

Does Community-Based Distribution (CBD) of Pills
increase the Contraceptive Prevalence rate ?
A Comparative study between CBD and non-CBD areas
in Central Tigray, Northern Ethiopia.

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by
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Abbreviations

AAU-MF = Addis Ababa University Medical faculty

ab = above

CBD = Community-based distribution

CHAs = Community health agents

CPR = Contraceptive prevalence rate

ECA = Economic Commission for Africa

Educt. = Education

FGAE = Family Guidance Association of Ethiopia

FP = Family planning

IEC = Information education communication

MCH = Maternal and child health

MC = Modern contraceptives/tion

MOH = Ministry of Health

RHB = Regional health bureau

S.E = Standard error

TBAs = Traditional birth attendants

TFR = Total fertility rate

UN = United nations

Wr. = write

Abstract

A retrospective cohort study was undertaken to assess the effectiveness of Community-Based Distribution (CBD) of Family Planning services as a strategy to increase Contraceptive Prevalence rate (CPR) in Central Tigray. Thirty "Tabias" each from the CBD and the non-CBD areas were chosen; 683 and 676 participants from CBD and non-CBD areas respectively were interviewed. Men and women participated in the study were 672 and 687 respectively.

The CPR was found to be 14.4% in CBD and 4.4% in non-CBD areas (OR = 3.67; 95% CI = 1.88, 5.7). Eighty nine percent of the women in CBD and 82.7% in non-CBD areas (OR = 1.70 ; 95% CI = 1.07, 2.7), and 94.1% of the men in CBD areas and 87.5% in non-CBD area (OR = 2.26; 95% CI = 1.26, 4.1) knew at least one method of modern contraception . Similarly, 87.3% of women in CBD areas and 79.5% in non-CBD areas (OR = 1.77; 95% CI = 1.15, 2.73), and 92.9% of the men in CBD area and 84.8% of men in non-CBD areas (OR= 2.33; 95% CI = 1.4, 4.0) approved the use of family planning.

Among the current non-users who knew about modern contraceptives, 86.4% of the women in CBD and 80.5% in non-CBD areas had a future intention to use them. Reasons for non-use in both groups were need for more children, lack or low knowledge, and naturally spacing. Reason for discontinuation of modern contraceptives use in CBD areas were need to get pregnant, lack of method choices, and health concerns. With these findings we conclude that CBD was effective in raising knowledge, positive attitude towards FP and CPR.

We recommend that the CBD program has to be strengthened and extended to other villages of the region. IEC with emphasis on mechanisms to encourage inter-spousal communication about FP should be expanded and adequate method mixes must be available to CBD agents cognizant to their level of training.

I Introduction

Child spacing has been practised for centuries using various traditional methods. Several religious and historical documentations revealed that "teas" made from roots, weeds, barks, and other substances of plant origin were given to women as protection against unwanted pregnancy. Abstinence, prolonged breast feeding and withdrawal were also among the traditional methods used before the introduction of modern methods of contraception(1).

In 1968, the United Nations recognized the freedom by couples and individuals to determine the number of their children as a fundamental human right. This was reiterated at the different continental and International World Population Conferences conducted between 1974 and 1994. For couples and individuals to exercise this human right of deciding on the number and spacing of their children, they need to have access to information on family planning services and contraceptive supplies (1-3).

In the early 1960s, most family planning programs in the developing world were clinic based. These physician oriented facilities, primarily located in urban areas were unable to serve the bulk of the population who lived in rural, relatively isolated regions(4).

In an effort to alleviate this problem ,and to extend and complement clinic based family planning services, a number of alternative service delivery systems were initiated in the early 1970s. These alternative delivery systems include community based distribution (CBD) and contraceptive social

marketing (1,2,4).

In Ethiopia family planning service was introduced 31 years back when the Family Guidance Association of Ethiopia (FGAE) was established in 1966 as a private and non profit making organization. Later on, in the early 1980s, family planning service was integrated with the maternal and child health services in the Ministry of Health. Unfortunately, since then expansion to the rural areas has been very low. In the past family planning service was justified as a health measure and it was only in 1993, when the country adopted a National Population Policy, that the demographic aspect came to the forefront as a national goal. The policy clearly spelled out that alternative approaches to service delivery, such as community based contraceptive distribution be used to achieve high contraceptive prevalence and reduce fertility rates(6). Since lack of accessibility is one of the main reasons for non use of contraception in this country, community based pill distribution has been exercised in some regions of the country in the recent past. Hence, this study was undertaken to assess whether the community based distribution of pill has brought a change in contraceptive practices, including the attitude of males towards FP in Central Tigray.

The study area, Central Tigray zone , is located in the northern part of the country. Its capital town, Axum, is 1031 km north of Addis Ababa. The zone has a total population of 943,850. About 90.4% of the population lives in the rural areas. The majority of the population (about 97%) is orthodox

Christian and have nearly similar cultural characteristics. The zone is administratively divided into 25 "Weredas" which is further divided into 300 "Tabias". There are three hospitals, three health centres, 33 health stations and 117 health posts which provide health care in the zone.

To improve contraceptive practices in the rural "Tabias" of the zone, CBD contraceptive service was started in seven "Weredas" of 89 rural "Tabias" in 1994 (1986 E.C). These areas were chosen based on the assumption that they will represent the zone and the larger population size they have. Contraceptive practice in the rural areas was almost zero at that time. At present, around 243,254 people live in the 89 CBD-FP sites of the zone. The CBD program is usually run by male community health agents (CHAs) who were trained for 7 days on pill distribution and identification of risk factors for contraception. This training is in addition to their formal 30 days training to become CHAs. The CBD agents were selected by the community. In order to be selected they should be able to read and write. They are not longer compensated for their work; they are motivated only by their social recognition as "village doctors". They use a static strategy whereby they distribute pills either at the health post or from their homes. Each CBD agent is responsible for one "Tabia". They receive their monthly supply of pills from the nearby clinic in the Wereda. In each non CBD "Tabia", there are also CHAs who give other health services like treatment of malaria, but they were not trained for CBD and do not give CBD services.

II. Literature Review

1. Population growth, fertility level and trends.

Although the global rates of growth have fallen over the decades and will continue to fall, the actual world population is still increasing by more than 86 million(1.48%) persons annually. The increment is occurring at a higher degree (1.8%) in developing countries as compared to the developed world (0.4%) and this is likely to remain so until the year 2015. Since 1965 to 1990, the global total fertility rate, declined by 31%, from 4.9 to 3.4 births per woman. The corresponding decline was 21% for the more developed countries (from 2.4 to 1.9 births per woman), and 35% for the less developed countries (from 6 to 3.9 births per woman). Fertility in the least developed countries remains at the pre-transition level of 6.1 births per woman (7-9). Ethiopia also has a high total fertility rate of 7.7 children per woman and a high annual population growth rate of 3% (10,17).

2. Contraceptives Knowledge, Attitude and Practices

2.1 Contraceptives Knowledge

Although organized family planning programmes have greatly increased the availability of contraceptives in developing countries, basic awareness of modern contraceptive methods is still limited in many countries. Knowledge of contraception is nearly universal in Asia and Latin America, but in several sub-Saharan African countries over half of the women have never heard of any contraceptive methods (11,12).

Recently, increasing attention is being paid to men so as to increase contraceptives use. Studies conducted in early and late 1980s in some African countries like Burkina Faso, Nigeria, Sudan and Senegal revealed an encouraging number of men who have knowledge of modern contraceptives (13-16).

Married women's knowledge of modern contraceptives increases with age, parity and level of education. Many studies have shown that the level of knowledge reaches peak in the age group 25-29 years and then declines progressively as age increases. There are also differences by residence in which it is higher in urban than rural areas of developing countries except in countries with strong family planning programs like Bangladesh, Indonesia, Brazil, Botswana, Zimbabwe, Kenya, Tunisia, etc (2,12-14,19-22).

According to the 1990 National Family and Fertility survey of Ethiopia, 62.7% of the respondents know at least one method of contraception. Other recent studies have also shown that more than 50% of married women know at least one type of modern contraceptive methods, most commonly pills and injectable (20,21). As in other countries in Ethiopia women's knowledge of contraception has been observed to increase with the level of education(17). In community -based distribution family planning project sites run by the Family Guidance Association of Ethiopia , more than 70% of the married women age 15-49 years and over 60% of married men were found to have knowledge of modern contraceptive methods(18-20).

2.2 Attitudes

Any family planning program aimed at increasing contraceptive use must ensure that the target groups have favourable attitude towards contraceptive use. In countries with high contraceptive use today, such as in Latin America and most countries in Asia, changes in reproductive behaviour towards small family size is attributable to the wide acceptance and use of modern contraception. Such a trend has been developing in some African countries as well. Between the 1970s and 1980s the desired family size declined in Egypt, Ghana, Kenya, Morocco, Senegal and Tunisia (12). In the Ethiopian context (including CBD sites), there are some reports indicating positive attitude towards family planning and low family size (17-20,23).

2.3 Contraceptive practices

The proportion of couples using some form of modern contraceptive methods has risen from 15% in 1960 to nearly 60% across the developing world, and to about 80% elsewhere. These international trends, while highly encouraging, conceal great diversity among countries and regions. In western Europe, North America and most of East Asia access to family planning is almost universal, contraceptive use is between 65 and 80% ,and average family size is near or below the replacement fertility level of roughly two children per couple. By contrast, in most sub- Sahara African countries, family planning services are not yet widely available, contraceptive use is below 15%, the desired family size has declined only modestly, and women bear an

average of six or more children (3,7,8,24).

