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A LONGITUDINAL STUDY ON

DISCONTINUATION OF MODERN CONTRACEPTIVE METHODS IN JORDAN

This study was conducted by the Ministry of Health in collaboration with USAID Health Service Delivery and is made possible by the generous support of the American people through the United States Agency for International Development (USAID)

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Special appreciation goes to all midwives from the 28 participating MOH health centers and four NGO clinics as well as to their immediate supervisors. The midwives did an excellent job in enrolling and following up the women over the15-month period, while still maintaining the provision of routine daily services. For busy clinics, midwives stayed after hours to timely complete the follow-ups. Furthermore, USAID Health Service Delivery would also like to acknowledge with much appreciation the crucial role and valuable contributions of Dr. Malak Al-Ouri and Dr. Nadia Al-Safadi in the implementation and management of the study. Last but not least, many thanks go to Health Directors and NGOs Directors for facilitating the implementation of the study.

ACRONYMS

CHC	Community Health Committee
CI	Confidence Interval
COC	Combined Oral Contraceptive
Cond	Condom
CPR	Contraceptive Prevalence Rate
DHS	Demographic and Health Surveys
FP	Family Planning
FY	Fiscal Year
Imp	Implants
Inj	Injectable
IT	Information Technology
IUD	Intrauterine Device
JD	Jordanian Dinar
LAM	Lactational Amenorrhea Method
MCH	Maternal and Child Health
MOH	Ministry of Health
MWRA	Married Women of Reproductive Age
NGO	Non-Governmental Organization
PSU	Primary Sampling Unit
RMS	Royal Medical Services
RMNCH+	Reproductive, Maternal, Newborn and Child Health including Nutrition, NCDs and Gender-based Violence
TFR	Total Fertility Rate
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WCHD	Woman and Child Health Directorate
WHO	World Health Organization

SUMMARY

Contraceptive discontinuation makes a substantial contribution to the overall fertility rates and to the rates of unwanted fertility. Worldwide, discontinuation rates are mainly derived from the Demographic Health Survey data which is subject to recall bias and heaping related to duration of use as women recall their monthly contraceptive use over the five years preceding the survey.

This study aims at calculation of cause-specific 12-month discontinuation rates for the five most commonly used modern contraceptive methods in Jordan, namely, intrauterine devices (IUDs), implants, combined oral contraceptives (COCs), injectables and condoms. The study followed an observational longitudinal design, where a sample of married women of reproductive age who voluntarily started using one of the five methods were enrolled and their use status was verified every two months after enrollment through follow-up phone calls. When discontinuation took place, reasons for discontinuation, date of discontinuation, and switching to another family planning method were captured. Trained midwives at 32 carefully selected sites electronically collected enrollment and follow-up data using tablets.

Kaplan Meier failure estimates and cumulative incidence in the presence of competing risks were utilized in the calculation of discontinuation rates. Cox proportional hazards model was used for prediction of possible risk factors.

A total of 2,514 women were enrolled from 32 MOH primary health care centers and NGO clinics during the period from the beginning of April until the end of July, 2017. The 12-month follow-up period was concluded at the end of July 2018.

The mean age of women was about 31 years ranging from 16 to 49 years. The mean number of years of schooling for women and their husbands was 12 and 11.5, respectively with 36% of women having higher than secondary school education compared to only 27% of their husbands. About 14% of the women were fully employed and 3% partially employed, while the majority (83%) were not employed.

The mean number of living children was 3.3 with a minimum of 0 and a maximum of 12 children. About 43% of women had three to four children and 22% had five or more children. Women reported an average ideal number of children of about four. Only about 28% desired less than three children and 24% cited five or more as an ideal number. As reported by women, about 69% of their husbands were in agreement with their spouses regarding the ideal number of children, while 25% desired more children.

About 74% of women used a contraceptive method for spacing pregnancies and 26% for limiting purposes. About 93% of women intended to use the method for at least two years or to limit pregnancies.

Out of the 2,514 enrolled women, only 2,397 cases were valid for analysis, out of which 676 women discontinued the used method within the 12-month period. Most of the invalid cases were lost to follow up related to wrong phone numbers and non-response to phone calls during the first and subsequent follow-ups.

The estimated probability of abandoning a method increased over time started at about 3% after the first month and reached about 29% after 12 months of use. The most critical period for abandoning a method was during the first six months of use at about 21%. The 12-month discontinuation rates were the lowest for IUDs (14.8%) followed by implants (23.6%), condoms (30.2%), COCs (37.9) and injectables (42.8%). Health related reasons and side effects dominated the reasons for discontinuation at 13.3%, followed by desire for pregnancy at 6.1%. About 3% of women discontinued the method because they wanted a more effective method. Method failure (became pregnant while using) was low at 1.5% because all the methods used were modern methods. Users of injectables and implants experienced no method failure, while the highest prevalence of failure was among COCs users (1.9%).

A considerable proportion of women who discontinued switched to another method (11.7%), which constitutes over 40% of the total discontinuations. The latter may be related to improper counseling leading to choosing an inappropriate method.

Out of the total 12-month discontinuation rate of 28.9%, abandoning a method while in need was 7.8%, while abandoning a method while in reduced need or not in need was similar at 7.9%. Switching to a less effective method was more common (6.9%) compared to switching to more effective methods (4.8%). Thus 16.1% of discontinuations were related to reasons of programmatic importance (abandoned a method while in need, method failure and switched to a less effective method).

Univariate analysis utilizing Cox Proportional Hazards model shows that Syrian women had almost double the hazard (1.96) of discontinuing a method than Jordanian women. This large increase in hazard among Syrian women was of high statistical significance (p-value <0.0001).

Compared to the highly populated governorates (Amman, Irbid and Zarqa), the rest of the governorates showed a 36% larger hazard of discontinuation (p-value <0.0001). The hazard of discontinuation among women with 12 years of schooling and more was 43% less than women with less than six years of schooling (p-value=0.001). Husband's education posed no significant hazard for discontinuation and thus does not constitute a risk factor.

Relative to employed women, unemployed women had a 24% higher hazard of discontinuation. This difference between the two groups is barely statistically significant (p-value=0.056).

The income quintiles that were based on self-reported monthly income had no effect on the hazard of discontinuation with all quantiles being very similar and not showing statistical significance.

Women with 3-4 children had 24% lower hazard of discontinuing a method than women with more or less children (p-value=0.002).

Relative to women who desire an ideal number of four children or less, women with five and more children had a 22% increased hazard of discontinuation with statistical significance (p-value=0.026).

Relative to women who used the contraceptive method for spacing, women who used the method because they did not want any more children had a 16% lower hazard of discontinuation (p-value=0.054).

Age, governorate population size, husband's education and income violated the assumptions of proportional hazards and were removed from the multivariate model. Nationality, woman's education, employment, number of living children, the ideal desired number of children and reason for using the method were fitted in multivariate Cox Proportional Hazards model.

Only nationality, woman's education, number of living children and the ideal desired number of children are found to be good predictors for discontinuation.

Improving the training of family planning providers remains a major goal to ensure that women are able to use a proper contraceptive method that fits their needs. Comprehensive and balanced counseling and full information about switching should be the standard practice taking into consideration adequate time for counseling.

In addition to initial counseling, providers and their supervisors should provide support at all levels. They also need to exercise all efforts to identify discontinuers due to reasons of programmatic importance and support proper switching. Supporting women who continue to use a contraceptive method is another major task that would reduce early discontinuation. Additional follow up efforts could be invested during the first six months of use to encourage women to return to the clinic should they experience any problems. The predictors of discontinuation, could be used to prioritize clients for follow-up.

This study establishes the baseline for future studies that aim at evaluating new interventions.

INTRODUCTION

Background

The Demographic and Health Surveys (DHS) that were carried out in Jordan over the period from 1999-2012 have shown stagnation of the total fertility rate (TFR) and modern contraceptive prevalence rate as well as one- year discontinuation rates of contraceptives. The 2012, DHS shows a fertility rate of 3.5 children per woman, 42% for modern contraceptive prevalence rate and 32% for one-year discontinuation for modern methods. Rapid population growth, resulting both from fertility rates as well as the influx of refugees from neighboring countries, continues to pose a major challenge for Jordan's development.

Blanc et al.[1] clearly demonstrated that contraceptive failure and discontinuation make a substantial contribution to overall fertility rates and to rates of unwanted fertility. Avoiding discontinuation due to contraceptive failure is expected to reduce TFR in Jordan by 48%. High rates of discontinuation may signal discontent with the method and/or family planning service provision. High contraceptive failure rates likely indicate inadequate counseling. Moreover, early discontinuation will deprive the woman of the benefits of family planning. Contraceptive discontinuation data is rarely collected outside DHS, which collect data through a month-by-month retrospective history of pregnancies, births, terminations, and episodes of contraceptive use for five years prior to the survey. The retrospective reporting in such surveys are subject to recall bias and heaping, which can affect the quality and usefulness of the resulting data.

