

Contraceptive discontinuation in Egypt as fertility returns to its 2000 level

Contraceptive discontinuation

Mona Khalifa, Wafaa Abdel Aziz Hussein and Soha Metwally
Department of Biostatistics and Demography, Cairo University, Giza, Egypt

19

Received 22 September 2019
Revised 17 November 2019
Accepted 24 November 2019

Abstract

Purpose – The similarity of family planning (FP) indicators from EDHS2014 to that of EDHS2000 is alarming for policymakers and researchers who consider it as an echo of the past and a threat, which the FP programme has to face to prevent its progression. In 2000, the total fertility rate (TFR) was 3.5, the contraceptive prevalence rate was 56.1% and the discontinuation rate was 29.5%. In 2014, these indicators were 3.5, 58.5 and 30.1%, respectively. Although the change in the all method discontinuation rate is not large, it is a result of great changes in the method specific discontinuation rates, which was masked by changes in the contraceptive method mix. This study aims to present a comparison between contraceptive discontinuation rates in 2000, 2008 and 2014, discuss the reasons for discontinuation by methods and background characteristics of women and calculate the impact of eliminating discontinuation for reasons related to method and service provision on fertility.

Design/methodology/approach – Single/multiple decrement life tables were applied to the calendar data of the EDHS2008 and EDHS2014, to examine various net rates of contraceptive discontinuation by reasons and the status after discontinuation. The TFR estimated in the absence of method failure and abandonment while in need of births occurred within 24 months after discontinuation using installed Stata command `tfr2`.

Findings – The study estimates the impact of discontinuation on the TFR in 2014 to be an increase of about 20%. The TFR of 3.5 would have been only 2.8 if discontinuation due to method failure and method/service-related reasons were eliminated. Improvement regarding discontinuation behaviour is evident by increased switching, from 43.6 to 54.3% and the drop in the proportion of abandoning use while in need from 56.4 to 45.7%. Differentials suggest that discontinuation is expected to increase among vulnerable groups as desired fertility continues to rise. The increase in the share of “desire to become pregnant” – as a reason for discontinuation is a recent trend observed during the period between EDHS2008 and EDHS2014 and is recognised as a challenge by the national population strategy.

Originality/value – This study confirms that contraceptive discontinuation is an important part of the overall fertility increase observed by EDHS2014. The rising trend of increased desired family size and the shift away from using the intra uterine device may be considered as major challenges facing the FP programme in Egypt.

Keywords Egypt, Fertility, Discontinuation

Paper type Research paper



© Mona Khalifa, Wafaa Abdel Aziz Hussein and Soha Metwally. Published in *Journal of Humanities and Applied Social Sciences*. Published by Emerald Publishing Limited. This article is published under the Creative Commons Attribution (CC BY 4.0) licence. Anyone may reproduce, distribute, translate and create derivative works of this article (for both commercial and non-commercial purposes), subject to full attribution to the original publication and authors. The full terms of this licence may be seen at <http://creativecommons.org/licenses/by/4.0/legalcode>

Journal of Humanities and Applied
Social Sciences
Vol. 2 No. 1, 2020
pp. 19-32
Emerald Publishing Limited
2632-279X
DOI 10.1108/JHASS-09-2019-0056

1. Introduction

The need for controlling fertility in Egypt has long been established (Khalifa *et al.*, 2000). High population growth is a major constraint that faces policymakers seeking to achieve Egypt's development goals. However, fertility rose substantially during the six-year period 2008-2014, from its lowest level of 3.0 children per woman to 3.50 (Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International, 2015a). Thus, the national goal of achieving a total fertility rate (TFR) of 2.1 by 2017 has not been achieved [United Nations Development Program (UNDP), the Ministry of National Planning, 2015]. This recent increase in fertility was accompanied by a slight decline in the contraceptive prevalence rate (CPR) to 58.5 per cent, and the contraceptive discontinuation rate (percentage of contraceptive users who discontinue within 12 months of use) that rose from its lowest ever rate of 25.9 per cent in 2008 to 30.1 per cent. Also, the mean ideal number of children is still much higher than the fertility goal at 3.4 children among men and 3.1 children among women (Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International, 2015b).

These demographic indicators reported by the Egypt demographic and health survey (EDHS) 2014 are much like those observed at the beginning of the century as reported by the EDHS2000. At that time, the TFR was 3.5, the CPR was 56.1 per cent, the discontinuation rate was 29.5 per cent and the mean ideal number of children among women was 2.9 (El-Zanaty and Way, 2001). The similarity is alarming for policymakers and researchers who consider these figures as an echo of the past and a threat, which the Egyptian family planning (FP) programme must face to prevent its progression.

