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FINAL REPORT

Contributions of Demand Mobilization and Contraceptive Availability to Increased Contraceptive Prevalence: Issues for Replication

THE GAMBIA

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Save the Children Federation was established in 1932 and operates as a voluntary, nonsectarian, nonprofit organization located in the United States and throughout the world providing direct services for children and community self-help assistance

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Table of Contents

Acknowledgments	ii
Executive Summary	iii
I Introduction	1
II Research Setting	2
A. The Gambia	2
B. Family Planning Services in Rural Gambia	3
C. Save the Children Federation in The Gambia	3
III Previous Studies	4
IV Research Objective, Design and Methods	5
A. Research Objective	5
B. Research Design	5
C. Study Area	7
D. Data Collection and Sampling	7
E. Implementation of Study Interventions	9
The Kabilo Approach	9
Imam Meetings	10
Support to Family Planning Service Delivery	11
Traditional Birth Attendant Training	11
V Results	11
A. Potential Threats to Validity	11
Sampling Error	11
Selection Bias Due to High Refusal Rates	14
Under-reporting of Contraceptive Use	15
B. Effects of Interventions on Contraceptive Use	16
C. Understanding the KAP Gap	18
Demand for Birth Spacing and "Resting"	18
Dangers of Modern Contraceptives	19
D. How the Kabilo Approach Bridges the KAP Gap	20
Targeting of Women with Short Birth Intervals	20
Popularity of the Injectable Contraceptive	20
Reassuring Potential Clients About Modern Methods	22
VI Conclusions	24
Appendix A Baseline and Follow-up Questionnaires	26
Appendix B Characteristics of Survey Respondents	27
Appendix C Misclassification	34

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*This study is dedicated to the women of the North Bank Division,
and especially to the Health Sub-Committee members*

Executive Summary

This report describes the objective, methods and results of an operations research study conducted by Save the Children in collaboration with the Ministry of Health. The study, which was supported by The Population Council, sought to determine whether low-cost interventions designed to mobilize demand for family planning could be effective outside the area where Save the Children provides more expensive management and logistical support to the family planning service delivery system.

Methods

Save the Children and the Ministry of Health conducted a quasi-experimental community intervention trial in three primary health care circuits: one receiving both demand mobilization activities and support to the family planning service delivery system, one receiving demand mobilization activities alone, and one control group where no new activity was implemented.

The principal measure of interest in the study was the increase in contraceptive prevalence following the interventions. Contraceptive prevalence was measured in a baseline survey conducted before the interventions, in May/June 1994, and after the interventions in a follow-up survey in May/June 1995. In both surveys a standardized questionnaire was administered to a random sample of 420 women of childbearing age from each of the three study circuits.

The interventions implemented as part of the present study included demand mobilization activities (the Kabilo Approach and Imam meetings), and support to the Community Health Nurses who provide family planning services in rural villages. In the Kabilo Approach, Save the Children and Ministry of Health staff assisted women to form Health Sub-Committees comprised of the local Traditional Birth Attendant and one woman of the childbearing age grade from each extended family ("*Kabilo*") in the village. The Health Sub-Committee members were trained to identify potential contraceptors in their extended families, to share information about modern contraceptives, and to act as links between the potential acceptors and the Community Health Nurse who provides contraceptive services in the village. In the Imam Meetings, Save the Children and Ministry of Health staff organized village meetings on Islam and family planning. The meetings were led by respected area Imams who quoted verses from the Holy Koran to show that Islam supports birth spacing and maternal and child health. For the support to service delivery intervention, Save the Children provided the Community Health Nurse with a salary stipend, a monthly allotment of motorcycle fuel, and extra supervision by Save the Children sector staff.

Results

As noted above, the principal measure of interest in the study was the increase in contraceptive prevalence between the baseline and follow-up surveys in each circuit. If the increase in the "demand mobilization only" circuit is comparable to that in the "demand mobilization+service delivery" circuit, then it can be concluded that the demand mobilization

interventions will be effective when replicated by the Ministry of Health or other agencies, outside Save the Children's program area

Analysis of study data shows that the contraceptive prevalence increase in the "demand mobilization only" circuit was comparable to that in the "demand mobilization+service delivery" circuit, and higher than that seen in the control circuit. Overall, contraceptive prevalence increased by 4 percentage points in the "demand mobilization+CHN support" circuit, by 6 percentage points in the "demand mobilization only" circuit, and by just 2 percentage points in the control circuit. Restricting analysis to respondents most likely to use contraceptive--married, non-pregnant women with a birth in the three years prior to survey--the pattern is similar: 12 percentage points in the "demand mobilization+CHN support" circuit, 10 percentage points in the "demand mobilization only" circuit, and 5 percentage points in the control circuit.

Analysis of contraceptive use trends in the three study circuits from May 1990 to May 1995 confirms that the interventions had an important and immediate positive effect on contraceptive prevalence. Prior to intervention implementation, contraceptive use increased gradually in all three circuits. However following implementation of interventions in the "demand+service delivery" and "demand mobilization only" circuits in May 1994, the rate of increase in contraceptive use in these two circuits accelerated sharply. In the control circuit, the past trend continued.

Conclusions and Recommendations

Data from the present study point to one consistent conclusion: that demand mobilization interventions can be effective in increasing contraceptive prevalence, even in the absence of special support to service delivery.

Based on these results, it is recommended that the Kabilo Approach and Imam Meetings be replicated by the Ministry of Health and other agencies working in the health sector in rural Gambia.

I Introduction

The Gambia's extremely low contraceptive prevalence rate has important implications for the welfare of Gambian individuals and families, and for the nation as a whole. A 1990 national survey found that only 7% of currently married women were currently using a modern contraceptive. The same survey calculated that fully 61% of currently married Gambian women were in need of family planning, since they either wanted no more children or wished to postpone the next birth for two or more years¹. The implications of these figures for individuals and families are clear: many couples experience unplanned, additional births beyond their desired family size or are unable to achieve desired birth intervals. Furthermore, some women and children face increased risk of death, since high-parity births and short birth intervals are associated with increased rates of maternal and child mortality. At the national level, unplanned fertility contributes to The Gambia's rapid population growth, which in turn undermines Government and non-governmental efforts to provide education, health and other essential services for all Gambians².

The Government of The Gambia recognized the urgent need to increase family planning use in its National Population Policy, which was ratified in 1993. A major objective of the policy is "to make family planning means readily available at affordable cost to all couples and individuals and promote acceptance of contraception." The Policy identifies the Gambia Ministry of Health as having primary responsibility for achieving this objective. In fact the Ministry is assigned the ambitious contraceptive prevalence targets of 20% by 1996 and of 30% by the year 2000.

In many respects the Ministry of Health is well-placed to achieve these ambitious goals. Primary Health Care coverage in rural Gambia is good: every village with population of 400 or greater receives the services of government Community Health Nurse who can supply oral and injectable contraceptives, spermicides and condoms. In addition, the Gambia's small size and even distribution of basic health facilities means that few villages are more than 10 kilometers from a health facility providing some family planning services. That access to Ministry of Health family planning services is relatively easy is confirmed by the fact that Ministry staff and facilities supply 70% of current users of modern contraceptives.

However despite these strengths, the Ministry currently faces a critical challenge--the so-called "KAP gap"--in achieving its family planning goals. For although it has succeeded in raising levels of knowledge about family planning and in providing broad coverage of service points,

¹ Republic of The Gambia. Medical and Health Services Directorate. Ministry of Health and Social Welfare. Human Resources Unit. Ministry of Trade, Industry and Employment. 1993. Gambian Contraceptive Prevalence and Fertility Determinants Survey. GCPFDS - 1990. Other statistics regarding family planning cited in this section are from this document.

² Republic of The Gambia. National Population Commission. Ministry of Trade, Industry and Employment. 1992. National Population Policy for Socio-economic Development, p. 15.

actual use of family planning methods remains low. Around 80% of currently married women of child-bearing age know at least one method of family planning, can name at least one source of supply, and approve of family planning, but, as noted above, only 7% (4% in rural areas) currently use a modern method. The expected link between high levels of knowledge and positive attitudes, on the one hand, and increased practice of family planning, on the other, seems to have broken down in The Gambian context, especially in the rural areas.

Given this KAP gap, how can the Ministry of Health increase utilization of family planning services by Gambian couples? Save the Children Federation, a U.S.-based non-governmental organization working in the rural North Bank Division of The Gambia, has attempted to answer this question through a series of operations research studies supported by The Population Council and conducted in collaboration with the Gambian Ministry of Health. Two initial studies documented the impact of innovative family planning interventions in a group of villages where Save the Children had implemented a community-based family planning program. A third study, the subject of this report, compared the impact of these interventions within and outside Save the Children's program area to determine if national replication of the interventions by the Ministry of Health would be effective.

After a section providing background information on The Gambia and Save the Children, this report notes briefly the results of two initial studies and then describes in detail the objectives, methods and results of the final study.

II. Research Setting

A The Gambia

The Gambia is a small West African nation located on the continent's Atlantic coast. It consists of narrow strips of land on the north and south banks of the River Gambia, and extends inland about 250 miles. It is surrounded to the north, east and south by Senegal. The Gambia's population is around one million.

The Gambia, like other West African nations, has high fertility and mortality rates and is experiencing rapid population growth. The total fertility rate in The Gambia is nearly six children per woman. The infant mortality rate, despite having declined rapidly in recent years, remains high at 90 per thousand live births. The Gambia's population grows at a rate of 2.7% per annum, exclusive of in-migration.

The Gambian economy is based principally on export of groundnuts (peanuts). Most Gambians work in the agricultural sector, growing millet and rice for consumption and groundnuts for cash. Per capita GNP is estimated to be \$360. Literacy and enrollment rates are low, especially among women and in the rural areas.³

From its independence from Great Britain in 1965 until 1994, The Gambia was a democracy, known for its stability and individual freedoms. In July 1994, the military seized power in a coup d'etat, and the country is now ruled by the Armed Forces Provisional Ruling Council. A

³ Population Reference Bureau 1996 World Population Data Sheet. Washington, DC Population Reference Bureau.

new constitution was passed in a national referendum in August, 1996, and it is hoped that presidential elections will return the country to democratic rule before 1997

B. Family Planning Services in Rural Gambia

The Ministry of Health provides rural family planning services at four levels. At the highest level are major health centers, which have doctors on staff and provide inpatient and outpatient care. Family planning services offered at major health centers include fitting of IUDs, and provision of Depo Provera, pills, spermicide and condoms. The next level, minor health centers, provide only outpatient care, and are staffed by nurses. Minor health centers supply Depo, pills, spermicide and condoms. The third level, dispensaries, provide outpatient care and are staffed by a single nurse. Dispensaries offer Depo, pills, spermicide and condoms. The fourth level consists of Community Health Nurses who are posted to primary health care "circuits" comprised of the key village where they live, and several satellite villages for which they are responsible. Community Health Nurses are expected to visit each village in their circuit twice monthly, they provide Depo, pills, spermicide and condoms.

The actual performance of Ministry of Health family planning outlets often falls short of the service delivery system described above, with staffing problems, transport difficulties and management problems resulting in reduced availability of contraceptives at every level. For many rural women only village-based services are reasonably accessible, since household responsibilities and farm work prevent them from leaving their village and since they lack money to travel to static facilities.