Further analysis of 2012 DHS calendar data showed about 14 percentage points difference between 2012 calendar (recall) data and the actual prevalence measured five years ago based on 2007 DHS data. Women were recalling episodes of nonuse instead of actual use of a contraceptive method (Table A- Annex1). Patterns of heaping around common time intervals are recognized feature of data collected retrospectively for several years prior to data collection. It is common for women to report using a method for six months instead of the actual five or seven months. Women tend to report 6-12-18 and 24 months instead of the actual number of months. Figure A in Annex1 shows a striking peak at 6 months with much less pronounced peaks at 3 and 12 months.

This study monitored discontinuation of modern contraceptive use among new users and identified the main reasons for discontinuation that are of programmatic interest in Jordan. This study used a longitudinal design based on a six two-month follow up rounds over one year period to minimize the recall bias and heaping.

1- Blanc A., Curtis S., Croft T. 1999. Does Contraceptive Discontinuation Matter?: Quality of Care and Fertility Consequences. MEASURE Evaluation Technical Report Series, No. 3. Available at http://pdf.usaid.gov/pdf_docs/Pnacj177.pdf

Objectives

- To calculate 12-month discontinuation rates for five modern contraceptive methods: IUDs, combined oral contraceptives, implants, injectables, and condoms to establish the baseline.
- To identify reasons for discontinuation that are of programmatic importance.
- To identify risk factors that might lead to discontinuation of the five methods.

The Woman and Child Health Directorate (WCHD) of the Ministry of Health and USAID Health Service Delivery will use the results of this study to inform interventions and policy related to improvement of family planning service provision.

Methodology

a. Design

This study followed an observational longitudinal design, where a sample of married women of reproductive age (MWRA), who have voluntarily started using one of the five most common modern contraceptive methods were enrolled and followed by verifying the status of use every two months after enrollment through follow-up phone calls. When discontinuation took place, reasons for discontinuation, date of discontinuation, and switching to another family planning method were captured. This study establishes the baseline for future studies carried out applying the same methodology.

b. Selection of sites and subjects

In full collaboration with the WCHD, 32 MOH primary healthcare centers and NGO clinics were selected to serve as primary sampling units (PSUs). These PSUs were not randomly selected proportionate to size to ensure the quality of data collection. Instead the PSUs were selected based on the maternal and child health visits workload, willingness of staff to participate, the staff having good reporting experience and the availability of five modern methods. In each PSU, 15-30 women per method were enrolled over a period of four months on the day of starting using a contraceptive method. The original enrollment period was limited to two months and was extended to an additional two months due to inability to achieve the target sample size. Enrolled women were followed up every two months for a period of 12 months. Consent in writing was obtained from women who agreed to participate in the study and who agreed to provide their phone numbers to be contacted every two months for one year. Enrolled women were given the opportunity to withdraw from the study at any time.

c. Sample size

A sample size of 2,500 women was calculated corresponding to an alpha error of 0.05, a proportion of 0.32 (based on DHS 2012), and a power of 0.8, while detecting a 10% decrease of discontinuation rates. A similar sample size will be utilized for future comparison studies.

d. Data collection:

USAID Health Service Delivery designed electronic enrollment and follow-up forms using CSPro software. The developed forms had all necessary skips and validation rules with zero probability of having user missing fields. The collected data based on enrollment forms served as look-up files for the six follow-up forms based on a unique identifier. A special calendar was designed to facilitate scheduling of follow-up calls. The enrollment form collected data on type of contraceptive method adopted, date of obtaining the method and selected demographic as well as reproductive variables. Follow-up forms included data on status of use (still using, discontinued or lost to follow-up) and in the case of discontinuation, the reasons for abandoning the used method, date of discontinuation, whether a woman has switched to another method or not, and, in cases of switching, recording the new method. Trained midwives who provide the contraceptive methods at selected facilities collected both enrollment and follow-up data electronically using tablets with automatic synchronization of the collected data to a secure FTP server located at MOH IT department. The USAID Health Service Delivery provided the tablets, FTP server, and trained the selected midwives.

The USAID Health Service Delivery and the WCHD supervised and monitored the implementation of the study. The USAID Health Service Delivery Monitoring, Evaluation, and Learning team regularly checked the quality and completion of collected data and provided timely feedback to data collectors and their supervisors. Meetings with midwives (data collectors) and joint field visits were regularly carried out to discuss issues related to data quality as well as the timely data collection for follow-up.

e. Calculation of discontinuation rates

Discontinuation rates were calculated applying the principles of survival analysis which requires that all precautions be taken to keep enrolled women under observation. Thus, a selected woman has been under observation from the moment of receiving a method until she discontinued, became inaccessible to the study team or the study ends. The status of a woman was considered a "relapse" ("failure") if she discontinued using a method, while a woman's status is considered "censored" if she is lost to follow up after at least one valid follow-up or continued using till the sixth follow-up. "Censored" cases are labeled as it is impossible to know when a woman exactly discontinues using a method. The status of a woman who is lost to follow-up, but becomes accessible later was corrected. Women who gave wrong phone numbers, never answered the phone or wanted to withdraw from the study were removed from the study at the end of 12-month period.

Duration in months from the enrollment until either relapsing or censoring took place was calculated based on collected dates. Kaplan-Meier survival analysis was used to estimate the probability of discontinuation for each contraceptive method by month. To enable calculation of discontinuation rates by reason of discontinuation, the cumulative incidence in presence of competing risks was used. Mutually exclusive categories of

reasons for discontinuation constitute the competing risks for discontinuations (failures). To identify possible risk factors based on collected demographic and reproductive variables, Cox proportional hazards regression model was used. The Stata statistical package was used for data cleaning and analysis.

f. Reasons and types of discontinuation

The reasons for discontinuation can be grouped in different ways to enable analysis to focus on specific reasons. The grouping of reasons for discontinuation can be performed for 2-7 categories.

Figure 1 below summarizes the concept of reasons and types of reasons for discontinuation based on the actions taken by women/couples[2]. Analysis was conducted using the following steps:

Step one: Discontinuation rates by method and reason are calculated applying the standard DHS report format with the following categories that include switching:

1. Became pregnant while using (failure)
2. Desired pregnancy
3. Other fertility related
   a. Infrequent sex/husband away
   b. Difficult to get pregnant/ menopause
4. Marital dissolution
5. Health concerns or side effects
6. Method-related
   a. Method inconvenient to use
   b. Costs too much
   c. Wanted a more effective method
7. Other reasons

Step two: Discontinuation by method and type of reason for discontinuation. Types are obtained by modifying the standard DHS reasons to include one category of method failure and one category combing the four reasons of reduced or not in need for contraception, while combining the rest of the reasons in a category of "in need for contraception". Finally, switching has two categories; one to more and another to less effective method.

1. Became pregnant while using (failure)
2. Reduced or not in need for contraception (excluding switching)
   a. Wanted to become pregnant
   b. Infrequent sex/husband away
   c. Marital dissolution/separation
   d. Difficult to get pregnant/menopausal
3. In-need for contraception (excluding switching)
   a. Health concerns or side effects
   b. Wanted a more effective method

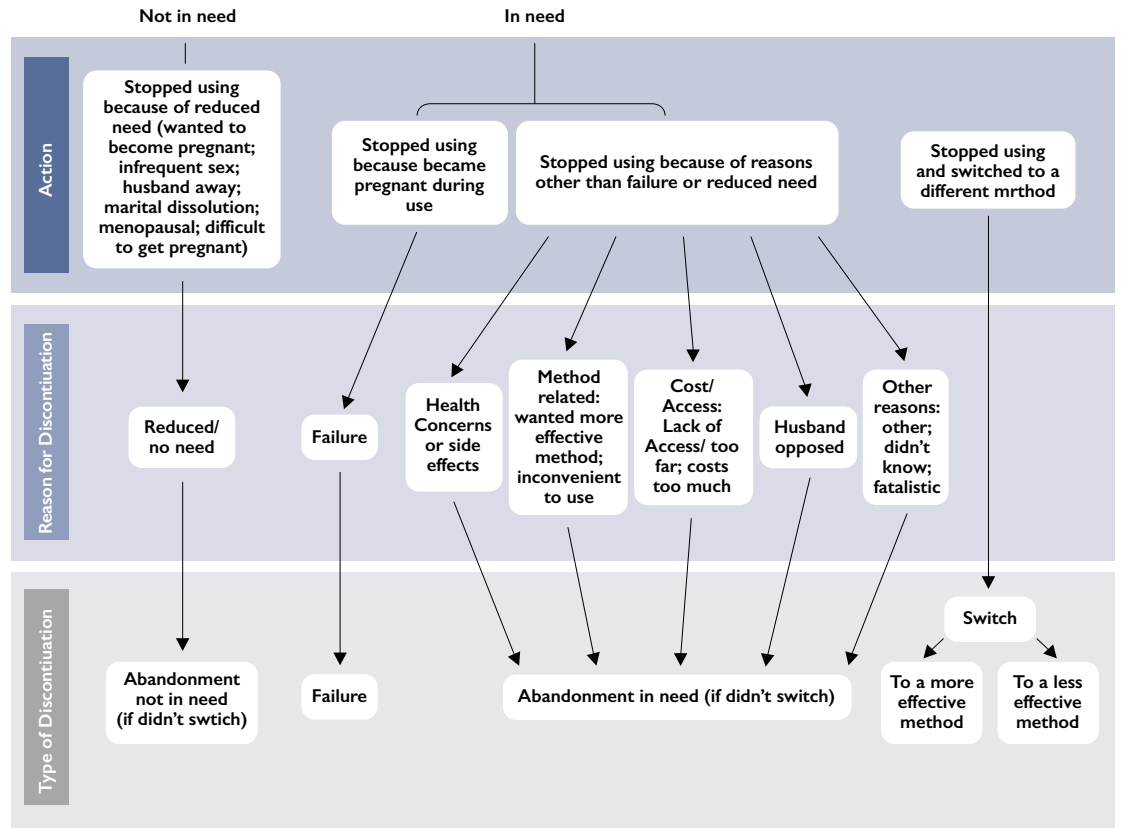
2- Bradley, S.E.K., Schwandt, H.M. and Khan, S. 2009. Levels, Trends, and Reasons for Contraceptive Discontinuation. DHS Analytical Studies No. 20. Calverton, Maryland, USA: ICF Macro. Available at http://pdf.usaid.gov/pdf_docs/Pnadq639.pdf