National surveys conducted in developing countries between 1974 and 1992 showed that 44.1% of women were using contraceptives, and the use of modern contraceptives increased by 6% annually. The increases were most rapid in Sub-Saharan Africa (9-10% annually) and slowest in Latin America and the Caribbean (3-4%). However, the absolute change in prevalence is highest for Asia which showed an absolute increase from 25% at the initial survey to 45% in the final survey and least for sub-Saharan Africa (11,12,24,25). Bongaarts and Bruce estimate that the proportion of currently married women who are current contraceptive users to be 15.9%, 40.9%, 46.7% and 47.8% for Sub-Saharan Africa, Middle East, Asia and Latin America, respectively. They also estimate the potential demand for contraception and unmet need as 38.9% and 23%; 59.8% and 18.9%; 60.8% and 14.1%; and 67.1% and 19.4% in sub-Saharan Africa, Middle East, Asia and Latin America respectively (25). Contraceptive practice is a more determinant factor in the fertility differences by which there is on average reduction of total fertility rate (TFR) by 0.7 child for every 10% points rise in contraceptive prevalence. Worldwide, the three most commonly used modern contraceptive methods are female sterilization (30%), intrauterine device (21%), and pills (14%). In contrast to the above, pill is the most frequently used method in most African countries (11,12).

Periodic reviews of CBD projects and programs in developing countries have confirmed their positive effects upon contraceptive prevalence rates which have typically doubled from 15% or less to roughly 30% within a year or two after CBD program initiation (43,44). In some sub-Saharan Africa, the programs have been successful and there was a substantial increase in contraceptive prevalence : in Mali from 1 to 11.6% ,Sudan from 6.8 to 19.8%,and Nigeria from 2 to 13.9% within two ,three and five years , respectively (48,50). Remarkable increases in the prevalence of modern contraception have been recorded and the proportion of pill users who got their method from a CBD agent was substantially higher, at 57% than health institution in Kenya and over 42% in Zimbabwe (44,45,47,48).

In a few other sub-Saharan African countries , CBD projects were unsuccessful in bringing a contraceptive prevalence rate over and above levels produced by static services alone. For instance in Rwanda a 3-celled quasi experimental study of three years showed that in the CBD cell, CPR increased from 2.3 to 11.3% , in the motivation only cell CPR increased from 4.6 to 35.9%, and in comparison area CPR increased from 6.9 to 9.6% . Similarly , a pretest-post test survey over two years in Lesotho and Cameroon showed that the contraceptive distribution had declined in the former and the increment of CPR recorded was below the expected level in the latter. In Cameroon, some increase in knowledge was seen but no significant increase in approval of FP occurred (50).

Current use of contraceptives increases with the age of women in the reproductive age, residence in urban areas, the number of living children (high among women with five or more children), in families whose husband approve of FP, where inter-spousal discussion about FP occurs, wife's positive perception of her husband attitude towards to FP and the level of women's educational status (12,14,17,29,30).

Future intention to use contraception provides an insight about the future demand for contraception. The patterns of future use are likely to be influenced by trends in urbanization , educational attainment , marriage pattern ,breast feeding , induced abortion or the availability of new and/or improved contraceptive methods. If the existing potential demand by the non-users in the developing world is met, the contraceptive prevalence can rise to over 60%(8,9,32).

In Ethiopia , the current use of modern contraception among currently married and non pregnant women age 15-49 years , all women age 15-49 years and ever married women were about 5% , 3.9% and 4.3% respectively (17). Like most African countries, in Ethiopia also pills (45%), IUD (7%) and female sterilization (6%) are the most frequently used methods. The national average total unmet need in Ethiopia is 56% , while it is 32% among spacers and 24% among limiters (17). In 1995, the MOH reported that the national CPR was raised to 7% (26) . A study in Assebe Tefferi, Bati and Adele in 1996 showed a higher contraceptive use of 27.7 % (27). The

intention to use contraceptive in the future in the country is estimated to be about 35% in urban and 23% in rural areas. It is highest among women age 15 to 19 years(37%) and lowest among women age 45-49 years(9.4%). The main reasons for no intention of using a method were fatalistic (35.2%), lack of knowledge(15.8%), and menopause (5.2%) (17).

Surveys in Community Based Distribution of contraception project sites in Bahir Dar, Yirgalem and Jimma showed that the current use of contraception among currently married women was over 13%. The ever use rate was 22.7% in Jimma, 27.9% in Yirgalem and 58% in Bahir Dar(18-20). Similarly a 17 week randomized intervention study conducted in Sululta in 1993 revealed that a contraceptive use rate of 2.6% at clinic and 5.8% at Community Based Distribution sites (28). A mid term evaluation of Community Based Family Planning Project in Yirgalem in 1996 showed that the total unmet need, unmet need for spacers, for limiters, and future intention to use contraceptives were 55.3%, 33.9%, 21.4% and 79.4%, respectively (19).

3. Barriers to modern contraception

Although for many areas geographical access to service remains a major problem, other problems include: lack of knowledge, fear of side effects, social and family disapproval, desire for more children, lack of husband-wife communication about FP, low women's status and poor quality of services. Programs are likely to be most successful when they reach beyond

the conventional boundaries of service provision to influence and alter the cultural and social factors that limit voluntary contraceptive use (4,10-12,14,19,20,25,28-30,33-35,48,50). To attain this programs of Community Based Distribution of contraceptives have been carried out in many developing countries. Barriers to CBD expansion in sub-Saharan Africa include medical conservatism , policy inertia , bureaucratic inertia (lack of political commitment to the program) and operational uncertainty regarding training , supervision , worker recruitment and deployment in the absence of practical pilot demonstrations.

In Ethiopia reasons for non-use of contraception in both CBD areas and in health institutions do not appear to differ from those documented elsewhere (18-20,28,33).

4. Gender roles in fertility regulation

Gender relations which guide the culturally appropriate behaviour of men and women play a prescriptive role in fertility regulation in all societies. The combination of male dominance upon decision making on such issues, and sometimes their opposition to fertility regulation represents an important barrier to wider use of contraception. More specifically, since family planning has traditionally been considered as a women's issue , a gender perspective requires taking into account the interplay between men's and women's role, rather than focusing on women's situation alone (39).

Family planning programs in Africa have traditionally concentrated on reaching women through the maternal and child health services and have largely ignored the involvement of men. However, in recent year, programs designed to increase contraceptive use among African population and to reduce the level of fertility have increasingly paid attention to the contraceptive knowledge , attitude and practice of African men (40). However, there is as yet no generally accepted understanding of what men's involvement means in family planning . The role of the husband is paramount in the couple's decision on the choice of method or fertility regulation. Much of female sexual and contraceptive behaviour is indirectly determined by the woman's perception of the male's attitude and desires or her expectations within their relationship(41,42). African men generally wish to have bigger families than their wives do, though today a high proportion of men approve the use of family planning (13,14,30,38,39).

Some of the family planning studies carried out in this country have shown that husbands' FP approval, husband -wife discussion on the issue and generally the inclusion of husbands in family planning programmes have resulted in increased use of modern contraceptive methods(3,33-35). Similarly , performance assessment in CBD-FP project areas of Jimma, Bahir Dar and Yirgalem showed better performance and the raising of males awareness and positive attitudes towards family planning (18_20).

5. Community Based Distribution (CBD) of Family Planning (FP)

services.

CBD-FP programs began in the early 1970s to address the problems of limited access to the FP services and low prevalence of contraceptive use.

Their essential feature is to deliver family planning services and information to populations beyond the reach of fixed clinics and health centres. Initially it began in few Asian countries and later in Latin American countries. Now it is operating in more than 40 countries world wide (4,43,44).

CBD-FP programs have brought about a successful impact on increasing knowledge, use of contraceptives, use continuity and couple years of protection in Asian, Latin American and a few African countries (4,44,46-50). The success of CBD in Asia and Latin America has led many observers to conclude that CBD can work anywhere, including the high fertility setting of sub-Saharan Africa. This has not always been the case. Even in Asia, CBD has sometimes failed, and in Africa little evidence exists to confirm the hypothesis that CBD adds users to programs, over and above levels produced by static services alone. For example in Ghana and Lesotho, CBD has failed due to wrong type of distributor (TBAs), and wrong type of training, respectively (50). A comparison of the performance of male and female CBD distributors in Peru showed that males were found to distribute more condoms and females, more pills; overall, males did as well or better than females in the total numbers of clients recruited and total couple-years of protection (51).

In a Zaire project men and women performed about equally well as distributors ; women were slightly more productive ,as measured by couple-years of protection provided (44).

In Ethiopia, community based distribution of pills started in few areas but now it seems that the strategy 'is being adopted more widely. Evaluations of CBD-FP projects of FGAE have shown notable changes in awareness about contraception, attitude towards FP and contraception use. Level of awareness and current use of contraception in these areas increased to over 75% and 13%, respectively. The major reasons for discontinuation and non-use were wanting to have more children , health concerns, and religion (18-20).

III. Objectives

1. General objective:

To assess the effectiveness of CBD as a strategy to increase contraceptive prevalence rate in Central Tigray.

2. Specific objectives:-

- 2.1. To determine and compare the current and ever contraceptive use rate between CBD and non CBD service sites.
- 2.2. To determine and compare the intention for future contraceptive use between CBD and non CBD FP service sites.
- 2.3. To assess and compare the attitude of males to wards fertility control between CBD and non CBD sites.
- 2.4. To identify and compare use or non use factors of FP between CBD and non-CBD sites.

Hypothesis:-

Null hypothesis (Ho) :-There is no significant difference in contraceptive use rate between CBD and non CBD sites.

IV Subjects and Methods

1. Study Design

A retrospective cohort design was used to evaluate the effectiveness of community-based distribution of pills in increasing contraceptive use and changing the attitude of males towards family planning. The rural "Tabias" with community -based distribution of FP services since 1994 were considered as exposed to receive service, while those which did not receive FP service at the village but used nearby health facilities were labelled as not exposed . The study was carried out in Central Tigray from February to June 1997.

2. Population

2:1 Source Population

All currently married women 15-49 years of age and their husbands, living in the rural "Tabias" of Central Tigray were the source population for the study.

i. Inclusion Criteria

- A. Married non pregnant women age 15-49 and their husbands.
- B. Consent to participate.

ii. Exclusion Criteria.