C. Save the Children Federation in The Gambia

Save the Children Federation, a U.S. non-governmental organization, has been sponsoring rural community development projects in The Gambia since 1984. Save the Children works in the North Bank Division, which extends along the north bank of the River Gambia from the Atlantic coast eastward for 90 miles. Save the Children works in the health, agriculture, education, and economic development sectors.

After experimenting with a number of community-based family planning program models in several groups of villages in its target area, Save the Children began in 1989 to document surprisingly high contraceptive prevalence rates in villages where one particular intervention had been implemented. The successful community-based family planning intervention piloted by Save the Children has two main components: demand mobilization by "Health Sub-Committees" based on local social organizations, called the "Kabilo Approach," and improved availability of services through support to the Government Community Health Nurse who provides village-based family planning services.

Save the Children developed the Kabilo Approach to facilitate the person-to-person interaction needed to convince mothers to make better use of existing health services by, for example, attending antenatal clinic early in pregnancy or using a modern contraceptive to ensure long birth intervals. To implement the Kabilo Approach, Save the Children assists women in each village to form Health Sub-Committees comprised of the local Traditional Birth Attendant and one woman of the child-bearing age grade ("*Dimbaa Kafo*") from each extended family ("*Kabilo*") in the village. Save the Children then trains the Health Sub-Committee members to identify potential contraceptors in their extended families, to

motivate them to use contraceptives, and to act as links with the Ministry of Health Community Health Nurses who provide contraceptive services in the village

Save the Children developed its service delivery support intervention in order to address problems of poor morale, lack of transport and contraceptive stock outs experienced by the Community Health Nurses who provide family planning services in rural areas To implement the support to service delivery aspect of its program, Save the Children provides management and logistic support to the Government Community Health Nurses who are responsible for community-based contraceptive distribution under the Government primary health care program The Community Health Nurse posted to each group of villages ("circuit") in the pilot area benefits from supervision by Save the Children staff, a monthly salary supplement, provision of a motorcycle and fuel, and a steady supply of contraceptive stocks

III. Previous Studies

Two previous operations research studies conducted by Save the Children, the Ministry of Health, and the Population Council sought to measure the effect of specific family planning interventions on family planning knowledge, attitudes and practice Based on the positive results of these studies, the Ministry of Health expressed interest in replicating the interventions on a national scale

The first study focused on the impact of village meetings on Islam and family planning ("Imam meetings") The study included 13 villages where Save the Children had been implementing its family planning program for one or two years, and 13 villages where Save the Children was just initiating its family planning program After a baseline survey, Imam meetings were conducted in all study villages A follow-up survey conducted after one year found that current use of contraceptives (modern or traditional) rose to 30% from 11% Knowledge of family planning methods and positive attitudes toward family planning were also found to have increased (It should be noted that the baseline survey sampled women age 15-49, while the follow-up survey sampled women age 15-44 with a child under one year of age)⁴

The second study focused on the effect of Traditional Birth Attendant (TBA) training and Imam meetings The study included the 26 villages from the previous study, as well as another 34 villages where Save the Children was just initiating its community-based family planning program In both groups of villages, Save the Children and the Ministry of Health provided training to village Traditional Birth Attendants in birth practices and family planning In the group of villages included in the first study, an additional round of Imam meetings was also conducted In a follow-up survey conducted after one year, current modern contraceptive use was found to have increased to 45% from 30% in the group of villages where Imam meetings and TBA training had been conducted, and to 25% from 7% where only TBA training had been conducted Knowledge of family planning methods was also found to have increased, while approval of family planning was found to have increased only slightly (Both baseline and follow-up surveys included women 15-44 who had given birth in the year prior to the survey)⁵

⁴ Aboubacry Tall, et al 1992 The Influence of Village Level Health and Birth Spacing Meetings Conducted by Religious Leaders on Contraceptive Acceptance and Continuation Rates

The remarkably high contraceptive prevalence rates documented in these two operations studies led the Ministry of Health and other agencies working in the health sector in The Gambia to explore national replication of the relatively inexpensive Imam and TBA training interventions. However, since the studies had included only villages where Save the Children either was already implementing, or was in the process of implementing, its community-based family planning program, it was recognized that in fact the findings reflected not solely the effect of the Imam and TBA interventions, but also the effect of Save the Children's community-based family planning program. The question remained: what would be the interventions' effect on contraceptive prevalence *outside* the area where Save the Children operates?

IV Research Objective, Design and Methods

A Research Objective

As noted above, previous operations research studies found that Imam meetings and TBA training, when implemented in conjunction with Save the Children's community-based family planning program, brought about large increases in contraceptive use. Thus despite their low cost, the Imam and TBA interventions seemed to be able to bridge the "KAP gap," and stimulate demand for family planning services in the villages where they had been implemented. The Ministry of Health was pleased with the results of the two studies, and expressed interest in replicating the interventions on a national scale.

Prior to replication, however, a key question needed to be addressed: could these interventions succeed outside the area where Save the Children implements its community-based family planning program? For although one component of Save the Children's family planning program--the Kabilo Approach--could be easily replicated by the Ministry, the other component--management and logistical support to Government Community Health Nurses--was too expensive to be replicated nationally.

Save the Children and the Ministry of Health therefore decided to conduct a final operations research study comparing the impact of the inexpensive demand mobilization interventions plus the more expensive support to nurses, with that of the demand mobilization alone. A control area would also be included in the study to ensure that the interventions' impact could be distinguished from any area-wide upward trend in contraceptive use.

The objective of the study would be to determine to what extent contraceptive prevalence rate increases associated with the Save the Children/Ministry of Health family planning program are due to low-cost demand mobilization interventions versus Save the Children's management and logistical support to village-based service delivery.

B Research Design

In order to achieve the study objective described above, Save the Children and the Ministry of Health conducted a quasi-experimental community intervention trial. The trial included three groups of villages ("circuits") one where Save the Children and the Ministry implemented

⁵ Aboubacry Tall, et al. 1993. Strengthening Primary Health Care and Family Planning Service Delivery through Training Traditional Birth Attendants.

demand mobilization activities and Save the Children provided support to family planning service delivery, one where demand mobilization activities alone were implemented, and one control group where no new activity was implemented. This design is shown in Figure 1, below

Figure 1 Study Design

Circuit	May/June 1994		May/June 1995
Demand+Service Delivery <i>Kuntaya circuit</i>	O ₀	X _{DS}	O ₁
Demand Only <i>Njabakunda circuit</i>	O ₀	X _D	O ₁
Control <i>Nokunda circuit</i>	O ₀		O ₁

Where
 O₀ is the baseline survey;
 O₁ is the follow-up survey;
 X_{DS} is implementation of the Demand Mobilization interventions (the Kabilo Approach and Imam meetings) and Improved Service Delivery intervention (support to the Community Health Nurse providing village-based family planning services),
 X_D is implementation of the Demand Mobilization interventions (the Kabilo Approach and Imam meetings)

This community study design is "quasi"-experimental because, rather than randomly assigning the interventions to the circuits, the circuits were selected purposefully, to take advantage of a natural experiment created by the expansion of Save the Children's family planning program in 1994. One of the three circuits into which Save the Children expanded its family planning program was selected to be the "Demand Mobilization+Service Delivery" circuit in the community intervention trial. Since only two circuits in the western part of the North Bank Division would remain outside Save the Children's program area after the expansion, they became by default the "Demand Mobilization Only and control circuits in the trial.

With this study design, the principal outcome of interest is the increase in contraceptive prevalence between the baseline and follow-up surveys in each circuit. This is calculated as the follow-up prevalence minus the baseline prevalence (P₁ - P₀). If the demand mobilization activities alone are as effective as demand mobilization+improved service delivery, and both are superior to no intervention, then we would expect that

$$(P_{1D} - P_{0D}) = (P_{1DS} - P_{0DS}) > (P_{1C} - P_{0C})$$

If the demand mobilization activities alone are not effective outside Save the Children's area, then we would expect that

$$(P_{1D} - P_{0D}) > (P_{1DS} - P_{0DS}) = (P_{1C} - P_{0C})$$

C. Study Area

The three study circuits, Kuntaya, Njabakunda and No Kunda, are each comprised of a key village where a Ministry of Health Community Health Nurse resides and three to five satellite villages nearby. The villages and populations are shown in Table 1, below, and the location of the circuits is shown in Figure 2, on the following page.

Table 1 Villages and Populations for Three Study Circuits

Kuntaya Circuit "Demand+Service Delivery"		Njabakunda Circuit "Demand Only"		No Kunda Circuit Control	
Kuntaya	604	Njabakunda	2,162	No Kunda	1,810
Bakang	370	Kerr Pateh	1,497	Conteh Kunda Niji	753
Darsilamu	934	Marong Kunda	597	Conteh Kunda Sukoto	769
Karantaba	325	Minteh Kunda	696	Kekuta Kunda	372
Kerr Jarga	726	Nawleru	530		
Tambana	625				
TOTAL	3,584	TOTAL	5,482	TOTAL	1,894

The populations of the three circuits are principally agriculturalists, growing groundnuts, millet and rice. The predominant ethnic groups in the study circuits are Mandinka, Wolof and Fula.

The circuit villages have only basic infrastructure facilities. While there is no electricity or paved road in the circuits, all villages have improved handpumps for drinking water. Kuntaya, Kerr Jarga, Kerr Pateh and No Kunda have solar-powered water systems, and Njabakunda an engine-driven water system, which provide running water at village taps several hours per day. There is a government-run primary school in each of the larger villages, but no secondary or technical school in any of the study villages. Kuntaya village has a Ministry of Health sub-dispensary staffed by a dresser-dispenser⁶. Njabakunda village has a small Gambia Family Planning Association clinic providing family planning services.

D. Data Collection and Sampling

Quantitative and qualitative data were collected in the study through baseline and follow-up surveys, focus group discussions, and in-depth interviews.

The baseline and follow-up surveys were administered to a random sample of women aged 15-49 years living in the study area. In May/June 1994 and again in May/June 1995, sampling frames were created in each of the three study circuits by listing all women aged 15-49 years residing there. Simple random sampling was then used to select 420 respondents from each circuit list. The sample size of 420 was chosen to achieve 350 completed interviews per circuit, after allowing for respondents who might be away from home, overage or underage, or otherwise unavailable to be interviewed. With a sample size of 350, it is possible to detect the differences among contraceptive prevalence rates of 25%, 15% and 7%, with 95% confidence and 80% power.

⁶ The sub-dispensary was upgraded after the study period and is now staffed by a doctor and nurse-midwife.