c. Method inconvenient to use
d. Lack of access/too far
e. Costs too much
f. Husband opposed
g. Other reasons

4. Switched from more effective to less effective method

5. Switched from less effective to more effective method

Figure 1: Reasons and types of discontinuation



The following rank of contraceptive methods effectiveness was used to define switching to more or less effective method[3]:

1. Sterilization.
2. Implant.
3. IUD.
4. Injectable.
5. COCs.
6. LAM if preceded by a birth and used for six months or less.
7. Male condoms.
8. Female condoms.
9. Diaphragm.
10. Spermicides.
11. Withdrawal.
12. Periodic abstinence.
13. Other traditional methods and LAM if used for 7+ months.

3- WHO, 2007; UNDP, 2004; Hatcher et al., 2003

RESPONDENTS' BACKGROUND CHARACTERISTICS

Demographic Variables

Table 1 shows that over four-month period a total of 2,514 women who started using a modern contraceptive method were enrolled in the study. IUDs, condoms and COCs constituted over three fourths (77%) of the used methods, while injectables and implants were used at lower rates. The distribution by health directorate was dictated by the number and size of participating facilities. The 11 health directorates represent 10 governorates as Ramtha is in Irbid governorate.

Table 1: Percent distribution of contraceptive methods by health directorate

Health Directorate	Contraceptive Method						Total Number (Percent)
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Amman	22.3	23.1	29.8	11.7	13.1	100	846 (33.7)
Zarqa	26.2	24.3	28.7	11.8	9.0	100	321 (12.8)
Balqa	23.8	18.9	27.1	10.7	19.7	100	122 (4.9)
Madaba	36.9	29.2	10.8	0.0	23.1	100	65 (2.6)
Irbid	23.9	27.8	29.4	4.4	14.6	100	364 (14.5)
Ramtha	29.5	20.5	27.1	13.9	9.0	100	122 (4.9)
Jarash	26.8	19.5	26.8	0.0	26.8	100	41 (1.6)
Ajloun	27.9	39.7	22.1	5.9	4.4	100	68 (2.7)
Mafraq	27.8	25.7	24.1	10.7	11.8	100	187 (7.4)
Karak	26.3	26.3	22.7	17.2	7.6	100	198 (7.9)
Aqaba	27.8	27.8	20.0	11.1	13.3	100	180 (7.2)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**

Table 2 demonstrates the distribution of methods by age where the mean age of using each of the five methods was around 31 years. The youngest woman was 16 and the eldest was 49 years old. Women belonging to the youngest age group were preferring COCs over other methods, while women in the eldest age group were favoring condoms. Otherwise, there was no clear consistent preference for a certain contraceptive method by age group.

Table 2: Percent distribution of contraceptive methods by age groups							
Age Group	Contraceptive Method						Total Number (Percent)
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
15-19	34.3	19.4	22.4	17.9	6.0	100	67 (2.7)
20-24	24.6	25.7	27.6	10.9	11.2	100	439 (17.5)
25-29	22.6	24.1	30.4	10.7	12.3	100	652 (25.9)
30-34	28.0	22.5	25.2	10.4	13.9	100	604 (24)
35-39	28.0	23.1	26.0	8.7	14.2	100	450 (17.9)
40-44	22.4	29.9	24.8	10.8	12.2	100	214 (8.5)
45-49	13.6	44.3	22.7	6.8	12.5	100	88 (3.5)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**
Mean Age	30.6	31.5	30.5	30.2	31.3	*30.8	2,514

*Min-Max age was 16-49 and median of 30 years**

Table 3 presents the distribution of contraceptive methods by nationality. Jordanian women constituted the majority of the sample at about 93% followed by Syrian women at about 6%. Compared to Jordanian women, Syrian women favored COCs at about 37% and injectables at about 21% and used less IUDs, condoms and implants at about 19%, 17% and 7%, respectively.

Table 3: Percent distribution of contraceptive methods by nationality							
Nationality	Contraceptive Method						Total Number (Percent)
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Jordanian	24.4	25.7	27.4	10.6	11.9	100	2,327 (92.6)
Syrian	37.2	16.6	18.6	6.9	20.7	100	145 (5.8)
Other	28.6	7.1	26.2	11.9	26.2	100	42 (1.8)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**

Table 4 shows that only about 1% of women and their husbands were illiterate. The mean years of women's education was close to husbands' years of education at 12 and 11.5, respectively. The small 0.5 year difference in favor of women was statistically significant (p-value<0.0005). Women with lower level of education (primary or less) seemed to favor hormonal methods (COCs, implants and injectables) in contrast to women with higher education who favored non-hormonal methods. There was no other consistent pattern linking the level of education of women to the chosen contraceptive method.

Table 4: Percent distribution of contraceptive methods by educational level							
Educational Level	Contraceptive Method						Total Number (Percent)
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Woman							
Illiterate	32.4	5.9	17.7	14.7	29.4	100	34 (1.4)

Table 4: Percent distribution of contraceptive methods by educational level							
Educational Level	**Contraceptive Method**						**Total Number (Percent)**
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Primary	29.4	18.3	22.9	13.2	16.2	100	568 (22.6)
Incomplete Secondary	23.6	19.7	32.4	11.9	12.4	100	386 (15.4)
Complete Secondary	24.7	25.4	25.5	9.0	15.4	100	611 (24.3)
College	24.8	30.8	24.8	8.7	10.9	100	322 (12.8)
University	22.6	32.1	30.0	9.1	6.2	100	561 (22.3)
Higher	18.8	31.3	34.4	3.1	12.5	100	32 (1.3)
Mean Years of Schooling	11.8	12.6	12.2	12.4	10.9	12.0	2,514
Husband							
Illiterate	29.6	7.4	18.5	29.6	14.8	100	27 (1.1)
Primary	26.9	18.2	24.0	13.7	17.2	100	670 (26.7)
Incomplete Secondary	27.2	23.2	28.9	9.6	11.2	100	419 (16.7)
Complete Secondary	27.6	26.7	24.4	9.4	11.8	100	720 (28.6)
College	19.2	31.6	31.1	6.2	11.9	100	193 (7.7)
University	20.5	31.5	30.6	8.7	8.7	100	435 (17.3)
Higher	12.0	30.0	40.0	6.0	12.0	100	50 (2)
Mean Years of Schooling	11.2	12.2	11.9	10.7	10.7	11.5	2,514
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**

Table 5 shows that the majority of enrolled women (83.3%) were not working and only about 14% were full time employed.

Table 5: Percent distribution of contraceptive methods by employment							
Employment	**Contraceptive Method**						**Total Number (Percent)**
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Full-time employed	23.5	31.4	25.8	8.2	11.1	100	341 (13.6)
Part-time employed	28.4	14.9	37.8	4.1	14.9	100	74 (2.9)
Retired	0.0	60.0	40.0	0.0	0.0	100	5 (0.2)
Not working	25.4	24.1	26.7	11.0	12.9	100	2,094 (83.3)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**

Table 6 shows that the average reported monthly family income was about 472 JD with a minimum of 20 and a maximum of 4,000. A total of 241 respondents reported that

they did not know the monthly family income. The missing cases were imputed applying predictive mean matching with woman's and husband's education as independent variables. The richest favored condoms, while the poorest chose COCs as the leading method.

Table 6: Percent distribution of contraceptive methods by income quintiles							
Income Quintiles	**Contraceptive Method**						**Total Number (Percent)**
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Lowest	27.2	20.5	24.9	12.0	15.4	100	707 (28.1)
Second	28.8	23.4	25.4	10.7	11.7	100	299 (11.9)
Middle	26.2	25.0	27.4	9.8	11.6	100	525 (23.8)
Fourth	24.7	25.4	28.8	8.9	12.3	100	473 (18.8)
Highest	18.6	32.3	28.4	10.0	10.7	100	440 (17.5)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**
Mean income	435.4	501.8	493.7	464.5	447.0	472.1*	2,514

Reproductive Variables

Table 7 shows that the average number of children was 3.3 children with 1.7 for males compared to 1.6 for females. The minimum number of children was 0 and the maximum was 12. The majority of women (about 43%) were having three to four children followed by those having less than three children (about 36%). Women with five and more children used implants and injectables more than other groups.