The new "Egypt National Population Strategy 2015-2030" sets several quantitative objectives, most important of which is the reduction of the TFR to a more modest level of 2.4 by 2030. To achieve this goal, the CPR must rise to 72 per cent, from 58.5 per cent in 2014, the discontinuation rate must fall from 30.1 per cent in 2014 to 18 per cent, and the proportion of unmet need must drop from 13 to 6 per cent (National Population Council, 2015). These targets are ambitious especially under the prevailing social and economic strain that occurred following the 2011 revolution.

Discontinuation is one of those behaviours that contribute to the level of fertility through what Jain and colleagues have termed the "leaking bucket" that reduces the impact of FP programmes (Castle and Askew, 2015). The contribution of contraceptive discontinuation to unintended births in Egypt is high. It was estimated in 2014 to be 66.4 per cent while nonuse of contraception accounted for the remaining one-third (33.6 per cent) of unintended recent births (Jain and Winfrey, 2017). The question addressed in this paper is whether contraceptive discontinuation (including method failure, switching, abandoning use for the desire to become pregnant and abandoning use while still in need) is an important part of the overall fertility increase observed during the past decade in Egypt.

This paper will address the following objectives:

- Present a comparison between contraceptive discontinuation rates in 2000, 2008 and 2014;
- Discuss the reasons for discontinuation by methods and background characteristics of women; and
- Calculate the impact of eliminating discontinuation for reasons related to method and service provision on fertility.

2. Source of data

EDHS2000, EDHS2008 and EDHS2014 were a nationally representative household survey of ever-married women age 15-49 selected using a multistage sampling technique. These surveys were a nationally representative probability sample in which 15,573, 16,527 and 21,762 ever-married women in the age group 15-49 years were interviewed (El-Zanaty and Way, 2001; El-Zanaty and Way, 2009; Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International, 2015a). In addition to the main survey instrument, a special module on women's discontinuation of contraceptive was administered. The sample design of the two surveys ensures that information on various population and health indicators of interest are provided for the country as a whole and by some background characteristics of the responding women. Month by month information on contraceptive use and reasons for discontinuation during 60-month prior of the survey starting the third month before the interview were collected. The observation period includes 10,556 segments of use in 2000, 10,704 segments in 2008 and 15,236 segments in 2014. The unit of the analysis was "segment of use", defined as a continuous period of use/non-use of a contraceptive method (in months). This study will focus on the discontinuation of the three most widely used contraceptive methods: intra uterine device (IUD), pills and injectables. These three methods together accounted for 91.2 per cent of the method mix in EDHS2000, 91.9 per cent in 2008 and 93 per cent in EDHS2014.

Calendar data contains the monthly data of married women within five years before the survey. Every woman was asked whether she was pregnant, had a birth or was pregnant and ended up with a miscarriage/abortion and whether she had used a FP method. Contraceptive users were asked about the contraceptive method and the duration of use. If she discontinued using that method, she was asked about the reason for discontinuing and the status after one month of discontinuation. The status after discontinuation is as follows:

- No longer in need includes: wanted to become pregnant or out of risk (i.e. marital dissolution/separation, difficult to get pregnant/menopausal and infrequent sex/husband away);
- Switched in the following month;
- Contraceptive failure (i.e. became pregnant while using the method); and
- Abandoned use while in need (i.e. stopped using while she wants to use contraceptive).

3. Statistical analysis

Single/multiple decrement life tables were applied to the calendar data of the EDHS2008 and EDHS2014, to examine various net rates of contraceptive discontinuation by reasons and the status after discontinuation. These reasons for discontinuation are treated as competing risks and discontinuation probabilities in months are additive across the reasons for discontinuation, and the status after discontinuation.

To calculate the percentage of TFR that could have been avoided if method failure and abandonment of use while in need were prevented, "unintended" births that occurred within 24 months after stopping the use of contraceptives due to method failure and abandonment of use while in need will be excluded. These births have occurred to mothers who were using contraception for spacing, as well as those who wanted to limit any further births. The TFR will be estimated excluding unintended births due to method failure and those excluded due to abandoned use while in need separately and combined. TFR will be estimated from the EDHS2014 data using installed Stata command `tfr2` (Schoumaker, 2013). It is a programme

for analysing birth histories from demographic surveys and computes fertility rates. The command was also applied to the EDHS2000 data and the results were the same as the report by [Way \(2003\)](#).

4. Results

4.1 Changes in the contraceptive discontinuation rates

Changes in the method mix will have implications for discontinuation, as the overall discontinuation rate is a weighted average of the method-specific discontinuation rates. [Figure 1](#) shows the recent decline in the share of IUDs and the increase in the share of pills characterised by higher discontinuation rates. Had the method mix observed in 2000 remained constant, the overall 2014 discontinuation rate would have been 25.9 per cent only. This 12 per cent drop – relative to the 2000 level of 29.5 per cent – indicates improvement in “discontinuation behaviour”, which was masked by the shift away from IUDs towards the use of hormonal methods, characterised by relatively higher discontinuation rates. The result was an overall increase in the all method discontinuation rate, and therefore, a return to its 2000 level.