- A. Pregnant women and their husbands.
- B. Married women older than 49 years and their husbands.
- C. Single women or men.
- D. Women in puerperium and their husbands.

E. Refusal to participate.

2:2 Study Population

All rural women who are currently married and age 15-49 years and their husbands were included in the study ,if they fulfilled all the criteria for inclusion .

2:3 Study Area

The study was conducted in rural Central Tigray zone. The Zone is divided into 25 Weredas which is further divided into 300 "Tabias". Out of the 300 "Tabias" , 268 are rural and 32 are urban . Health service is provided by three hospitals, three health centres , 33 health stations and 117 functional health posts.

2:4 Sample Size Calculation

The assumptions made for the sample size determination were based on the Ethiopian experiences of CBD contraception practices and the national CPR of 7 % . A two sided significant level of 0.05 a power of 80% are to be used. The sample size calculation was made using the following formula and assumptions:

$$n = \frac{P_1 (1-p_1) + p_2 (1-p_2)}{(P_1 - P_2)^2} \times (Z_\alpha + Z_\beta)^2$$

n= Sample size

$$p_1 = \text{CPR in CBD areas} = 14 \%$$

$$p_2 = \text{CPR in non-CBD areas or at national level} = 7 \%$$

$$\alpha = 95 \%$$

$$Z_{\alpha} = 1.96$$

$$\text{Power} = 80 \%$$

$$Z_{\beta} = 0.84$$

$$n = 297$$

Ratio of exposed to non-exposed : 1:1 ,therefore :

$$n = 297 \times 2 = 594$$

Assume an additional 10% as contingency and compensation for non-response. Therefore,

$$n = 594 + 10\% \times 594 = 654$$

2.5 Sampling Procedure

The 1994 population census provided information on the population size of each "Tabia". Following a cluster sampling technique, 30 clusters were randomly selected for CBD and non- CBD "Tabias" each. Within the cluster (Tabia), households were selected using the following procedure:

1. Within each cluster , a central place was chosen;
2. a random direction in which to proceed was chosen by spinning a pencil at the central place ,the sharp end of the pencil indicating the quadrant where the first household is located ;
3. approximating the number of houses between the center and the periphery of the chosen quadrant from the CHAs or leaders of the "Tabia" ,the first house was selected at random; finally,

4. the next household visited was the one closest to the first. This procedure was followed until 11- 12 households satisfying the inclusion criteria were obtained.

The sampling procedure is illustrated in Figure 1.

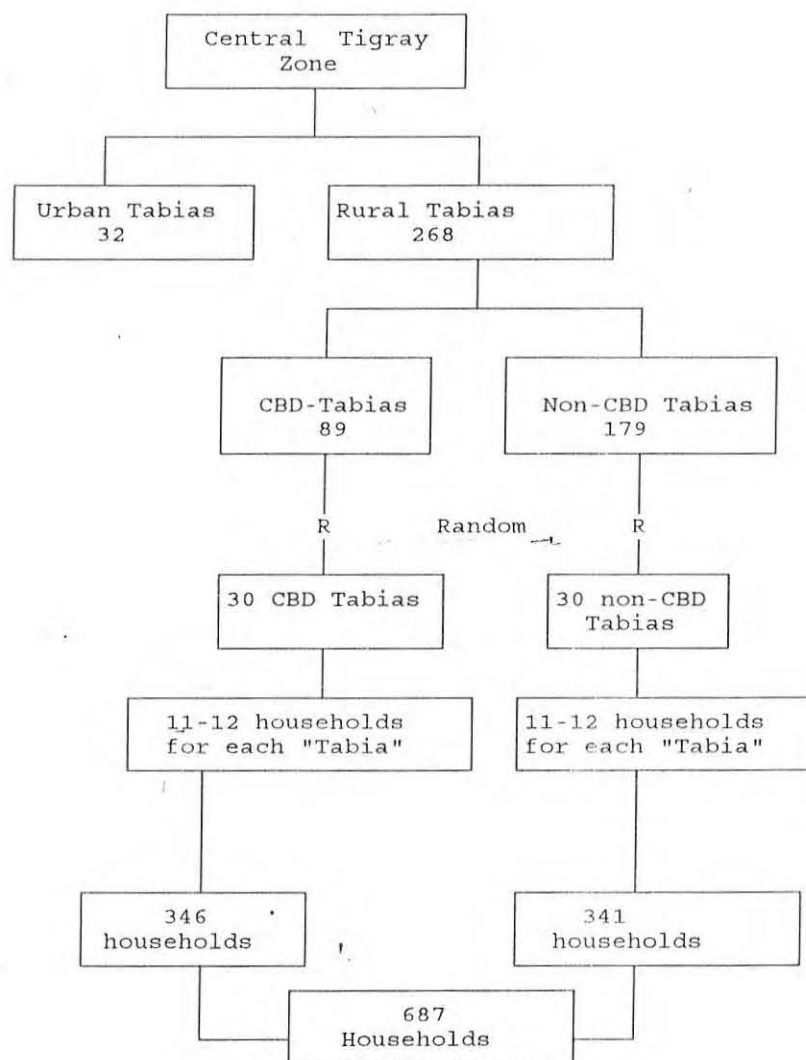


Fig. 1 Study Architecture

3. Measurement

3.1 Independent variable (Exposure) : the presence or the absence of CBD FP program in the rural "Tabias" and a number of Socio-demographic variables.

3.2 Dependent variable (Outcome) measurement

A. Knowledge about modern contraceptives.

B. Attitudes of males and females towards FP

C. Contraceptive practices .

- ▲ Ever-use of contraceptives.

- ▲ Current contraceptive use or CPR.

- ▲ Drop- out rates of contraceptive use .

D. Intention for future contraceptive use.

4. Data collection and management

Quantitative and qualitative data were collected using a structured questionnaire and informal group discussions, respectively. The structured questionnaire was initially prepared in English (App.1) and was later translated into the local language "Tigrigna" (App.2) which was used to collect the quantitative data. Informal group discussions were carried out to gain a more in-depth insight of the people's view about family planning: namely , attitude and Socio-cultural factors affecting contraceptive practices in the areas. In total , eight informal group discussions, four from CBD and four from non-CBD areas, were performed; two with women and two with men. Each group consisted of six members. Males were selected from the same "Tabia" where

they worked together as a team in local terracing activities. Females participating in the group discussion did not know each other. They were selected for the CBD and non-CBD areas, respectively from Adwa hospital and Enticho health centre where they came seeking medical services for their children. The principal investigator was the facilitator for all discussions while the two supervisors were recorders; the conversations were tape recorded. Data were collected from 1,359 subjects out of which 683 were from CBD and 676 from non- CBD areas.

4.1 Recruitment and selection of interviewers and supervisors

Male students who had completed 12th grade and had participated in data collection for the 1994 census were recruited. The selection of only male interviewers was mainly due to the long walking distances in the study "Tabias". Two nurses working in the MCH/FP section at the Wereda health office/ health station were recruited as supervisors. CHAs and leaders of the "Tabias" participated in identifying the central place of the area, in estimating the number of houses between the center and the periphery of the chosen quadrant, in informing the dwellers of their respective "Tabias" of the purpose of the study and date of data collection, and in overall facilitating the data collection.

4.2 Training of the interviewers

The interviewers were trained for six days. Theoretical and practical training on how to interview, how to approach participants, how to identify

households, and on other procedures related to the study were given. Lectures, discussions, role play, demonstration and field practices were the tools used during the training program.

4.3 Pretest

The questionnaire was pretested in rural "Tabias" of the zone which were not included in the study. The pretesting was carried out to assess how best to phrase the items in the questionnaire so as to maximize the response, and to develop a locally acceptable way of inquiring on fertility behaviours and preferences. Based on pretest observations, minor modifications were made on some items of the questionnaire.

4.4 Supervision

The supervisors were instrumental in establishing rapport with the CBD-agents and community leaders in the selected "Tabias". They also supervised the interviewers' daily activities and gave clarifications when ambiguity arose.

4.5 Quality Control

The accuracy and reliability of the collected data were checked by the supervisors and the principal investigator. Every evening, discussions were held among the interviewers, supervisors and principal investigator to provide feedback based on the day's experience.

5. Data analysis

The EPI Info version 6.0 program was used for the quantitative data entry and analysis. Clearing and editing of data were carried out by the principal investigator. Frequencies of the different variables in both CBD and non CBD were determined. This was followed by cross tabulation and chi-square tests of selected outcome variables. Odds ratios were computed for assessing the effectiveness of CBD in increasing the mentioned outcomes. In addition to the univariate and bivariate analyses, multivariate analysis (multiple logistic regression) was used to determine the relative contribution of the various variables to contraceptive practices in both areas. The FGD data were hand-tallied and then interpreted.

Ethical considerations.

The study was approved by the Scientific and Ethical Committee of the Faculty of Medicine, AAU; Family Health Department of MOH and Tigray regional health bureau(RHB). Following the approval, the RHB wrote an official letter to the Zonal and the 25 Wereda administrative councils explaining the purpose and usefulness of the study, and requesting their

participation. Discussions were also held with Zonal , Wereda council and "Tabia" leaders about the purpose of the study. They agreed to participate and informed the dwellers of all the selected study sites about the study before the data collection started. The interviewers explained the purpose of the study, the content of the questionnaire, and the confidentiality of the collected information before securing informed consent from each participant.

V. Results -Part I: Quantitative results

1. General Description

Six hundred eighty seven women and 672 men were interviewed, for a total of 1,359 participants. Of these, 683 were from the CBD areas and 676 from the non- CBD areas of the zone..

2. Socio-demographic characteristics

Socio- demographic characteristics of the study groups are summarized in Table 1. Chi-square and t-test were used to compare the two groups. The mean age of women in CBD and non CBD areas was similar. It was also similar for males in both areas. As shown in Table 1, the two groups were comparable on a number of Socio-demographic characteristics, except for religion.

Table 1: Socio-demographic characteristics of CBD and non- CBD groups,
Central Tigray, Ethiopia, 1997.