Table 7: Percent distribution of contraceptive methods by total number of alive children							
Number of Children	**Contraceptive Method**						**Total Number (Percent)**
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Less than 3	27.8	28.7	25.2	10.0	8.3	100	900 (35.8)
3-4 Children	25.3	22.4	29.2	9.9	13.2	100	1,074 (42.7)
5 and Above	20.6	23.7	25.0	12.0	18.7	100	540 (21.5)
Total	**25.18**	**24.9**	**26.89**	**10.38**	**12.65**	**100**	**2,514 (100)**
Mean # of children	3.1	3.1	3.4	3.5	3.8	3.3*	2,514
Mean # of males	1.6	1.6	1.8	1.9	1.9	1.7	2,514
Mean # of females	1.5	1.5	1.6	1.6	1.9	1.6	2,514

**Min-Max 0-12*

Table 8 demonstrates that the average number of ideal (desired) number of children is around four ranging from zero to 10 children. Only about 14% reported less than three children as an ideal number, while about one fourth (23.8%) reported five or more

children as the ideal number. The current total number of living children is already more than the desired number in about 12% of women (not shown in the table).

Table 8: Percent distribution of contraceptive methods by ideal number of children

Ideal Number of Children	Contraceptive Method						Total Number (Percent)
	COCs	*Cond*	*IUD*	*Imp*	*Inj*	*Total*	
Less than 3	27.7	18.0	27.7	11.8	14.8	100	339 (13.5)
3-4 Children	25.9	25.6	27.1	9.9	11.5	100	1518 (60.4)
5 and Above	21.4	26.5	25.8	11.6	14.7	100	597 (23.8)
Don't Know	30.0	30.0	26.7	3.3	10.0	100	60 (2.4)
Total	**25.2**	**24.9**	**26.9**	**10.4**	**12.7**	**100**	**2,514 (100)**
Mean Ideal Number of Children	3.8	4.0	3.8	3.9	4.0	3.9*	2,454

Table 9 demonstrates the husband's agreement with woman's ideal number of children as reported by the woman. The majority of husbands (68.9%) were in agreement of their spouses about the ideal number of children and almost one quarter of husbands desired more children than their spouses.

Table 9: Husband's agreement with woman's ideal number of children

Husband's Agreement	Number	Percent
Same Number of Children	1,731	68.9
More Children	613	24.4
Fewer Children	113	4.5
Don't Know	57	2.3
Total	**2,514**	**100**

Table 10 shows that about three quarters of enrolled women were using the contraceptive method for spacing purposes, while the rest for limiting. Over 90% of women using the method for spacing stated the intention to use the method for two years or more, while the rest reported using the selected method for less than two years (Table 11). While the most effective methods; IUDs, implants and injectables were the most commonly used by limiters, there is still a good proportion of women (23.3%) who wanted to stop childbearing who depended on use of condoms.

Table 10: Percent distribution of contraceptive intent by method

Method Used	Contraceptive Intent			Number of Cases
	Spacing	Limiting	Total	
COCs	79.2	20.9	100	633
Condom	76.7	23.3	100	626

Table 10: Percent distribution of contraceptive intent by method				
Method Used	**Contraceptive Intent**			**Number of Cases**
	Spacing	Limiting	Total	
IUD	73.7	26.3	100	676
Implant	67.4	32.6	100	261
Injectables	65.4	34.6	100	318
Total	**74.1**	**25.9**	**100**	**2,514**

Table 11: Distribution of duration of spacing		
Intended Duration of Spacing	**Number**	**Percent**
Less than 2 years	182	9.8
Two years and above	1,681	90.2
Total	**1,863**	**100**

DISCONTINUATION RATES

Out of the 2,514 enrolled women, only 2,397 were valid for analysis, out of which 676 women discontinued the used method within 12 month period. Most of the invalid cases were related to giving wrong phone numbers and not responding to phone calls during the first follow-up and subsequent follow-ups.

Discontinuation Rates by Method

Figure 2 presents the estimates of the overall discontinuation rate for the five methods by month using the Kaplan Meier failure estimates. The estimated probability of abandoning a method increased over time starting at about 3% after the first month and reaching about 29% after 12 months. The most critical period in abandoning a method is the first six months of use. By that time the discontinuation reaches about 21%, while at the end of the subsequent six months the discontinuation increases by less than eight percentage points.

Figure 2: Kaplan Meier failure (discontinuation) estimates for all methods by month

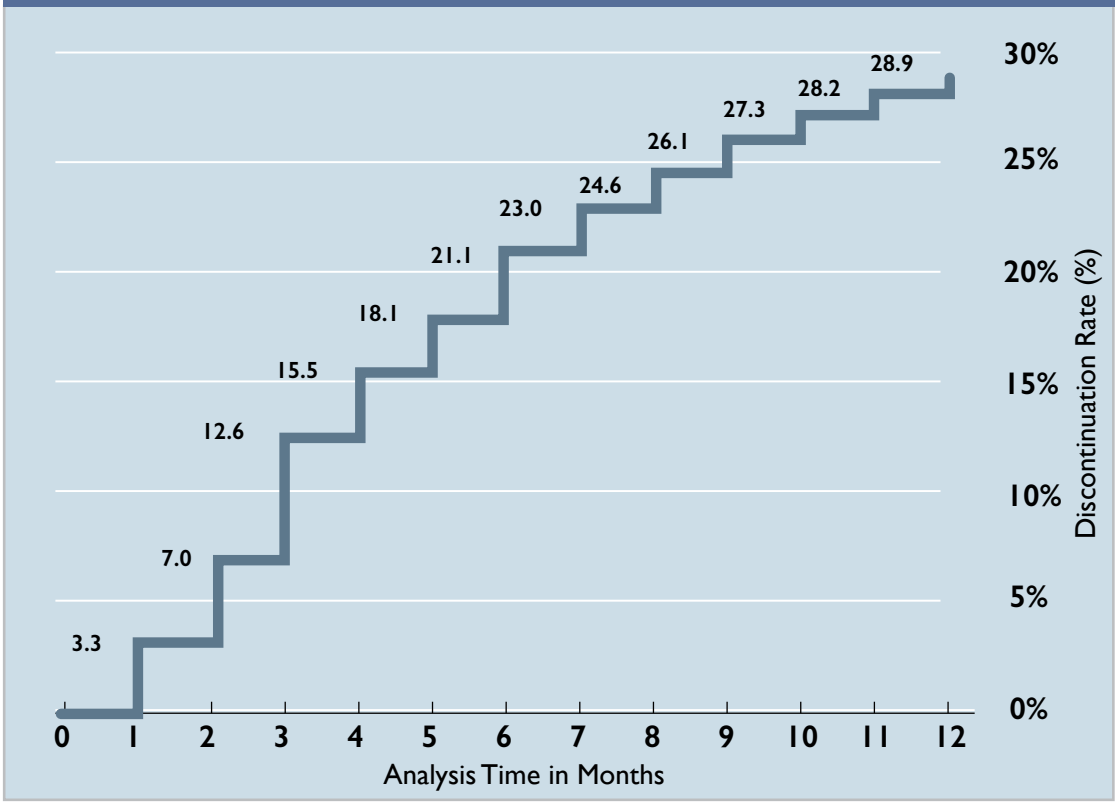
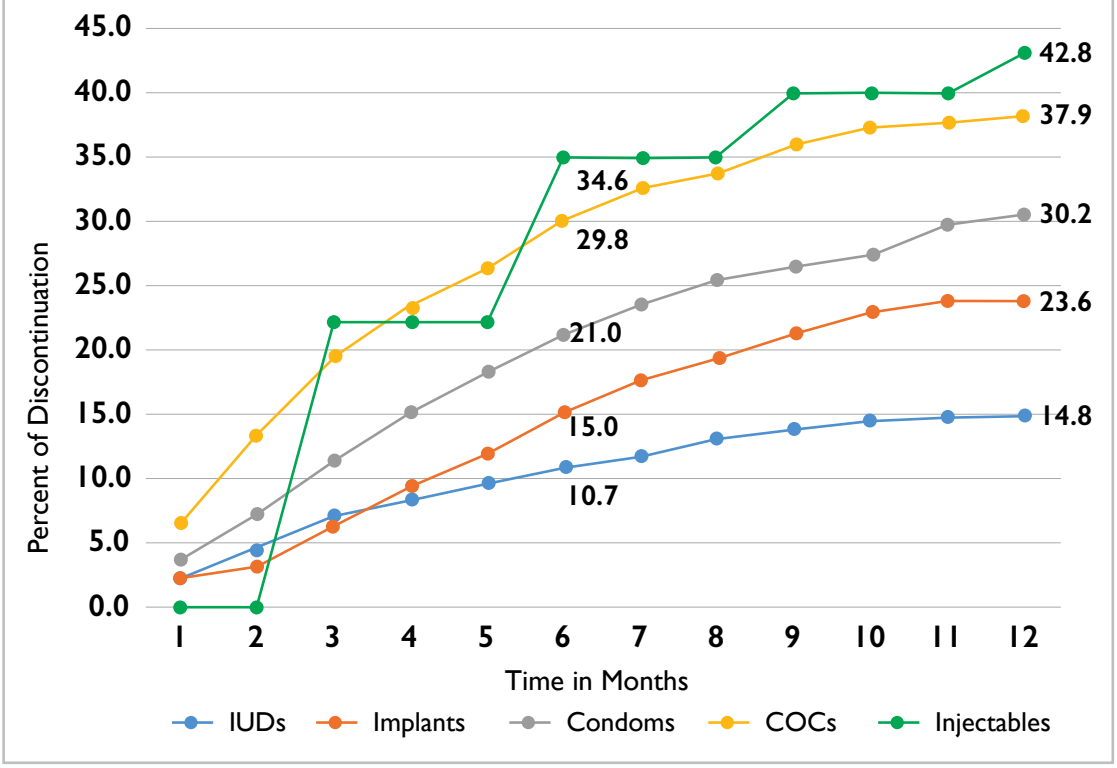