The life table analysis of the 2014 data showed a median duration of use for all methods estimated at 22 months while it was 24 months in 2000 and 2008. This estimate differs by method; the median duration is 33 months for the IUD, 16 months for the pill and 20 months for injectables in 2014. The corresponding estimates in 2000 were 35, 13 and 14 months for the three methods, respectively, and 35, 17 and 20 in 2008 ([Khalifa *et al.*, 2017](#)). This shows an increase in the median duration of use for IUDs and drops for pill and injectables.

4.2 All method discontinuation by socio-economic characteristics of women

[Table I](#) shows the life table discontinuation rates for users by background characteristics of women. Discontinuation within the first year of use increased during 2000-2014 among women with one child, rural women in Lower Egypt, educated women and the poor. Among all groups, the increase has occurred during the period 2008-2014. The highest and continuous rise was among women with one child. The table also shows that the ability to prolong the duration of contraceptive use has increased among older women, those with three or more children and has been continuous among urban women and the rich. Young women have maintained a high rate (35 per cent) of discontinuation.

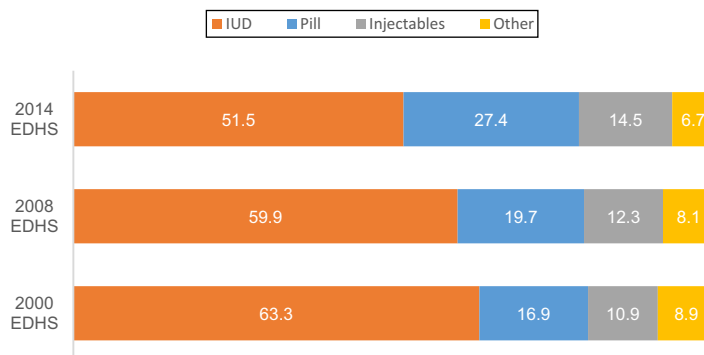


Figure 1.
Trend in the method mix 2000-2014

Background characteristics	2000 ^a	2008	2014	Contraceptive discontinuation
<i>Age</i>				
15-24	35	30.3	35	
25-34	29.1	23.6	27.9	
35-49	27.2	22.7	26.1	
<i>Number of living children</i>				
One	29.3	36.9	42.6	
Two	28.4	22.6	28	
Three	26.8	20.1	24.2	
Four or more	31.9	22.1	24.2	
<i>Urban-rural residence</i>				
Urban	27.2	24.3	25	
Rural	31.4	27.2	32.8	
<i>Place of residence</i>				
Urban governorates	25.8	22.8	24.9	
Lower Egypt	26.7	23.3	28.5	
Urban	25.8	21.2	23.5	
Rural	27.1	23.9	29.7	
Upper Egypt	35.1	30.9	34.6	
Urban	30	29.2	26.6	
Rural	37.8	31.6	37.7	
<i>Level of education</i>				
No education	30.9	24.7	28.3	
Less than primary	29.5	28.5	33.1	
Primary complete, some secondary	30.3	26.7	31.6	
Secondary/higher	27.7	26.1	30.3	
<i>Wealth index quintiles</i>				
Lowest	33.3	26.9	33.6	
Low	31.8	27.3	33.6	
Middle	30.1	26.5	32	
High	29.2	25.1	27.6	
Highest	24.8	24.6	24.2	
Total	29.5	26.1	30.1	

Table I.
12 months life table
discontinuation rates
by background
characteristics
during 5 years
preceding the survey,
Egypt DHS 2000,
2008 and 2014

Source: ^aWay (2003)

Discontinuers have almost the same characteristics in the three surveys except for their educational level. Young women with one child who lived in rural areas and poor were found to be more likely to discontinue in 2000, 2008 and 2014.

4.3 Reasons for discontinuation

4.3.1 Method – specific reasons for discontinuation. Table II shows that “side effects/health concern” is the major reason for discontinuation among users of all methods in 2000, 2008 and 2014 EDHS. The second highest in 2000 and 2008 EDHS was “other method/service-related reasons”, which included wanted a more effective method, lack of access/too far, cost too much, inconvenient to use and others (17.6 per cent in 2000 and 21.5 per cent in 2008). However, in EDHS2014 the reason “desire to become pregnant” emerges as the second highest reason for discontinuation (20.8 per cent). The increase in the share of “desire to

Table II.
Percent distribution
of 12 months
discontinuation rates
during 5 years
preceding the survey
by discontinuation
reason and
contraceptive
method, Egypt DHS
2000^a, 2008 and 2014

