when compared to those women who were not at risk of close birth spacing. The unmet HRB need among married women was 60 % which is 10% higher than the conventional unmet need for family planning. Contraceptive prevalence among high-risk women was found to be 26% with 18% of them in need of a better family planning method. [*Ethiop. J. Health Dev.* 1998;12(2):103-109]

Introduction

Ethiopian women, as any other sub-Saharan women, are characterized by high parity. The average parity is about seven children for the country. Though a relatively better access to family planning information and service prevails in Addis Ababa, the average parity remained to be 5.8 children which is considerably large (1). The under-five mortality in Addis Ababa is also very high (114/1000) (2) with a high level of maternal mortality (5.66/1000LB) (3). Research results have shown that if women had three or fewer births, confined their child bearing to ages 20 to 34, years infant and maternal mortality could be reduced substantially (4). Thus, women who are too young or less than 18 years, too old or more than 35 years, bearing too many children or parity of three or higher, and too frequent or spacing less than two years apart are defined as high-risk group (5).

Researchers have found that women over 35 years generally tend to experience a greater risk of death due to problems associated with malpresentation and placental abnormalities and also a pattern of increasing risk of maternal death for each successive birth after the second or third birth have been observed (6). According to a study conducted in Addis Ababa, women's age and parity showed notable association with maternal mortality which was higher among women in the age group 15 to 19 and among those women over 35 years of age. An excessive maternal mortality was also noted in those women with first birth and also those women having three or higher parity (3). The relationship between infant mortality and parity typically is a J-shaped curve, with substantial risk associated with both first and high-order births when there is no

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control for age, compared with second- and third-order births. The first born may experience excess mortality soon after birth, but after age one this disadvantage may wane (5). Two possible explanations linking very young maternal age and elevated risk of child mortality have been forwarded. First, pregnancies that occur before mothers have attained full maternal growth or physical maturation may result in a greater risk of complications during pregnancy or child birth (7).

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Second, young women who became pregnant are less likely to receive early and adequate perinatal care (8). Moreover, there is also the possibility that the child is not wanted (5).

A number of studies conducted over the years have concluded that birth spacings influence child survival. Studies have shown that there is a negative association between short birth intervals and child survival (5, 9-15). One possible mechanism linking birth spacing to child survival is competition from other older sibling, but the evidence is mixed (5). Excess mortality resulting from closely spaced births has also been attributed to the drain on a women's nutritional resource (16,17). Although a number of researchers have hypothesized that short birth intervals would increase the risk of maternal mortality due to the so-called maternal depletion effect (17,18), evidence are lacking (5).

Targeting family planning services to prevent high-risk and unwanted pregnancies has the potential to significantly reduce both maternal and infant mortality (19). Increased access to information about family planning and improved contraceptive services for women at risk could facilitate improvements in coverage, quality and effectiveness of maternity care services (5). There are limited studies done on high-risk births in Addis Ababa. In light of this the bio-demographic factors of high-risk birth and the unmet HRB need are examined.

Method

In 1993 a survey on family planning was carried out in Addis Ababa. The city is divided into kebeles (Urban dweller's association) constituting the lowest administrative unit. The 1984 Population and Housing Census was the only available census at the time of this survey. Therefore, the 1984 census information was used to obatin the required sample size for this study.

According to the 1984 census, there were 179,169 married women in the city and there were also 284 kebeles each consisting of an average of 631 married women, and an average of 5.2 persons per household (20). A cluster sampling design was adopted to select kebeles from the total of 284 kebeles initially stratified by density (inner-densely populated and outer-sparsely populated) and then systematic sampling was used to select households to be included in the survey. A total of 1000 ever married women were included in the study. The observations were collected by trained female interviewers using a standard questionnaire. Which was pretested in the field before the actual survey. All relevant socio-demographic information including their knowledge, attitude and practices about family planning were recorded on a standard pre-coded questionnaire which was administered in Amharic. This analysis utilizes the survey data. The analysis was performed only on 697 women who were in the reproductive age group.