Figure 3 summarizes the Kaplan Meier estimates of discontinuation by method. The 12-month discontinuation rates were the lowest for IUDs (14.8%) followed by implants (23.6%), condoms (30.2%), COCs (37.9%) and injectables (42.8%). Almost all methods showed a steep increase in the discontinuation rates over the first six to seven months compared to the remaining months. Discontinuation rates for IUDs plateau for the last four months of the study.

Figure 3: Kaplan Meier failure (discontinuation) estimates by method



Discontinuation Rates by Reason and Method

This section uses the cumulative incidence in the presence of reasons of discontinuation as competing risks. Table 12 presents the 12-month discontinuation rates for each method by seven categories of reasons. Switching is calculated separately. In other words the seven categories were considered as competing risks for discontinuation irrespective of switching to other method.

The totals of the12-month discontinuation rates by method are the same as those reported by Kaplan Meier approach above with overall rate of 28.9%. Injectables have the highest rate (42.8%) followed by COCs (37.9%), male condoms (30.2%), implanon (23.6%) and IUDs (14.8%).

Health related reasons and side effects dominated the reasons for discontinuation at 13.3%. This category of reasons was the highest among users of hormonal methods; injectables (27.7%), implants (19.5%) and COCs (18.7%) compared to IUDs (8.6%) and condoms (2.7%).

Desire for pregnancy came next at 6.1% and was more common among users of COCs, injectables and condoms (9.7%, 6.5% and 9.8%, respectively). IUDs and implants had the lowest rates of desiring pregnancy at 1.5% and 0.9% respectively.

About three percent of women discontinued the method because they wanted to switch to a more effective method. Method failure (became pregnant while using) was low at 1.5%, because all the methods used are modern methods. Users of injectables and implants had no method failure, while the highest prevalence was among COC users (1.9%). The discontinuation due to other method-related reasons was 2.5%.

A considerable proportion of women who discontinued switched to another method (11.7%); this constitutes over 40% of the total discontinuations.

Table 12: Distribution of 12-month discontinuation rates of contraceptive methods by DHS reasons*

Reasons for Discontinuation	Contraceptive Method					Total
	COCs	*IUD*	*Injectables*	*Male condom*	*Implant*	
Method Failure	1.9	1.4	0.0	2.6	0.0	1.5
Desires pregnancy	9.7	1.5	6.5	9.8	0.9	6.1
Other fertility-related**	1.2	1.0	1.0	2.0	0.4	1.2
Health/side effects	18.7	8.6	27.7	2.7	19.5	13.3
Other method related***	2.4	1.6	4.8	2.6	2.5	2.5
Wanted more effective method	3.1	0.2	2.5	7.4	0.0	2.9
Other Reasons	0.9	0.6	0.4	3.2	0.4	1.3
Total	**37.9**	**14.8**	**42.8**	**30.2**	**23.6**	**28.9**
Switching	12.9	5.7	19.3	12.3	13.8	11.7
Total Number of Cases	**603**	**649**	**305**	**587**	**253**	**2,397**

** Annex 2 presents the 95 percent lower and upper confidence limits.*

***Includes infrequent sex/husband away, difficult to get pregnant/menopausal, and marital dissolution/separation.*

****Includes access/availability, cost and inconvenient to use.*

Discontinuation Rates by Type of Reasons and Method

Table 13 calculates the discontinuation rates differently as depicted in Figure 1, where switching is included as a competing risk. Five categories of competing risks were identified. Method failure is a standalone category of competing risks. Women who abandoned (discontinued) a method and were not in need include those who discontinued because of a desire for pregnancy and other fertility related reasons, excluding those who switched to another method. The third category of competing risks combines women who discontinued a method due to health reasons, side effects, wanting more effective method, other method-related reasons and other reasons with exclusion of those who switched to another method. This third category is labeled as women who abandoned a method while they were still considered as in need for Family Planning (FP). The fourth and fifth categories include women who switched from a less effective to a more effective method and those who switched from a more effective to a less effective method, respectively. Switching to less effective methods includes switching to other traditional methods and is not limited to switching to another modern contraceptive.

Out of the total 12-month discontinuation rate at 28.9%, abandoning while in need was 7.8%, while abandoning a method while not in need was very close at 7.9%. Switching to a less effective method was more common (6.9%) compared to switching to a more effective method (4.8%).

Table 13: Distribution of 12-month discontinuation rates of contraceptive methods by types

Reasons for Discontinuation	Contraceptive Method					Total
	COCs	*IUD*	*Injectables*	*Male condom*	*Implant*	
Failure	1.9	1.4		2.6		1.5
Abandon in reduced or not in need	11.6	2.9	7.5	12.7	1.7	7.9
Abandon in need	11.5	4.8	16.1	2.7	8.2	7.8
Switched to more effective method	6.4		5.5	10.5		4.8
Switched to less effective method	6.5	5.7	13.7	1.8	13.8	6.9
Total	**37.9**	**14.8**	**42.8**	**30.2**	**23.6**	**28.9**
Total Number	**603**	**649**	**305**	**587**	**253**	**2,397**

Table 14 collapses the findings in table 13 into two categories; namely discontinuation rates of programmatic and non-programmatic importance. Reasons for discontinuation that are of programmatic importance include method failure, abandoning a method while in need, and switching from more to less effective methods. Reasons of non-programmatic importance include the category of abandoning a method while not in need and switching to more effective method.

Out of the total 12-month discontinuation rate at 28.9%, only 16.1% relates to reasons of programmatic importance. Hormonal methods dominated the reasons of programmatic importance with injectables (29.8%) followed by implant (21.9%) and COCs (19.9%). Discontinuations due to reasons of programmatic importance will serve as the baseline to evaluate the effectiveness of future interventions to reduce discontinuation rates, as the reasons of programmatic importance are those that MOH and USAID Health Service Delivery can reasonably influence through their work.

Table 14: Distribution of 12-month discontinuation rates of contraceptive methods according to reasons of programmatic importance

Reasons for Discontinuation	Contraceptive Method					Total
	COCs	*IUD*	*Injectables*	*Male condom*	*Implant*	
Discontinuation of low or no programmatic importance	18.0	2.9	13.0	23.1	1.7	12.7
Discontinuation of programmatic importance	19.9	11.9	29.8	7.1	21.9	16.2
Total	**37.9**	**14.8**	**42.8**	**30.2**	**23.6**	**28.9**
Total Number of Cases	**603**	**649**	**305**	**587**	**253**	**2,397**

Reasons for Discontinuing Contraception and Switching

Table 15 provides information about the reasons cited by women as the main cause of stopping using a method. The reason given most frequently for discontinuation was the side effects (39.1%), followed by desire for pregnancy (20.7%), desire to have more effective method (9.9%) and inconvenient use (8.3%). Health conditions were cited among 7.1% of women followed by husband's disapproval (4.7%) and husband away (3.3%). The rest of the cited reasons were less than 1% each.

Table 15: Percent distribution of the main reason stated for discontinuation

Reasons for Discontinuation	Number	Percent
Side effects	264	39.1
Want to become pregnant	140	20.7
Wanted more effective method	67	9.9
Inconvenient use	56	8.3
Health conditions	48	7.1
Became pregnant while using	35	5.2
Husband's disapproval	32	4.7
Husband away	22	3.3

Table 15: Percent distribution of the main reason stated for discontinuation		
Reasons for Discontinuation	**Number**	**Percent**
Marital dissolution/separation	5	0.7
Access /availability	3	0.4
Other reasons for discontinuation	2	0.3
Infrequent sex	1	0.2
Cost	1	0.2
Total	**676**	**100**

Contraceptive discontinuation and switching behavior are closely related. Table 16 provides information about the switching behavior of women who discontinued a method. About 54% of those who discontinued a method for other reasons than method failure and desire for pregnancy switched to another method, where about 42% switched to more effective and 58% switched to less effective method. About 16% of the latter group switched to traditional methods. All of the women who stopped using a method because they were looking for a more effective method switched to another method with the vast majority (94%) switching to a more effective method. In contrast, only less than 10% of those who discontinued a method due to side effects switched to a more effective method, about 43% switched to a less effective method, and almost 48% did not switch immediately to another method and hence became exposed to the risk of unwanted pregnancy.