Reason	IUD		Pills		Injectables		All methods	
	2000	2008	2000	2008	2000	2008	2000	2008
Method/service-related reasons	72.5	64.7	62.9	60.4	56.2	84.3	70.2	64.6
Contraceptive failure	7.0	7.5	8.4	15.0	18.4	1.7	2.4	3.7
Side effects/health concerns	60.6	50.8	52.4	30.8	26.6	69.8	57.3	47.8
Other method/service-related reasons	4.9	5.8	2.1	14.5	11.2	12.8	10.5	5.3
Need-based reasons	27.4	35.0	37.1	39.6	43.8	16.3	29.8	35.4
Desire to get pregnant	21.8	27.5	30.1	18.3	20.6	7.4	14.0	16.1
Not exposed to pregnancy	5.6	8.3	7.0	21.6	23.2	8.9	15.9	19.3
Total Percent	100	100	100	100	100	100	100	100
All reasons discontinuation rates	14.2	12.0	14.3	39.9	41.8	48.4	37.2	37.9
Number of segments	5,451	4,833	5,505	2,480	6,038	1,456	1,609	2,524
				2,880				10,556
								10,704
								15,236

Source: ^aWay (2003)

become pregnant” among reasons for discontinuation is a recent trend and was observed in EDHS2008 (Khalifa *et al.*, 2019).

Discontinuation due to method failure has gradually increased especially among pill users, while discontinuation due to all other service-related reasons has dropped. The “desire to get pregnant” has become a major reason for discontinuation among users of all three methods with almost one out of three women ending the use of the IUD within one year of starting, for the purpose of getting pregnant. Also, about one in five pill users stop using within one year of initiation for the same reason.

The huge increase in the share of “desire to get pregnant” among discontinuers of all three methods coincides with the rise in the average ideal family size and warrants deeper analysis. The DHS data allow for the classification of discontinuers by their desired fertility intentions[1]. Using the life table segments, the percentage of fecund women with two or less children who discontinue contraceptive use for the purpose of having their third/more child is thus estimated to be 41.7 per cent in EDHS2000 and increased to 48.2 per cent in 2008 and 51.1 per cent in EDHS2014, [Table III](#). The percentage of fecund women with three or more children who discontinue contraceptive use for the purpose of having their fourth/more child was only 7.9 per cent in EDHS2000 and increased to 10.2 per cent in 2008 and 14.5 per cent in EDHS2014. Discontinuers who reported that the ideal number of children is three or more constituted 35 per cent of those who had two or less children in EDHS2000 and increased to 46.2 per cent in 2008 and 49.2 per cent in EDHS2014. Among discontinuers who had three or more children, 55.1 per cent reported that the ideal number of children is three or more in EDHS2000 and increased to 64.1 per cent in 2008 and 68.0 per cent in EDHS2014.

The reasons for discontinuation can be further grouped into two broad categories. One category includes the method/service-related reasons (contraceptive failure, side effects/health concerns and others), while the other includes the need-based reasons (desire to get pregnant and the woman’s own assessment that she is not exposed to pregnancy). The share of discontinuation because of method/service-related reasons have dropped from 75.3 to 69 per cent and then to 61.0 per cent while that for need-based reasons increased from 24.7 to 31 per cent and then to 39.0 per cent. [Figure 2](#) confirms the same pattern for all three methods.

4.3.2 Reasons for discontinuation by women’s background characteristics. [Table IV](#) presents the percentage share of reason specific discontinuation rates for the two broad categories, classified by women’s background characteristics.

The share of all-method discontinuation rates because of reduced need for contraception increased. The change in the relative shares of discontinuation reasons is clear and significant across all background characteristics. Moreover, [Table IV](#) shows that the shift towards the “need-based” reasons and away from the “method/service-related reasons” is more pronounced among women with one child, women living in rural Upper Egypt, women with primary education and women in the low and middle wealth index quintiles. The shift has been gradual between the two surveys of 2000 and 2014 except for older women, those with two children and those living in urban Upper Egypt for whom the increase in the share of “need-based” reasons was first detected in the EDHS2008.

Table III.
Desire to get more children according to parity of discontinuers: EDHS 2000, 2008 and 2014

Parity of discontinuers	Want more children			Do not want more children			% ideal 3+		
	2000	2008	2014	2000	2008	2014	2000	2008	2014
2 or less	41.7	48.2	51.1	48.7	44.7	40.5	35.0	46.2	49.2
3+	7.9	10.2	14.5	86.5	85.5	78.5	55.1	64.1	68.0
Total	21.8	30.1	33.7	70.9	64.2	58.5	46.8	54.7	58.1

4.4 Status after discontinuation of contraceptive method

In this section, the analysis is concerned with the contraceptive use status of women after one month of discontinuation. The main concern is whether the act of discontinuing a contraceptive method has left a user at risk of unintended pregnancy.

