



UNIVERSITY OF MALAWI

College of Medicine

**Factors Contributing to High Unmet Need for Modern Family
Planning in Lungwena**

By

George Kamvazina

Bachelor of Arts (Demography and Philosophy)

Dissertation Submitted in Partial Fulfillment of the Requirements of the

Master of Public Health Degree

15 December 2007

CERTIFICATE OF APPROVAL

The Thesis of George Kamvazina is approved by the Thesis Examination Committee

(Chairman, Postgraduate Committee)

(Supervisor)

(Internal Examiner)

(Head of Department)

DECLARATION

I George Kamvazina hereby declare that this thesis is my original work and was done as part of NUFU project work which was conducted in Lungwena in 2004. It has not been presented for any other awards at the University of Malawi or any other University. In the study I worked as a research supervisor.

Name of Candidate

George Kamvazina

Signature

A handwritten signature in black ink, appearing to read 'George Kamvazina', with a large, sweeping flourish underneath.

Date

15 December 2007

ACKNOWLEDGEMENTS

I wish to thank Dr K.M Maleta my academic Supervisor, Dr A.M Chimbiri my Service Supervisor for the inputs during the preparation and writing of this dissertation. I am also grateful to all Department of Community Health Staff as well as colleagues in the MPH programme for their support. I also thank NUFU project for funding my MPH studies and the research.

ABSTRACT

Introduction: This study investigated supply factors, which affect modern contraceptive uptake in Lungwena health centre catchment area in Mangochi district in Malawi.

Objectives: The study sought ways of improving family planning and family life wellbeing through increase in uptake of modern contraception. Specifically, the study aimed to assess levels of unmet need for modern family planning, determine supply and demand factors contributing to unmet need for contraception, and identify strategies for increasing contraceptive uptake in Lungwena. **Methods:** Data was collected from 259 women aged 12-49 who participated in a demographic and health survey (DHS) conducted in Lungwena in 2004. Additionally, qualitative data from 22 family planning clients, and a family planning service provider were collected through in-depth interviews. A health centre family planning record checklist supplied information about family planning provision in 2004. **Results:** Lungwena had higher unmet need for family planning compared to national estimate for the same year (32.37% versus 28%). Women who discussed modern family planning with the service provider during antenatal care (ANC) of first born child were 0.2 times ($p=0.01$, 95% CI, 0.06, 0.74) as likely to have unmet need at conception of last born child compared to those who did not. Fear of side effects and health concerns barred women from family planning. Convenience and privacy contributed towards low family planning use. **Conclusions:** supply factors were associated with levels of unmet need. Revision of reproductive health policy on strategies of integrating modern family planning, the related IEC, and consistent method availability are recommended for increasing family planning uptake in Lungwena.

TABLE OF CONTENTS

Certificate of Approval	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
Table of contents	v
List of Tables	vii
List of Figures	viii
Abbreviations and Acronyms	ix
Definition of terms	xi
Chapter 1 Introduction	1
1.1 Background	1
1.2 Statement of the problem	2
1.3 Literature Review	5
1.4 Justification of the study	8
Chapter 2 Objectives of the study	11
2.1 Broad Objective of the study	11
2.2 Specific Objectives	11
Chapter 3 Methods	12
3.1 Type of research study	12
3.2 Study Area	12
3.3 Study Population	12
3.4 Study period	12
3.5 Sample size	13
3.6 Data collection	13

3.7	Data management	15
3.8	Study limitations	20
3.9	Ethical Considerations	20
Chapter 4	Study Results	21
4.1	Survey Response Rates	21
4.2	Respondents' characteristics	22
4.3	Levels of intended and unintended pregnancies	23
4.4	Levels of contraceptive use	27
4.5	Supply factors contributing to unmet need for family planning	29
4.6	Demand factors of unmet need	38
Chapter 5	Discussion	44
Chapter 6	Conclusions and Recommendations	49
6.1	Conclusions	49
6.2	Recommendations	49
	References	51
	Appendices	55
	Appendix 1 Adult women questionnaire	55
	Appendix 2 Consent form	82
	Appendix 3: Lungwena DHS Household schedule	83
	Appendix 4: Adolescent women questionnaire	95
	Appendix 5: Family planning client exit interview guide	126
	Appendix 6: Family planning service provider interview guide and checklist.	133

LIST OF TABLES

Table 1: Contextual, immediate and proximate variables derived from adult and adolescent women questionnaires	14
Table 2: Survey response rates by village and age.	21
Table 3: Percent distribution of age at first sex, first marriage, and first pregnancy.	23
Table 4: Exposure to modern family planning information.	30
Table 5: Reasons for non-use of modern family planning among women aged 12-49.	31
Table 6: Percent distribution of estimates of proportions with unmet need among women 20-49 by supply factors (last pregnancy).	33
Table 7:Percent distribution of estimates of proportions with unmet need among women 20-49 by supply factors (current pregnancy).	35
Table 8: Percent distribution of estimates of proportions with unmet need among women 20-49 by demand factors (last pregnancy).	40
Table 9:Percent distribution of estimates of proportions with unmet need among women 20-49 by demand factors (current pregnancy).	43

LIST OF FIGURES

Figure 1: Conceptual framework for factors contributing to unmet need.	17
Figure 2: Component parts of unmet need among adult women in Lungwena (Adopted from blend of Westoff-Pebley current status model and Nortman Lewis dynamic model used in Dominican Republic DHS data)	24
Figure 3: Component parts of unmet need among adolescent women in Lungwena	25
Figure 4: Percent distribution of intended and unintended pregnancies among adult women.	26
Figure 5: Percent distribution of intended and unintended pregnancies among adolescent women.	27
Figure 6: Preferred methods for use in the future.	29

ABBREVIATIONS

ANC	Antenatal Care
BLM	Banja La Mtsogolo
CBDA	Community Based Distribution Agent
CHAM	Christian Health Association of Malawi
CPR	Contraceptive Prevalence Rate
CRH	Center for Reproductive Health
DHS	Demographic and Health Survey
FFF	Family Federation of Finland
GOM	Government of Malawi
GTZ	Deutsche Gesellschaft fur Technische Zusammenarbeit
IEC	Information, Education and Communication
IUCD	Intra-Uterine Contraceptive Device
LAM	Lactational Amenorrhea Method
LDHS	Lungwena Demographic and Health Survey
MCH	Maternal and Child Health
MDHO	Mangochi District Health Office
MDHS	Malawi Demographic and Health Survey
MoH	Ministry of Health
NFWCM	National Family Welfare Council of Malawi
NGO	Non Governmental Organization
NUFU	(English version- Norwegian Association for University Funding)
PNC	Postnatal Care
TFR	Total Fertility Rate

UNFPA	United Nations Fund for Population
UNIMA	University of Malawi
WB	World Bank
WHO	World Health Organization

DEFINITION OF TERMS

Family Planning – a reproductive strategy that individuals and/or couples employ to meet their reproductive goals.

Demand for family planning – a desire or motivation of women or couples to control their fertility.

Supply of family planning – actual availability and provision of contraceptives as well as family planning information.

Met need for family planning – satisfied desire to control or limit births by an individual and couple(s).

Unmet Need for family planning – an estimate of proportion of women whose pregnancy was mistimed; amenorrheic women whose last birth was mistimed; and women who are neither pregnant nor amenorrheic and are not using any method of modern family but want to wait two or more years for their next birth.

Intended pregnancy – a pregnancy that occurred at the time it was expected by the woman

Mistimed pregnancy – pregnancy that was expected but might have occurred earlier than the woman would have liked.

Unwanted pregnancy – The pregnancy that occurred when the woman never wanted to become pregnant at all.

Intervention – a deliberate action aimed at influencing a situation of specific importance

Interpersonal communication – direct and/or face to face discussion involving questions and answers about family planning

Chapter 1

Introduction

1.1 Background

Demand and supply factors affecting use of modern family planning among women of childbearing age have been identified through a number of studies (UN, 2002). Efforts have been made to implement interventions aimed at addressing most of the identified barriers to contraceptive use (UN, 2004). However, many of these efforts fall short and levels of unmet need for modern family planning are still very high, more so especially in less developed countries (Ibid).

Family planning is a reproductive strategy that individuals and/or couples employ to meet their reproductive goals. This involves decision-making about the timing of the first and subsequent births, limiting family size and using contraceptive methods (UN, 2002). Demand for family planning is the desire or motivation of women or couples to control their fertility. Supply is the actual availability and provision of contraceptives as well as family planning information. Unmet need for family planning refers to the extent and composition of potential demand for modern family planning (Westoff Charles F., 2001).

Based on these definitions, there is unmet need for spacing births and for limiting family size (Ibid). Unmet need for spacing is a measure applied to pregnant women who report their pregnancy was mistimed, to amenorrheic women who report their last birth was mistimed, and to women who are neither pregnant nor amenorrheic and not using any

method of modern family but want to wait two or more years for their next birth. Unmet need for limiting refers to pregnant women whose pregnancy was unwanted, to amenorrheic women whose last child was unwanted and to women who are neither pregnant nor amenorrheic, who are not using any family planning method and who want no more children (MDHS, 1992, MDHS, 2000, MDHS, 2004).