<u>Variable</u>	<u>CBD</u>	<u>Non-CBD</u>	<u>X²</u>	<u>P- value</u>
	<u>N(%)</u>	<u>N(%)</u>		
1. Wife's Age				
15-24	82 (23.7)	95(27.9)	7.5	0.18
25-29	61(17.6)	55(16.1)		
30-34	72(20.8)	70(20.5)		
35-39	68(19.7)	45(13.2)		
40-44	39(11.3)	43(12.6)		
45-49	24(6.9)	33(9.7)		
Total	346(100)	341(100)		
Mean $\pm$ SD	31.1 $\pm$ 7.8	30.7 $\pm$ 8.7	0.71++	0.82
2. Husband's Age				
18-24	11(3.3)	15(4.5)	13	0.04
25-29	27(8.0)	44(13.1)		
30-34	60(17.8)	46(13.7)		
35-39	59(17.5)	41(12.2)		
40-44	45(13.4)	47(14)		
45-49	57(16.9)	46(13.7)		
≥ 50	78(23.1)	96(28.8)		
Total	337(100)	335(100)		
Mean $\pm$ SD	41.5 $\pm$ 11	41.6 $\pm$ 11.2	0.021++	0.87
3. Wife's Educat. Status				
Illiterate	314(90.8)	312(91.5)	0.5	0.78
Read and Write	18(5.2)	14(4.1)		
Primary Education	10(2.9)	15(4.4)		
Sec. Educat	4(1.2)	0.0		
Total	346(100)	341(100)		

Table 1(cont'd)

4. Husband's Educat.
Status

Illiterate	140(41.5)	163(48.7)	4.5	0.1
Read and write	99(29.4)	95(28.3)		
Primary Educat.	93(27.6)	75(22.4)		
Second. Educat.	5(1.5)	2(0.6)		
Total	337(100)	335(100)		

5. Wife's Occupation

Housewife	343(99.1)	341(100)		0.24+
Others	3(0.9)	0		
Total	346(100)	341(100)		

6. Husband's occupation

Farmer	329(97.6)	327(97.6)	0.06	0.81
Others	8(2.4)	8(2.4)		
Total	337(100)	335(100)		

7. Family
Religion

Orthodox	324(96.1)	334(99.7)	11.3	0.001
Moslem	13(3.9)	1(0.3)		
Total	337(100)	335(100)		

footnotes

+ denotes P-value for Fisher's exact test.

++ T-value for mean age difference

3. Reproductive characteristics

3.1. Total births

The average total births were 4.9 (SD= ± 2.7) and 4.7 (SD= ± 2.7) children for the CBD and non- CBD areas, respectively.

3.2. Alive children

Women in the CBD area had on average 4 (SD= ± 2.1) alive children and those in non- CBD area had 3.8 (SD= ± 2.2). Their spouses had 4.5 (SD= ± 2.4) and 4.2 (SD= ± 2.3) children in the CBD and non CBD areas, respectively. In both groups, husbands had more children than their wives. The maximum number of children a husband had was 14 in CBD and 15 in non-both areas.

3.3 Desired family size

The mean desired family size for wives and husbands in the CBD area were 6.16 (SD= ± 1.7) and 6.76 (SD= ± 1.9) children respectively. For the non- CBD areas it was 6.2 (SD= ± 1.7) and 6.8 (SD= ± 2) children for wives and husbands, respectively.

3.4 Desire for additional children

Only 25% and 28.4% of the women in the CBD and non CBD areas respectively reported that they did not want to have any additional children ($X^2 = 2.48$; $p=0.28$). The unmet need among those who didn't want additional children was 82% in the CBD and 96.8% in the non-CBD areas (OR =0.14 ;95%CI =0.03,0.53).

Table 2: Reproductive characteristics of the study groups, Central Tigray Zone, Ethiopia, 1997.

Variable	CBD N(%)	Non CBD N(%)	X ²	P- value
1. Total # of births				
0	7(2.0)	8(2.3)	0.85	0.93
1	25(7.2)	24(7.0)		
2-4	133(38.4)	142(41.6)		
5-6	79(22.8)	74(21.7)		
≥7	102(29.5)	93(27.4)		
Total	346(100)	341(100)		
2. Wife's total # of alive children				
0	8(2.3)	15(4.4)	4.2	0.24
1-2	89(25.7)	88(25.8)		
3-4	103(29.8)	113(33.1)		
≥5	146(42.2)	125(36.7)		
Total	346(100)	341(100)		
3. Husband's total # of alive children				
0	7(2.0)	8(2.4)	3.1	0.38
1-2	72(21.4)	83(24.8)		
3-4	90(26.7)	99(29.5)		
≥5	168(49.9)	145(43.3)		
Total	337(100)	335(100)		
4. Wife's desired number of children				
1-2	4(1.1)	2(0.6)	1.0	0.59
3-4	47(13.6)	39(11.4)		
≥5	266(76.9)	259(76.0)		
Up to God	29(8.4)	41(12.0)		
Total	346(100)	341(100)		
5. Husband's desired # of children				
1-2	1(0.2)	2(0.6)	0.35	0.84
3-4	28(8.3)	27(8)		
≥5	289(85.7)	284(84.8)		
Up to God	23(6.8)	22(6.6)		
Total	337(100)	335(100)		

4. Contraception characteristics

4.1 Approval of family planning: 87.3% and 79.5% of the women in the CBD and non- CBD areas, respectively approved the use of family planning ; as did 92.9 % and 84.8% of the husbands in the CBD and non CBD areas, respectively. There was a statistically significant difference in the proportion of women who had positive attitude towards FP in the CBD and non- CBD areas (OR =1.77 ;95% CI: 1.15,2.73). The difference was also significant for males(OR=2.33; 95 % CI:1.4, 4.0). Multivariate logistic analysis was performed to assess whether the association between CBD and males' FP approval was confounded or not; the association was positive and not confounded (see Table 6)

4.2. Decision making on family planning

Seventy five and 17.1 percent of the women in the CBD areas said that decision making on family planning should be made jointly and by the wives alone, respectively. The corresponding proportions for the non-CBD areas were 69.5% and 23.2%. Similarly 76.3% of husbands in CBD and 77% of husbands in non- CBD areas said that it should be a joint decision. There was no statistically significant difference between CBD and non-CBD areas on who should make decisions on family planning for the two gender groups ($X^2 = 4.0$, $P = 0.13$ for females; $X^2 = 0.26$, $P = 0.88$ for males).

4.3. Responsibility for using FP

Seventy two percent and 15.3% of the wives in CBD areas said that wives and both partners are responsible for using contraceptives, respectively. The corresponding proportions in the non-CBD areas were 69.8% and 19.1%. On the other hand 72.1% and 69.6% of husbands in the CBD and non- CBD areas said that women are responsible, while 16.3% in CBD and 22% in non-CBD areas believed that both partners are responsible. There was no statistically significant difference on this issue between males in the CBD and the non-CBD areas ($X^2 = 6.9$; $P=0.07$); however, the difference was significant between women in the two groups ($X^2 = 8.1$; $P=0.044$).

Table-3. Responsibility for use and decision making on family planning in CBD and Non CBD areas, Central Tigray Zone, Ethiopia, 1997.

Variable	CBD N(%)	Non CBD N(%)	X ²	P- value
1. Wife's belief on who should decide				
Husband	26(7.5)	25(7.3)	4.04	0.13
Wife	59(17.1)	79(23.2)		
Jointly	261(75.4)	237(69.5)		
Total	346(100)	341(100)		
2. Husband's belief on who should decide				
Husband	34(10.1)	30(9)	0.26	0.88
Wife	46(13.6)	47(14)		
Jointly	257(76.3)	258(77)		
Total	337(100)	335(100)		
3. wife's belief on who should be responsible to use				
Husband	4(1.1)	12(3.5)	8.1	0.044
Wife	250(72.3)	238(69.8)		
Both	53(15.3)	65(19.1)		
Don't know or No one should use	39(11.3)	26(7.6)		
Total	346(100)	341(100)		
4. Husband's belief on who should be responsible to use				
Husband	18(5.3)	18(5.4)	6.9	0.07
Wife	243(72.1)	233(69.6)		
Both	55(16.3)	74(22)		
Don't know or No one should use	21(6.3)	10(3)		
Total	337(100)	335(100)		

4.4 Knowledge of Modern contraception

As shown in Table 4 the proportion of women in the CBD areas who knew about modern contraceptives was significantly higher than those in the non-CBD areas (OR = 1.70 , 95 % CI = 1.07 , 2.7). Table 5 shows that it was also higher for males in CBD compared to non-CBD areas (OR = 2.26 ; 95 % CI = 1.26 , 4.1). The most common modern contraceptive methods known by both sexes, in all areas, were pills followed by injectable hormones.

4.5 Contraception practices

The ever use of modern contraceptives in the last three years was 19.9% in CBD areas and 8.5% in non-CBD areas (OR = 2.68 ; 95 % CI = 1.65 , 4.45). A significantly higher current contraceptive prevalence rate was found in CBD (14.4%) compared to non-CBD (4.4%) areas (OR = 3.67 ; 95 % CI = 1.88 , 5.7).

The drop- out rate was 27.5% in the CBD and 48.3% in non-CBD areas. The mean duration of use among the current users was 6.5 months in the CBD and 6.3 months in non-CBD areas. On average, the women year protected was 27 in CBD and 8 in non- CBD areas. Sixty six percent of the current users in the CBD areas were spacers and 34% were limiters.

Twenty four percent of the current users in the CBD areas reported that they had method- related health problems. Half of them said that they went to the providers to seek advice while the rest didn't. The reasons for not seeking advice were thoughts that symptoms are self limiting, and being ashamed of

reporting the ill effects.