A team of interviewers was hired to administer standardized questionnaires for the baseline and follow-up surveys⁷ Save the Children and Ministry of Health staff trained the interviewers and conducted a pre-test of the questionnaire in a village located outside the study area Following the pre-test, the interviewer conducted the survey field work over 20 days (baseline) and 14 days (follow-up)

The survey data were entered into computer databases using EpiInfo software⁸ For the baseline survey, two data entry clerks punched the data over a period of six weeks in October and November 1994 For the follow-up survey, the Principal Investigator punched the data in August and September, 1995

Qualitative data collected for the study include in-depth interviews and focus group discussions Between July 1994 and March 1995, a series of in-depth interviews was conducted with Health Sub-Committee Members regarding their training, work and life histories Three focus group discussions were also conducted on the topics of fertility and family planning

E Implementation of Study Interventions

As part of the present study, three health interventions were implemented the Kabilo Approach, Imam Meetings, and support to family planning service delivery As noted above, the Kabilo Approach and Imam Meetings were implemented in both intervention circuits, support to family planning service delivery was implemented only in the "demand mobilization+support to service delivery" circuit This section describes each of the three interventions⁹

The Kabilo Approach

The Kabilo Approach is founded on a village-based social entity common to all major ethnic groups in The Gambia This entity is called *kabilo* in Mandinka, *goh* in Wolof, *laygal* in Fula, and *kalolak* in Jola Kabilos generally include between three and ten compounds descended from a common ancestor¹⁰ The eldest male and female of the kabilo are recognized as the kabilo heads for males and females, respectively

Kabilos are village-based extended family groupings which have roles in land allocation, settling of disputes, organization of group labor, and various rites of passage such as marriage, christening and circumcision Kabilo elders allocate residential and farm land to new residents and to women who marry into the kabilo They organize group labor for self-help projects or

⁷ Copies of the baseline and follow-up survey questionnaires appear in Appendix A.

⁸ Dean, AG et al 1994 Epi Info, Version 6 a word processing, database and statistics program for epidemiology on microcomputers Atlanta, Georgia Centers for Disease Control and Prevention

⁹ Detailed information on the Kabilo Approach and Imam Meetings is available in Save the Children/Agency for Development of Women and Children. 1996 The Kabilo/Imam Approach Social Mobilization for Community Health and Family Planning Banjul, The Gambia Save the Children Federation.

¹⁰ A compound is a residential grouping which includes several households of an extended family Generally a compound consists of a patriarch and his wives and dependents and their sons wives and dependents

to assist a kabilo member who has suffered a disaster, such as a fire. They set the bride price, determine the date of the marriage ceremony, and accept cola nuts from the suitor's family. Kabilo women help to organize christening ceremonies for children born into the kabilo. They may contribute money and foodstuffs and do the cooking. Kabilo elders jointly organize village circumcision ceremonies.

To implement the Kabilo Approach in a village, the Community Health Nurse calls a meeting of the village Alkalo (mayor), the male and female kabilo heads, the Village Health Worker and the Village Development Committee. The Community Health Nurse asks each kabilo head to call a meeting of all the women in the kabilo to select one dynamic woman of childbearing age to be trained to provide basic health information for the other women in the kabilo. Following the kabilo meetings, the selected kabilo representatives, along with the Traditional Birth Attendant, will form the village Health Sub-Committee. The Health Sub-Committee is so called because it is a sub-committee of the overall authority for village development, the Village Development Committee.

Following the selection of kabilo representatives in each village in his or her Primary Health Care circuit, the Community Health Nurse conducts a two-day training course for the Health Sub-Committees. Staff from Save the Children and the Ministry of Health Divisional Health Team assist with the training.

The training course covers a variety of topics, and usually includes sessions on at-risk pregnancy monitoring, sanitation, malaria prevention, diarrhea prevention and management, and family planning. For pregnancy monitoring, the Health Sub-Committee Members learn to use "pictograms," which are cards with a series of pictures representing important risk factors in pregnancy. In the areas of malaria prevention and sanitation, the Health Sub-Committee members discuss the importance of using mosquito nets, eliminating pools of water around the compound, and proper disposal of refuse and human waste. The training session on diarrhea prevention and management covers food preparation and handling, prevention of dehydration through preparation of oral rehydration solution, and when to take a child to the health center. In family planning, the Health Sub-Committee members discuss the benefits of birth spacing and the different contraceptive methods. Each method is shown to the group, and its use and possible side effects are reviewed. The Health Sub-Committee members then conduct role play dramas in which they practice convincing each other to use a modern method of contraception.

Following their training, the Health Sub-Committee members make regular (usually weekly) visits to the other women in their kabilo to train them on improved health practices. When the Community Health Nurse visits the village, he or she meets with the Traditional Birth Attendant and Health Sub-Committee members. The Community Health Nurse accompanies the Health Sub-Committee members to visit pregnant women or women experiencing health problems, and he or she provides family planning services to new acceptors of modern contraceptives.

Imam Meetings

"Imam Meetings" are the name given to a family planning intervention piloted by Save the Children. Imam meetings are village meetings on Islam and family planning designed to convince village Imams and village residents that Islam supports family planning. The meetings are held in two phases: first, all the village Imams in one area meet with two

prominent Imams from the area, then "step-down" meetings are held in each village. At the first meeting, the nationally known Imams quote extensively from the Holy Koran and Hadith to establish that Islam supports maternal and child health, birth spacing, and family planning. At the step down meetings the prominent Imams and the local village Imam jointly conduct a meeting with all village residents to explain that 1) family planning is not contrary to Islam, 2) family planning enhances child spacing and fosters maternal and child welfare, 3) a mother should breastfeed her child for two years, and 4) a father should be able to provide for his family. Following the presentation by the Imams, meeting participants make comments and ask questions, often promoting a lively debate.

Support to Family Planning Service Delivery

Save the Children's support to the rural family planning service delivery system consists of management and logistical assistance to the Community Health Nurses posted in its program area. Each month the nurses receive a salary stipend equivalent to 80% of their base salary, 15 liters of motorcycle fuel, and contraceptive supplies, if their stock has run out¹¹. They also receive a desk and cabinet, and notebooks and forms on which to record information about the services they deliver. Save the Children health sector staff make regular visits to the supported nurses, supervising their work and discussing any problems encountered in service delivery.

Traditional Birth Attendant Training

In a previous operations research study, training of Traditional Birth Attendants in family planning promotion was associated with increased contraceptive use, thus the intervention was initially included in the present study design. However due to delays in funding linked to the July, 1994 military takeover in The Gambia, it was not possible to conduct the Traditional Birth Attendant training prior to the follow-up survey, as planned. The results of the present study, therefore, reflect the effect of only the Kabilo Approach, Imam Meetings, and support to the service delivery system.

V. Results

A Potential Threats to Validity

Before reviewing the principal findings of the study, it is necessary to examine several potential threats to the study's validity. This section assesses the impact of sampling error, selection bias due to refusal rates, and under-reporting of contraceptive use.

Sampling Error

When independent random sampling is used to select respondents for two surveys which will be compared, it is possible that, by chance, the samples will be dissimilar across important characteristics. For example, the follow-up survey respondents could by chance include a higher proportion of women who are currently pregnant and therefore not at risk for contracepting. This would affect the principal measure of interest in the present study, contraceptive prevalence.

¹¹ Save the Children ceased providing salary stipends and fuel supplements in November, 1995, in order to enhance the sustainability of its program.

Sampling error is unlikely to be important in the present study, due to the high proportion of the total population sampled. In the two smaller circuits, No Kunda and Kuntaya, nearly half of all women of childbearing age were included in the sample. In Njabakunda circuit, the proportion was around one-third.

The lack of significant sampling error is confirmed by a comparison of demographic and socio-economic characteristics of baseline and follow-up respondents. As shown in detail in Appendix B, and in summary in Tables 2 and 3 and Figure 3, respondents to the two surveys are highly similar across nearly all characteristics measured. They have similar distributions of age, marital status, pregnancy, children born, and children surviving. They are similar in ethnicity, religion, ownership of consumer goods and livestock, housing characteristics and education. Two differences--in reported rates of Koranic school attendance, and in materials used for the walls of the respondent's house--must be presumed to be artifactual. It is unlikely that these minor differences would have any effect on the study outcome.

Figure 3 Histogram of Baseline and Follow-up Survey Respondents by Age Group

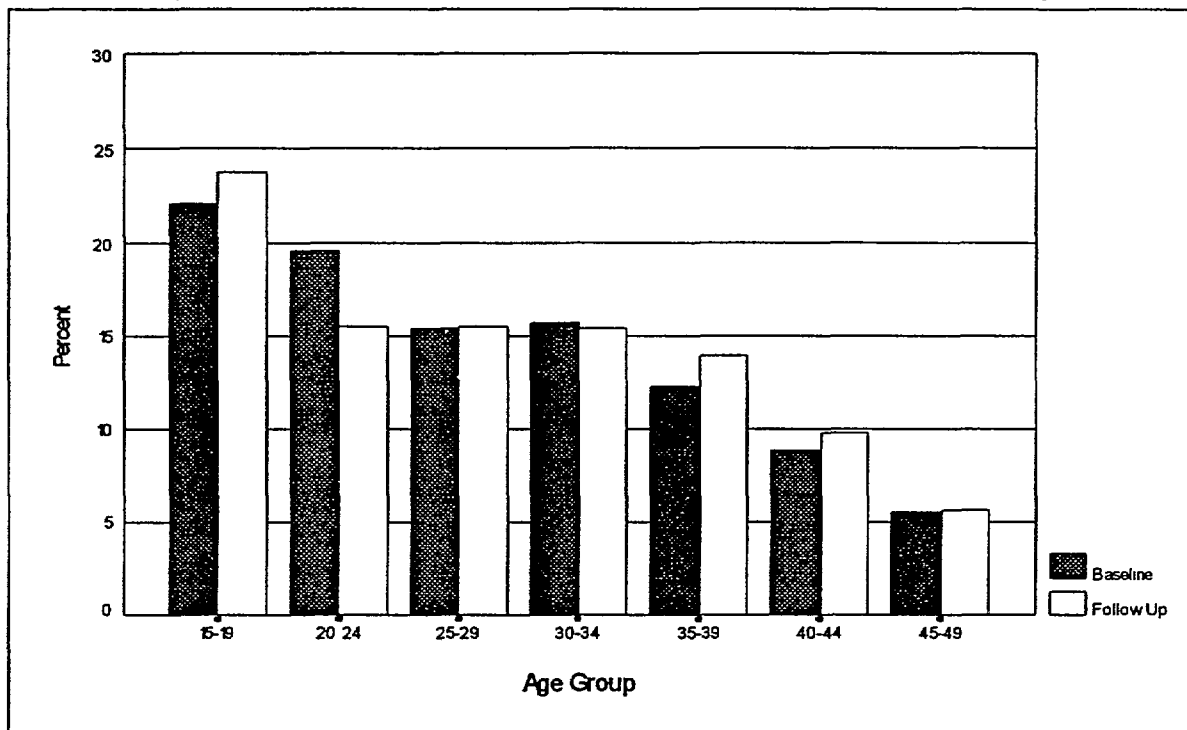


Table 2 Distribution of Respondents by Age Group

Age Group	Baseline Survey		Follow-up Survey	
	N	%	N	%
15-19	221	22	245	24
20-24	196	20	160	16
25-29	155	16	160	16
30-34	158	16	159	16
35-39	123	12	144	14
40-44	89	9	101	10
45-49	56	6	59	6
Total	998		1,028	

Table 3 Distribution of Respondents by Ethnic Group Religion Education and Marital and Pregnancy Status

	Baseline Survey		Follow-up Survey	
	N	%	N	%
Ethnic Group				
Mandinka	736	73.7	736	71.6
Fula	47	4.7	58	5.6
Wolof	158	15.8	183	17.8
Serrere	13	1.3	14	1.4
Other	44	4.4	37	3.6
Religion				
Muslim	996	99.9	1,026	99.8
Christian	2	0.1	1	0.1
Animist	0	0.0	1	0.1
Education				
Ever attended formal school	60	6.0	60	5.8
Can read simple sentence in English	20	2.0	18	1.8
Ever attended Koranic school	722	72.5	946	92.2
Can read simple sentence in Arabic	94	9.4	39	3.8
Ever attended adult education class	99	9.9	197	19.2
Can read simple sentence in local language	12	1.2	33	3.2
Marital Status				
Currently married	820	82.2	850	82.7
Ever married	842	84.5	869	84.5
In polygamous marriage (currently married)	466	58.0	502	59
Pregnancy Status				
Currently pregnant	118	11.8	105	10.2

*Table 4 Mean Number Children Ever Born
by Respondent's Five-Year Age Group*

Age Group	Baseline	Follow-up
15-19	0 3	0 3
20-24	1 6	1 9
25-29	3 4	3 8
30-34	5 0	5 1
35-39	6 2	6 6
40-44	7 1	6 7
45-49	7 8	8 0

Further confirmation of the essential comparability of the two samples for the principal measure of interest, contraceptive prevalence, is given in Table 5, below. Here current use of modern contraceptives by baseline respondents in May 1994 is compared with retrospective reports for the same month by follow-up respondents. In all three circuits, the rates are very similar--thus confirming that sampling error is unlikely to threaten the validity of study findings.