The study defines unmet need in a slightly different way since the measure also captures future birth spacing and limiting motivations among women who have recently given birth or are pregnant or lactating.

1.2 Statement of the problem

1.2.1 Demand factors of unmet need

Demand factors are generally controlled by users. Some of the factors lead to increase in unmet need while others lead to reduction. Among those which lead to increase in unmet need are lack of knowledge, cultures, beliefs, customs, parity, religious fundamentals, motivations surrounding fertility and childbearing, need and value for children, cost of family planning, personal efficacy, increasing number of women of child bearing age, husband's attitudes, opposition to use family planning from relatives of wife or husband or both, widespread poverty, physiological reasons, age, and high mortality (UN, 2002; Nazzar A., Adongo B. Philip., Binka Fred N., et al,1995).

The demand factors that lead to reduction in unmet need for family planning include lack of exposure to risk of pregnancy, desired family size if small, high level of

education, better socio-economic background, urban residential areas, motivations to use family planning, and difficulty to conceive (Bruce J., 1990; Zulu Eliya M., 1996). In the recent times, HIV epidemic has increased demand for condoms for protection against STI in addition to their use for contraception. Young people's lack of co-operation in understanding information and advice also plays a role in increasing unmet need (Lush L., 2002). Demand factors whose impact on unmet need has not been investigated include spousal communication, self and spousal approval of family planning use as well as intention to use family planning in the future.

1.2.2 Supply factors of unmet need

These are factors, whose influence impede or open up access to and actual utilization of family planning services (methods and information). Among them are lack of accessible services, lack of method choices appropriate to the situation of the woman and her family, poor client- provider interaction, misinformation and rumors; insufficient follow-up to promote method switching or ensure proper use and dosage, and financial constraints, follow-up or continuity mechanism, lack of motivation among providers, technical competence of a family planning program, interpersonal relations and appropriate constellation of services (Philips James F., Hussain Bazle M., Kuenning Arends M., et al., 1996). Distribution of supply depots, social marketing outlets, and operations of community based distribution of contraceptives in addition to channels of family planning information to clients also contribute to family planning practices (Rossem Ronan V., Dominique M., 2004).

Other factors in the same category are short term and erratic donor supplies, policy changes that encourage sustainability and self reliance in recipient nations, programmatic capacity, supportive political and economic environment, and extent of demand, level of financial self reliance, commitment to family planning, logistics, and poor implementation capacity. In the absence of trained female providers, the male provider's shyness with young women also has an impact on modern family planning demand satisfaction (UN, 2004; Alan Guttmacher Institute, 2004).

Current family planning programs are using the existing knowledge to reduce unmet need for modern family planning services and the outcome is not satisfactory because levels of unmet need remain high and the trend is still upward. It is likely that there are other supply and demand factors that still need to be investigated especially their impact on levels and patterns of unmet need. For example, we know that there are efforts to make family planning youth friendly to reduce unmet need among young women. But it is likely that other facility-based factors (such as privacy, schedules etc.) still make family planning service points youth unfriendly (UN, 2002; Cleland J., Ali M.M., 2004). Supply factors that have not been investigated are client-provider communication; effect of quality maternal health services on contraceptive use; and other accessibility issues.

1.3 Literature review

1. 3.1 Extent of unmet need

Despite the rise in modern family planning use evidenced in surveys, more than one quarter of the births worldwide are unplanned; with 16% wanted later and 11% not wanted at all (UN,2004). In most cases, unmet need was higher among the sexually experienced but never married women who were eager to avoid unintended pregnancy (Singh S., Darroch E. Jacqueline, Vlassoff M., et al, 2003). Unmet need was very high in countries with very low contraceptive prevalence rate (CPR) and vice versa (Centre for Communication Programmes, 2003). Married women of reproductive age also had high levels of unmet need. About one fifth of the currently married women of reproductive age in developing countries had unmet need for modern family planning in 2003 (UN,2002).The situation indicated that developing countries, and especially the Sub Saharan Africa, had high levels of unmet need.

The general picture of unmet need indicated that the Caribbean countries had less unmet need compared to Asian countries. The Asian countries had less unmet need compared to African counties. Differences existed within regions; e.g. North African countries started experiencing low unmet need as early as late 1990s. In 1994, 26% of married women of reproductive age in Tunisia had unmet need. In 1995, unmet need for family planning among married women of reproductive age in Morocco was 16%. In 2000, Egypt had unmet need of 11 %. This differed from experiences in countries such as Malawi, Zambia and Rwanda, just to mention a few.

Patterns of family planning use in Sub Saharan African countries suggested that some parts of the region were more likely to have higher unmet need than is usually reported. Contributing factors included increasing prevalence of abortions, the growing practice of child dumping, abandonment of infants in the urban centers, and strong desire among women to avoid pregnancy in the post partum period (Centre for Communication Programmes, 2003).

The 1992 Malawi demographic and health survey (MDHS) revealed that about 65% of married women in Malawi never wanted to have another child or did not want one within the next two years. In that year, total unmet need for family planning was 36% but dropped to 30% in 2000(MDHS, 2004). By 2004, the levels of unmet for family planning had further gone down to 28% (Ibid). Unmet need for spacing was 17% while that for limiting was 10%. This indicated that the levels of unmet need had decreased by 2% during a 4 year period and by 8% in a period of 12 years.

The 2000 MDHS revealed that Mangochi district had unmet need of 23.8% (18% for spacing and 5.8 for limiting). In a study conducted by Centre for Social Research (CSR) in 2000 in Mangochi, met need for family planning among currently pregnant married women was 50 %. Thirty percent and 20% had mistimed and unwanted pregnancies, respectively (Centre for Social Research, Save the Children Federation(USA), Malawi Ministry of Health, et al, 2004). In the MDHS, the level of unmet need for Mangochi was reported as one among the lowest in the southern region (UN, 2004). Unmet need levels among women of reproductive age increased in Mangochi from the 23.8% observed in 2000, to 32.8 % in 2004 (MDHS, 2004).This indicated that unmet need for

family planning was increasing in Mangochi but decreasing at national level. The evidence from CSR research and the DHS confirmed that Mangochi had higher unmet need compared to the national average in 2000. The implication about the difference between unmet need for Mangochi and the national one was that demand levels of family planning in the district were not well captured. This situation partly corresponds to Goliber J.T's assertion (1989) that only when high quality services are widely available in the area, can real demand for family planning services be judged.

For Lungwena, many studies about family planning have been conducted and contraceptive use levels established (COM, 1994). Based on national level estimates and facility statistics CPR for Lungwena was 26% in 2000, 36% in 2004, and estimated at 39% in 2006 (COM, 1995-2000; MDHO, 1990-2002). However, unmet need for contraceptive use and influence of supply factors has never been assessed.

1.4 Justification of the study

Adequate availability of family planning information and methods can affect age at first sex, first marriage, first pregnancy, and birth of first child as well as overall parity. For this reason, actual availability of desired methods and correct information are necessary for individual's knowledge and approval of family planning and family planning use. Family planning integration strategies and publicity in the health system can increase contraceptive uptake.

Since modern family planning is a health intervention, methods and information given to potential and current clients act as a driving force for method uptake. Even acquisition of knowledge about gender roles, sexual health, and spousal communication rely on family planning intervention's ability to give convincing and adequate information about the intervention's efficacy, effectiveness and benefits.

IEC messages well tailored to address specific behaviors have great potential in influencing attitudes as well as determining the direction of IEC coverage, and extent of provision of family planning information and services. Where the policies emphasize discussion of family planning during ANC and PNC, women have an opportunity to access information and practice family planning. Where IEC coverage and ANC provision are high, family planning use can go up and unmet need levels can go down and vice versa. Non-use or undecidedness to use family planning is determined by similar drives.

In the mid 1950s, Davis and Blake proposed eleven intermediate factors through which social, economic and cultural conditions affected fertility in the population (Bongaarts J., 1982). The factors were challenging because they were difficult to incorporate in quantitative models (Ibid). Later, John Bongaarts proposed that seven intermediate variables were often encountered in reproductive models (Ibid). Bongaarts further asserted that the variations in fertility observed across many regions over the world were largely due to four intermediate variables namely; proportion married among women, contraceptive use and effectiveness, prevalence of induced abortion and postpartum infecundability. He suggested that these factors have direct effects on fertility, and consequent unmet need levels. Bongaarts selected the four variables based on studies of the relationship between intermediate variables and fertility, i.e. sensitivity of fertility to changes in variable and extent of factor's variability in the population over the time.

Later, Dorothy Nortman and Gary Lewis operationally categorized unmet need into one for spacing and another for limiting (Westoff F. Charles, 2001). Their work paved a way in understanding methodological concepts about unmet need. By speculating flow in and flow out of the currently pregnant and the amenorrheic, they brought in a dynamic component which enabled estimation of unmet need for a year's period.

The Health belief model originally proposed by Rosenstock in 1966 but modified by Becker in 1974 (King R., 1999) held that health behavior is a function of an individual's socio-demographic characteristics, knowledge and attitudes. In the context of family planning, this theory provided a background upon which women's change in behavior

towards family planning use could be based. Intention to use family planning to control one's reproductive experiences would differ among women of different ages. It would also differ depending on women's attitudes towards and knowledge about family planning. Women would engage in cost-benefit analysis speculating major benefits from the change and the seriousness of consequences of family planning non-use.