4.6 Future intention to use modern contraceptives

In both CBD and non-CBD areas there were high proportions of women who said that they intended to use MC in the future, among those who knew about MC but were currently non users. It was 86.4% in CBD and 80.5% in non- CBD areas ; the difference was not statistically significant (OR=1.54 ;95% CI =0.94 ,2.5). The main reasons for no intention to use MC in the future in the non-CBD and CBD areas were menopause (50% and 51.5%) and fatalistic (8% and 11.8%), respectively. Husband's disapproval was also mentioned as a reason for no intention to use by 6% of the knowledgeable non-users in the non CBD areas.

Table 4: Comparison of distribution of women respondents by knowledge, attitude and practices of modern contraceptives between CBD and non-CBD areas, Central Tigray Zone ,1997.

Variable	CBD (N=346) N=(%)	Non CBD (N=341) N=(%)	OR	95 % CI
1. Knowledge of MC				
Know	308(89)	282(82.7)	1.7	1.07,2.70
Don't know	38(11)	59(17.3)		
2.Knowledge of specific MC(N1=308 ;N2=282)				
Pills	308(100)	279(98.9)	◆ ◆	◆ ◆
Injectable	165(53.6)	149(52.8)		
Condom	6(1.9)	4(1.4)		
Others	4(1.3)	5(1.8)		
3.Approval of FP use				
Approve	302(87.3)	271(79.5)	1.77	1.15,2.74
Do not approve	44(12.7)	70(20.5)		
4.Ever use of MC				
Ever used	9(19.9)	29(8.5)	2.68	1.65 ,4.4
Never used	277(80.1)	312(91.5)		
5.Current use of MC				
Users	50(14.4)	15(4.4)	3.67	1.88 ,5.7
Non users	296(85.6)	326(95.6)		
6.Future intention to use MC (N3=257;N4=268)				
Intends to use	222(86.4)	214(80.5)	1.54	0.94 ,2.5
Don't intend to use	35(13.6)	52 (19.5)		

Footnotes

N1 and N2 : Numbers of women in CBD and non-CBD areas, respectively who had knowledge about MC.

N3 & N4 :Number of non-user women in CBD and non- CBD areas, respectively who knew about MC.

Table-5: Males' attitude and knowledge of modern contraception by service areas, Central Tigray, 1997.

Variable	CBD (N=337) N(%)	Non CBD (N=335) N(%)	OR	95% CI
1. Knowledge about MC				
Know	317(94.1)	293(87.4)	2.26	(1.26,4.1)
Don't know	20(5.9)	42(12.6)		
2. Knowledge of specific MC methods(N1=317;N2=293) ♦				
Pills	314(99)	289(98.6)	♦ ♦	♦ ♦
Injectable	208(65.6)	175(59.7)		
Condom	74(22.7)	69(23.5)		
Others	16(5)	11(3.8)		
3. Approval of FP use				
Approved	313(92.9)	284(84.8)	2.33	(1.36,4.0)
Didn't approve	24(7.1)	51(15.2)		

Footnotes

♦ : Totals or percentages can exceed N or 100%.

♦ ♦ : OR can't be computed.

N1 and N2 : Number of males in CBD and non-CBD ,respectively who have knowledge about MC

Table 6: Logistic regression coefficients, and odds ratio showing the association of selected variables and males' attitude towards FP.

Variables	B	S.E	Adjusted OR	Crude OR
CBD				
Yes++			1.0	
No	-0.48	0.14	0.6(0.5,0.8)	0.4(0.25,0.7)
Age				
≤30++			1	
31-44	-0.57	0.3	0.56(0.3,1.02)	0.65(0.3,1.95)
≥45	-0.12	0.22	0.88(0.58,1.4)	0.21(0.09,0.53)
Educt				
None++			1.0	
0.Read	0.48	0.2	1.6(1.09,2.4)	1.67(0.95,2.9)
1.Primary & above	0.18	0.22	1.2(0.8,1.84)	5.4(2.25,12.8)
Religion				
Orthodox			1.0	
Moslem	-0.83	0.31	0.4(0.24,0.8)	0.21(0.07,0.66)
Constant	-1.84	0.34		

Keys

B = Coefficients of regression ; S.E = standard error of estimator. In this model CBD program, age, educational status, number of alive children and religion as independent variables were included but in the stepwise selection procedure, # of alive children was excluded from the regression equation as its explanatory contribution was nil.

NB: Although the logistic regression model doesn't give crude OR, here it is incorporated taking it from the bivariate analyses so as to compare the adjusted and crude odds ratio easily.

++ = Referent groups.

4.7 Determinants of contraceptive use

Separate bivariate analyses were carried out to show the association between a number of independent variables and current contraceptive use in the CBD and non-CBD areas (Table 7). In these analyses, age, parity, number of alive children, and inter-spousal communication about FP were positively associated with contraceptive use in the CBD areas. All, except parity and number of alive children were too in the non-CBD areas. However, the small number of contraceptive users in the non-CBD areas makes these associations inconclusive compared to those in the CBD areas. Without considering CBD strategy as an independent variable, a logistic regression model was performed separately for CBD and non-CBD groups to know the most determinant factors. Controlling for the possible effects of important confounders of contraceptive use, this model showed that inter-spousal communication about family planning was strongly associated with contraceptive use in both the CBD and non-CBD areas. Age, parity, number of alive children and religion which were found to be associated with contraceptive use in the bivariate analyses did not have any effect in either group in this analysis.

In line with our objectives and study design, the presence of CBD was the main exposure variable and it needed to be included among the independent variables in the logistic regression model. A model was used which included seven independent variables to predict contraceptive use: age of the women, parity, number of alive children, women's educational level,

ideal family size, religion and presence or absence of CBD. Certain variables having a positive association with contraceptive practices such as knowledge of FP, FP approval, and husband-wife communication about FP were excluded. This is because these variables could be intermediate outcomes of the Community-based distribution (CBD) of contraceptives, and may be interrelated and influence each other, which could result in higher variances of the estimators. A stepwise procedure for selecting variables for regression equation was forwarded in the SPSS/PC program. Age of the woman, parity, number of alive children, ideal family size, and religion were found to be non-contributing as predictors in this model. It was the presence of a CBD program which was found to be the most important explanatory variable for the high contraceptive use in the CBD areas (Table 8).

Table 7. Percentage distribution of current contraceptive users by selected variables in CBD and non CBD areas, Central Tigray 1997.

variable	CBD		OR(95 % CI)	Adjusted ¹ OR	Non CBD		OR(95 % CI)	Adjusted OR
	User N(%)	Non-user N(%)			User N(%)	Non-user N(%)		
1. Age				NS				NS
15-25	8(9.8)	74(90.2)	1.0		5(5.3)	90(94.7)	1.0	
25-29	10(16.3)	51(83.7)	3.9(1.6,9.78)		2(3.6)	53(96.4)	2.1(0.72, 6.2)	
30-34	13(18)	59(82)	4.4(1.86,10.4)		4(5.7)	66(94.3)	3.4(1.16, 9.9)	
35-39	6(8.8)	62(91.2)	1.9(0.68,5.5)		3(6.7)	42(93.3)	4(1.17, 13.7)	
40-44	7 (21)	32(79)	4.4(1.6,12.2)		1(2.3)	42(97.7)	1.3(0.18, 10.0)	
45-49	6 (25)	18(75)	6.7(2.2,20.3)		0(0.0)	33(100)	0.85(0.5, 1.4)	
2. Total births				NS				NS
0-2	9(11.4)	70(88.6)	1.0		2(2.3)	84(96.7)	1.0	
3-4	12(13.9)	74(86.1)	2.27(0.87,5.9)		7(6)	81(94)	1.6(0.57,4.3)	
5-6	7(9)	72(91)	1.36(0.5,3.98)		5(6.8)	69(93.2)	1.3(0.43,3.99)	
≥ 7	22(21.5)	80(78.5)	3.85(1.6,9.3)		1(1.1)	92(98.9)	0.15(0.02,1.25)	
3. Number of alive children				NS				NS
0-2	13(13.5)	83(86.5)	1		4(3.9)	99(96.1)	1.0	
3-4	12(13.2)	91(86.8)	2.11(0.84,5.3)		8(7)	105(93)	2.28(0.95, 5.5)	
≥ 5	25(17.1)	121(82.9)	3.3(1.5, 7.5)		3(2.4)	122(97.6)	0.39(0.10,3.8)	

Table 7 (Cont'd)

4. Spouses discussion
about FP in
the last year

Yes	39(40.6)	57(59.4)	14.7(6.8,32.7)	S	11(14.5)	65(85.5)	11(3.1,36)	S
No	11(4.4)	237(95.6)			4(1.5)	261(98.5)		

5. Religion

NS

NS

Orthodox	49(14.8)	283(85.2)	2.3(0.3,17.6)		14(4.1)	326(95.9)	0.02(0.002,0.2)
Moslem	1(7.1)	13(92.9)			1(100)	0(0.0)	

NB: Variables demonstrated here are only those which have significant association with the contraceptive use in this particular study ;but those which do not have in the bivariate analysis were omitted to avoid crowdedness of the table. Results of logistic model(only adjusted OR) was incorporated in the table .

NS= Contribution as explanatory variable for MC use was non significant based on 95 % CI adjusted odds ratio.

S= Significantly associated based on 95 % CI adjusted OR.

The adjusted OR (denoted as S) for CBD was: 0.07 (95 % CI :0.04,0.12) and for non-CBD areas was : 0.22(95 % CI : 0.03,0.3).

Table 8: Logistic regression coefficients, and odds ratio showing the effects of explanatory Variables on the current use of modern contraceptives.

Variables	β	S.E	Adjusted OR (95 % CI)	Crude OR
CBD				
yes++			1.0	1.0
No	-0.69	0.16	0.5(0.36,0.68)	0.3(0.16,0.54)
Educt				
Illiterate++			1.0	
Read	0.56	0.25	1.75(1.07,2.9)	2.97(1.2,7.2)
Primary				
& above	-0.48	0.35	0.61(0.3,1.2)	1.76(0.6,5.2)
Constant	1.94	0.25		

NB : Here the crude odds ratio as part of Table 8 was included taking it from the bivariate analyses to give clue whether it differs or not from the adjusted odds ratio. Other wise it is not part of the output of the model.