Table V displays the percentage distribution for all-method status-specific 12 month’s discontinuation rates. The results show that more than half of the discontinuers of all three methods are considered not to be subject to the risk of unintended pregnancy[2]. The overall proportion rose from 53 per cent in 2000 to 60.9 per cent in 2008 and 64.3 per cent in 2014. On the other hand, the proportion of discontinuers who became subject to the risk of unintended pregnancy[3] has dropped considerably from 36.9 to 28 per cent in 2008 and 21.5 per cent in 2014. This trend is true for all three methods. Also, contraceptive failure has increased for all three methods. However, the most outstanding result of the analysis is the remarkable gradual drop in the “abandoned use while in need” behaviour from 36.9 to 21.5 per cent, positive behaviour in the direction of reducing unintended births.

Switching and abandoned use while in need are only relevant for women who stopped for side effects/health concerns or other methods/service-related reasons. The “still in need” category can, therefore, be considered the best denominator to calculate their probabilities. Among women who are still in need, switching has gradually increased for IUD from 39.8 to 59 per cent, from 43.6 to 52.6 per cent for pill and from 36.2 to 47.6 per cent for injectables. Among women who are still in need, stopping use while in need has dropped for IUD from 60.2 to 41 per cent, from 56.4 to 47.4 per cent for pill and from 63.8 to 52.4 per cent for injectables.

4.5 Consequences of contraceptive failure and abandoned use while in need of fertility

Pregnancies that result from contraceptive failure and discontinuation while still in need may have negative effects on maternal morbidity, adverse maternal health, adverse fetal, infant and child health outcomes and negative psychological effects on women and their children (Montgomery et al., 1997).

In Egypt, Way (2003) assessed the overall magnitude of the impact, that contraceptive failure and abandonment while in need has on fertility. Using the calendar data of the EDHS2000, she concluded that:

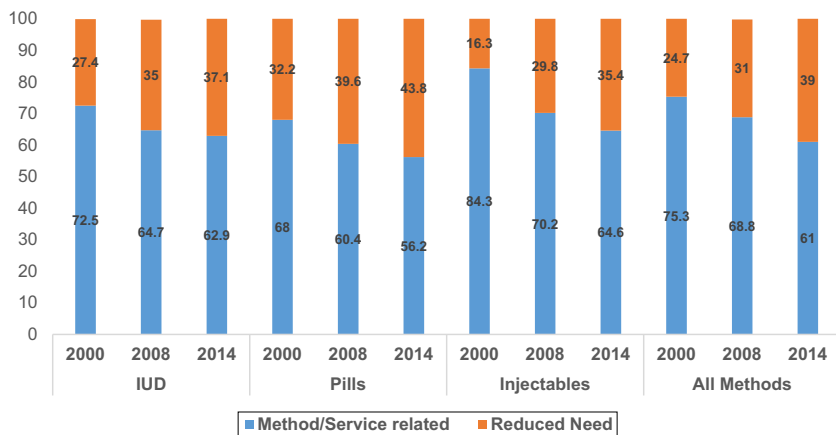


Figure 2. Percent distribution of 12 months discontinuation rates during five years preceding the survey by contraceptive method, Egypt DHS 2000, 2008 and 2014

Background characteristics	Reduced need			Method/service-related			Total percent		
	2000 ^a	2008	2014	20001	2008	2014	2000 ^a	2008	2014
<i>Age</i>									
15-24	27.1	30.0	40.8	72.9	70.0	59.2	100	100	100
25-34	21.6	31.1	35.2	78.4	68.9	64.8	100	100	100
35-49	28.3	26.1	45.6	71.7	73.9	54.4	100	100	100
<i>Number of living children</i>									
One	23.2	35.4	42.3	76.8	64.6	57.7	100	100	100
Two	27.8	26.0	39.3	72.2	74.0	60.7	100	100	100
Three	25.7	28.9	33.1	74.3	71.1	66.9	100	100	100
Four or more	21.9	30.3	35.5	78.1	69.7	64.5	100	100	100
<i>Urban-rural residence</i>									
Urban	22.8	27.3	34.8	77.2	72.7	65.2	100	100	100
Rural	25.8	33.5	40.2	74.2	66.5	59.8	100	100	100
<i>Place of residence</i>									
Urban Governorates	20.2	27.2	32.3	79.8	72.8	67.7	100	100	100
Lower Egypt	27.3	35.6	37.9	72.7	64.4	62.1	100	100	100
Urban	25.2	34.0	38.7	74.8	66.0	61.3	100	100	100
Rural	28.0	36.0	40.3	72.0	64.0	59.8	100	100	100
Upper Egypt	23.6	28.8	41.3	76.4	71.2	58.7	100	100	100
Urban	25.3	23.7	38.3	74.7	76.3	61.7	100	100	100
Rural	23.3	30.7	42.3	76.7	69.3	57.7	100	100	100
<i>Level of education</i>									
No education	22.0	30.8	36.5	78.0	69.2	63.5	100	100	100
Less than primary	24.7	27.7	35.4	75.3	72.3	64.6	100	100	100
Primary complete, some secondary	25.7	30.0	40.4	74.3	70.0	59.6	100	100	100
Secondary/higher	26.7	32.4	39.6	73.3	67.6	60.4	100	100	100
<i>Wealth index quintiles</i>									
Lowest	23.4	25.3	35.5	76.6	74.7	64.5	100	100	100
Low	22.0	33.0	43.5	78.0	67.0	56.5	100	100	100
Middle	24.9	31.3	41.6	75.1	68.7	58.4	100	100	100
High	26.0	30.3	35.5	74.0	69.7	64.5	100	100	100
Highest	25.4	36.2	35.8	74.6	63.8	64.2	100	100	100
Total	24.7	31.2	38.9	75.3	68.8	61.1	100	100	100