According to theory of reasoned action advanced by Fishbein and Azjen in the 1960s (Ibid), an individual's own perception about need for change in behavior could depend on the attached importance. Changing behavior towards family planning use would take into account what the significant others do in the same community. Improvement of community capacity would influence individual's perceptions about family planning. This legitimizes investigation about contribution of supply side towards modern family planning uptake and pregnancy intentions among women of child bearing age.

Chapter 2

Objectives of the study

2.1 Broad Objective of the study

The overall objective of the study was to improve family planning practice and family life wellbeing in rural Malawi through an increase in the uptake of modern family planning.

2.2 Specific Objectives

Specific objectives were to:

- a) assess levels of unmet need for modern family planning methods in Lungwena
- b) determine supply and demand factors contributing to unmet need for contraception in the area
- c) identify strategies for increasing contraceptive uptake in Lungwena

Chapter 3

Methodology

3.1 Type of research study

This was a cross sectional study collecting data at a point in time.

3.2 Study Area

The study was conducted in Lungwena health centre catchment. Lungwena is situated on the eastern side of Lake Malawi about 30 kilometres from Mangochi Township on the way to Makanjira. It is bounded by the Lake on the west and Namizimu hills on the east. The area has 26 villages in TA Makanjira and Chowe.

3.3 Study Population

The study focused on all child bearing age women (12-49 years) from all the households in the six villages that were sampled for Lungwena Demographic and Health Survey (LDHS) conducted in 2004. The villages included Milombwa, Chapola, Chilonga, Mdala Makumba, Kwilasya and Mtumbula. These were the women resident in the catchment at the time of the survey.

3.4 Study Period

The study was conducted between January 2004 and August 2007. This includes both the period of the DHS and preparation of the dissertation.

3.5 Sample size

The sample had 259 women from the six villages mentioned above. The sample size was predetermined by the focus of the LDHS. These villages and the households were randomly selected to represent the total population. All women in the reproductive age group in the villages were sampled.

3.6 Data collection

Data for the LDHS from which the study was drawn was collected in personal interviews using several data collection tools listed below.

- a) Household schedule
- b) Adult women questionnaire
- c) Adolescent women questionnaire
- d) Family planning client exit interview guide
- e) Service provider interview guide and check list.

The household schedule and questionnaires were translated into Chiyao and Chichewa. All data collection tools were piloted in Likala village in Mangochi to test them for data validity. Data collection was done by 4 supervisors and 24 data collectors who were recruited locally.

The household listing yielded a listing of all households in Lungwena. The adult women and adolescent women questionnaire collected data for the variables indicated in Table 1 below.

Table 1: Contextual, intermediate and proximate variables derived from adult and adolescent women questionnaire.

Contextual variables	Intermediate Variables				Proximate Variables
Socio-economic	Demographic Level	Community level	Couple level	Individual level	
-religion -education -occupation -ethnicity	Age at : -first sex -first marriage -first pregnancy -first birth	-Cultural factors -gender -communication -knowledge of family planning	-spousal communication	-self approval to use FP -Social network partnership -Intention to use FP in the future -spousal approval	-source of family planning information -Discussion of FP with service provider during ANC -Discussion of FP with service provider during PNC -type of contraceptive available -fear of side effects -health concerns -information accessibility -content of FP sessions -method mix -privacy and convenience

Key: FP- Family planning

The Family planning client exit interviews, service provider interviews and records from the health centre family planning register supplied data about availability and

accessibility of methods, content of family planning discussions, and privacy and convenience.

In this dissertation, proportion (occurrence) of mistimed pregnancies and unwanted pregnancies were categorized as outcome variables, while discussion of family planning during ANC and PNC, and fear of side effects and health concerns, were treated as predictor variables. Content of family planning discussion, availability, accessibility, privacy and convenience and method mix were analyzed from qualitative data for more in-depth explanation of non-use of family planning and consequent high unmet need.

3.7 Data management

Data entry was done using Microsoft Access 2002; ©Microsoft Corporation, 1992-2001. Statistical Package for Social Sciences (SPSS) 11.0.1(15 Nov. 2001), Inc. 1989-2001(USA), EPI-Info version 6.04d, January 2001 and Microsoft Excel 2000; © 1985-2001, were used to analyze data. Associations between dependent and independent variables were tested using Chi square test.

Data quality was validated using double entry. Unmet need for family planning was calculated by adding proportions of current pregnancy reproductive intentions, and proportions with various future reproductive preferences among non-pregnant and non-ammenorrheic fecund women who wanted to wait for at least two or more years before a/another child but were not using modern family planning(non-contracepting women)

The proportion that currently had mistimed subsequent pregnancies and that which wanted to have a child later, made up total unmet need for spacing while proportion of currently pregnant women who reported that their current pregnancy was unwanted plus proportion of fecund women that did not want any more child/children gave the total of unmet need for limiting.

Analysis of the study was based on the conceptual and analytic framework below (See Figure 1). Some of the contextual and intermediate factors in the framework have already been discussed by other researchers. Here, it is postulated that contextual factors interact with intermediate factors and proximate factors, as outlined in the framework, to produce a situation of unmet need for family planning. It is also accepted that some intermediate variables directly influence unmet need.

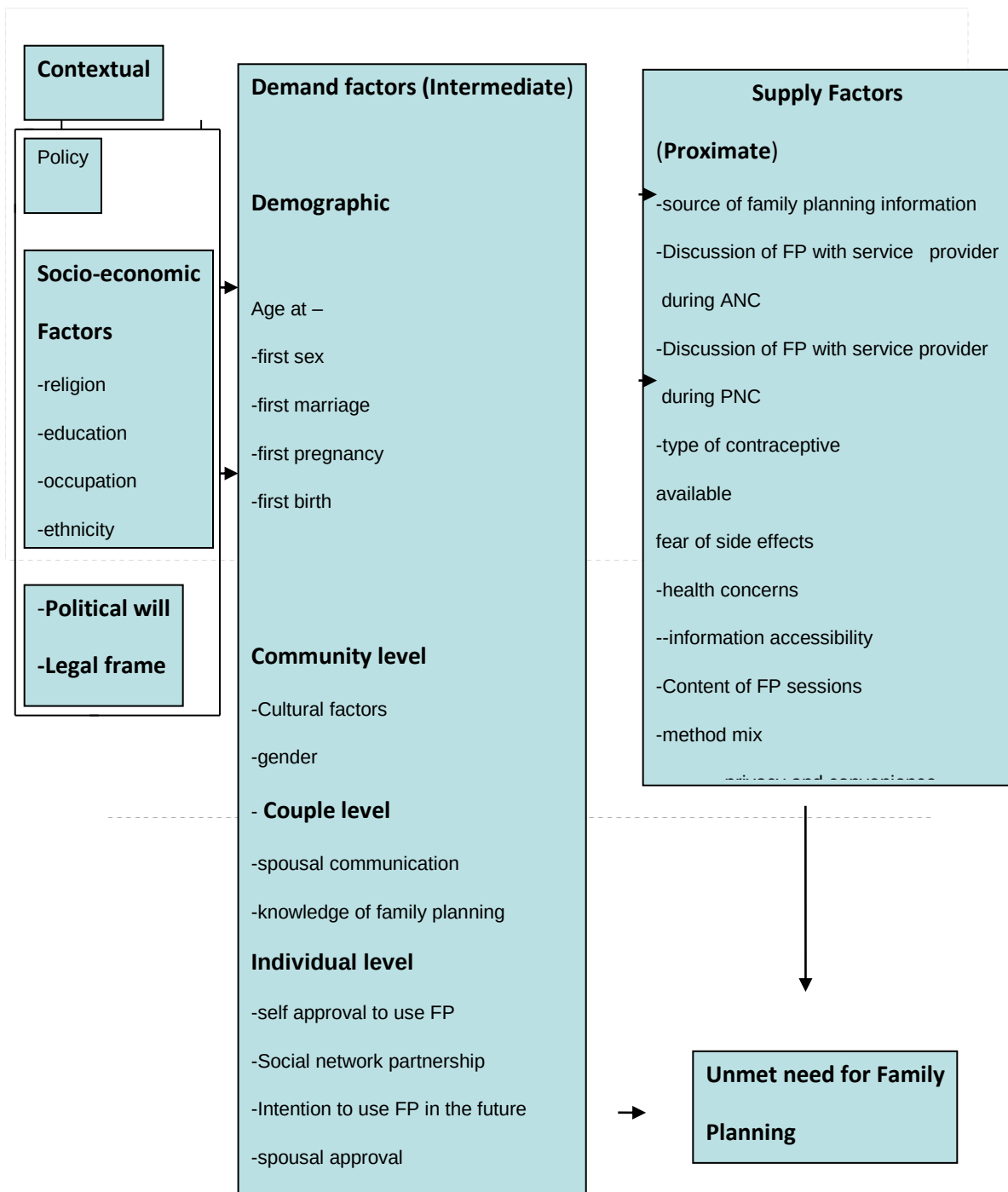


Figure 1: Conceptual and analytical framework for factors contributing to unmet need for modern family planning.