A woman is defined to have a possibility of high-risk birth if, at the time of the survey, she was less than 17 years and three months (too young), more than 34 years and three months (too old), had a birth less than 15 months ago (too frequent), and has had three or more births (too many) assuming a nine-month gestation period (5). The three parameters (age, parity and birth spacing) are called bio-demographic factors. However, these bio-demographic characteristics do not, by themselves, pose a risk to the mother and/or her children. It is only when a woman with one or more high-risk factors gives birth that they potentially become dangerous. Therefore in this paper this definition is applied to categorize women accordingly. Since the smallest age found was 20, the too young category is not applicable in this analysis.   The HRB-need refers to the need to space/or limit childbearing in order to reduce the risk of infant, child and maternal mortality. It is assumed that even though a woman may not express a preference to space or limit her

Table 1: **Distribution of 697 married women having bio-demographic risk factors. Addis Ababa, 1993.**

Risk categories	Number	Percent
Too old	430	56.6
Too many children	536	70.6
Too frequent births	115	15.2
Too old and too many	358	47.2

Too many and too frequent	38	5.0
Too many and too frequent	84	11.1
Too old, too many and too frequent	35	4.6
At least one risk	628	88.1
Not at risk	69	11.9
Total	697	00.0

births, it may be desirable for her to do so if she is in the bio-demographic risk category in order to avoid the negative health consequences associated with such pregnancies. Women at risk are assumed to have a spacing need if they are in the too young or too frequent category. On the other hand they are assumed to have a limiting need if they are in the too old or too many category at the time of the survey. The unmet-HRB-need is, therefore, those women who are in union with their husbands, non pregnant, who are in the bio-demographic risk category and not using any method of contraception at the time of the survey. Women with a spacing need who are not using contraception are considered as having unmet HRB-need for spacing, while those women with a limiting need and not practising contraception are defined as unmet HRB-need for limiting. The total unmet-HRBneed is the sum of unmet-HRB need for spacing and limiting. Women in the too old or too many categories are expected to practise a permanent method of family planning. Thus, women in these categories who are using a temporary method of contraception are assumed to be in need of a better (permanent) method of family planning. Data was entered into the computer system using D-base software and analysis was performed using SPSS PC+ statistical package.

Result

Women were categorized according to single and multiple risk as shown in Table 1. The largest category of women are at risk of high parity (70.6%) followed by old age (56.6%) and close birth spacing (15.2 %). The simulataneous occurrence of too old and too many bio-demographic risk (47.2 %) is by far the highest compared to any possible combination of risks. Only 4.6% of the women are exposed to all the three risk factors. In general most of the women (88 %) have at least one biodemographic risk factor.

Women's fertility preference is presented in Table 2 according to exposure to high-risk birth. Most women in the bio-demographic risk category (72.6%) expressed a desire to stop childbearing compared to those women who are not at risk of old age (33.7%) and the difference is statistically significant (P < 0.0001). The desire to stop childbearing is also significantly higher among women with high parity compared to women with two or lower parity (68.8% vs 24.2%). Birth limiting preference is found to be the highest for those women at risk of both old age and high parity (74.9%). Women's preference to space birth is also assessed according to the different bio-demographic risks. Particularly, women in the too frequent category of high-risk birth significantly expressed a desire to space the next birth for at least two years when compared to those women who are not at risk of close birth spacing (21.7% vs 4.2%, P<0.0001).

Table 2: **Percentage of married women who are exposed to high-risk births, according to intention of birth limiting or spacing. Addis Ababa, 1993.**

Bio-demographic	Fertility preferences		
	want to stop	want to space	have no choice
Age			
Too old	3.5	3.5	17.9
Not at risk	11.2***	11.2***	11.9
Parity			
Too Many	6.7	6.7	14.7
Not at risk	7.2	7.2	16.6
Age and Parity			
Too old and too many	3.1	3.1	11.7
Too old or too many	10.9	10.9	27.0
No at risk	9.0	9.0	1.5

Close Birth Spacing			
Too frequent	21.7***	21.7***	13.9

** p <0.001

*** p<0.0001

Table 3: **Percentage distribution of currently married women having bio-demographic risk factors, who are not using contraceptive and the unmet HRB-need for limiting and spacing**.