Source: ^aWay (2003)

Table IV.
Percent distribution
of 12 months
discontinuation rates
during 5 years
preceding the survey
by discontinuation
reason according to
selected background
characteristics of
users, EDHS 2000^a,
2008 and 2014

If all births due to contraceptive failure or following a segment of use in which use of a method was abandoned because of method/service related issues had been prevented during the three-year period before the EDHS, the TFR would have dropped to 2.8 births, roughly 20 per cent lower than the actual rate.

The methodology used by Way (2003) to calculate the impact of discontinuation on the TFR is applied to the EDHS2008 and EDHS2014 data. These estimates are presented in Table V for 2000, 2008 and 2014.

The analysis displays very similar results for the three surveys. The TFR reported by EDHS2014 is almost equal to that observed by EDHS2000 and the impact of contraceptive discontinuation due to “method” failure and “method/service reasons” on the fertility level is nearly the same. In both surveys, the TFR of 3.5 children per woman would have been at a lower level of 2.8 if discontinuation due to method failure and method/service-related

Table V.
Percent distribution
12 months
discontinuation rates
according to the
status in the month
following
discontinuation by
contraceptive
method, EDHS 2000,
2008 and 2014

Status	IUD			Pills			Injectables			All methods		
	2000 ^a	2008	2014	2000 ^a	2008	2014	2000 ^a	2008	2014	2000 ^a	2008	2014
No longer in need	28.0	35.3	37.1	31.9	39.6	43.8	16.5	29.8	35.4	24.5	31.0	38.8
Contraceptive failure	7.0	7.6	8.4	12.6	15.0	18.4	1.4	2.4	3.7	10.1	11.1	14.2
Still in need	65.0	57.1	54.5	55.5	45.4	37.8	82.1	67.7	60.9	65.4	57.9	47.0
Total % of discontinuation	100	100	100	100	100.0	100	100	100	100	100	100	100
Switched in the following month	39.8	48.5	59.0	43.6	53.0	52.6	36.2	45.6	47.6	43.6	51.7	54.3
Abandoned use while in need	60.2	51.5	41.0	56.4	47.0	47.4	63.8	54.4	52.4	56.4	48.3	45.7
Total % of still in need	100	100	100	100	100	100	100	100	100	100	100	100

Source: ^aSayed and Abdelaziz (2011)

reasons were eliminated. The impact of method failure has increased during that period from 0.2 to 0.34 children per woman while the impact of discontinuation because of method/service-related reasons has decreased from 0.4 to 0.31 (Table VI).

5. Discussion

This study confirms that contraceptive discontinuation (including method failure, switching, abandoning use for the desire to become pregnant and abandoning use while still in need) is an important part of the overall fertility increase observed by EDHS2014. Although the change in the “all method” discontinuation rate from 29.5 per cent in 2000 to 30.1 per cent in 2014 is not large, it is a result of great changes regarding both the method-specific discontinuation rates and the contraceptive method mix. As expected, the rise in contraceptive discontinuation had contributed to an increase in the number of unintended births. This study estimates the impact of discontinuation on the TFR to be an increase of about 20 per cent.

The share of discontinuation because of method/service-related reasons has gradually dropped from 75.3 to 61.0 per cent indicating women’s increased satisfaction with the FP service provision. While “side effects/health concerns” remain the main reason for contraceptive discontinuation, the “desire to get pregnant” emerges as the second reason in the EDHS2014. Discontinuation for need-based reasons increased from 24.7 to 39.0 per cent coinciding with the observed increase in desired fertility. The 12 months discontinuation rates among women with one child increased during 2000-2014 reaching the highest discontinuation rate (42.3 per cent) compared to women with two or more children. Also, these women were less concerned with service-related issues than women with 2 or more. Women in rural Upper Egypt have a high rate of discontinuation and the highest desire to have more children. Poor women have the highest levels of discontinuation in both 2000 and 2014 compared with wealthier categories with a shift towards the desire for more children. These differentials suggest that discontinuation is expected to increase among those vulnerable groups as desired fertility continues to rise.