The policy structure, socio-economic background and political will as well as legal framework affect demand and supply of modern family planning. The policy determines allocation of funding, type of methods available and the method mix. Socio-economic background affects ability to spend on family planning, ability to seek more reproductive health services, and ability to decide freely about one's own health. The political will affects development priorities, thereby influencing issues of advocacy for family planning. It determines conduciveness of the environment in which family planning is practiced. The legal framework provides a binding force for family planning through enforcement of respect for human rights. In this case, the contextual factors influence the trends and patterns of demographic and community level variables indicated in Figure 1. The influence of contextual factors also affects individual and couple level factors

The supply factors analyzed for the study were source of family planning information, discussion of family planning during ANC and PNC, family planning side effects, health concerns, content of family planning discussion with family planning service provider, availability and accessibility of family planning methods, method mix, and privacy and convenience.

The associations between discussion of family planning during ANC and PNC of first pregnancy, and proportions with unmet need at conception of last born child as well as current pregnancy were tested using CHI square test. Associations for proportions with health concerns and fear of side effects were also tested for significance. Another association tested was that between discussion of family planning during ANC and PNC of last pregnancy and proportions with mistimed and unwanted pregnancies at the time

of the study. The associations between proportions of unintended last and current pregnancies and demand factors viz; age at first sex, first marriage, first pregnancy and birth of first child were also tested. The associations of mistimed and unwanted pregnancies and family planning use approval, spousal communication and intention to use family planning were tested too.

3.8 Study Limitations

One of the anticipated limitations was inadequacy of reference data specific for the area. However, references were made to studies made by the College of Medicine and other NGOs in the area.

3.9 Ethical Considerations

In all cases, consent for the study was obtained from the health management team, village health committee, the village headmen, and the respondents before the interviews were conducted.

Chapter 4

Study Results

4.1 Survey Response Rates

Among all women sampled in the Lungwena DHS, 99 %(188) of the adult women and 100% (71) of adolescent women (259 in total) were interviewed. Response rates varied from one question to another due to non-response in other cases (See Table 2 below).

Table 2: Survey response rates by village and age.

Village	Adult females		Adolescent females		
		% in sample		% in sample	% of total WCBA in village(s)
Total Sampled in all villages	189	100	71	100	20
Milombwa	18	9	11	16	27
Chapola	56	29	16	23	16
Chilonga	4	2	2	3	6
Mdala Makumba	32	17	10	14	21
Kwilasya	31	17	17	24	18
Mtumbula	47	25	15	21	33
Total interviewed in all villages	188	99	71	100	20

WCBA: Women of child bearing Age

Response rate among 22 women who participated in family planning client exit interviews was 100%. A service provider was interviewed and she responded to all

questions. The health centre family planning register was checked for 2004 family planning provision records.

4.2 Respondents' characteristics

Of the adult women who participated in the survey, 96% were Yao. The Chewa, Nyanja, Ngoni and Lomwe were in small percentages. Eighty three percent of the adult women were married compared to 24% of the adolescents. Co-habiting accounted for 2 % among adult women and 3% among adolescents. Ninety three percent of all women were Muslims, while Catholics and Protestants were in small percentages too. School attendance was low (42% adult women, 76 % adolescent women). Of the adult women who attended school, only 6% reached secondary school while 2% among adolescent women did so. None of the adult or adolescent women had tertiary education.

In Table 3, the majority of adult women in Lungwena was married, and had first sex and first pregnancy at ages 15-19. The fact they got married and had sexual début at younger ages exposed them to long period of child bearing life.

Table 3: Percent distribution of age at first marriage, first sex, and first pregnancy

	AFM (%)		AFS (%)		AFP (%)
(1)	2	(1)	2	(1)	2
(12)	23	(20)	38	(8)	15
(69)	130	(65)	122	(64)	120
(16)	30	(8)	15	(21)	39
(2)	4	(6)	11	(6)	11
(100)	188	(100)	188	(100)	188

Key: AFS- age at first sex, AFM –age at first marriage: AFP- age at first pregnancy

4.3 Levels of intended and unintended pregnancies

In Lungwena, adult women had total unmet need of 32.37% (14.25% for spacing and 18.12% for limiting, [See Figure 2 below]). Total demand for family planning among adult women (20-49) was 50.97 % (32.37%+18.6%).

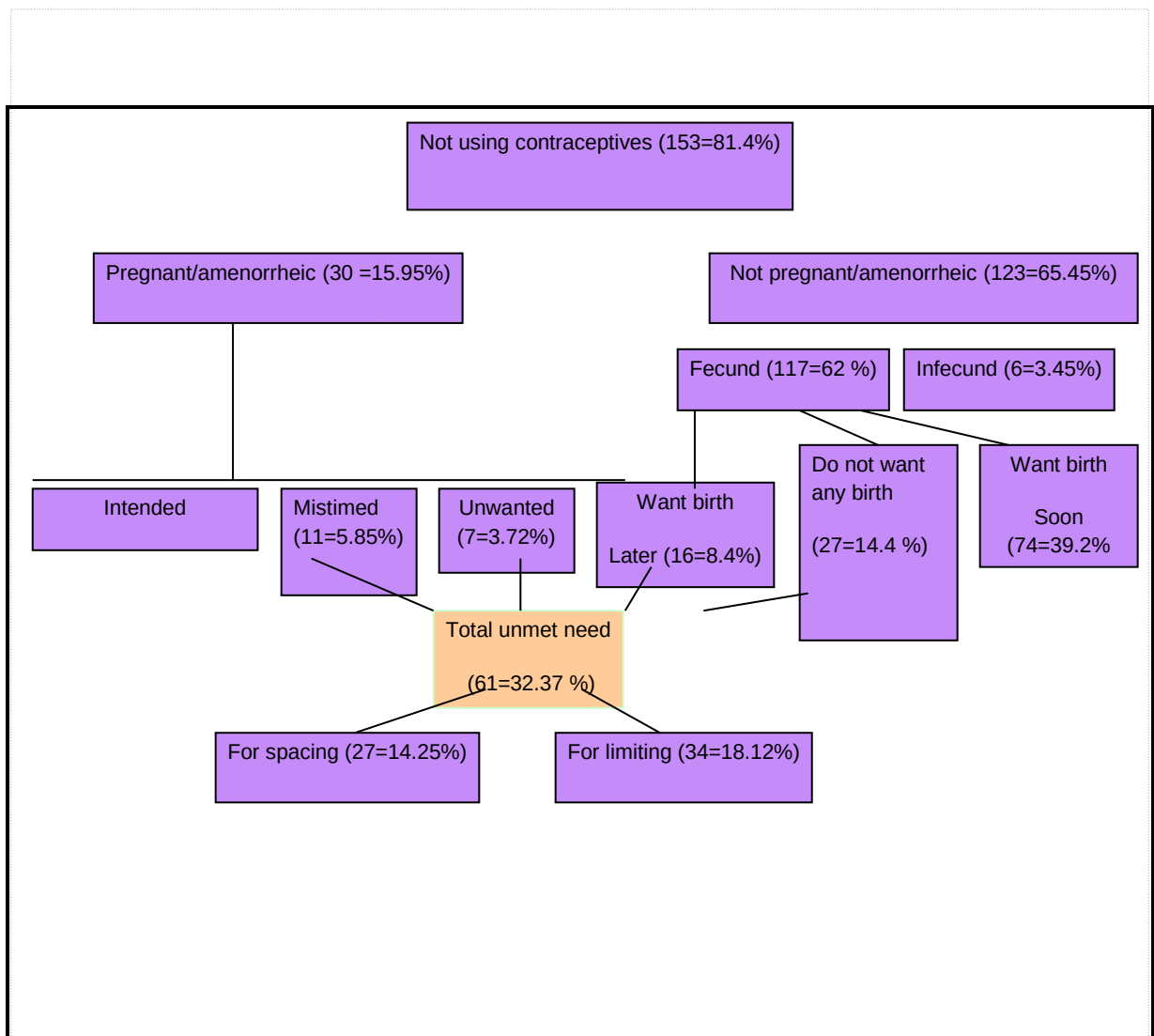


Figure 2: Component parts of unmet need among adult women in Lungwena (Adopted from blend of Westoff-Pebley current status model and Nortman-Lewis dynamic model used in Dominican Republic DHS data)

Among adolescent women, total unmet need was 3 % (See Figure 3 below).