*Table 5 Modern Contraceptive Prevalence for May 1994
Calculated Using Current and Retrospective Reports*

	Current Reports of Baseline Respondents		Retrospective Reports of Follow-up Respondents	
	Prevalence	N	Prevalence	N
Demand+Service Delivery	9 7%	330	8 9%	337
Demand Only	4 4%	316	5 4%	332
Control	1 4%	352	2 2%	359

Selection Bias Due to High Refusal Rates

A second possible threat to validity would be high refusal rates for selected respondents in the baseline and follow-up surveys. High refusal rates can skew study outcomes, since refusers are likely to differ from respondents across many important characteristics, such as education, socio-economic status and contraceptive use.

Here again, however, there is no evidence that study findings are compromised. In both the baseline and follow-up surveys, refusal rates were remarkably low. Only 10 women (0.8% of the respondents sought) refused to participate in the baseline survey, and only 17 women (1.3% of respondents sought) refused to participate in the follow-up survey. This is shown in Table 6, below.

Table 6 Distribution of Respondents by Interview Result

Interview Result	Baseline Survey		Follow-up Survey	
	N	%	N	%
Completed	998	79.3	1,028	81.3
Under or overage	93	7.4	73	5.8
Traveling	76	6.0	5	0.4
Transferred	30	2.4	41	3.2
Not seen/Incomplete	27	2.1	4	0.3
Not known in compound	13	1.0	5	0.4
Refused	10	0.8	17	1.3
Mentally or physically sick	7	0.6	5	0.4
Deaf and/or Dumb	4	0.3	2	0.2
Dead	0	0.0	2	0.2
Male	0	0.0	1	0.1
Listed twice	0	0.0	5	0.4
Total	1,258	100.0	1,264	100.0

Under-reporting of Contraceptive Use

A third possible threat to validity in the present study is under-reporting of contraceptive use. In rural Gambia, where contracepting is an innovative behavior and family planning a controversial topic, it is likely that some respondents may choose not to report that they use a modern contraceptive. They may fear that the interviewers will reveal their contracepting status to relatives or neighbors, resulting in embarrassment or harassment.

Because contraceptive use is the principal measure of interest in the present study, and because under-reporting is plausible, a misclassification study was conducted to assess the extent of under-reporting. The study compared reported contraceptive use by baseline and follow-up respondents to the records of family planning service providers located in the study area. The misclassification study found that 9 out of 51 (18%) of modern contraceptors failed to report their contraceptive use in the surveys. This is shown in Table 7, below. As noted in the more detailed report in Appendix C, the rate of under-reporting is unlikely to affect the study findings, since at the contraceptive prevalence levels observed under-reporting of outcome has little effect on the risk difference, the principal measure of interest in the present study.

Table 7 Contraceptive Use Status: Provider Records vs. Survey Reports

		Status According to Survey Reports		
		Uses	Doesn't Use	Total
Status According to Provider Records	Uses	42	9	51
	Doesn't Use	52	564	616
	Total	94	573	667

This section has examined three potential threats to validity in the present study – sampling error, selection bias due to refusal, and under-reporting. As noted above, there is no evidence that any of the three poses a significant threat to the validity of the study findings.

B. Effects of Interventions on Contraceptive Use

The principal outcome of interest in the present study is the increase in contraceptive prevalence between the baseline and follow-up surveys. As noted above, if the increase documented in the "demand mobilization only" circuit is comparable to that in the "demand mobilization+improved service delivery" circuit, then it can be concluded that the demand mobilization interventions will be effective when replicated by the Ministry of Health outside Save the Children's program area.

Table 8, below, shows that the modern contraceptive prevalence increase of 5.8 percentage points seen in the demand mobilization circuit was even larger than the 4.3 percentage point increase seen in the demand mobilization+improved service delivery circuit. In the control circuit, the increase was smaller, just 2.2 percentage points. Of these three increases, only the increase in the demand mobilization+improved service delivery circuit was statistically significant.

Table 8 Modern Contraceptive Prevalence Increases by Circuit

Circuit	Baseline		Followup		Prevalence Increase
	Prevalence	N	Prevalence	N	
Demand+Service Delivery	9.7%	330	13.9%	337	4.3
Demand Only	4.4%	316	10.2%	332	5.8*
Control	1.4%	352	3.6%	359	2.2

* Statistically significant at 95% confidence level

Restricting analysis to those respondents most likely to require contraceptives, the pattern is similar. For married, non-pregnant respondents who had at least one birth in the three years prior to survey, the increases were 12.5 percentage points in the "demand mobilization+improved service delivery" circuit, 10.1 percentage points in the "demand mobilization only" circuit, and just 4.6 percentage points in the control circuit. This is shown in Table 9, below. The increases in the intervention circuits were statistically significant, while that in the control circuit was not.

Table 9 Modern Contraceptive Prevalence Increases for Married, Non-pregnant Respondents with at least One Birth in Three Years Prior to Survey

Circuit	Baseline		Followup		Prevalence Increase
	Prevalence	N	Prevalence	N	
Demand+Service Delivery	10.5%	181	23.0%	178	12.5**
Demand Only	7.1%	127	17.2%	163	10.1**
Control	3.2%	154	7.8%	157	4.6

** Statistically significant at 99% confidence level

For comparability with the two previous operations research studies, analysis can be restricted to married respondents aged 15-44 years with a birth in the year prior to survey. Here again,

the increase in the demand mobilization only circuit (4.7 percentage points) is comparable to that in the demand mobilization+improved service delivery circuit (5.2 percentage points), and larger than that in the control circuit, where prevalence declined by 1.7 percentage points. None of the prevalence changes was statistically significant.

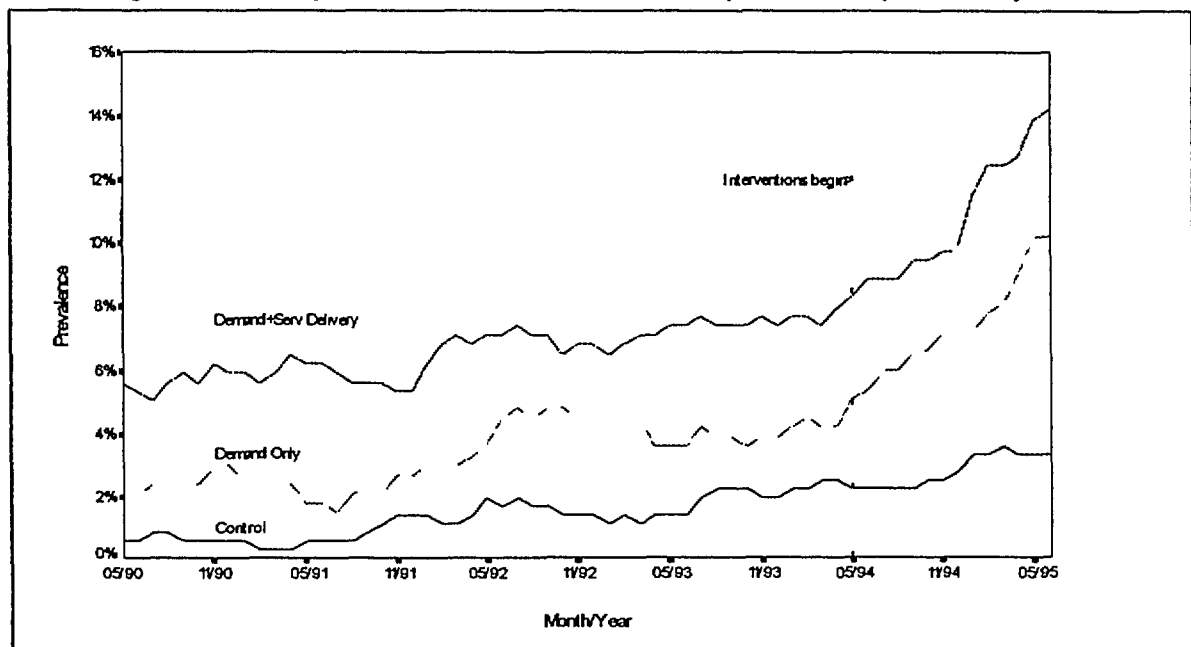
Table 10 Modern Contraceptive Prevalence Increases for Married Respondents Aged 15-44 Years with a Birth in the Year Prior to Survey

Circuit	Baseline		Followup		Prevalence Increase
	Prevalence	N	Prevalence	N	
Demand+Service Delivery	8.2%	73	13.4%	82	5.2
Demand Only	5.5%	55	12.1%	66	6.7
Control	3.2%	62	1.5%	68	-1.8

The three tables above show that the contraceptive prevalence increases in the intervention circuits are larger than those in the control circuit, however because the magnitude of the increases was smaller than expected, some of these differences are not statistically significant. It is important, therefore, to confirm baseline and follow-up surveys with additional analysis.

The follow-up survey collected month-by-month information on contraceptive use going back to May 1990, thus it is possible to show the timing of contraceptive prevalence uptake in the three study circuits. As seen in Figure 4, below, retrospective reports on contraceptive use show clearly that the pace of adoption of modern contraceptives increased rapidly in the two intervention circuits immediately following the implementation of the interventions. By contrast, in the control circuit, the gradual pace of adoption remained unchanged. The apparent increase in uptake in the intervention circuits in the month just prior to implementation of the interventions is likely due to minor recall errors that push events slightly back or forward in time.