Although the discontinuation rate and the TFR have returned to the 2000 level, this study shows that improvement has taken place regarding discontinuation behaviour. Discontinuation behaviour is relevant only for women who stopped for side effects/health concerns or other method/service-related reasons, and it includes switching to another method or abandoning the use of any method. Among those women, switching increased gradually from 43.6 to 54.3 per cent and stopping use while in need dropped gradually from 56.4 to 45.7 per cent. Both positive behaviours took place for all three methods.

Improved contraceptive behaviour has happened despite the increased contraceptive failure for all three methods. One-third of the pill users who are still in need get pregnant while using the pill. The risk of getting pregnant while using a contraceptive method is

Table VI.
TFR for the three years preceding the survey in the absence of contraceptive failure and discontinuation, EDHS 2000, 2008 and 2014

Years	Actual TFR	TFR		
		Without failure	Without abandoned use while in need	Without both
2000 ^a	3.5	3.3	3.1	2.8
2008	3.02	2.79	2.66	2.44
2014	3.47	3.13	3.16	2.82

Source: ^aWay (2003)

determined by the effectiveness of the method and is also because of the incorrect use of the method. Failure rates related to incorrect use were found to be quite high among pill users in Egypt (El-Tawila, 1995; Sayed and Abdelaziz, 2011).

The remarkable gradual increase in the desire to have three or more children among contraceptive discontinuers has contributed to the high level of discontinuation. Social and cultural factors may be behind this change, which is keeping some women from fulfilling their reproductive goals after initiation.

Cultural and social factors affect fertility behaviour along with three levels of demand. Level 1 deals with women's desire to limit or space their childbearing, Level 2 is about women's desire to exercise reproductive control and Level 3 is women's ability to effectively exercise reproductive control (McCleary-Sills *et al.*, 2012). Discontinuers have successfully passed the first two demand levels. By initiating contraceptive use, they demonstrate their desire to exercise reproductive control to have smaller families with healthier timing and spacing of pregnancies. However, as they move to the third level seeking to exercise the ability to fulfill their reproductive desires they are faced with several barriers. The results of this study suggest that these barriers are related to the general rise in the desire for larger families as was expressed by the discontinuers. This is the reason behind changing their plan. Both FP clients and providers are subjected to the rising conservatism in Egypt conservative husbands and other family members will have an influence on changing women's decisions. Also, it is inevitable that providers may be guided by their own traditional biases about what is "allowed/not allowed", and thus, influence users' reproductive control options and affect or change their reproductive intentions. Although a deeper investigation of this argument is beyond the scope of this study, the issue has been recognised among FP decision makers and considered as a basic strategic concern.

The National Population Strategy 2015-2030 openly defines one of its challenges as based on the recent rise in conservative norms and behaviours.

The rising influence of conservatism on the public sphere has contributed to the waning of reproductive values that adopt the concept of small families and birth spacing. It has contributed to the advancement of values that oppose women empowerment. This has led to a decrease in the role of women in the public domain and a decline of women employment rates. Women's contribution in economic and development fields has retreated and became almost limited to work within the home which encourages more births that exceeds the capacity of the country to provide basic services (National Population Council, 2015).

6. Policy implications

Choices that FP users make may have an impact on contraceptive discontinuation, which is now considered a challenge facing the realisation of the goals of the recent initiative FP2020 (Stover and Sonneveld, 2017). Improving continuation is a challenge facing the Egypt FP programme because it requires advances in many areas simultaneously. While continuing to encourage contraceptive prevalence, consideration should be given to activities aiming to extend and sustain the duration of use of contraceptives, especially during the first year of use and beyond. This can be done by increasing the availability of methods to expand the range of choice for women who abandoned use while in need and switchers.

Counseling services can help switchers by encouraging them to move to the destination method as soon as possible to reduce the time of exposure to the risk of conception. Women need forewarning about side-effects and reassurance regarding safety, as well as advice that alternative methods are available if the initial method is found to be unsatisfactory.

Mass media messages can be used to encourage positive discontinuation behaviour. However, after United States agency for international development phasing-out in 2007, the

Egyptian Government continued to fund contraceptive distribution but its support for mass media declined. A great reduction in the percentage of ever married women (15-49) who have received a message about FP from television in the past few months prior to the interview, from 95.6 per cent in 2000 to 57.3 per cent in 2008 and then to 38.7 per cent in 2014. Messages delivered through the radio and newspapers were received by 64.7 and 30.1 per cent, respectively, in 2000 but dropped to 19.1 and 6.6 per cent in 2008 and continued to decline to 4.8 and 2.9 per cent in 2014 ([The DHS Program STATcompiler, 2019](#)).