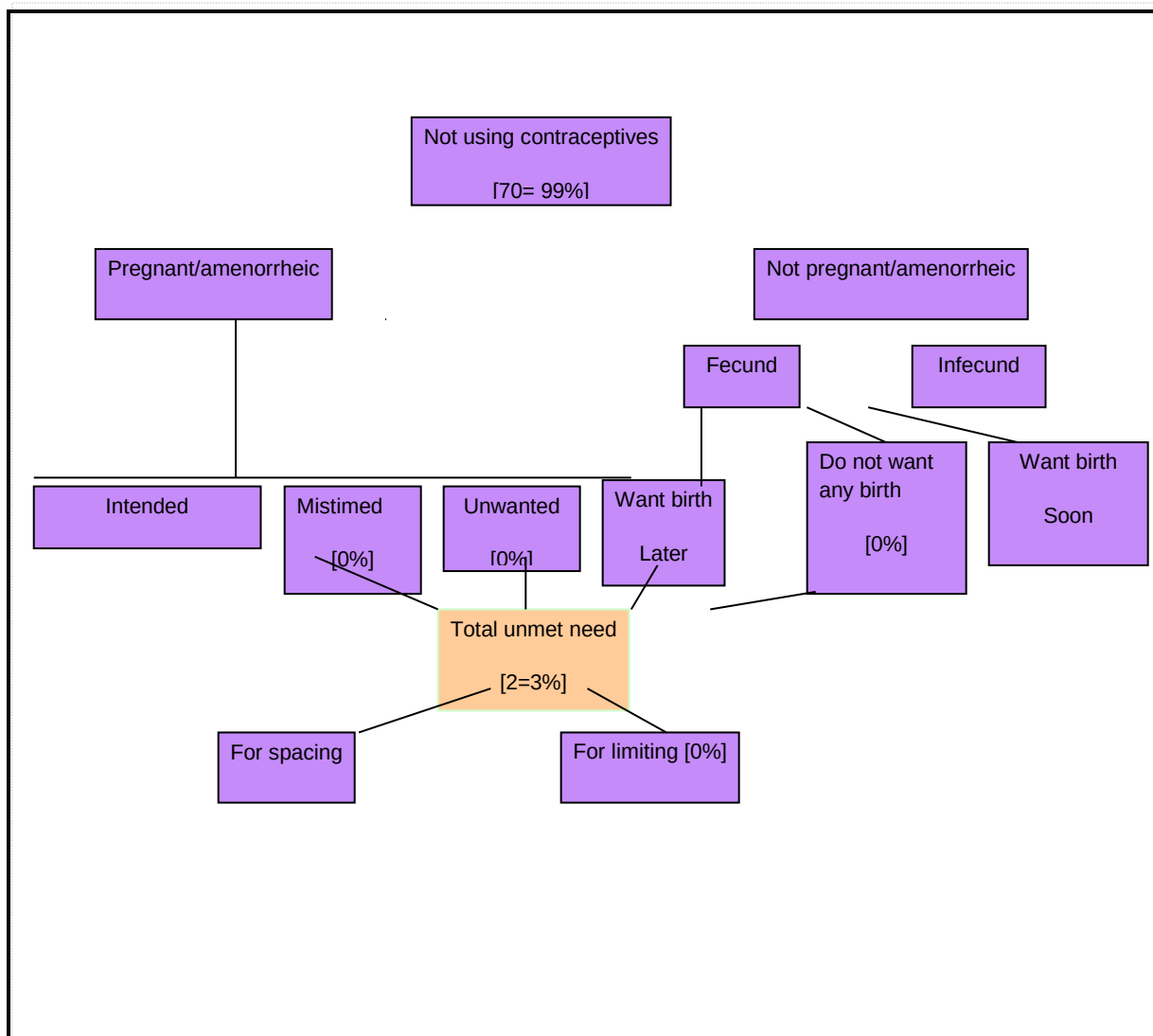


Figure 3: Component parts of unmet need for family planning among adolescent women in Lungwena (Adopted from blend of Westoff-Pebley current status model and Nortman-Lewis dynamic model used in Dominican Republic DHS data)

At the time of the survey, 29.6% among 26 adult women pregnant had mistimed pregnancy and 22.2 % (6) had unwanted pregnancy. The total unmet need among adult

women pregnant at the time of the survey was 51.8 %(See Figure 4 below). However, the high percentages for mistimed and unwanted pregnancies in Figure 4 are due to small numbers.

Eighty five percent of 179 adult women had intended pregnancies at conception of last born child. Seven and eight percent had mistimed and unwanted pregnancies, respectively. Unmet need was 15 %. Eighty one percent of 161 women had intended pregnancies at conception of the first born child. Eleven and eight percent had mistimed and unwanted pregnancies, respectively. Unmet need was 19 %.

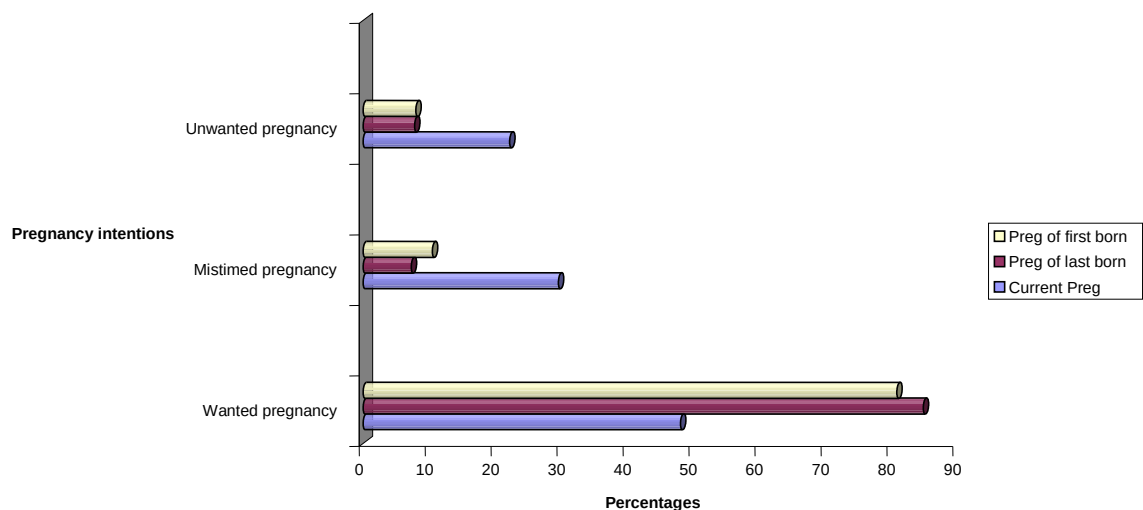


Figure 4: Percent distribution of intended and unintended pregnancies.

Among adolescent women, only one woman had a mistimed pregnancy, and 2 had unwanted pregnancy at conception of first born (See Figure 5 below). Besides, the majority had one pregnancy experience; hence no trends about their reproductive experiences.

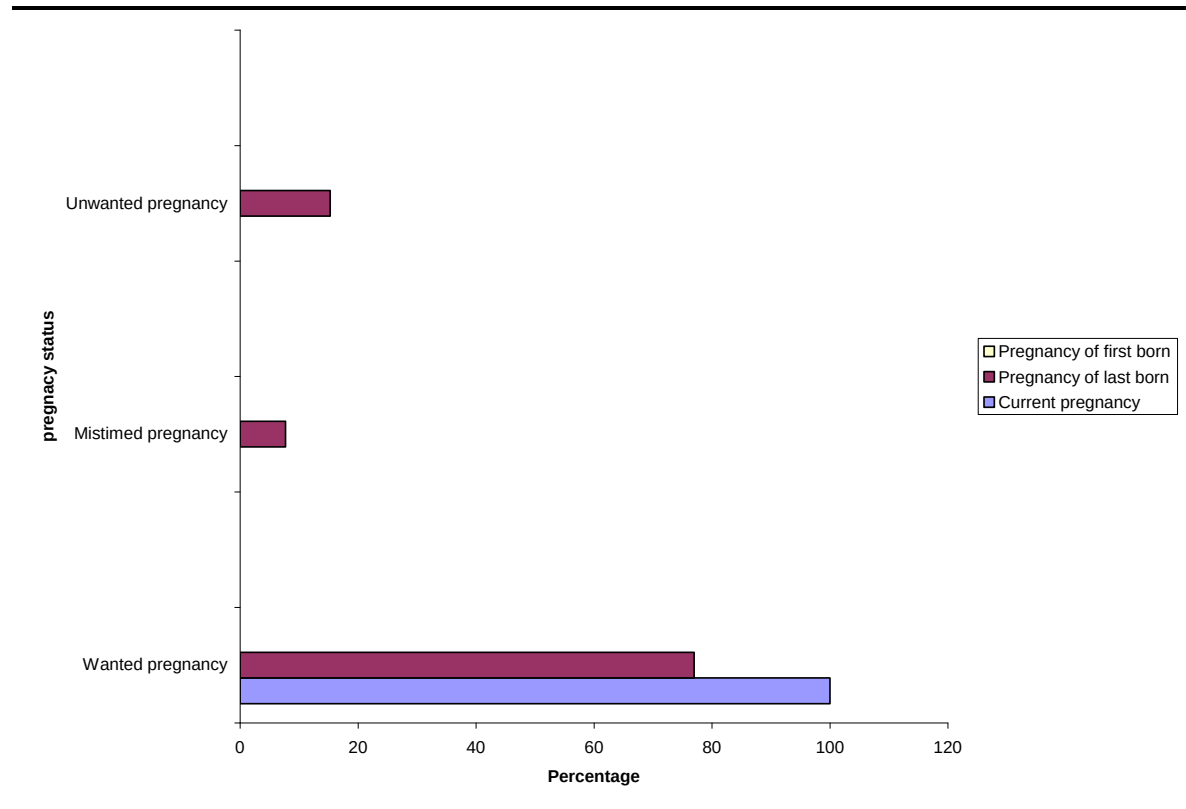


Figure 5: Percent distribution of intended and unintended pregnancies among adolescent women.