++ = Referent group.

4.8 Reasons for non-use of modern contraception

The need for more children, natural spacing and lack of knowledge were, in that order, the three most common reasons for non use on both CBD and non CBD area (Table 9). Other factors included opposition on religious grounds, too long distance, and husbands' disapproval.

The desire to get pregnant (47.4%), lack of method choices (21%), and health concerns (21%) like rumours, and fear of side effect were the main reasons for discontinuing the use of pills in the CBD areas while in the non-CBD areas it was the need to get pregnant (21.4%), health concerns (21.4%) and being unaware of the need to return back (14.2%).

Table-9: Reasons for non use of contraceptives in CBD and non CBD areas, Central Tigray.

Reasons	CBD N=277(%)	Non CBD N=312(%)
1. Need for more children	143(51)	145(46.4)
2. Natural spacing	97(35)	107(34.3)
3. Lack of knowledge	37(13.3)	59(18.9)
4. Too long distance	-	8(2.5)
5. Religious grounds	4(1.4)	3(1)
6. Other	22(7.8)	24(7.6)

Total can exceed N or 100% as more than one response was possible.

Result part II- Informal group discussion

The major findings of the informal group discussion are summarized as follows.

A. Male informal group discussion

1. The majority of the participants from the CBD areas said that couples who have a large number of children have greater problems ; and many participants approved use of family planning. Only a few participants disapproved of the need for fertility regulation and they expressed doubt on the effectiveness of the pills in protecting from pregnancy. All knew that such a service is given by trained CBD agents (selected by the community) in their respective villages.

In non-CBD areas , nearly half of the informal group discussants believed that having more children is wealth and that fertility should not be regulated. However, the other half had positive attitudes towards small family size and approved family planning use.

2. Many of the participants both in the CBD and non-CBD areas mentioned that rumours and wrong beliefs about pills, illiteracy, low understanding of FP, and to some extent husbands opposition were barriers to contraceptive uses in their respective areas. Lack of the service in nearby areas was also cited as a reason for non-use in the non-CBD areas.

B. Female informal group discussions

1. Almost all the participants in both CBD and non-CBD areas said that the family size of a household should be low. They also stated that couples with low number of children can have better economical status and bring up their children properly. Many of them, particularly those who claimed that they give birth at short intervals, approved family planning use. Some of them preferred injectable hormones and also mentioned that there should be male contraceptive methods as some males gave extramarital birth. All the participants from the CBD areas knew of the availability of the service and the identity of the pill distributors in their respective "Tabias".
2. Similarly, in both CBD and non-CBD areas, the majority of the participants mentioned that the need for more children, natural spacing, fear of side effects, rumours that pills cause illness and are unsuitable for rural women, and the lack of security of survival of all born children were the reasons for non-use of modern contraceptives. A few of them also cited husband opposition as a reason for non-use.

Some women in the CBD areas also mentioned that being males the pill providers in their "Tabias" was a hinderance, in particular for divorced or widowed women. In the non-CBD areas, a certain proportion of the participants said that it was due to lack of the services in nearby areas that people or them selves didn't use modern contraceptives.

VI. Discussion

Categorical analysis and t-test showed no statistically significant differences between respondents in CBD and non CBD areas in terms of Socio-demographic characteristics , except for religion.

A significantly higher proportion of women in CBD areas (89%) had knowledge about modern contraception methods compared to those in the non-CBD areas (82.7%). This finding is similar to the CBD -FP projects of FGAE in Bahir Dar (88.4%) but higher than that of Jimma (76.9%) and Yirgalem (78%) (18-20). The proportion of males in CBD areas who had knowledge about MC in this study (94.1%) was higher compared to that of Yirgalem(78.3%)and Jimma(69%). As elsewhere in Ethiopia, Pill was the most common contraception method known by men and women in both CBD and non- CBD areas. To the contrary, condom was known by very few in both areas. This is extremely low compared to CBD-FP Projects of FGAE. One possible explanation for such differences can be the unavailability of the condoms at the health post in this study area.

It is believed that CBD not only reduces social distance but also it increases the acceptability of MC due to the provision of the services and information at convenient locations(4,37,50). The findings of this study, like other studies, concur with that notion (18,19,20,46) in that higher acceptability of MC in CBD areas was found. There are many factors other than CBD which can influence attitudes towards FP, such as general improvement in

health awareness, education (males in this study), accumulated life experience (age) and the recent government emphasis on population issues throughout the country. Nonetheless, these factors should have equally operated in both areas. Hence, the difference between the proportion of family planning approval, by both genders, between the CBD and non-CBD areas is largely due to the program.

The mean desired family size was similar in CBD and non-CBD areas. However, it was found that in both groups, husbands had higher mean ideal family size than their spouses. This was not different from other sub-Saharan Africa such as Nigeria (38). Although the majority of the respondents in both areas believe that decision on family planning should be made jointly, only 15% to 20 % of the respondents considered method use as a joint responsibility. This might indicate that programs need to work much more on ways to motivate men to take responsibility in FP and raise the status of women in this regard. On the other hand, the possible role of a limited method mix availability as a reason for this perception should not be underestimated.

The key indicator of success of a community based distribution of FP programme is the extent to which it increases contraceptive use, over and above levels that would be expected in the absence of CBD (50). Our study indicated that the current contraceptive prevalence in the CBD areas was 14.4%. This was consistent with other Ethiopian studies (18,19,20). It was

also similar to findings in Sudan, Nigeria, Mali and Zaire (46,50). In Sudan, the CPR increased from 6.8% to 19.8% in three years, in Nigeria from 2 to 13% over five years, and in Mali from 1 to 11.6% over three years (50). In both groups, inter-spousal communication about FP was an important determinant of contraceptive use. This was in agreement with other studies(30,33,34,35).

Despite the encouraging percentage of new acceptors, the drop- out rate in the CBD area was high, 27.5%, though it was much lower than that of non-CBD areas, which was 48.3%. The leading reason for discontinuation in the CBD areas was need to get pregnant, followed by lack of method choices and health concerns such as fear of side effects. The latter problems can be addressed if referral system and effective IEC are developed by the program. There is a high demand for family planning in both areas which makes it difficult to assess the effect of CBD in generating demand for family planning in this particular study. The demand was high (86.4%) compared with that of Yirgalem CBD project, where future intention to use MC increased from 69.8% to 79.4% within 33 months (19) and the national figure for rural areas(23%)(17). Paradoxically, the unmet need for limiters of fertility in both areas was nearly three times higher than the National Family and Fertility survey result(24%) (17). This calls not only for the expansion of CBD to the other rural villages, but also for fighting against other non-use factors such as the need for larger family size, and male opposition, etc., some of which

were raised in the focus group discussion.

The role of chance, bias and confounding as alternative explanations for the higher CPR observed is likely to have been minimized in the CBD areas at the various stages of the research through proper selection procedures, efforts at minimizing observation bias, and the use of appropriate statistical analysis. Hence, the results of the study are valid. Unlike most of the studies mentioned for comparison in the discussion which utilized pre and post test surveys, this study utilized a comparative control group for the evaluation. Furthermore, it was undertaken in rural communities with large population size (greater than 850,000). Therefore, the results of this study can be used either to implement CBD programs in other areas, or to strengthen the existing ones. Nevertheless, this study had also some weakness. The use of male interviewers can underestimate the CPR. There is also a possibility of over-reporting of future use due to a social desirability bias. The question on ideal family size is also naturally prone to bias as some respondents may provide normative values, some may rationalize the already unwanted born as desired and others may not state their ideal family size as they consider this is up to God.

VII. Conclusions

In the CBD area, the contraceptive prevalence rate was 14.4%, knowledge of at least one modern contraceptive was 89% in women, 94.1% in men and positive attitude towards FP use was 87.3% in women and 92.9% in men. In the non-CBD areas, the corresponding values for these variables were lower than those in the CBD areas ; the differences were significant . Therefore, CBD appears to be an effective strategy to increase the contraceptive prevalence rate in the study area. Few women had knowledge about male contraceptive methods, and the majority believed that wives are responsible to use contraceptives. In both CBD and non- CBD areas, there was a high demand for family planning.

Although a high proportion of males approved family planning, they want to have more children than their spouses. Besides addressing the issue of accessibility , inter-spousal communication about family planning was found to be an important determinant factor for contraceptive use. Lack of method choices and health concerns, such as fear of side effects were, among the most important reasons for the discontinuation of contraceptive use.

VIII Recommendations

In relation to the pertinent findings of the study the following recommendations are forwarded.

1. CBD program should be strengthened and extended to other rural areas of the zone and the region.
2. Consolidated efforts should be made to persuade women who have the intention to use FP methods in the future to start using modern contraceptives as early as possible in order to bring about a change in fertility level and trends.
3. Information, education and communication about family planning should be given more emphasis so as to enhance inter-spousal communication about FP, to reduce the desire for large family size, and to minimize the husbands' opposition to family planning.
4. Method mixes should be available for the Community-based distribution so as to reduce high drop-out rate due to lack of method choices.
5. Future studies should focus on how CBD could be improved and made sustainable.

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Appendices -I

(English version)

Study of FP service strategy in Central Tigray ,1997.

Questionnaire

Registration NO _____

1.identification

Name _____ Sex _____

Age(yrs) _____

Address: Wereda _____ Tabia _____ Kushet _____

2.Religion

1.Orthodox 2.Moslem 3.Others(specify)

3.Educational status

1. illiterate

2. able to read and write

3. Educated ,write last grade completed _____

4.Occupation

1. Farmer

2. House wife

3. Tella/Drink seller

4. Professional government employee

5. Administrative workers

6. Others(specify) _____

5. How many births did you give ?

Total parity ____ Alive ____ Still birth ____

6 . How many alive children do you have now ?