Figure 4 Month-by-Month Prevalence in the Three Study Circuits May 1990 - May 1995



Together, the three tables and figure above point to a single, consistent conclusion that demand mobilization interventions alone can be as effective as demand mobilization+improved service delivery

C. Understanding the KAP Gap

Quantitative and qualitative data collected in the present study shed light on the nature of the "KAP gap" between high levels of knowledge of family planning methods and positive attitudes toward family planning on the one hand, and relatively low levels of contraceptive practice on the other. Specifically, study data show that demand for birth spacing is high, but that modern contraceptives are viewed as dangerous--both physically and socially. With the Kabilo Approach, Health Sub-Committee members have successfully promoted family planning by targeting women who have experienced short birth intervals, promoting the method most appropriate for the context in which they live, and reassuring potential acceptors about perceived dangers of modern methods.

Demand for Birth Spacing and "Resting"

Despite continued desire for large families among the study area population, there is clear evidence of long-standing, universal understanding of the benefits of birth spacing. In Gambian society, it is believed that a child should be breastfed for a full two years and weaned before his mother becomes pregnant again. Women who are unable to achieve three-year birth intervals may be harassed and scorned, and are referred to by the epithets *bourrulo* (in Mandinka) or *nef* (in Wolof). Concern about birth spacing is not a recent phenomenon, there is a multiplicity of local methods of birth spacing, including post-partum abstinence, *julus* (talismans), and strips of wood from well parapets or special trees that are worn around the waist.

Qualitative data collected in the present study during interviews and focus group discussions underline the importance of birth spacing. As one focus group discussion participant noted

If you have one child and before long you have another child, it's very tiring on the woman. If you have a child and that child did not even walk, and you have another one, that is what I call tiring and you would never be clean.

Another woman who was interviewed explained the need for long birth intervals with an analogy

If a woman is delivering every time, your womb would not be as good as the woman's who is spacing her births, because her womb will be okay and any time she gets pregnant it will be prepared for the child, and she won't have difficulty. Even your dress, if you are washing it every day, every day, it will get spoiled. But if you wash your dress today, keep it for some time, if you put it on, people will think it's a new one.

In addition to strong demand for birth spacing, there is also some desire among some women for "rest" after many births. This desire to rest is often in conflict with a competing desire for a large family, despite the woman's recognition that further deliveries may endanger her health. High parity participants in focus group discussions and interviews described their bodies as "tired" or "without power," as shown in the three quotations below.

Right now I am on my 8th pregnancy and I want the 9th one I know that my womb is very light now If God gives me another one, I'll take it, but if God doesn't, I don't care Because I know that my womb is light

If I cannot rest completely, then I will either have one or two [more children] Labor is very difficult My womb is light It is not strong Because if you start delivering once, twice, up to three times, your womb becomes lighter My last pregnancy was difficult I was always sick during my pregnancy, which I had never experienced before

[Interviewer asks, "How many [womb] muscles do you have?"] Me, there are a lot in me, but there are a lot there that are cut from me The way I know it, the amount of children I have had, I know my power is completely finished Since after my 10th delivery I didn't deliver again, but I don't think I want to deliver again.

From these data it can be seen that demand for birth spacing is high, and there is some demand for "resting" among high parity women in the study area

Dangers of Modern Contraceptives

Women in the study area described physical and social dangers of modern contraceptives Participants in focus group discussions and interviews explained how modern contraceptives may impair fertility, or cause difficult deliveries or illness

Some will say if you take family planning, you wouldn't bear children again.

Some people are saying that if you use family planning for a long time, you cannot deliver by yourself--you have to be operated

I am worried about what people say Sometimes if your blood doesn't match with the method it can give you problems

In addition to these physical dangers, modern contraceptives present social dangers, such as stigma or conflict with relatives A woman known to use a modern method may be considered a prostitute, or get a bad reputation

It is now that most of them are accepting family planning, but initially they were not accepting it If at all they understood that you are using contraceptives they will say you are a prostitute

[Interviewer asks if respondent would tell others that she uses a contraceptive] If it is someone who wants to join, I will tell her everything she wants to know, but if she is just inquisitive to know, I will not tell her There are some who want to spoil family planning If I discuss it with them they will go out and start spoiling my name

A woman who uses modern contraceptives may have conflicts with her husband or other relatives

There are some men who are saying that the women who are joining family planning, they don't want to deliver again, that's why Some are saying that there are some women who want to do adultery and that's why they are joining family planning Some are saying that women want to enjoy themselves, that's why they are joining family planning

If the husband accepts, [a woman] can take [family planning] But if the husband doesn't accept, she can leave it If the woman insists that she wants to be a member, you should ask her to convince her husband so that he can allow her to join

If you are discussing with a woman [about family planning] and you want to discuss with the woman alone, and you don't involve the husband, if the husband beats her, then you are the one who created it.

The statements above show the complex reality that underlies the KAP gap. Survey responses to simple questions about attitudes toward family planning fail to capture the varied and often ambivalent range of attitudes a single respondent may hold. Thus while many respondents "approve of" family planning, they also harbor concerns about the safety of modern methods. These concerns, if unaddressed, will prevent positive attitudes from prompting increased practice of contraception.

D How the Kabilo Approach Bridges the KAP Gap

Health Sub-Committee members trained under the Kabilo Approach have increased contraceptive prevalence in the villages where they work, thus reducing the KAP gap. How have they achieved this? Data from the present study suggest that they have increased contraceptive use by following three key strategies: they target women who have experienced short birth intervals, they promote the most appropriate method for the rural area, and they reassure potential contraceptors about the safety of modern methods.

Targeting of Women with Short Birth Intervals

The pattern of contraceptive adoption in the present study suggests that women who have recently experienced one or more short birth intervals are the principal target group for contraceptive promotion. In all three study circuits, women with two or three births in the four years prior to survey represented one-third or fewer of current contraceptors at baseline, but around half of current contraceptors at follow-up. This is illustrated in Table 11, below.

Table 11 Distribution of Current Contraceptors by Number of Births in Four Years Prior to Survey

Circuit	Baseline		Follow-up	
	0-1 Births	2-3 Births	0-1 Births	2-3 Births
Demand+Service Delivery	21 (66%)	11 (34%)	23 (49%)	24 (51%)
Demand Only	10 (71%)	4 (29%)	17 (50%)	17 (50%)
Control	4 (80%)	1 (20%)	7 (54%)	6 (46%)

These quantitative data are confirmed by Health Sub-Committee Members who were interviewed. In interviews, the Health Sub-Committee Members emphasized that women who had experienced short intervals were most in need of modern contraceptives, and consistently mentioned women who were *bourruololu* or *nef* as their main targets in contraceptive promotion.

Popularity of the Injectable Contraceptive

The demand mobilization interventions dramatically increased knowledge and use of the injectable contraceptive during the study period, but had little effect on knowledge or use of other methods. Thus it appears that the Health Sub-Committee Members, although trained about all methods, concentrated their efforts on promoting the injectable contraceptives. This may be because they, and potential users, judged the injectable contraceptive to be the most appropriate in the rural context in which they live.

Knowledge of the injectable contraceptive increased during the study period in the two intervention circuits, but did not change in the control circuit. In the demand+service delivery circuit, spontaneous knowledge of injectable contraceptives increased from 61% to 75%, and in the demand only circuit, from 49% to 66%. In the control circuit, spontaneous knowledge of the injectable contraceptive was unchanged, at 50%. It can therefore be concluded that the demand mobilization interventions had a positive effect on knowledge of the injectable contraceptive.

For the other methods available in the study area, there was no evidence that the demand mobilization interventions had an effect on knowledge. In the baseline survey 71% and 61% of respondents in the demand+service delivery and demand only circuits, respectively, named oral contraceptives spontaneously when asked about methods of family planning, this increased to 79% and 75%, respectively, in the follow-up survey. However, knowledge of oral contraceptives also increased in the control circuit, from 53% to 66%. At baseline, 5%, 3% and 2% of respondents named spermicides spontaneously in the demand+service delivery, demand only and control circuits, respectively, these figures increased to 8%, 4% and 3% at follow-up. Similarly, for condom the baseline rates were 16%, 22% and 13%. These increased to 21%, 18% and 15%.

Table 12 Spontaneous Knowledge of Modern Methods Available in Study Area

Circuit Survey	Oral							
	Contraceptives		Injectable		Condom		Spermicide	
	%	N	%	N	%	N	%	N
Demand+Service Delivery								
Baseline	71	233	61	200	16	52	5	16
Follow-up	79	266	75	253	21	69	8	28
Demand Only								
Baseline	61	191	49	155	22	68	3	8
Follow-up	75	248	66	218	18	61	4	12
Control								
Baseline	53	186	50	175	13	44	2	6
Follow-up	66	237	50	179	15	55	3	9

Just as the demand mobilization interventions affected contraceptive *knowledge* only for the injectable, their impact on contraceptive *use* also was concentrated on that method. In the two intervention circuits, the increase in contraceptive prevalence is explained nearly completely by increased use of injectable contraceptive. However in the control circuit, no such pattern was seen.

Table 13 Distribution of Modern Contraceptive Users by Method

Circuit Survey	Oral Contraceptives		Injectable		Tubal Ligation		Other	
	%	N	%	N	%	N	%	N
Demand+Service Delivery								
Baseline	28.1	9	50.0	16	15.6	5	6.3	2
Follow-up	23.4	11	70.2	33	6.4	3	0.0	0
Demand Only								
Baseline	64.3	9	35.7	5	0.0	0	0.0	0
Follow-up	32.4	11	55.9	19	5.9	2	5.9	2
Control								
Baseline	20.0	1	80.0	4	0.0	0	0.0	0
Follow-up	23.1	3	46.2	6	15.4	2	15.4	2

Qualitative data confirms the popularity of the injectable contraceptive. In interviews and focus group discussions, informants noted

Most of the women I talk with prefer the injection more than any other method

[Women who are taking oral contraceptives] are joining family planning to prevent themselves. If they take some tablets and then forget it, instead of preventing themselves they will get pregnant. Because the pill's business is a lot [taking it every day], and that comes to disturb people.

We think injection is easier than the pills because for the pills, if you forget it for one day, you will get pregnant, but for the injection you will not easily forget.

The popularity of the injectable contraceptive reflected in the table above is likely due to two factors: the method is private and long-lasting, and it is compatible with breastfeeding. Many women in rural Gambia practice family planning in secret, hiding use of contraceptives from husbands, relatives and neighbors. Crowded housing conditions and general lack of privacy make it nearly impossible for a woman to store and take oral contraceptives undetected. By contrast, the injectable contraceptive is taken only once every three months, in the privacy of the room where the Community Health Nurse provides maternal and child health services. The fact that the injectable contraceptive is effective for three months has another advantage, it frees users from having to remember to take a daily pill. Furthermore, the injectable contraceptive is compatible with breastfeeding. Since most rural mothers breastfeed their children for at least 18 months, this is a critical advantage of the method.

Reassuring Potential Clients About Modern Methods

Health Sub-Committee members reassured potential contraceptive users about the safety and effectiveness of modern methods. In the intervention circuits, respondents who had met with a Health Sub-Committee Member were three times more likely to use a modern contraceptive. As shown in Table 14, below, in the demand mobilization+service delivery circuit 28% of follow-up survey respondents who had met with their kabilo Health Sub-Committee member used a modern contraceptive, compared to only 9% of respondents who had never met with a Health Sub-Committee member. In the demand mobilization only circuit, 22% of respondents who had met with a Health Sub-Committee member used a modern contraceptive, compared to 8% of those who had not.