4. 4 Levels of contraceptive use

Out of 188 adult women, 81.4 %(153) were not using modern family planning (non-users). Among them, 14.1 %(26) and 1.8 %(4) were pregnant and amenorrheic, respectively. Out of 71 adolescent women ninety nine percent (70) were not using

modern family planning. Five point six percent (4) were pregnant. Among all women, prevalence of use of injectables was 11%, while 3% were using female sterilization, 3% were using pills and 0.4%, 0.8% and another 0.4% were using IUCD, condom and diaphragm, respectively

4.4.1 Method mix

The method mix in Lungwena comprised six methods mentioned in section 3.4. During family planning client exit interviews, the same methods were mentioned. Condoms were reported in the interviews as mainly for prevention of STI and not avoidance of pregnancy. However, male sterilization was not available. The future demand of family planning indicated that more injectables would have to be made available for the adult women (See Figure 6 below). However, many adolescent women were unsure what method they would use.

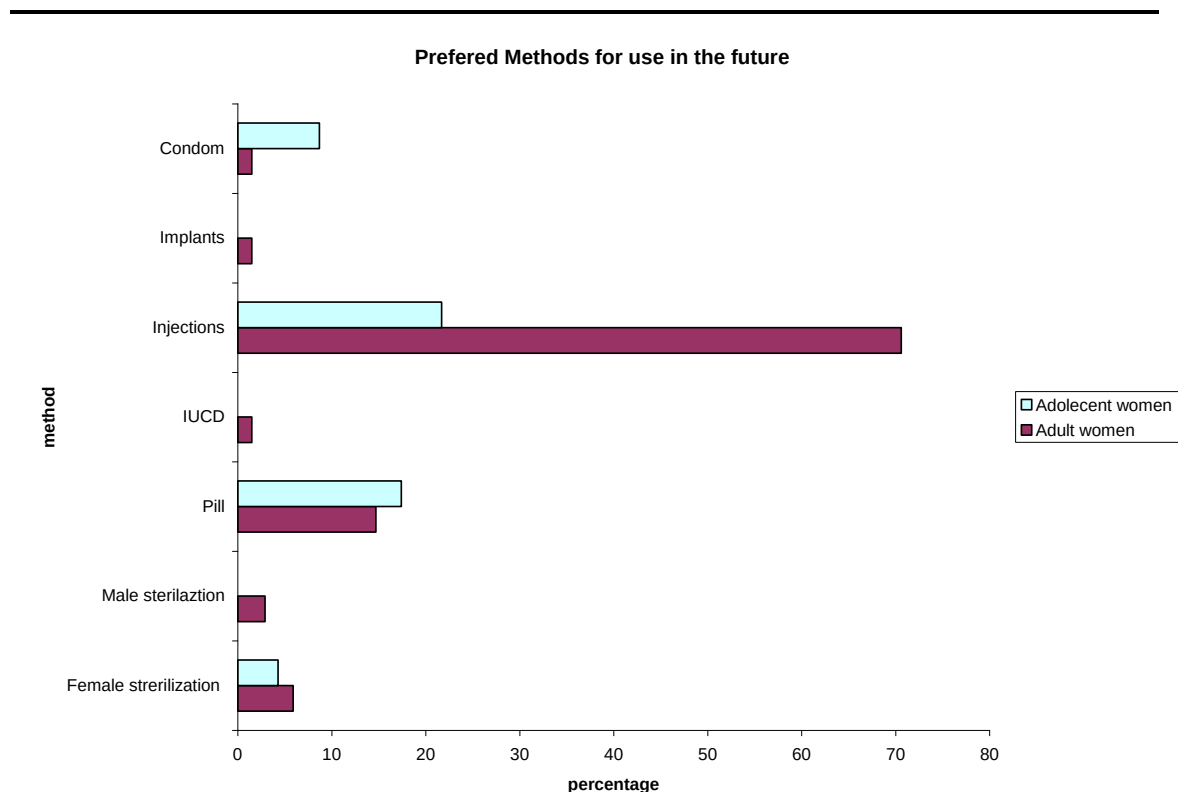


Figure 6: Preferred methods for use in the future

(NB: percentages in Figure 4 do not add up to 100 because multiple responses were possible)

4.5 Supply factors contributing to unmet need for family planning

4.5.1 Exposure to family planning information

The survey asked a question about main sources of family planning information (See Table 4 below).

Table 4: Exposure to modern family planning information in last few months prior to survey

	Radio	Meetings/shows	Newspaper/magazine	Television
Adults	64%(120)	57%(107)	29%(54)	8%(15)
Adolescents	38%(27)	32%(23)	16%(11)	3%(2)

NB: Totals could add up to more than 100% because some respondents heard about family planning from several sources

Exposure to mass media could not be cross tabulated with unmet need at conception of the last born and unmet need at conception of current pregnancy because the question about exposure to these sources referred to the most recent period (last few months)

4.5.2 Health Concerns and side effects

The women also responded to a question about reasons for not using modern family planning (See Table 5 Below).

Table 5: Reasons for non-use of modern family planning among women 12-49.

<i>Reason</i>	<i>Adult women (%)n=105</i>		<i>Adolescent women (%)n=22</i>	
Costs too much	1%	(1)	0	0
Lack of access	1%	(1)	0	0
Fear of side effects	14%	(12)	14%	(3)
Health concerns	30%	(26)	14%	(3)
Knows no source	2%	(2)	14%	(3)
Knows no method	1%	(1)	18	(4)
Not having sex	12%	(10)	22	(5)
Husband opposed	1%	(1)	0	0
Respondent opposed	1%	(1)	5%	(1)
Others opposed	1%	(1)	5%	(1)
Not married	3%	(3)	8%	(2)

NB: Percentages can add up to <100 because it is only part of all the responses in the DHS.

Association of the other supply factors to unmet need was tested using Chi square test of association. The results, presented in Table 6 below, indicate that women who discussed family planning with the service provider during the antenatal care of first born child were 0.2 times ($p= 0.01$, 95% CI, 0.06, 0.74) as likely to have unmet need compared to those who did not have family planning discussions during the antenatal care of first born child. The result of the test is significant as shown by the p-value of 0.01. In the same Table 6, women who had fear of side effects as reasons for not using family planning were 1.48 times more likely to have unmet need than those who did not say so. The test result is not significant because p-value is greater than 0.1.

As seen from the test of association, discussion of family planning with service provider during ANC of first born child was statistically significantly associated with unmet need while the other factors such as fear of side effects, health concerns, and discussion of family planning with service provider during PNC of the first born child, were not (See Table 6).

Table 6: Percent distribution of estimates of proportions with unmet need among women

20-49 by supply factors (last pregnancy)						
	Supply factors		<u>Had unmet need</u>		Odds ratios for ‘unmet need’ with 95%CI	P-value
			<i>Last pregnancy</i>			
Discussed family planning during ANC of first pregnancy		Yes	No			
	Yes	10%(13)	90% (118)	0.20 (0.06,0.74)*		0.01
	No	35% (6)	65% (11)			
Discussed family planning during PNC of first pregnancy		Yes	15% (8)	85% (46)	0.95 (0.35,2.51)	.091
	No	15%(19)	85% (104)			
Health Concerns		Yes	12% (3)	88% (23)	0.86 (0.16,4.21)	1.00
	No	13% (7)	87% (46)			
Fear of side effects		Yes	17% (2)	83% (10)	1.48 (0.19,9.45)	0.64
	No	12% (8)	88% (59)			

NB: * statistically significant; p-value=0.01

In Table 7 below, associations of four supply factors with unmet need at conception of current pregnancy were each tested for statistical significance using Chi square test of association. Women who discussed family planning during ANC of first born child were

0.43 times ($p = 0.62$, 95%CI, 0.01, 6.68) as likely to have unmet need compared to those who did not. The result of the test of significance indicates p-value greater than 0.1.

The women who discussed family planning during PNC of the last born child were 2.5 times more likely to have unmet need than their counterparts. The result of the statistical test was not statistically significant as indicated by p-value of greater than 0.1.

In this case, all the supply factors in Table 7 were not statistically significantly associated with unmet need at conception of current pregnancy.

Table 7: Percent distribution of estimates of proportions with unmet need among women

20-49 by supply factors (current pregnancy)							
Supply factors				Had unmet need		Odds ratios for ‘unmet need’ with 95%CI	P-values
				<i>Current pregnancy</i>			
				Yes	No		
Discussed family planning during ANC of first pregnancy							
	Yes	56%	(9)	44%	(7)	0.43 (0.01, 6.89)	0.62
	No	75%	(3)	25%	(1)		
Discussed family planning during PNC of first pregnancy							
	Yes	50%	(4)	50%	(4)	0.89 (0.12,6.46)	1.00
	No	53%	(9)	47%	(8)		
Discussed family planning during ANC of last							
	Yes	55%	(11)	45%	(9)	1.22 (0.53,6.1)	1.00
	No	50%	(1)	50%	(1)		
Discussed family planning during PNC of last							
	Yes	67%	(8)	33%	(4)	2.50(0.31,22.40)	0.40
	No	44%	(4)	56%	(5)		

4.5.3 Content of family planning discussion with service provider

The exit interviews with family planning clients revealed that much of the content of the family planning discussion was about types of methods women could use to space or limit children and the sources from which they could be obtained. The interviews indicated that not much about possible side effects of family planning and how they could be handled was discussed. The service provider sometimes used interpreter to communicate family planning information to clients since she could not speak in Chiyao, the commonest language in Lungwena.