Total ____ Male ____ Female ____

7. Do you desire for another child?

1. Yes 2. No, I don't want any more 3. Uncertain.

8. How many children would you like to have if you were at the start of
you reproductive life? ____

9. Do you approve use of FP ? ,

1. Yes 2. NO

10. If no to Que. No 9 , why do you oppose?(one or more alternatives)

1. Religious grounds

2. Encourages spouses to be unfaithful

3. Undermine their authority as a head of family.

4. Want more children

5. Lack of knowledge

6. Fear of side effects.

7. Others (specify)

11. Have you discussed about FP with your spouse in the past year? 1.

Yes 2. No

12. If yes to Que. NO 11, what does initiate you to discuss with your spouse about FP openly? (one or more alternatives)

1. Education given by CHAs or TBAs working in CBD activities
2. Education given by health providers in health institutions
3. Education given by health professionals in EPI outreaches.
4. Relatives advice
5. Others (specify)_____

13. If you discussed ,would you support your wife to use contraceptives? (only for males)

1. Yes
2. No

14. What do you feel about the attitude of your spouse towards FP?

1.S/he agrees. 2.S/he disagrees. 3. I don't know.

15. Who should make the decision on using of FP services?

1. Husband 2. Wife 3. Joint responsibility

4. Others (specify)_____

16. Who should be responsible to use contraceptives?

1. Husband 2. Wife 3. Both 4. Others(specify)___

17. Do you know any type of modern contraceptive methods?

1. Yes 2. No

18. If yes to Que..No.17, what type(s) of contraceptive methods do you know?(one or more alternatives)

1. Pills 2. Condom 3. Injectable contraceptives. 4. IUD

5. Tubal ligation 6. Male sterilization 7.Others(specify)_____

19. Have you ever used any modern contraceptive method since the last three years? (If no, jump to QUE.NO 29)

1.Yes 2. No

20. If yes to Question NO 19, are you using contraceptive methods now?(if no,jump to Que.NO 28).

1. Yes 2. NO

21. If yes to Que. No 20 , what type of contraceptive method are you using?

1. Pills 2. Condom 3. Injectable contraceptives

4. IUD 5. Others (specify)_____

22. From where did you get the contraceptive methods that you are using now?

1. CBD workers
2. Health units
3. Private pharmacy
4. Others (specify) _____

23. For how long have you taken it continuously? _____ months .

24. For what purpose/reason are you using the contraceptives?

1. For child spacing
2. For limiting family size
3. Others (specify) _____

25. While you were using the contraceptive method, did you have any method related problems ?

1. Yes
2. No

26. If Yes to Que. No 25, did you go to seek for an advice and assistance on method related problems to FP service providers who prescribed you?

1. Yes
2. No

27. If No to Que. No. 26, What did prohibit you from seeking an advice and assistance from the FP service providers?

1. Lack of respect from the service providers.
2. FP service providers didn't give us time to listen
3. Lack of confidence on the skills of FP providers
4. Others (specify) _____

28. Why did you discontinue using contraceptive methods?

1. Health post is not usually functional.
2. Long waiting time in health units.
3. Side effects of the contraceptive methods.
4. Lack of getting their choices or method changes.
5. Lack of knowledge on continuous taking for a year protection.
6. Rumours about ill effects of contraceptive methods.
7. FP service providers didn't accept us in respected manner.
8. Spousal disapproval
9. Desired to be pregnant
10. Others(specify)._____

29. Why didn't you start using contraceptive methods?

1. Husbands disapproval.
2. Need for more children.
3. Religious grounds.
4. Lack of information/ knowledge.
5. Distributors being males.
6. Negative attitude to wards FP.
7. Too long distance.
8. Others(specify)._____

30. Do you have an intention to use contraception in the future ?

1. Yes
2. No

31. If No to Question No. 30, reasons for no intention of using FP methods in the future

1. Religious prohibition
2. Opposition to FP
3. Husband's disapproval
4. Other relative disapproval
5. Lack of knowledge
6. Difficulty to obtain
7. Fatalistic
8. Menopause
9. Others_____

እዙይ ዕንዓት እዙይ አብዚ ከባቢ ዝግበር አገልግሎት ምጣነ ስድራ ንምርኣይ እንትኸውን፣ እቲ መፅናዕቲ ድማ ናይ'ዚ ከባቢ ኣዴታትን ህፃውንትን ጥዕና ንምምሕያሽን ናብ ገጠራት ንምግፋሕን ይጠቅም እዩ ዝብል እምነት ስለዘና እዩ።

እንእክቦም ሓበሬታታት ነቲ መፅናዕቲ ዕላማ ጥራሕ እንጥቀመሎም እንትኾኑ ምስጢርነቶም ዝተሓለዉ ምዃኖምን ብምንም ዓይነት መንገዲ ናብ ካሊእ አካል ዘይመሓላለፉን እዮም። እንእክቦም ሓበሬታታት ድማ፡

1. ሓፈሻዊ እንታይነት (ዕድመ፡ ስራሕ፣ ሃይማኖት)
2. ኩነታት ምጥቃም አገልግሎት ምጣነ ስድራን ቀፃላይ ድልዎትን
3. ምስ በዓል/ቲ ገዝእም/ገዝእን ብዛዕባ አድላይነት አገልግሎት ምጣነ ስድራ ዝግበር ዝርርብ እዩ።

እዙይ ዕንዓት ንምክያድ ምድላው ዝገበርና ናሃትካቱም ፈቓድን ተሳትፎን ክንረክብ ኢና ዝብል ተስፋን እምነትን ብምሓዝ እንትኸውን፣ ብወገንኩም'ውን ፈቓደኛታት እንድሕር ኮይንኹም እቲ ቃለ መጠይቕ ክንቅፅል ንኸእል ኢና።

ንሓገዝኩም ነመስግን

ቃለ መጠይቕ ዝግበረሎም ሽም _____ ፊርማ _____

1. ሀ. ስም ሰብኣይ _____

ለ. ስም ሰበይቲ _____

2. አድራሻ _____

ዕንግዳሪት አወሃህባ አገልግሎት ምጣኔ ስድራ
አብ ማእከላዊ ዞባ ትግራይ
መጠይቅ

- ተ.ቁ _____ መዝገብ ቁጽ _____
1. መለለይ መንነት _____
 ስም _____
 ፆታ 1. ወዲ ተባዕታይ _____
 2. ደቂ አንስትላ _____
 ዕድሜ ዘጠናቸቸ/ቶ ዓመት _____
 አድራሻ _____
 1. ወረዳ _____
 2. ቀበሌ/ ጣብያ _____
 2. ሃይማኖት _____
 1. ኦርቶዶክስ _____
 2. እስላም _____
 3. ካቶሊክ _____
 4. ካሊኒ (ይገለፅ) _____
 3. ደረጃ ትምህርቱ _____
 1. መሃይም _____
 2. ምንባብ፣ ምዕላፍ ዝኸለል _____
 3. ዝተማሃረ፣ ክፍሊ ዝወደኦ/ቶ _____
 4. ሰራሕ _____
 1. ሓረስታይ _____
 2. በዓልቲ ሓዳር _____
 3. ሰራሕተኛ መንስታዊ ምምሕዳር _____
 4. ሸቃጢት ስዋ/መስተ _____
 5. ቴክኒካዊ ሰራሕተኛ መንግስቲ _____
 6. ካሊኒ (ይገለፅ) _____
 5. ክንደይ ወሊደን? _____
 (እ) ጠቕላላ _____
 ብህይወት ዝተወልዱ _____
 ሞይቶም ዝተወለዱ _____
 6. ክንደይ ቆልዑት አለውዎን /አለውዎም _____
 ጠቕላላ _____
 ደቂ ተባዕትላ _____
 ደቂ አንስትላ _____

7. ተወሳኺ ቆልዓ ዶ ይደልዳዩ ?
 1. እወ
 2. አይደልን
 3. አይወሰንኩን
8. እንድሕር ደላ ሕዚ አብ መፈለግታ እትወልድሉ/ዳሉ ዕድመ ኮይንኪ/ኻ ክንደይ ቆልዑ ክህልዉኪ/ኻ ትደልዩ/ትደሊ ? _____
9. ጥንሲ መከላኸሊ ምውሳድ /ምጥቃም ይድግፋ/ፋዶ?
 1. እወ
 2. አይድግፍን
10. ምጥቃም ጥንሲ መከላኸሊ እንድሕር ደላ ዘይድግፋ/ፋ ኮይነን/ኖም እንታይ እዩ ምኽንያተን/ቶም? (ሓደን ካብኡ ንላዕሊን መልሲ ምሃብ ይከኣል'ዩ)
 1. ሃይማኖትን ስለዘይፈቅድ
 2. በዓልቲ ገዛይ ተአማኒት ክይትኸውን ስለዝገብር
 3. ናይ ስድራ ቤት ሓላፍነት ዘትሕት ስለዝኾነ
 4. ተወሰኽቲ ውላድ ስለዝደሊ
 5. ብዛዕባ መከላኸሊ ጥንሲ ስለዘይፈልጥ
 6. ወሊድ መቆፃፀር ዘምዕእ ጉድኣት ብምፍራሕ
 7. ካሊእ (ይገለፅ)
11. ካብቲ መወዳእታ ቆልዓ ዝወለደሉ/ድሉ እዋን ንነዛ ብዛዕባ አገልግሎት ምክልኻል ጥንሲ ምስ በዓል ገዝእን/ገዝእም ዘትዩን /ዘትዩም ዶ ይፈልግ/ጡ?
 1. እወ
 2. ዘቲና አይንፈልጥን
12. እንድሕር ደላ ተዘራረበን/ቦም ኮይነን/ኖም መልሲ ቁፅሪ 11 እወ እንተኾይኑ /ምስ በዓል ገዝእን/እም ክዘራረባ/ቡ ዘለዓለን/ሎም ምኽንያት እንታይ እዩ? (ሓደን ካብኡ ንላዕሊ መልሲ ምሃብ ይከኣል'ዩ)
 1. አብ ቁሽት ዝርከቡ ወሃብቲ አገልግሎት ምክልኻል ጥንሲ ዝኾኑ መፍረይቲ ሓካይም/ፋና ጥዕና ዝተውሃበ አስተምህሮ ጥዕና
 2. አብ ጥዕና ትካላት ብሰብ ሞያ ዝተውሃበ ትምህርቲ ጥዕና
 3. አብ ክታቦት ጣብያታት ብጥዕና ሰብ ሞያ ዝተውሃበ ትምህርቲ
 4. ናይ ቤተሰብ ምኽሪ
 5. ካሊእ (ይገለፅ)
- *13. እንድሕር ደላ ምስ በዓልቲ ገዝእም ብዛዕባ ምክልኻል ጥንሲ ዘቲዩም ዝፈልጡ ኮይኖም፤ በዓልቲ ገዝእም ወሊድ መቆፃፀር ክጥቀማ ይድግፋ ዶ?
 1. እወ
 2. አይድግፍን
14. በዓልቲ ገዝእም/በዓል ገዝእን አብ ምክልኻል ጥንሲ /ምምጣን ስድረ ዘለወን/ዘለዎም አረኣእያ እንታይ ይመስሎም/ለን?
 1. ይድግፋ/ይድግፋ
 2. አይትድግፍን/አይድግፋን
 3. አይፈልጥን
15. ምጥቃም መከላኸሊ ጥንሲ /ምምጣን ስድራ ብዝምልከት ወሳናይ መን ክኸውን አለዎ?
 1. ሰብአይ
 2. ሰበይቲ
 3. ሰብአይን ሰበይትን ክእቲእም
 4. ካሊእት (ይገለፅ)
16. ወሊድ መቆፃፀር ምውሳድ /ምጥቃም ናይ መን ሓላፍነት እዩ?
 1. ሰብአይ
 2. ሰበይቲ
 3. ክልቲኦም
 4. ማንም ክወስን የብሉን
17. ዝኾነ ዓይነት ዘመናዊ ሚሳታት መቆፃፀር /መከላኸሊ ጥንሲ ዶ ይፈልጡ/ጣ?
 1. እወ
 2. አይፈልጥን