Table 16: Percent distribution of switching to another method		
Variable	**Number**	**Percent**
Switching to another method		
Yes	273	54.5
No	228	45.5
Total	501*	100
Type of Switching		
To more effective method	114	41.8
To less effective method	159**	58.2
Total	273	100
Switching for wanted more effective method		
Yes, more effective method	63	94.0
Yes, less effective method	4	6.0
Total	67	100
Switching for side effects		
Yes, more effective method	25	9.5
Yes, less effective method	113	42.8
No	126	47.7
Total	264	100

** The total excludes method failure and wanted to become pregnant.*
*** 25 women switched to traditional methods.*

COX PROPORTIONAL HAZARDS ANALYSIS

Univariate Analysis

The Cox proportional-hazards model is essentially a regression model that was used in this document for investigating the association between the time of discontinuation and one (univariate) or more (multivariate) predictor variables.[4]

Table 17 provides information on hazard ratios and associated statistical significance as well as the probability of meeting the proportional hazards assumptions. The p-value for hazards ratio tests if the hazard ratio is 1, while the p value for proportional hazards assumptions tests if proportional hazards are violated.

Relative to age group 15-24 years, the other two age groups show lower hazards of discontinuing using a contraceptive method (0.90 and 0.81). Lower hazards for age groups 25-34 and 35-49 were statistically insignificant, yet the p value for the 19% smaller hazard in the age group 35-49 relative to the base age group was at the margin of significance (0.06).

Syrian women had almost double the hazard (1.96) of discontinuing a method than Jordanian women. This large increase in hazard among Syrian women was of high statistical significance (p-value <0.0001).

The 10 governorates were divided into two categories; the governorates of Amman, Irbid and Zarqa were classified as governorates with high population size, while the rest were grouped as governorates of lower population size. The hazard of discontinuation is 36% larger in lower population governorates compared to higher population governorates. The difference was statistically significant with p value being <0.0001.

The hazard of discontinuation among women with 12 years of schooling and more is 43% less than women with less than six years of schooling. This decreased risk of discontinuation was statistically significant (p-value=0.001). Women with 6-11 years of schooling have 26% less hazard of discontinuation relative to the first group. This difference is not significant (0.072). Husband's education poses no significant hazard for discontinuation and thus does not constitute a risk factor.

4- In order to get no violation of the proportional hazards assumptions, the regression residuals after fitting the Cox model should have slope zero when plotted against functions of time. The null hypothesis that the slope is equal to zero for each independent variable in the model is tested, and if the p value is <0.05 the null hypothesis is rejected indicating violation of proportional hazards. In contrast if the p value is more than 0.05 then the null hypothesis is accepted indicating no violations of the proportional hazard.

Relative to employed women, unemployed women had 24% higher hazard of discontinuation. This difference between the two groups is barely statistically significant (p-value=0.056).

The income quintiles had no effect on the hazard of discontinuation with all quantiles being very similar and not showing statistical significance. This might have happened because the family monthly income was self-reported and adding lengthy set of assets questions was beyond the scope of this study.

The hazard of discontinuation was almost identical among women having less than three living children and those with five children and more (p-value=0.875). Women with 3-4 children have 24% lower hazard of discontinuing a method than the other two groups. This decreased risk was statistically significant (p-value=0.002) relative to the first group.

Fitting the model with the ideal number of children as a continuous covariate had no effect on hazards of discontinuation with p-value=0.297 (Not shown in the table). Relative to women who desire and ideal number of children of four or less, the women with five and more children have a 22% increased hazard of discontinuation with statistical significance (p-value=0.026).

Relative to women who used the contraceptive method for spacing, women who used the method because they do not want any more children have a 16% lower hazard of discontinuation. This decreased risk of discontinuation among limiters was barely not statistically significant (p-value=0.054).

Variables that do not fulfill the proportional hazards assumption in univariate analysis are:

- Age groups (p-value=0.036)
- Population size ((p-value=0.015)
- Husband's education ((p-value=0.030)
- Income quintiles ((p-value=0.007)

All the above variables were not subjected to the extended cox proportional hazards and were removed from the multivariate analysis.

Table 17: Distribution of hazard ratios by individual background variables

Variable	Hazard Ratio	p value for Hazard	p value for proportional-hazards assumption
Age Groups			0.036
15-24	1 (base)		
25-34	0.90	0.31	
35-49	0.81	0.06	

Table 17: Distribution of hazard ratios by individual background variables			
Variable	**Hazard Ratio**	**p value for Hazard**	**p value for proportional-hazards assumption**
Nationality			0.135
Jordanian	1 (base)		
Syrian	1.96	<0.0001	
Others	1.37	0.27	
Population Size			0.015
Governorates with large population	1 (base)		
Governorates with small population	1.36	<0.0001	
Woman's Education			0.496
Less than 6 years of schooling	1 (base)		
6-11 years of schooling	0.74	0.072	
12 and more years of schooling	0.57	0.001	
Husband's Education			0.030
Less than 6 years of schooling	1 (base)		
6-11 years of schooling	1.0	0.84	
12 and more years of schooling	0.78	0.14	
Employment			0.682
Yes	1 (base)		
No	1.24	0.056	
Income Quintiles			0.007
Lowest	1 (base)		
Second	1.00	0.997	
Middle	1.04	0.737	
Fourth	1.18	0.146	
Highest	1.15	0.234	
Number of living children			0.104
0-2 children	1 (base)		
3-4 children	0.76	0.002	
5+ children	0.98	0.875	
Ideal Number of Children			0.730
Less than 5 children	1 (base)		
5 children and more	1.22	0.026	
Contraceptive Intent			0.333
Spacing	1 (base)		
Limiting	0.84	0.054	

Multivariate Analysis

Nationality, woman's education, employment, number of living children, the ideal desired number of children and reason for using the method were fitted in multivariate Cox Proportional Hazards model (Table 18).

Nationality is a good predicator of discontinuation showing that Syrian women have 65% higher hazard of discontinuing a method compared to Jordanian women (p-value of <0.0001).

Women's educational level showed that women in the third group of 12 years and more of schooling have 34% lower hazards than women in the first age group (p-value=0.016) Yet the not employed women show 10% higher hazard than employed, the difference is statistically insignificant (p-value=0.0421).

Women having 3-4 children have 24% less hazard of discontinuing the used method than women with less than three children (p-value=0.004). Women who used the method to limit pregnancy have 11% less hazard than those who used the method for spacing pregnancy. The difference between the two groups was statistically not significant.

Table 18: Multivariate cox regression model: hazards ratio and significance level

Variable	Hazard Ratio	p value for Hazard
Nationality		
Jordanian	1 (base)	
Syrian	1.65	<0.0001
Others	1.14	0.672
Woman's Education		
Less than 6 years of schooling	1 (base)	
6-11 years of schooling	0.79	0.167
12 and more years of schooling	0.66	0.016
Employment		
Yes	1 (base)	
No	1.10	0.421
Number of living children		
0-2 children	1 (base)	
3-4 children	0.76	0.004
5+ children	0.80	0.112
Ideal Number of Children		
Less than 5 children	1 (base)	
5 children and more	1.24	0.053
Contraceptive Intent		
Spacing	1 (base)	
Limiting	0.89	0.287

CONCLUSIONS AND RECOMMENDATIONS

Contraceptive discontinuation data is rarely collected outside DHS and similar studies are rare. The midwives working at Maternal and Child Health (MCH) clinics at participating health centers are too busy to accommodate additional workload. Accordingly, the data collection tools were designed to be simple and short to get the minimal data required for calculation of discontinuation rates. Nevertheless, the enrollment process and subsequent follow-ups proved to be cumbersome and time consuming. Moreover, supervision and quality checks performed by WCHD and USAID Health Service Delivery staff were significant. Thus, for future studies, fewer follow-up visits are recommended.

About 93% of women in the study were planning to use the method for at least two years, while after one year about 29% discontinued the method. The quality and comprehensiveness of family planning services and to a lesser degree, the client adherence are likely to be the main factors leading to early discontinuation. Improving the training of family planning providers remains a major goal to ensure that providers effectively assist women to use a contraceptive method that fits their needs. Comprehensive and balanced counseling and complete information about switching should be a standard practice taking into consideration adequate time for counseling. Training programs for providers should give high priority to interpersonal communication skills that might play a role in early discontinuation.