	Contraceptive Non Users	
Bio-Demographic Factors	Number	Percent
Too old	256	43.0
Too many	292	49.0
Too old or too many	342	58.0
Only too frequent	14	2.3
Unmet HRB-need		
Limiting	342	58.0
Spacing	14	2.3
Total	356	60.3

Table 3 shows high-risk women who are not using contraception. In general women who are exposed to high parity and old age have higher unmet HRB-need for contraception compared to others. The overall unmet HRB-need is found to be 60%. The unmet HRB-need for limiting (58 %) is by far higher than that of spacing (2.3%). The contraceptive prevalence rate among currently married high-risk women was found to be 26%. However, only 8% of them reported to practice a permanent type of contraception. The largest proportion (18%) use the pill which is a temporary method of family planning.

In order to assess possible determinants of the unmet HRB-need for family planning a bivariate analysis was performed on the data. Education (p<0.001), age at marriage (p<0.001) and women's work status (p<0.001) are significantly associated with the unmet HRB-need for family planning.

Table 4: **Percentage of currntly married, high-risk women who are not using contraception according to selected characteristics**.

Socio-Demographic Characteristics	Total No of Women	Percent
Age at Marriage		
< 19	399	74.0**
20-30	107	55.6
Education		
Illiterates	240	81.7**
Elementary	194	66.5
Secondary	72	43.1
Current work status		
Working	86	44.2
House wife	21	75.3***
Religion		
Christian	461	69.6
Muslim	45	77.8

** P<0.001

*** P<0.0001

Discussion

From the results of the analysis it is found that about 88% of married women are exposed to at least one bio-demographic risk factor. According to the results of Demographic and Health Surveys (DHS) most women in developing countries are exposed to at least one bio-demographic risk factor.

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It ranges from 72% in sub-Saharan African countries to 53% in Latin American and the Caribbean (5). The DHS analysis is done including single women in the reproductive age group and the existence of these bio-demographic factors among married women is always higher. Compared to the sub-Saharan rate this study found a higher rate since the study is conducted solely on married women who are subjected to high parity (which is the leading bio-demographic risk factor), old age and close birth spacing. While most of the unmarried women are in the too young category. The majority of the women in the high risk category fell into high parity (70.6%), followed by old maternal age (56.6%) and close birth spacing (15.2%). Combination of high parity and old maternal age (47.2%) are the largest compared to any other possible combination of risks. This is in agreement with the DHS findings. In sub-Saharan Africa and in Latin America/ Caribbean young maternal age is also relatively more important compared to other regions of the world; it ranged from 2.0% in Brundi to 10.7% in Liberia (5). In our study there is no young maternal age because of the current trend of late age at marriage in Addis Ababa which averages to about 20.6 years (1). Since women who are married are highly exposed to childbearing and associated risks, this study has focused mainly on this section of the population.