4.5.4 Availability and accessibility of family planning

Family planning client exit interviews revealed that injectables, pills, and male condoms were provided at the facility. Tubal ligation was offered at the district hospital. Female condoms were marketed at the health centre by the service provider but had never been available. The records in the family planning register concurred with the findings about the methods used in the area from family planning client exit interviews. However, the facility more often had problems of supplies of some of the modern methods as one family planning service provider remarked:

‘At times we have situations when even condoms are not in supply. For example, as I am talking now, we have no supplies of condoms. This man who comes here (she points at a man entering) is also looking for the same because the last time he came we had no supply too.’

(It was revealed later the man who was entering was a CBDA).

The interview with the service provider also revealed that equipment was sometimes a problem. An example was given of a situation where depo provera was supplied without syringes for use.

4.5.5 Privacy and convenience

Respondents in the family planning client exit interviews indicated that there were times when women could not feel comfortable with the setting especially when the door to the provider's office was not closed and other women could hear what one was discussing with the provider inside (see the remark below).

*'Yisawa chenene ligongo kawirikawiri tukusajinjira amunomuno nadokotala.
Nambo naga nganawugala litanga alyo (points at the door)
ngayiikusingalasya ligongo jwalijose akusapikana yitukambirana amuno'*

This remark suggested that the service delivery point lacked privacy and convenience. The service delivery point's location was not conducive for service provision as perceived by the clients. The interviews also revealed that women felt uncomfortable sitting around outside waiting for family planning services. It transpired that women seen sitting on the bench in the family planning department were reported by relatives or community members to their husbands who in turn became furious upon hearing that their wives were looking for family planning methods.

4.6 Demand factors of unmet need

4.6.1 Approval to use family planning, spousal communication, and intention to use contraception versus unmet need at conception of last born

In Table 8 below, the Chi square test for association indicated that women who reported self approval of family planning were 6.10 times ($p=0.05$, 95%CI, 0.82,125.5) more likely to have unmet need at conception of last born child than those who did not approve. The result for test of association to unmet need is not statistically significant. In the same Table 8, women who reported that their spouses approved use of family planning were 0.77 times ($p=0.74$, 95% CI, 0.20, 3.16) likely to have unmet need at conception of last born child. The result of the test is not statistically significant.

Among the first four demand variables in Table 8, only self approval to use family planning indicated a statistically significant association (weak) with unmet need while spousal approval, spousal communication of family planning and intention to use family planning were not statistically significantly associated at all.

4.6.2 Age at first sex, marriage, pregnancy and first child versus unmet need at conception of last born

In Table 8, women who had sexual debut below age 20 were 1.02 times ($p=0.97$, 95%CI, 0.37, 2.89) likely to have unmet need than women who had sexual debut at age 20 and above. The result of the test is not statistically significant because the p-value is greater than 0.1. The women whose age at first pregnancy was below 20 years were also 1.02 times ($p= .97$, 95% CI, 0.37, 2.89) likely to have unmet need for family planning than those who had first pregnancy at ages 20 and above. The result of the test of

association is not significant too. Among the last four demand variables in Table 8, none is statistically significantly associated with unmet need.

Table 8: Percent distribution of estimates of proportions with unmet need among women 20-49 by demand factors (last pregnancy)

Demand Factors	<u>Had unmet need</u>				P-values	
	<i>Last pregnancy</i>					
	Yes		No		Odds ratios for ‘unmet need ‘with 95%CI	
Self approval to use family planning	Yes	18% (27)	82% (124)	6.10 (0.82,125.5)	0.05	
	No	4% (1)	96% (28)			
Spousal approval of family planning use	Yes	13% (13)	87% (84)	0.77 (0.20,3.16)	0.74	
	No	17% (4)	83% (20)			
Spousal communication	Yes	14% (10)	86% (61)	0.82 (0.20,3.52)	0.71	
	No	17% (14)	83% (70)			
Intention to use family planning	Yes	13% (9)	87% (60)	0.88 (0.29,2.65)	0.81	
	No	15% (9)	85% (53)			
Age at first sex <20 yrs	Yes	15% (20)	85% (112)	1.02 (0.37,2.89)	0.97	
	No	15% (7)	85% (40)			
Age at first marriage <20 yrs	Yes	15% (21)	85% (124)	0.76 (0.26,2.34)	0.59	
	No	18% (6)	82% (27)			
Age at first pregnancy <20 yrs	Yes	15% (20)	85% (112)	1.02 (0.37,2.89)	0.97	
	No	15% (7)	85% (40)			
Age at birth of first child <20 yrs	Yes	16% (18)	84% (98)	0.83 (0.27,2.60)	0.71	
	No	18%(6)	82%(27)			

4.6.3 Approval to use family planning, spousal communication, and intention to use contraception versus unmet need at conception of current pregnancy

In Table 9 below, women who approved use of family planning to delay or avoid pregnancy were 12 times ($p=0.23$, 95%CI, 1.01, 323.31) more likely to have unmet need at conception of current pregnancy compared to women who did not approve. Women who had intention to use family planning in the future were 3.4 times ($p=0.38$, 95%CI, 0.40, 34.82) more likely to have unmet need at conception of current pregnancy than those who had no intention. Women who communicated to their spouses about family planning in the past few months prior to the survey were 3.5 times more likely to have unmet need for family planning than those who did not communicate in the same period. Among these variables none was statistically significantly associated with unmet need for modern family planning.

4.6.4 Age at first sex, marriage, pregnancy and first child versus unmet need at conception of current pregnancy.

In the same Table 9, women who had sexual debut below age 20 were 0.13 times ($p=0.16$, 95%CI, 0, 1.65) as likely to have unmet need at conception of current pregnancy compared to those who had sexual debut at ages 20 and above. Despite that, the test result is not statistically significant. The women whose age at first pregnancy was below 20 years were 0.95 times ($p=0.95$, 95%CI, 0.15, 5.99) likely to have unmet need at conception of current pregnancy compared to those whose age at first pregnancy was above 20 years.

None of the last four variables in Table 9 was statistically significantly associated with unmet need for modern family planning.

Table 9: Percent distribution of estimates of proportions with unmet need among women 20-49 by demand factors (current pregnancy)

Demand Factors	<u>Had unmet need (%)</u>						
	<i>Current pregnancy</i>						
		Yes		No		Odds Ratios for 'unmet need' with 95%CI	P- values
Self approval to use family planning							
	Yes	67%	(14)	33%	(7)	12.0(1.01,323.31)	0.23
	No	16.7%	(1)	83.3%	(5)		
Spousal approval to family planning use							
	Yes	60%	(9)	40%	(6)	1.00 (0.08,11.65)	1.00
		60%	(3)	40%	(2)		
Spousal communication							
	Yes	67%	(10)	33%	(5)	3.50 (0.53,25.54)	0.26
	No	37%	(4)	63%	(7)		
Intention to use family planning							
	Yes	58%	(11)	42%	(8)	3.44(0.40,34.82)	0.38
	No	29%	(2)	71%	(5)		
	Yes	40%	(8)	60%	(12)	0.13(0, 1.65)	0.16
	No	83%	(5)	17%	(1)		
Age at first sex <20 yrs	Yes	47%	(9)	53%	(10)	0.68(0.08, 5.99)	1.00
Age at first marriage <20 yrs	No	57%	(4)	43%	(3)		
Age at first pregnancy <20 yrs	Yes	53%	(8)	47%	(7)	0.95 (0.15,5.99)	0.95
	No	55%	(6)	45%	(5)		
Age at birth of first child <20 yrs	Yes	57%	(8)	43%	(6)	1.00 (0.11,8.93)	1.00
	No	57%	(4)	43%	(3)		

Chapter 5

Discussion

Although there were differences between the measurement basis of unmet need used in 2004 national MDHS and the one used this study, total unmet need for family planning in Lungwena was slightly higher than the southern region estimate, and also higher than the national estimate of total unmet for the same year (2004). However, total unmet need for modern family planning in Lungwena was lower than total unmet need for Mangochi as a district.

The total demand of unmet need for family planning in Lungwena was less than that for the district (Mangochi), less than that for the southern region and less than that for the nation. Although the level of demand for family planning in Lungwena was less than the other three, the CPR in the area was lower than the CPR for Mangochi as a district, and lower than the CPR for the southern region. The CPR in Lungwena was lower than that at national level as reflected by the MDHS 2004. The two differences explain why Lungwena had levels of unmet need higher than the national. This situation entails scaling up services to meet the surplus demand. Since the population is young, there is also need to create more modern family planning demand for spacing in order to address the reproductive health needs of the masses graduating into child bearing age.

Across ages, unmet need for family planning indicated higher levels among adult women compared to adolescent women. In time perspective, unmet need for modern family planning in Lungwena was relatively high at the time the women became

pregnant with first children. The level of unmet went down by the time the women conceived the last born child, but it went up again by the time the women conceived current pregnancies.