A significant proportion of women who cited method-related reasons for discontinuation have stopped because of health reasons/side effects (13.3%) constituting about 46% of the overall 12-month discontinuation rate (28.9%). The highest rates of side effects are for hormonal methods, i.e., injectables followed by the implants and COCs. Despite their high theoretical effectiveness, the effectiveness of hormonal methods in this study was diminished mainly due to women's intolerance of side effects. Poor understanding and acceptance of side effects is likely to be the main reason for discontinuation. If providers do not give women support not only to expect, but also to manage side effects, many of which are short-term, discontinuation or unnecessary/improper method switching may occur.

If women are not appropriately informed about possible side effects during counseling, they may become concerned and even frightened by unanticipated changes in their mood, menstruation patterns, or weight. Most side effects can be managed by simple interventions, while others simply require the woman to be given reassurance and correct information by her provider.[5] Whenever, the provider fails to give enough information about side effects, discontinuation, unnecessary or improper method switching might occur.

5- Sarah Castle and Ian Askew, 2015. Contraceptive Discontinuation: Reasons, Challenges, and Solutions. Pop Council publication.

Switching between methods is common (11.7%). Switching requires availability of and access to a sufficient method mix to provide the woman with a choice of alternatives along with quality counseling. Women must be able to continue protection against unintended pregnancy by starting use of a more acceptable and effective method immediately if they experience unavoidable problems. This study reveals that almost 60% of those who stopped using a contraceptive method and switched to other method, switched to less effective method. Women who discontinue a contraceptive method early due to side effects are expected to switch to another method. This study reveals that almost 48% of women who cited side effects as a reason for discontinuation did not switch and the majority of those who switched chose a less effective method. To facilitate adoption of another method, some key areas for improvement include elimination of method stock-outs, adequate method mix and trained human resources. In addition to initial counseling, providers and their supervisors should provide support at all levels. They need to focus efforts on identifying discontinuers due to reasons of programmatic importance and support proper switching. Supporting women who continue to use is another major task that could reduce early discontinuation. Based on feedback from midwives implementing the study, most women discontinued the method independently, without consulting the providers especially for COCs, condoms and injectables.

This study shows that women are most vulnerable to discontinuation during the first six months of use. Accordingly, clients should be encouraged to contact providers on regular basis during the first six months of starting using a method, especially if they have problems or concerns.

Special emphasis should be paid to certain vulnerable to discontinuation groups such as Syrian women and women with low educational levels.

Contraceptive use continuation, discontinuation, switching and method failure are important indicators of how a family planning program is meeting women's needs. As this study demonstrated, women were exposed to the risk of conception after discontinuation due to reasons of programmatic importance. This study provided the discontinuation rates by method and reason for discontinuation. To supplement the results of this study, the whole process and environment of counseling women on use of contraception should be evaluated to identify programmatic bottlenecks, therefore, provide guidance essential for improving services.

Annex 3 presents more details about programmatic recommendations. USAID Health Service Delivery will work with the WCHD to ensure the proper implementation of the proposed recommendations during FY19 and FY20. Finally, in order to evaluate the effectiveness of the proposed interventions, the study should be repeated in FY21. Through this process, of implementation and evaluation, Jordan may be able to make significant progress in reducing contraceptive discontinuation.

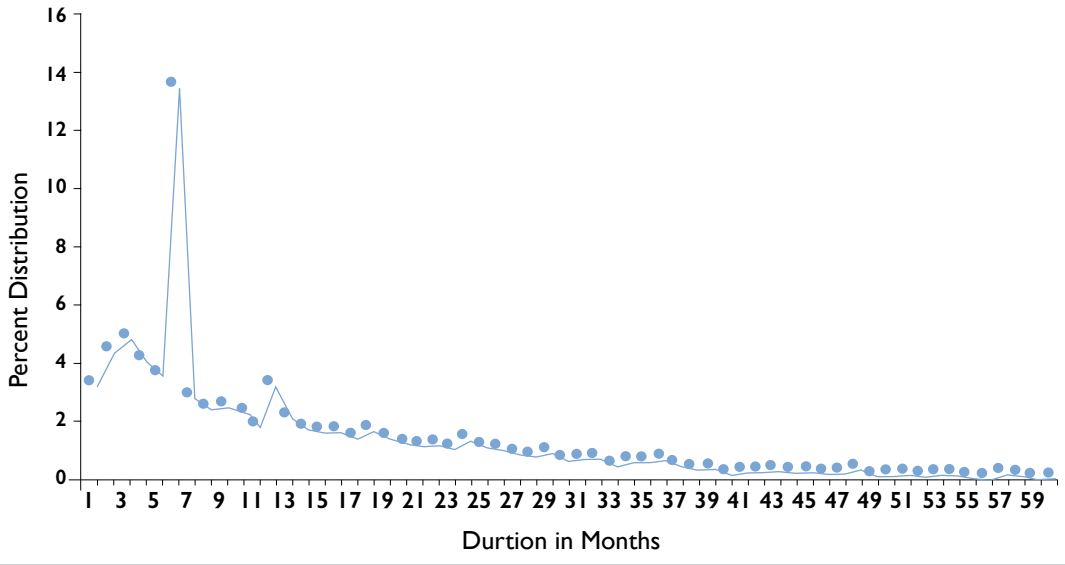
ANNEX 1: FURTHER ANALYSIS OF 2012 DHS

Table A: Consistency between 2012 calendar and current status 2007 data by method for currently married women

Method	DHS 2012 Actual CPR*	DHS Current Data based on 2007 CPR	Difference in percentage points
	Age group 20-49	Age group 15-44	
Not Using	56.2	42.4	13.8
COCs	7.2	9.1	-1.9
IUD	17.4	22.5	-5.2
Condom	3.8	5.7	-1.9
Withdrawal	8.3	11.2	-2.9
Periodic Abstinence	2.9	3.9	-1.1
Female Sterilization	1.4	2.5	-1.1
LAM	1.7	1.5	0.1
Injectables	0.5	0.7	-0.2
Norplant	0.0	0.1	0.0
Other	0.7	0.3	0.3

**Average CPR for June-October corresponding to the months of data collection for the 2007 survey.*

Figure A: Percent distribution of reported durations of episodes of contraceptive use in Jordan 2012 calendar



ANNEX 2: 95% CONFIDENCE INTERVALS

Table B: Distribution of 12-month discontinuation rates of contraceptive methods and 95 percent Confidence Interval (CI) by DHS reasons

Reasons	Contraceptive Method					Total (CI*)
	COCs	*IUD*	*Injectables*	*Male condom*	*Implant*	
Failure	1.9 (1-3.3)	1.4 (0.7-2.6)	0 (0-0)	2.6 (1.5-4.2)	0 (0-0)	1.5 (1.1-2)
Desires pregnancy	9.7 (7.4-12.3)	1.5 (0.7-2.7)	6.5 (4.1-9.7)	9.8 (7.4-12.4)	0.9 (0.2-2.8)	6.1 (5.2-7.1)
Other fertility related	1.2 (0.6-2.4)	1 (0.4-2)	1 (0.3-2.7)	2 (1.1-3.4)	0.4 (0-2.1)	1.2 (0.8-1.7)
Health/ side effects	18.7 (15.6-22)	8.6 (6.6-10.9)	27.7 (22.7-32.9)	2.7 (1.6-4.3)	19.5 (14.8-24.7)	13.3 (12-14.8)
Other method related	2.4 (1.4-3.9)	1.6 (0.8-2.8)	4.8 (2.7-7.6)	2.6 (1.5-4.1)	2.5 (1-5)	2.5 (2-3.2)
Wanted more effective method	3.1 (1.9-4.8)	0.2 (0-0.9)	2.5 (1.1-4.8)	7.4 (5.4-9.8)	0 (0-0)	2.9 (2.3-3.7)
Other Reasons	0.9 (0.3-1.9)	0.6 (0.2-1.5)	0.4 (0-2)	3.2 (2-5)	0.4 (0-2.1)	1.3 (0.9-1.8)
Total	37.9 (28.2-50.6)	14.8 (9.5-23.5)	42.8 (30.8-59.7)	30.2 (20.4-43.2)	23.6 (16-36.8)	28.9 (24.1-34.4)
Switching	12.9 (10.3-15.8)	5.7 (4.1-7.7)	19.2 (14.9-23.8)	12.3 (9.7-15.2)	13.8 (9.8-18.5)	11.7 (10.4-13.1)
Total Number	**603**	**649**	**305**	**587**	**253**	**2,397**

** Lower bound and upper bound 95 percent confidence limits.*

ANNEX 3: PROGRAMMATIC RESPONSE TO THE FAMILY PLANNING DISCONTINUATION STUDY RESULTS

I. Background

USAID Health Service Delivery features family planning as a key component of the integrated service delivery package that it supports. Using a continuum of care approach comprising of integrated Reproductive, Maternal, Neonatal and Child Healthcare services including nutrition, and identification of and counseling and referral for non-communicable diseases (NCDs) and gender-based violence (RMNCH+) . USAID Health Service Delivery maximizes opportunities from the household and community to the hospital levels to support family planning information and quality services at Ministry of Health primary health care health centers and hospitals, Royal Medical Services hospitals, NGO and private physician clinics. Key USAID Health Service Delivery family planning components along the continuum of care include support to the following:

- MOH health centers, NGO and private physician clinics, which provide family planning information, counseling and services including integration of family planning in antenatal, postnatal and preconception care through the integrated service delivery package. To a lesser degree MOH and RMS hospitals provide FP services at outpatient clinics.
- RMNCH+ Community Outreach household visits providing family planning one-on-one information and linkages to health services.
- Community engaegment activities promoting family planning in the community with linkages to health services.
- Hospital postpartum family planning counseling at obstetric wards.