   Associated child and maternal mortality due to high-risk birth is well established and documented. Addis Ababa is characterized by high infant, child and maternal mortality. Factors such as women's education, work status, occupation, access to safe drinking water and latrine are important differentials of infant mortality in Addis Ababa (1). Though information is lacking regarding the relation-ship between infant mortality and bio-demographic factors of high-risk birth in Addis Ababa, DHS studies have shown that mortality increased by 64% for children born to young mothers and by 50% for those with short birth interval. The excess mortality associated with parity 4 or higher ranges from 1% in Senegal to 59% in Elsalvador. The combination of older maternal age, short birth intervals and high parity carries an average of 140% excess mortality (5). Health intervention programs such as immunization, child nutrition, improving environmental sanitation and better access to MCH services have significant impact on child survival. Besides, if women are made aware of the negative health consequence of high risk birth, child and maternal mortality could be reduced substantially. Integrated MCH and family planning program could be a good strategy.   Women's stated fertility preference on birth limiting and spacing showed significant association with the bio-demographic factors of high-risk birth. According to a study conducted in Addis Ababa, parity, age and women's work status are found to be significantly associated with women's birth limiting preference. The desire to limit birth was found to be the highest among women with parity 4 or higher, over 35 years of age and those women who have jobs (21). In Botswana and Zimbabwe bio-demographic risk factors are highly correlated with women's intention to limit births. Women who had had four or more live births were as much as 79% more likely than lower parity women to express a desire to have no more children (22). Studies have shown that a large proportion of women who want no more children strongly correlated with both fertility and contraceptive prevalence (23). The observed high rate of desire to stop or space birth among women at risk implies family planning programs could successfully operate in this section of the population. There is, however, an obvious gap between preference and contraceptive practice - unmet need. Not all who want to stop or space births practice contraception. Many women lack access to high-quality family planning services and would take advantage of such services if they were available. Others may be unaware of the range of methods available, be afraid of the side-effects of contraceptives. These and other issues can be addressed through information campaigns, education, and better counselling (21).

   Conventional measures of the unmet need for family planning are based solely on preferenceneed, that is, a women's preference to space or limit the number of children that she bears. In contrast, in our study the measures of unmet need do not consider women's stated fertility preference. However, the goal of avoiding high-risk births, that is, the HRB-need for family planning, is considered here. Govindasamy et al. (1993) initiated the idea of unmet HRB-need as a new concept of measuring the unmet need for family planning in the analyses of DHS data from 28 developing countries. According to results of the analyses they found an unmet HRB-need ranging from 14% in Thailand to 65% in Burundi. It was also demonstrated in the analyses that the unmet HRB-need of sub-Sahran

African countries is the highest compared to any other region of the world. This study also finds an unmet HRB-need of 60%. It is important to note that the DHS analysis was performed on all sexually active women but our analysis was exclusively performed on currently married women. The conventional unmet need for Addis Ababa was found to be 50% (24) which is 10% lower than the unmet HRB-need. In general, the conventional unmet need is lower than the unmet HRB-need and this has been demonstrated in the DHS studies.

The reasons for the higher unmet HRB-need could be due to the fact that women are not aware of the characteristics associated with high-risk births and hence lack the knowledge to avoid such pregnancies or it could be due to the unavailability and inaccessibility of high quality family planning and MCH services. Besides, high risk women are poor and less educated (25). Results of the bivariate analysis show that age at marriage, women's education and their working status are significantly associated with the unmet HRB-need. The DHS analysis also showed that women with an unmet HRB-need are predominately rural, have little or no education, and are not likely to be working and this is especially evident in sub-Saharan Africa (5).

In this study the need for a better family planning method is 18%. Similarly, the total contraceptive need for a better method ranges from 2 % in Mali to 26% in Zimbabwe (5). According to the 1990 Family and Fertility Survey of Addis Ababa the largest percentage of women (14%) reported to practice the pill followed by periodic abstinence (8%), IUD (5.2%), sexual abstinence (2.0%) and others (3.6%) (1). Though about seven types of family planning methods have been reported, the pill is by far the leading type of contraception currently in use by women. Availability of the different types of family planning methods is an essential strategy for the success of a family planning program, so that method choice and mix could be possible. We believe studies concerning preference of contraceptives and related issues are essential.

This study in general shous that the prevalence of high risk births is very high in Addis Ababa. On the other hand most of these high risk women did not practice contraception and even those who are using a family planning method are in need of a better and appropriate method.

There are, however, two important intervention starategies that could reduce high-risk births. One is to target family planning services to women who, because of their age, their parity, or close birth spacing, are currently in a high-risk category. Health care planners and policy makers need to play a more active role in identifying women who are at risk and increasing their awareness of the health benefits of using contraception. The other is to provide better maternity care to those women who are already pregnant and will be delivering a high-risk birth.

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