Table 14 Contact With Health Sub-Committee Members and Use of Modern Methods

Circuit	Ever Met with HSCM		Never Met with HSCM		Relative Risk
	Uses Modern Method	Doesn't Use	Uses Modern Method	Doesn't Use	
Demand+Service Delivery	20 (28.2%)	51 (71.8%)	19 (9.4%)	184 (90.6%)	3.01**
Demand Only	15 (22.4%)	52 (77.6%)	16 (8.2%)	178 (91.8%)	2.71**

Statistically significant at 99% confidence level

The importance of Health Sub-Committee members in family planning promotion was also seen in interviews and observation by study researchers. Users of modern contraceptives described how their kabilo Health Sub-Committee member visited them regularly, describing the various methods and explaining how they can ensure long birth intervals. Health Sub-Committee members noted that they met with potential contraceptors many times, "taking it easy with them," and "going slowly, slowly." During observation of one village visit by a Community Health Nurse, a Health Sub-Committee member accompanied a client she had motivated to the nurse to reassure her and provide moral support.

VI Study Limitations

The present study has three main limitations which may affect study findings. First, due to smaller than expected increases in contraceptive prevalence in the study circuits, some of the study findings were not statistically significant. Second, differences in baseline contraceptive prevalence rates across the three circuits raise concerns about possible effect modification. Finally, funding delays prevented implementation of the Traditional Birth Attendant training prior to the follow-up survey.

As noted in the results section, above, due to smaller than expected increases in contraceptive prevalence, it was not possible to rule out, with 95% confidence, the possibility that the contraceptive prevalence increases in the three study circuits were equal. The baseline and follow-up survey sample size of 350 respondents per circuit was selected in order to detect differences between contraceptive prevalence rates of 7%, 15% and 25% with 95% confidence and 80% power. These expected rates, estimates based on the results of the two previous operations research studies, were not achieved in the present study, and thus some of the findings were not statistically significant.

There is no obvious explanation as to why the contraceptive prevalences increases in the present study were lower than expected, however the timing of the follow-up survey may be involved. In the present study the Kabilo and Imam interventions were implemented in the same way as in the previous studies. The study villages are in the same area as the villages included in the earlier studies. The ethnic and educational composition of the survey respondents is similar to that of previous study respondents. Sampling and data collection proceeded in the same manner. The only plausible explanation for the lower than expected

prevalence increases that has been identified is that the follow-up survey was conducted too soon after the baseline, before the interventions had time to take full effect. This hypothesis is supported by Figure 4, above, showing monthly prevalence figures for the three study circuits. If the strong upward trend observed in the intervention circuits and the flat slope of the control circuit continued after May 1995, then later surveys would find statistically significant differences between the circuits.

In order to test the hypothesis that the smaller than expected prevalence increases were due to follow-up survey timing, a third survey was conducted in August, 1996. This survey, which took place more than 24 months after the baseline survey, should reveal whether the trends in contraceptive use continued, or whether a drop-off in the rate of increase occurred. The results of this final survey, currently being analyzed, will be described in a separate report.

The second study limitation stems from the differences in baseline prevalence rates across the three study circuits. As noted in the results section, above, the baseline rates were 9.7% in the demand+service delivery circuit, 4.4% in the demand only circuit, and 1.4% in the control circuit. Since the principal measure of interest in the present study is the *increase* in contraceptive prevalence between baseline and follow-up, baseline differences do not necessarily compromise study findings. However, these differences do raise the possibility that the three circuits may have fundamental differences that modify the effect of study interventions.

While it is not possible to rule out the possible role of effect modification in the present study, there is also no reason to believe that it has an important impact on study results. Clearly it would have been preferable if the baseline prevalence rates in the study circuits were equal, however such ideal conditions are rarely attainable in action-oriented operations research. Study researchers and colleagues have reviewed this issue and judged that, based on their personal knowledge of the three study circuits, the study circuits are similar enough to be compared. More definitive evidence regarding this issue must await further research.

The third main study limitation concerns Traditional Birth Attendant training. This intervention, though included in the initial study design, was not implemented prior to the follow-up survey due to funding delays associated with the July, 1994 military takeover of The Gambia's democratically-elected government. However, Traditional Birth Attendant training was eventually implemented in March and April 1996, after funding was approved, thus the results of the August, 1996 survey described above will reflect the impact of this intervention.

VI. Conclusions

Data from the present study have established that two low-cost demand mobilization interventions can increase contraceptive prevalence in rural villages, even in the absence of special support to the village-based family planning service delivery system. The two demand mobilization interventions implemented in the study, the Kabilo Approach and Imam Meetings, increased utilization of family planning services by building on existing demand for birth spacing, targeting women with short birth intervals, promoting the contraceptive method

most appropriate in the rural context, and reassuring potential clients about the safety and effectiveness of modern methods

Based on these results, it is recommended that the Gambian Ministry of Health and other agencies working in the health sector begin national replication of the effective, low-cost Kabilo Approach and Imam Meeting interventions

Appendix A
Baseline and Follow-up Questionnaires

Appendix B

Characteristics of Baseline and Follow-up Survey Respondents

Distribution of Respondents By Ethnic Group				
	Baseline Survey		Follow-up Survey	
	N	%	N	%
Mandinka	736	73.7	736	71.6
Fula	47	4.7	58	5.6
Wolof	158	15.8	183	17.8
Serrere	13	1.3	14	1.4
Other	44	4.4	37	3.6
<i>Missing</i>	0		0	

Distribution of Respondents By Religion				
	Baseline Survey		Follow-up Survey	
	N	%	N	%
Muslim	997	99.9	1,026	99.8
Christian	2	0.1	1	0.1
Animist	0	0.0	1	0.1
<i>Missing</i>	0		0	

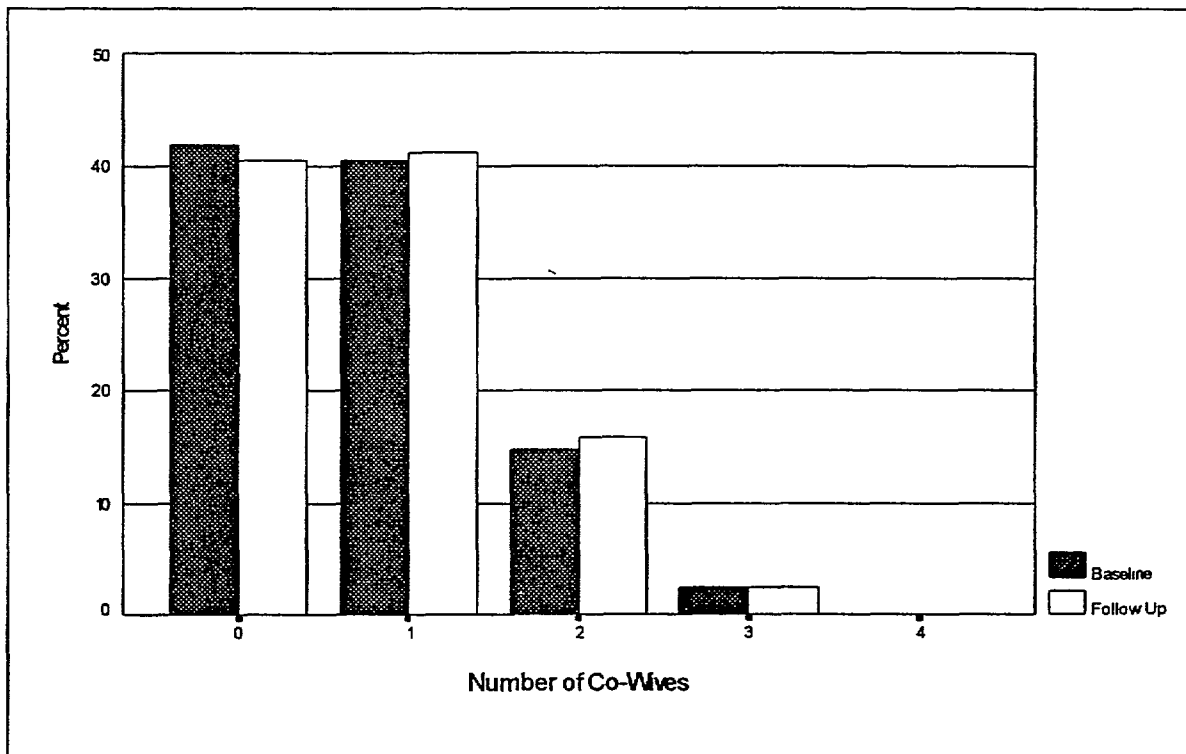
Ownership of Consumer Goods and Livestock						
	Baseline Survey			Follow-up Survey		
	N	%	N Missing	N	%	N Missing
Radio in household	695	69.8	2	777	75.7	1
Television in household	4	0.4	4	11	1.1	1
Bicycle in household	143	14.3	1	207	20.2	1
Motorcycle in household	47	4.7	1	75	7.3	1
Car in household	69	6.9	1	91	8.9	2
Animal cart in household	670	67.4	4	655	63.8	2
Respondent owns cattle	155	15.7	13	83	8.1	2
Respondent owns sheep	261	26.3	6	142	13.9	4
Respondent owns goats	479	48.3	6	415	40.5	3
Respondent owns chickens	560	56.5	6	505	49.3	3

Distribution of Respondents By Housing Characteristics				
	Baseline Survey		Follow-up Survey	
	N	%	N	%
Electricity in compound	0	0 0	2	0 2
Missing	3		1	
Water supply for compound				
Standpipe in compound	12	1 2	11	1 1
Standpipe outside compound	357	35 8	466	45 3
Well with pump	255	25 6	272	26 5
Well without pump	372	37 3	279	27 1
Missing	2		0	
Toilet facility for household				
Pit latrine	963	96 5	965	94 0
No facility/bush	33	3 3	59	5 7
Other	0	0 0	3	0 3
Missing	2		1	
Wall of respondent's house				
Cement block	28	2 8	31	3 0
Mud blocks with plaster	646	64 9	463	45 1
Mud blocks	317	31 8	531	51 7
Other	5	0 5	2	0 2
Missing	2		1	
Roof of respondent's house				
Corrugate	869	87 2	878	85 6
Thatch	127	12 7	148	14 4
Other	1	0 1	0	0 0
Missing	1		2	

Educational Background						
	Baseline Survey			Follow-up Survey		
	N	%	N Missing	N	%	N Missing
Ever attended formal school	60	6 0	1	60	5 8	1
Can read simple sentence in English	20	2 0	1	18	1 8	1
Ever attended Koranic school	722	72 5	2	946	92 2	2
Can read simple sentence in Arabic	94	9 4	3	39	3 8	2
Ever attended adult education class	99	9 9	2	197	19 2	2
Can read simple sentence in local language	12	1 2	2	33	3 2	2