USAID Health Service Delivery aims at expanding availability of and access to integrated RMNCH+ services. In the area of family planning, USAID Health Service Delivery accomplishments to date have included increasing the number of methods offered at service delivery points by supporting the MOH and NGOs in expanding IUD and Implant services, and actively supporting the policy of allowing hospital midwives to insert IUDs. In addition, the USAID Health Service Delivery has established a systematic approach in MOH health centers and NGO clinics, the client service station, which guides MCH clients to obtain additional services during their visit and frequently these services are family planning. The client service station has proven to be effective in delivering additional services during the same client visit.

USAID Health Service Delivery also aims at improving the quality of integrated RMNCH+ service provision through capacity building and facility-based supportive supervision. With its counterpart the Ministry of Health, the USAID Health Service Delivery team

has recently completed a Comprehensive Counseling Manual for Women and Child Health Services which fully integrates family planning as part of the integrated service delivery package. In addition, the USAID Health Service Delivery team has worked with the Ministry of Health to develop a MCH instruction booklet for MCH providers that standardizes services including family planning.

II. Discontinuation Study

USAID Health Service Delivery and WCHD completed a study of modern contraceptive discontinuation during the first year of use. This study provided information about discontinuation by method, user characteristics and reasons. The study followed 2,397 women adopting a modern contraceptive method over a 12-month period. Key findings include:

- Approximately one third of new users of modern methods discontinued the method within one year.
- A significant proportion of women who discontinued a method reported stopping because of health reasons/side effects.
- The highest rates of reported side effects were for hormonal methods, specifically injectables, implants and combined oral contraceptives.
- Switching between methods was common. However, the majority of those who changed methods, switched to a less effective method.
- Women were most likely to discontinue within the first six months.
- Syrian women and women with lower educational levels were significantly more likely to discontinue modern contraception.

In consideration of these findings, the USAID Service Delivery team in collaboration with MOH was challenged to design program responses to address discontinuation utilizing the study results. The following sections presents responses by component area.

III. Programmatic Strategies

Choice of contraceptive methods, information given to clients, technical competence, interpersonal relations, follow-up-continuity mechanisms, and appropriate constellation of services are the main determinants of quality of family planning services. The quality components of FP services are expected to impact not only the choice of appropriate method but also, the future behavior of the user in terms of continuation, discontinuation or switching. The improved quality of FP services coupled with reducing provider bias, ensuring adequate method mix and elimination of stock-outs are the core programmatic strategies to reduce early discontinuation.

In order to better understand the FP clients' needs, four specific profiles were identified in order to tailor programmatic interventions related to discontinuation. These were: new users, switchers, discontinuers and continuers.

A. New users

A new user is defined as a first time user of a modern contraceptive method or previous user who is not recently using a method (lapsed user). For new users, the objective is to provide method choice in consideration of reproductive intentions and the medical eligibility criteria, and provide information essential to continuation, such as method of use and side effects. However, as the discontinuation study shows, women's actions of discontinuing a modern method while in need due to common side effects indicates a poor understanding of the method. If women are not adequately informed about possible side effects- and those side effects are not considered during method choice- women may become concerned and even frightened by unanticipated changes in mood, menstruation patterns or weight.

B. Users switching methods

Women change methods for various reasons including dissatisfaction with the method, side effects, or misinformation that they may hear from family or acquaintances. Unlike discontinuers, switchers often come in contact with a healthcare provider. This contact offers an important opportunity to: 1) understand reasons for method switching. 2) assist the woman to choose another appropriate method of either similar or increased effectiveness in preventing pregnancy. Providers need to maximize the opportunity of this contact.

C. Users discontinuing methods

Programmatically it is useful to divide this category into users discontinuing long acting reversible contraception, which necessitates providers' assistance, and those discontinuing short acting methods. The distinguishing characteristic between the two groups is the service delivery contact.

Users discontinuing long acting reversible contraception: While the study found discontinuation rates to be lower for IUDs and implants, this discontinuation represents a significant cost for the health system, as these methods require skilled personnel for insertion and removal. Also, as these methods are recommended for women who want to delay pregnancy for a minimum of two years, this discontinuation indicates poor quality counseling. The contact for method discontinuation offers an important opportunity to: 1) understand reasons for discontinuation. 2) to understand if the woman is open to continuing the method if problems could be managed, and/or 3) assist the woman to choose another appropriate method of similar effectiveness in preventing pregnancy.

Users discontinuing short acting methods: The study found these methods to be the most commonly discontinued, particularly injectable and combined oral contraceptives. Discontinuation of these methods do not require contact with a healthcare provider, consequently, there may not be an opportunity to assist the client in addressing her concerns and assisting her to adopt another modern method. Thus two areas of intentions are indicated.

For those who do have contact with the provider, there is an opportunity for the provider to explore with the woman her reasons for discontinuation, management of side effects if indicated, and selection of another modern method as indicated. For the woman, this is also an opportunity to revisit her reproductive plan, and learn more about family planning method choices, effectiveness and side effects.

For women discontinuing methods without contact with the provider, the community components, both the Community Health Committee (CHC) activities and the community outreach household visits are critical.

D. Users continuing with the method

Supporting users to continue with their methods, particularly through improving the skills of providers, encouraging contact with the health facilities in case of any concerns, and addressing rumors and misperceptions in the communities.

In addition, the USAID Health Service Delivery will continue to support efforts to increase awareness on the importance and use of modern family planning. In priority categories are non-users with unmet need and users of less effective traditional methods.

The following are specific recommendations for programmatic interventions categorized by provider, client or community component.

IV. Programmatic Recommendations

Provider level interventions

1) Conduct comprehensive and balanced counseling training for service providers verified through clinical practice. This training will ensure that clients have the knowledge about how the methods work and how they are used and are aware of possible side effects and how to manage them;
2) Strengthen or develop counseling protocols for the four categories of users identified. These are: counseling new users, counseling users with intention to switch methods, counseling users planning to discontinue (distinctions for long acting methods users or short acting method user) and users continuing with the method. These protocols to be reinforced by job aids.
3) Provide job aids to include management of side effects and method effectiveness.
4) Improve provider skills to effectively address misinformation and rumors related to contraception;
5) Address provider bias relative to certain FP methods including the timing of first use that is partly related to poor training. The ultimate goal is not to blame providers but rather to support them. Training should focus on provision of regular evidence-based and accurate information that will among other things improve clinical judgment and reduce the fear of harm;

6) Continue efforts to train and empower midwives to insert IUDs at all levels of care across sectors to offset the shortages in female physicians.
7) Providers to emphasize the importance of follow up visits at any time should the client have questions or concerns;
8) Providers to provide respectful treatment in order not to discourage clients from coming back for refill, switching and getting advise on side effects;
9) Providers to understand importance of follow-up for hormonal method users;
10) Providers to pay special emphasis on sub-groups with specific needs such as Syrians and women with lower educational levels to prevent early discontinuation;
11) Improve supervision and coaching support, including the regular use of the family planning supervision checklist, including an adaptation for counseling users choosing to discontinue or switch.

Client level interventions

1) Explore ways to ensure an additional facility contact or contacts during the first six months including Helpline or Carline options.
2) Provide IEC materials to support method choice, information about side effects, how to deal with them and when to seek care, and information about myths and misconceptions.
3) Empower clients to actively participate in counseling session by providing a question guide for their use.

Community level interventions

1) RMNCH+ Community Outreach Program will include messages to support continuation for new user clients, continuing user clients, and clients switching methods per the client profile. New users with Syrian nationality will receive additional information and contacts as indicated.
2) Community Health Committee activities and RMNCH+ Community Outreach Program activities to include messages encouraging women to visit facilities if they have any concerns about their method with an emphasis on the first six months of method use.
3) Community Health Committee family planning interactive sessions to include information about switching and discontinuation, myths and misconceptions including supportive IEC materials.

Health system recommendations

1) All efforts will be made to improve availability of all long acting methods in terms of commodities and trained staff.
2) Stock-outs should be closely monitored and plans to eliminate stock-outs are in place.

V. Conclusion

USAID Health Service Delivery with its partners, proposes to undertake key interventions with providers, clients and the communities in order to systematically address discontinuation of modern family planning methods within the first year. Key interventions are proposed in the areas of provider capacity building, client-provider interactions, and information for clients and communities relative to the practices of switching and discontinuation of modern methods.

These are topics which have not been comprehensively or coherently addressed previously in the Jordanian setting.

The study and the subsequent response proposed by the USAID Health Service Delivery team, offers an opportunity for learning about a programmatic response to effectively address discontinuation in Jordan.

USAID Health Service Delivery will work with counterparts especially the WCHD to translate the proposed recommendations into action plans.