18. እንድሕር ደላ ዝፈልግ /ጡ ኮይነን/ኖም፤ እንታይ ዓይነት/ታት ሚላ/ታት መቆፃፀሪ ወሊድ እየን /እዮም? (ሓደን ካብኡ ንላዕሊን መልሲ ምሃብ ይከኣ'ዩ)
 1. ክኒን
 2. ኮንዶም
 3. ብመርፍእ ዝወሃብ መቆፃፀሪ ወሊድ
 4. ኣብ ማህፀን ዝኣቱ
 5. ኦፕራስዮን (መጥባሕቲ)
 6. መጥባሕታዊ ምምካን ፍረ ተባዕታይ
 7. ካሊእ (ይገለፅ)
19. ዘመናዊ ሚላ መቆፃፀሪ ወሊድ ዶ ተጠቒመን/ሞም ይፈልግ/ጡ? (ኣይፈልጥን እንተኾይኑ መልሲ ናብ ቁፅሪ 29 ዝለል)
 1. እወ
 2. ተጠቒመ ኣይፈልጥን
20. ሕዚ ኽ ይጥቀማ/ሙ ዶ ኣለዋ/ወ. ሕ (መልሲ ኣይጥቀምን እንተኾይኑ ናብ ገፅ 28 ዝለል)
 1. እወ
 2. ኣይጥቀምን
21. እንድሕር ደላ ወሊድ መቆፃፀሪ እናተጠቒማ/ሙ ኮይነን/ኖም፤ እንታይ ዓይነት
 1. ክኒን
 2. ኮንዶም
 3. ብመርፍእ ዝወሃብ መቆፃፀሪ
 4. ኣብ ማህፀን ዝኣቱ
 5. ካሊእ (ይገለፅ)
22. እቲ ዝጥቀምኡ/ምዎ ዘለዋ/ወ. መቆፃፀሪ ወሊድ ካበይ ረኺበነ/ረኽቦምዎ
 1. ካብ ወሃብቲ ኣገልግሎት ጣብያ ምክልኻል ጥንሲ/ምምጣን ስድረ ዝኾነ/ና መፍረይቲ ሓካይም/ፋና ጥዕና
 2. ካብ ጥዕና ትካላት
 3. ካብ ውልቀ ፋርማሲ
 4. ካብ ካሊእ (ይገለፅ)
23. ብዘይ ምቁራፅ ወሊድ መቆፃፀሪ ንክንደይ ጊዜ ወሲደን/ዶም _____ ኣዋርሕ
24. ወሊድ መቆፃፀሪ ንምንታይ ዕላማ ምኽንያ ይወስዳ/ዱ ኣለዋ/ወ.
 1. ኣራሓሒቕኻ ንምውላድ
 2. በዝሒ ስድረ ንምምጥጣን
 3. ፀገም ጥዕና
 4. ካሊእ (ይገለፅ)
25. ወሊድ መቆፃፀሪ እናወሰዳ/ዱ እናሃለዋ/ወ. ብኡኡ ሰንኪ ዘጋጠመን/ሞም ጥዕናዊ ፀገም ዶ ናይፋ
 1. እወ
 2. ኣይከበረን
26. እንድሕር ደላ ንቁፅሪ 25 መልሰን/ሶም እወ ኮይኑ፤ ምኽሪን ሓገዝን ንምርካብ ናብቶም መቆፃፀሪ ወሊድ ዝሃብዎን/ዎም ዶ ከይደን/ዶም ይፈልግ/ጡ
 1. እወ
 2. ኣይኸድኩን
27. እንድሕር ንቁፅሪ 26 መልሰን/ሶም "ኣይኸድኩን" ኮይኑ፤ እንታይ እዩ ኣገድወን (ሓደን ካብኡ ንላዕሊን መልሲ ምሃብ ይከኣል'ዩ)
 1. ኣግልጋሎት ወሃብቲ ብግቡእ ስለዘየተኣናግዱና
 2. ኣገልግሎት ወሃብቲ ፀገምና ንምስማዕ ጊዜ ኣይህቡናን
 3. ኣብቶም ኣገልግሎት ወሃብቲ ዓቕሚ /ክእለት እምነት ዘይምህላው
 4. ካሊእ (ይገለፅ)

28. ምጥቃም ወሊድ መቆፃፀሪ ንምንታይ ኣቋሪፀን/ዎም? (ሓደን ካብኡ ንኣዕሊን መልሲ ምሃብ ይከኣል'ዩ)

1. ጥዕና ኬላ ብዙሕ ጊዜ ስለዘይሰርሕ
2. ኣብ ጥዕና ትካላት ናይ ምዕባይ እዋን ስለዝነውሕ
3. ወሊድ መቆፃፀሪ ሚላ ብዘስበለይ ፀገም
4. ዝደለዮ ዓይነት መቆፃፀሪ ወሊድ ስለዘይረኽብኩ
5. ንዓመት ምሉእ ምውሳድ ዘለኒ ምዃነይ ብዘይምፍላጥ
6. እቲ መቆፃፀሪ ወሊድ ፀገም ኣለዎ ዝብል ጭንጭንታ /ወረ ስለዝሰማዕኹ
7. ኣገልግሎት ወሃብቲ ብዕቡቕ ስለዘይቕበሉና
8. በዓል/ቲ ገዛይ ስለዝተቐመጠኒ
9. ምጥናስ ስለዝደለኹ
10. ካሊእ (ይገለፅ)

29. ወሊድ መቆፃፃሪ ምጥቃም ንምንታይ ዘይጀመረ/ና? (ሓደን ካብኡ ንኣዕሊን መልሲ ምሃብ ይከኣል'ዩ)

1. በዓል ገዛይ ስለዘይድግፎ
2. ተወሳኽቲ ቆልዑ ብምድላይ
3. ሃይማኖትና ስለዘይድግፎ
4. ፍልጦ ብምንኣስ /ሓበሬታ ብዘይምርካብ
5. ኣገልግሎት ወሃብቲ ደቂ ተባዕትዮ ስለዝኾኑ
6. ምክልኻል ጥንሲ/ምምጥጣን ስድረ ስለዘይድግፍ
7. እቲ ኣገልግሎት ዝወሃቦ ቦታ ብምርሓቕ
8. ካሊእ (ይገለፅ)

30. ንቐፃላይ ወሊድ መቆፃፃሪ ንምጥቃም ሓሳብ ዶ ኣለወን/ዎም?

1. እወ
2. የብለይን

31. እንድሕር ደኣ ንምጥቃም ሓሳብ ዘይሃልይወን/ዎም ንምንታይ (ሓደን ካብኡ ንኣዕሊን መልሲ ምሃብ ይከኣል'ዩ)

1. ሃይማኖትና ስለዘይፈቅድ
2. ቁፅፅር ወሊድ ኣገልግሎት ስለዝቃወም
3. በዓል ገዛይ ስለዘይፈቅድ/ስለዘይድግፍ
4. ካልኣት ቤተሰብ ስለዘይፈቕዱ
5. ፍልጦት ስለዘይበለይ
6. እቲ ኣገልግሎት ንምርካብ መፀገሚ ስለዝኾነ
7. እግዝኣብሂር ዝውስኖ ስለዝኾነ
8. ናይ ምውሳድ ዕድመይ እናኣኸለ እዩ ስለዝበልኩ /ዕግያ /ወርሒ ኣበባ ምቁራፅ
9. ካሊእ (ይገለፅ)

ናይ ሓታታይ ስም _____

ፊርማ _____

ዕለት _____

Declaration

I, the undersigned, declare that this thesis is my original work and has not been presented for a degree in this or any other university and that all sources of materials used for this thesis have been duly acknowledged.

Name : Tsegay Legesse, MD

Signature : _____

Place : Addis Abeba University (AAU)

Date of submission: _____

This thesis has been submitted for examination with my approval as the university advisor:

Dr. Negussie Taffa _____