The most prevalent family planning method was injectables. One of the possible explanations for high preference in use of injectables could be issues of privacy and confidentiality since women could use them without knowledge of their husbands. The need for privacy could be supported by the fact that some men got furious upon learning that their wives were using family planning. However, the issue of privacy and convenience needed attention to enable clients comfortably wait for services at the facility. The fact that men got furious to learn that their wives were seeking family planning at the health facility revealed possibility for low male involvement in family planning in the area.

The second possible explanation for the preference of injectables could be the influence of the NGOs working in Family planning promotion in Lungwena such as The Family Federation of Finland, Promoting Sexual and Reproductive Health in Malawi (PSRHM) project of the college of medicine and others.

The study revealed that discussion of family planning between family planning clients and family planning service provider during ANC of the pregnancy of the first born child especially for the first pregnancy, was key to subsequent use of family planning methods and reduction of unmet need for family planning. This is explained by the fact

that women who reported that they had discussed family planning with the service provider during ANC of the pregnancy of the first born child were many times less likely to have unmet need for family planning at conception of last born child compared to women who did not. This was the only group among all the different groups of the reproductive age women who had different exposures prior to the survey, whose result of test of association to unmet need for family planning was statistically significant.

The finding above suggested that interpersonal communication between client and service provider provided a better opportunity for women to access and obtain family planning information. It is because during one to one discussion, the service provider is expected to explain in depth and detail about each method. It is also possible that women grabbed more information during this time because being their first pregnancy, women could be curious to learn about associated medical and health conditions concerning their reproductive lives. This finding provided a basis for considering timing of exposure to family planning information through interpersonal communication between the client and the service provider as one of the solutions towards reducing unmet need in Lungwena.

From the survey, none of the demand factors indicated statistically significant association with unmet need for family planning. Only age at first sex had a weak association with unmet need for family planning at conception of last pregnancy. Other

factors such as self approval to use family planning, spousal communication and intention to use family planning indicated higher odds ratios for unmet need among women at conception of current pregnancy but the test of association using chi square led to failure to reject the fact that occurrence of differences in unmet need (between two groups) as observed in the different variables tested, were products of chance. The confidence intervals for the odds ratios in all cases were very wide indicating that the estimates were not precise.

Although no association was established between fear of side effects and women's concerns about health with unmet need, the proportion that did not use family planning because of such reasons was relatively high. This suggested that the variable had a large bearing on family planning use and unmet need levels in Lungwena. The fact that fears of side effects and health concerns about family planning use were still barriers, underlines need for comprehensive method specific IEC campaigns in the villages of the health centre catchment area. Unavailability of methods such as condoms was crucial considering that a condom is one of the most effective methods; with dual purpose.

There is need to explain in details as to who could use what method and also need for explaining the possible side effects women could experience. Hiding or not telling information about the side effects is creating shocks upon women's self discovery through experience. In this case, the relationship between supply and unmet need is that

the non-use of family planning because of fear of side effects and for one's own health is reducing the proportion using modern family planning.

The distribution of available methods indicated that the method mix was adequate. The method mix had all effective modern methods except the male sterilization. But another important and effective method (male condom) was often in short supply. However, the strong method mix could be used to increase knowledge and uptake in the area.

The major limitation to the study was that other studies focusing on unmet need for modern family planning among women of child bearing age had never been conducted in Lungwena, as such; there were no published materials for evidence about trends of unmet need in the area. However, the national survey data was used to highlight the background situation for the area.

Chapter 6

Conclusion and Recommendations

6.1 Conclusions

This study concludes that unmet need for family planning is slightly higher in rural areas of Malawi. It also concluded that provider-client discussion about family planning, especially during ANC of first pregnancy can be a key to sustained modern contraceptive use in subsequent pregnancies. Fear of side effects and health concerns, issues of convenience and privacy and inadequate family planning knowledge were to some extent influencing family planning use. For that reason, a combination of adequate family planning information during ANC of the pregnancy of first born child, clarification of possible side effects of method use to dispel fears, and addressing issues of privacy and confidentiality at the health facility may reduce unmet need for family planning.

6.2 Recommendations

Based on these conclusions, the following policy and programmatic recommendations are made:

- a) Reproductive Health policy and guidelines should be revised to ensure that IEC for family planning includes comprehensive provider- client discussion of family planning methods during ANC of the pregnancy of first born child.
- b) Ministry of Health should ensure that more information is given about available family planning methods at health facilities and in communities (with CBDAs), method related side effects and how to handle them; and also increased condom distribution at both levels (health facility and community).

c) Lungwena health centre should re-organize the set up to entry into family planning service delivery points and strategize on the approaches towards privacy and convenience.

REFERENCES

1. Alan Guttmacher Institute. International Family Planning Perspectives; Fertility Transition. New York; USA: June 1992: Vol. 18, No. 2,
2. Alan Guttmacher Institute. International Family Planning Perspectives; Fertility Transition. New York: University of North Carolina; 2004
3. Bongaarts J. The Fertility Inhibiting Effects of the intermediate fertility variables. London: Population Council; 1982: 1-9
4. Bruce J. Fundamental Elements of the Quality of Care; Studies in Family Planning. New York: Population Council; 1990: Vol.21, No. 2(March – April), 61-91
5. Cleland J. Ali M.M. Reproductive Consequences of Contraceptive Failure; American College of Obstetrician and gynecologists. London: Lippincott Williams and Wilkins; 2004
6. Center for Communication Programmes. Population Reports. Johns Hopkins Bloomberg School of Public Health: Baltimore; 2003: 3-30
7. Centre for Social Research, Save the Children Federation USA, Malawi Ministry of Health and Population, MEASURE Evaluation. Avoiding Unwanted Pregnancy and Sexually Transmitted Infections; A Rural Malawi District Study. Chapel Hill, NC: measure Evaluation; 2004

8. College of Medicine (COM). Lungwena Demographic and health Surveys (LDHS). Mangochi: College of Medicine; 1994-2000 “unpublished observations”
9. College of Medicine. Lungwena health Center Annual Report of Activities. Mangochi: 1995-2000 ‘unpublished observation’
10. GoM/NSO. Malawi Demographic and Health Survey (MDHS). Zomba: Government printers; 1992
11. GoM/NSO. Malawi Demographic and Health Survey (MDHS). Zomba: Government printers; 2000
12. GoM/NSO. Malawi Demographic and Health Survey (MDHS). Zomba: Government printers; 2004
13. Goliber T.J. Africa’s Expanding Population; Old Problems, New Policies. New York: 1989; Vol. 44, No. 3
14. Lush L. Service Integration; An Overview of Policy Development: International Family Planning Perspectives. London: Guttmacher Institute; 2002: Vol.28, No.2 (June), 71-76.
15. Mangochi District Health Office (MDHO). Mangochi district Health Report. Mangochi: 1990-2002. ‘Unpublished observations’

16. Nazzar A., Adongo Philip B., Binka Fred N. et al. Developing a culturally appropriate Family planning program for the Navrongo Experiment; Studies in Family planning. New York: Population Council; 1995:Vol.26 No. 6(Nov-Dec).
17. Phillips James F., Hossain Bazle M., Kuenning Arends M., The Long-term Demographic Role of Community-based Family Planning in Rural Bangladesh; Studies in Family Planning. New York: Population Council; 1996: Vol.27 No. 4(Jul-Aug.), 204-219
18. Rachel King. Sexual Behavior change for HIV; Where have theories taken us? Geneva: UNAIDS; 1999: 6-33
19. Rossem v. Ronan, Meekers D. The Reach and Impact of Social Marketing and Reproductive Health Communication Campaigns in Zambia. North Carolina: MEASURE Evaluation; 2004:13-36
20. Singh S., Darroch Jacqueline E., Vlassoff M., et al. Adding It Up: The Benefits of Investing in Sexual and Reproductive Care. New York: Alan Guttmacher Institute; 2003: 16-22
21. The Population Council, Inc. Studies in Family Planning. New York: Blackwell Publishing Company; 2005: Vol.36 No 2.June.
22. United Nations. World Population Monitoring Report. New York: United Nations Publication; 2002: 28-68
23. UNFPA. State of World Population. People poverty and possibilities; making development work for the poor. New York: 2002.

24. UNFPA. State of World Population. The Cairo Consensus at Ten: Population, Reproductive Health and the Global Effort to End Poverty. New York: 2004:29-50
25. Westoff C. The potential Demand for Family Planning: A New Measure of Unmet Need and Estimates for Five Latin American Countries, International Family Planning Perspectives. New York: Alan Guttmacher Institute; 1988: vol. 14. No. 2(Jun.), 45-53
- ~~26.~~ Westoff Charles F. Unmet Need at the End of the Century: DHS Comparative Reports No.1. Calverton, Maryland: ORC Macro; 2001
27. Williams L. Sobieszczyk T, Perez E. A. Consistency between Survey and Interview data concerning Pregnancy Wantedness in the Philippines, Studies in Family Planning. New York: Population Council; 2001: Volume .32, No.3 (September), 244-253.
28. World Population Monitoring Report 2002. Reproductive Rights and Reproductive Health. New York: United Nations Publications; 2004 19-73
29. Zulu Eliya M. Social and Cultural behaviors affecting reproductive behavior in Malawi, PhD Dissertation. University of Pennsylvania: USA; 1996