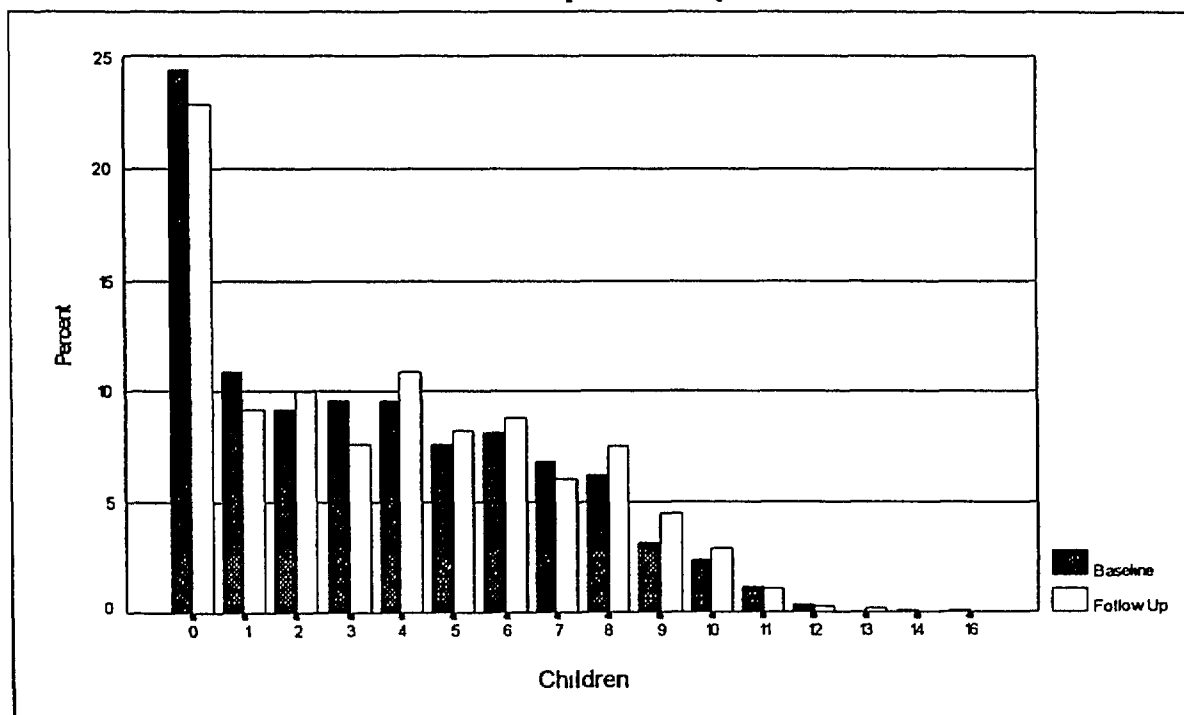
Distribution of Respondents By Marriage Characteristics				
	Baseline Survey		Follow-up Survey	
	N	%	N	%
Currently married	820	82.2	850	82.7
Missing	0		0	
Ever married	842	84.5	869	84.5
Missing	1		0	
Number of Co-Wives (Currently married only)				
0	338	42.0	341	40.5
1	326	40.5	347	41.2
2	119	14.8	133	15.8
3	21	2.6	21	2.5
4	0	0.0	1	0.1
Missing	16		7	

Percent Distribution of Respondents by Number of Co-Wives

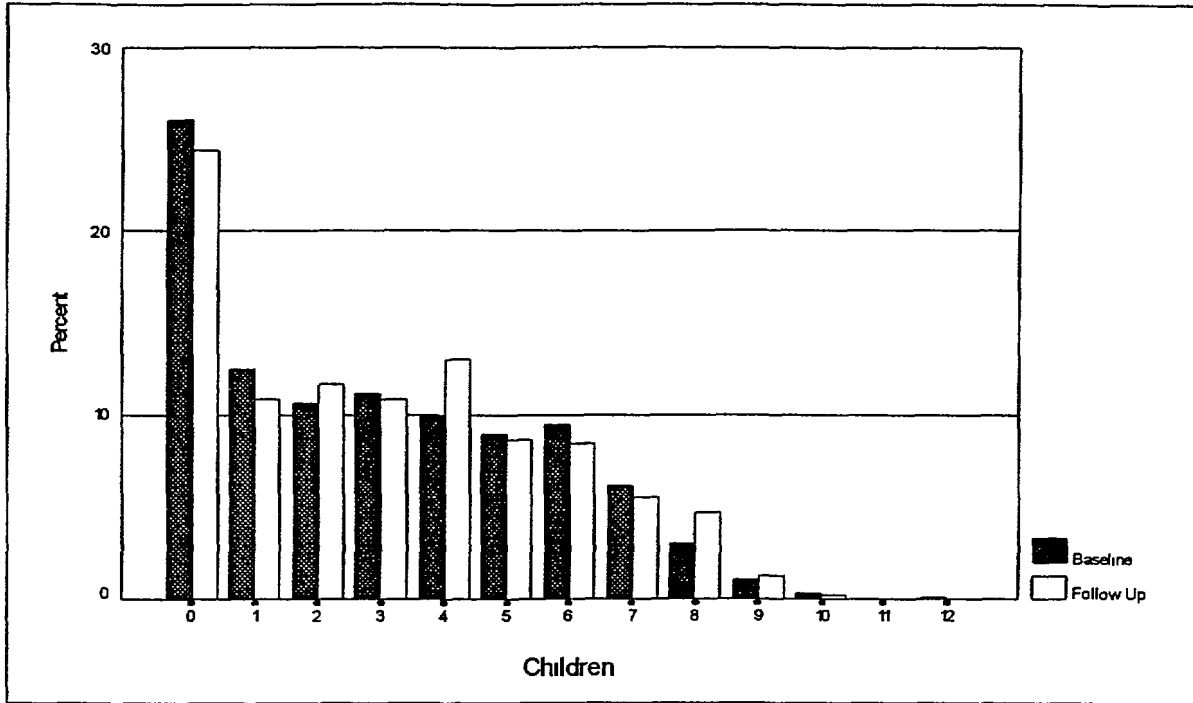


Distribution of Respondents By Number Children Ever Born/Surviving								
	Children Ever Born				Children Surviving			
	Baseline Survey		Follow-up Survey		Baseline Survey		Follow-up Survey	
	N	%	N	%	N	%	N	%
0	244	24.4	235	22.9	260	26.1	251	24.4
1	109	10.9	95	9.2	125	12.5	112	10.9
2	92	9.2	103	10.0	107	10.7	120	11.7
3	96	9.6	78	7.6	112	11.2	112	10.9
4	96	9.6	112	10.9	99	9.9	135	13.1
5	76	7.6	84	8.2	90	9.0	89	8.7
6	81	8.1	90	8.8	95	9.5	87	8.5
7	68	6.8	62	6.0	62	6.2	58	5.6
8	62	6.2	77	7.5	31	3.1	48	4.7
9	32	3.2	46	4.5	11	1.1	13	1.3
10	24	2.4	30	2.9	4	0.4	3	0.3
11	12	1.2	11	1.1	0	0.0	0	0.0
12	4	0.4	3	0.3	2	0.2	0	0.0
13	0	0.0	2	0.2	0	0.0	0	0.0
14	1	0.1	0	0.0	0	0.0	0	0.0
16	1	0.1	0	0.0	0	0.0	0	0.0
Means	3.5 CEB		3.8 CEB		2.9 CS		3.0 CS	

Percent Distribution of Respondents by Children Ever Born



Percent Distribution of Respondents by Children Surviving



Distribution of Respondents By Approval of Family Planning												
	Approves				Disapproves				Don't Know			
	Baseline Survey		Follow-up Survey		Baseline Survey		Follow-up Survey		Baseline Survey		Follow-up Survey	
	N	%	N	%	N	%	N	%	N	%	N	%
Kuntaya	261	79.3	281	83.4	26	7.9	25	7.4	42	12.8	31	9.2
Njabakunda	210	66.5	268	80.7	36	11.4	27	8.1	70	22.2	37	11.1
No Kunda	218	61.9	271	75.5	65	18.5	48	13.4	69	19.6	40	11.1

Distribution of Respondents By Belief About Islam and Family Planning												
	Islam Allows				Islam Forbids				Don't Know			
	Baseline Survey		Follow-up Survey		Baseline Survey		Follow-up Survey		Baseline Survey		Follow-up Survey	
	N	%	N	%	N	%	N	%	N	%	N	%
Demand+ Service Delivery	199	60.3	195	58.2	31	9.4	57	17	100	30.3	83	24.8
Demand Only	134	42.5	164	49.5	43	13.7	73	22.1	138	43.8	94	28.4
Control	163	46.4	169	47.1	65	18.5	92	25.6	123	35	98	27.3

Mean Parity of Current Users of Modern Contraceptives at Baseline and Follow-up					
	Baseline		Followup		Difference
	Mean Parity (Std Dev)	Cases	Mean Parity (Std Dev)	Cases	Followup - Baseline
Demand+Service Delivery	6.5 (2.7)	32	6.4 (2.8)	47	0.0 (p= .95)
Demand Only	3.8 (2.9)	14	5.2 (3.3)	34	1.4 (p= .15)
Control	4.4 (2.1)	5	6.8 (2.6)	13	2.4 (p= .07)

Mean Age of Current Users of Modern Contraceptives at Baseline and Follow-up					
	Baseline		Followup		Difference
	Mean Age in Yrs (Std Dev)	Cases	Mean Age in Yrs (Std Dev)	Cases	Followup - Baseline
Demand+Service Delivery	34.3 (7.4)	32	34.4 (8.0)	47	0.1 (p= .94)
Demand Only	28.1 (7.8)	14	30.0 (8.7)	34	1.9 (p= .46)
Control	27.0 (5.7)	5	34.9 (7.8)	13	7.9 (p= .04)

Appendix C
Misclassification Bias

Misclassification Bias in the Operations Research Study, "Contributions of Demand Mobilization and Contraceptive Availability to Increased Contraceptive Prevalence Issues for Replication"

Introduction

This report considers misclassification as a potential source of bias in the operations research study conducted by Save the Children, "Contributions of Demand Mobilization and Contraceptive Availability to Increased Contraceptive Prevalence Issues for Replication "

Depending on its nature and magnitude, misclassification can lead to under- or over-estimation the effect of an intervention. Examination of qualitative and quantitative data from the present study indicates that nondifferential underascertainment of outcome (specifically, under-reporting of contraceptive use by survey respondents) is the most likely source of misclassification in the present study.

In order to assess the extent of under-reporting of contraceptive use, survey respondents' reports are compared with service provider records maintained by rural family planning outlets in the study area. Analysis of the matched survey and provider records for the five years prior to the survey shows that 18% of contraceptive users reported that they were non-users. The analysis also reveals the absence of family planning service records for 55% of all contraceptive users who received supply in the five years prior to the study.

Adjusting study effect estimates to correct for outcome misclassification has little effect on study findings. At the levels of contraceptive prevalence observed in the present study, effect estimates are far more sensitive to the outcome ascertainment procedure's specificity than to its sensitivity. This means that over-reporting of contraceptive use would result in far greater bias than would under-reporting. Since in the present study qualitative data indicate that there is perfect specificity (i.e., no over-reporting of contraceptive use), bias introduced by outcome misclassification is due solely to imperfect sensitivity, and is thus relatively small. When the 2x2 tables examining the interventions' effects on contraceptive prevalence are recalculated using data corrected for misclassification bias, the increase in contraceptive prevalence after the intervention remain 5% and 2%, respectively, in the demand mobilization and control circuits, but rises from 4% to 5% in the demand mobilization plus service delivery circuit.

Misclassification Bias

Misclassification occurs when errors are made in classification of study subjects according to categories of exposure, outcome or other study co-variables. For example, in the present study, exposure misclassification would be present if survey respondents were classified as living in one circuit when they lived in another. Outcome misclassification would be present if contraceptive users were classified as non-contraceptors, or vice versa. Co-variate misclassification

would be present if error were made in classifying survey respondents according to other variables such as age or ethnic group

Misclassification is measured by comparing study classifications to a "gold standard " For example, in the present study, service provider records could be considered a "gold standard" to assess the extent of misclassification in survey reports of contraceptive use

Misclassification is measured using four ratios sensitivity, specificity, predictive value positive, and predictive value negative Continuing the example from the present study, sensitivity is the proportion of true contraceptors who reported contraceptive use in the survey Specificity is the proportion of true non-contraceptors who reported not using contraceptives in the survey Predictive value positive is the proportion of those reporting use of contraceptives in the survey who truly contracept Predictive value negative is the proportion of those reporting non-use of contraceptives in the survey who truly do not contracept

Misclassification can be nondifferential (independent of other study variables) or differential (occurring more frequently in certain study sub-groups) Nondifferential misclassification occurs when errors in the classification of study subjects across one study variable are independent of other study variables, for example when the sensitivity and specificity of reported contraceptive use are the same for all three circuits Differential misclassification would exist if rates of under- or over-reporting of contraceptive use were different in the three circuits

Differential misclassification can bias effect estimates in any direction, while nondifferential misclassification can only underestimate the true effect of an intervention Thus in the present study, differential misclassification could suggest that the study interventions increased or decreased contraceptive prevalence when in fact the reverse occurred Nondifferential misclassification would only underestimate the effects of the interventions Various methods have been developed to "correct" effect estimates for misclassification bias

Identification of Likely Sources of Misclassification in Present Study

Misclassification of Exposure

In the present study, exposure classification is assigned according to the circuit in which the study participant resides Thus a study participant is considered to have been exposed to an intervention (or to be a control) if she was included in the enumeration of female village residents age 15 to 49 years conducted several weeks prior to the survey field work Since the present study is designed to evaluate the effect of the community-level interventions on all women aged 15 to 49 years residing in each circuit, the fact that some women may have had more contact with kabilo representatives or community health nurses does not suggest exposure misclassification However if some survey respondents did not reside in the circuit in which they were enumerated during the period when the interventions were implemented, misclassification would exist

Analysis of the baseline and follow-up survey results shows no evidence of exposure misclassification due to the inclusion in the sample of women who were new to the village in which they were enumerated

Number of Years Respondent Lived in Village	Number of Respondents (Percent of Valid Responses)	
	Baseline Survey	Follow-up Survey
Less than 1	20 (2%)	11 (1%)
More than 1 but less than always	229 (23%)	276 (27%)
Always	744 (75%)	738 (72%)
Missing	5	3
Total	998	1028

In both the baseline and follow-up surveys, most respondents had lived in their village "always" Just 2% of baseline respondents and 1% of the follow-up respondents had lived in the village in which they were enumerated for less than one year Thus there is no evidence to suggest that any significant level of exposure misclassification exists in the present study

Misclassification of Outcome

In the present study outcome misclassification is of greater concern than is exposure misclassification The outcome of interest--contraceptive use--is a personal, private behavior which is not apparent to the interviewer Over-reporting of contraceptive use could occur if survey respondents perceive that interviewers favor positive replies to questions about contraception Under-reporting could occur if survey respondents do not wish to reveal contraceptive use to a stranger

In the present study interviewers were trained to minimize the possibility of outcome misclassification Interviewers learned how to ask survey questions in a neutral way, in order not to suggest a particular response They found private spots for the interviews and promised confidentiality before asking any questions The questionnaire sections on contraceptive use came about halfway through the interview, after the respondent and interviewer had covered less sensitive topics Interviewers were not rewarded in any way for finding contraceptors, and they had no reason to exaggerate contraceptive use to ensure a large apparent increase in contraceptive use during the study period

Despite the efforts made to minimize outcome misclassification in the present study, qualitative data collected during focus groups discussions and interviews suggest that there is a strong possibility that women living in rural Gambia would underreport contraceptive use In a series of interviews and focus group discussions held in study area villages in 1994 and 1995, women emphasized the social dangers to which contraceptors are subject They described how a woman who contracepts might be the subject of gossip in which she is accused of adultery or prostitution. Her husband might divorce her She may be charged with committing a sin against Islam She might be accused of killing her unborn children In the interviews and focus group discussions, non-contraceptors cited these risks as reasons to avoid modern contraceptives, while women using contraceptives mentioned them as the costs against which any benefits of modern methods must be weighed

The following quotes, from different women during various focus group discussions and interviews, illustrate the difficulties faced by women known to contracept

"When I told my husband, my husband said, you know how things are, we have to be secretive about it. Because people are talking about family planning, saying that family planning is not good. But I cannot help you when you are delivering. You are the one who feels the pain. And I will not refuse you to go [to get family planning]. You can go and we will keep it a secret."

"It is now that most of them are accepting family planning, but initially they were not accepting family planning. If at all they understood that you are using contraceptives they will say you are a prostitute."

"There are some who want to spoil family planning. If I discuss it with them they will go out and spoil my name."

"Some men say that the women who are using family planning are killing children."

"There are some men who are saying that the women who are joining family planning, they don't want to deliver again, that's why. Some are saying that there are some women who want to do adultery, that's why they are joining family planning. Some are saying that some women want to enjoy themselves, that's why they are joining family planning."

The social dangers of contraception were further elucidated in a series of village meetings about Islam and family planning, in which men aired some of their views about modern contraception. In the meetings, some men stated that modern contraception kills children, some argued that it encourages promiscuity among unmarried girls, and others quoted verses from the Holy Koran to support their view that Islam forbids family planning. Few village men spoke in favor of modern contraception.

Given the social dangers of revealing modern contraceptive use, it is plausible that women living in rural Gambia who use modern contraceptives would fail to admit that fact to interviewers, and that surveys, including the one conducted in the present study, would underestimate contraceptive prevalence.

Estimation of Outcome Misclassification in Present Study

In order to assess the degree of under-reporting of contraceptive use in the present study, reports of respondents in the follow-up survey were compared to service records collected from the four major family planning service providers in the two intervention circuits of the study area. (Provider records were available only for the two intervention circuits, no records were available for the control circuit.)

The research team copied service records from the Gambia Family Planning Association clinic in the Demand Mobilization circuit, the Ministry of Health dispensary in the Demand Mobilization+Service Delivery circuit, and the Ministry of Health community health nurses posted to both circuits. The records kept by these providers included the name of the woman to whom contraceptives were provided, her village, her age and parity. For the community health nurses and the Demand Mobilization circuit dispensary, records were available going back to May 1990, the first month in the survey's contraceptive history calendar. For the Gambia Family Planning Clinic, records went back only to January 1993.

Use of provider records to assess the sensitivity and specificity of the survey reports of contraceptive use revealed some weaknesses in provider records. "Monthly returns," the aggregated reports showing numbers of new and continuing acceptors and drop-outs, were found to significantly overestimate the number of users. However the detailed patient records kept by the providers missed a significant proportion of users. The fact that some records are

... since rural providers offer services in various locales, often in an *ad hoc* way. For example, one Community Health Nurse in the study area always kept pills and Depo Provera in his briefcase. He would seize any opportunity to re-supply his users, calling them aside at the weekly market, while passing by their compound, or at a gathering. The nurse often failed to record these visits on the patient charts he kept in his home. Another provider sat in her quiet clinic all day, seeing very few patients. However at night in her own home--away from the patient records--she received and supplied many patients who feared being seen in the clinic. Here again, visits were not always recorded.

To assess the degree of underreporting of contraceptive use in the survey, service provider patient records were matched to women in the survey database by village, name and parity. The records were considered to match when the village and name were identical in the two sources and when the difference in parity was less than two. Of 667 women living in the two intervention area circuits who were seen in the survey, 51 (8%) were listed as contraceptors in the service records. Of these 51, 42 (82%) reported having used a modern method in the survey. Thus about 18% of true contraceptors failed to report use of contraceptives in the survey.

Seen in Service Provider Records	Reported Contraceptive Use in Survey		
	Yes	No	Total
Yes	42 (82%)	9 (18%)	51 (100%)
No	52 (8%)	564 (92%)	616 (100%)
Total	94 (14%)	573 (86%)	667 (100%)

Of the 94 survey respondents who reported getting contraceptive supply during the relevant period from the providers whose records were copied, information on only 42 (45%) was found in the providers' records. The patient information for the remaining 52 (55%) was either never copied into the provider records or was lost prior to the present study. The absence of 55% of contraceptors from provider records is unlikely to indicate over-reporting of contraceptive use. As noted above, contraception is considered by many rural Gambians to be an illicit activity, and thus is unlikely to be over-reported. Furthermore, the survey included many extremely detailed questions about methods, supply and timing of contraceptive use that would be very difficult to "fake". Finally, the state of the providers' patients records--in some cases on pages of exercise books in a suitcase under a bed--suggests that loss of records is more plausible than over-reporting.

The above analysis indicates a sensitivity of 82% for the survey reports of contraceptive use. Using that figure and an assumed specificity of 100% to adjust the contraceptive prevalence figures in the baseline and follow-up surveys, gives corrected increases (risk differences) for the three circuits as follows:

Circuit	Corrected Estimates			Original Estimates		
	Baseline Prevalence	Follow-up Prevalence	Increase (95% Conf Interval)	Baseline Prevalence	Follow-up Prevalence	Increase (95% Conf Interval)
Demand Mobilization + Service Delivery	12%	17%	5 10% (0% - 10%)	10%	14%	4 25% (-1% - 9%)
Demand Mobilization	5%	11%	5 46% (1% - 9%)	4%	9%	4 61% (1% - 8%)
Control	2%	4%	2 47% (0% - 5%)	1%	3%	1 92% (0% - 4%)

These corrected increases are very similar to the uncorrected estimates, in the demand mobilization plus service delivery circuit the increase is larger by just one percentage point and in the demand mobilization and control circuits the increase is unchanged

Conclusion

This report assesses the impact of misclassification on the study results. Analysis of qualitative data suggests that under-reporting of contraceptive use is the most likely form of misclassification in the present study. Comparison of survey reports with matched provider records shows that 18% of contraceptors failed to reveal their contraceptive use to interviewers in the survey.

This report suggests that neither provider records nor survey reports will give accurate estimates of contraceptive use in rural Gambia. Rural providers' records appear to miss a substantial proportion of their patients, and will, if used to estimate contraceptive use, result in an underestimate of contraceptive prevalence. The main alternative to provider records, survey reports, will also underestimate prevalence, since women in rural Gambia are often reluctant to reveal their contraceptive use to interviewers. However the results presented in this report suggest that surveys are far preferable to provider estimates for providing minimum estimates of contraceptive prevalence. If the results of the present study are generalizable to other parts of rural Gambia, then these minimum estimates could be adjusted upward by about one-fourth to provide a more accurate assessment of true prevalence.