Plans to avoid unintended pregnancies among contraceptive current users are likely to require an increased allocation of resources. However, the financial and health burden of unintended pregnancies may make programme efforts to avoid unintended pregnancies quite cost-effective.

Notes

1. Discontinuers who declared they are not infecund and want children within 2 years or after 2+ years or want children but unsure about timing.
2. Women who are no longer in need or switched to another method within one month of stopping a contraceptive method. [For example (EDHS2000) = {24.5% + (65.4% × 43.6%)}.]
3. Women who are still in need and did not switch to another method within one month of stopping a contraceptive method. For example (EDHS2014) = 47% × 45.7%.

References

- Castle, S. and Askew, I. (2015), *Contraceptive Discontinuation: Reasons, Challenges and Solutions*, Population Council, New York, NY.
- El-Tawila, S. (1995), "Contraceptive use dynamics in Egypt", in Mahran, M., El-Zanaty, F.H. and Way, A.A. (Eds), *Perspectives on Fertility and Family Planning in Egypt: Results of Further Analysis of the 1992 Egypt Demographic and Health Survey*, DHS Further Analysis Reports No. 13, National Population Council [Egypt] and Macro International, Calverton.
- El-Zanaty, F. and Way, A. (2001), *Egypt Demographic and Health Survey 2000*, Ministry of Health and Population [Egypt], National Population Council and ORC Macro, Calverton.
- El-Zanaty, F. and Way, A. (2009), *Egypt Demographic and Health Survey 2008*, Ministry of Health, El-Zanaty and Associates, and Macro International, Cairo.
- Jain, A. and Winfrey, W. (2017), "Contribution of contraceptive discontinuation to unintended births in 36 developing countries", *Studies in Family Planning*, Vol. 48 No. 3, pp. 269-277. doi: [10.1111/sifp.12023](https://doi.org/10.1111/sifp.12023).
- Khalifa, M., Abdelaziz, W. and Sakr, E. (2017), "Changes in contraceptive use dynamics in Egypt: analysis of the 2008 and 2014 demographic and health surveys", DHS Working Papers No. 132, ICF, Rockville, MD.
- Khalifa, M. DaVanzo, J. and Adamson, D.M. (2000), "Population growth in Egypt: a continuing policy challenge", (Issue Papers, IP-183), RAND Cooperation, Santa Monica, CA.
- Khalifa, M., Abdelaziz, W., Metwally, S. and Sakr, E. (2019), "The recent increase in contraceptive discontinuation in Egypt", *Journal of Biosocial Science*, Vol. 1, doi: [10.1017/S002193201900026](https://doi.org/10.1017/S002193201900026). Short Report.
- McCleary-Sills, J., McGonagle, A. and Malhotra, A. (2012), *Women's Demand for Reproductive Control: Understanding and Addressing Gender Barriers*, International Center for Research on Women (ICRW), Washington, DC.

- Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International (2015a), *Egypt Demographic and Health Survey 2014*, Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International, Cairo, Egypt and Rockville, MD.
- Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International (2015b), *Egypt Health Issues Survey 2015*, Ministry of Health and Population [Egypt], El-Zanaty and Associates [Egypt] and ICF International, Cairo, Egypt and Rockville, MD.
- Montgomery, M.R., Lloyd, C.B., Hewett, P.C. and Heuveline, P. (1997), "The consequences of imperfect fertility control for children's survival, health, and schooling", *Analytical Studies*, Macro International Inc. (Analytical Studies, AR7), Calverton.
- National Population Council (2015), *National Strategic Population Plan 2015-2030*, National Population Council, Cairo.
- Sayed, H. and Abdelaziz, W. (2011), "Trends of contraceptive discontinuation and switching in Egypt during 2000-2008", paper presented at Proceedings of the 23rd on Statistics and Modeling in Human and Social Sciences, Faculty of Economy and Political Science, Cairo University, Cairo, 27-29 March.
- Schoumaker, B. (2013), "A Stata module for computing fertility rates and TFRs from birth histories: tfr2", *Demographic Research*, Vol. 29 No. 38, pp. 1093-1144, doi: [10.4054/DemRes.2013.28.38](https://doi.org/10.4054/DemRes.2013.28.38).
- Stover, J. and Sonneveld, E. (2017), "Progress toward the goals of FP2020", *Journal of Studies in Family Planning*, Vol. 48 No. 1, available at: <https://doi.org/10.1111/sifp.12014>
- The DHS Program STATcompiler (2019), The DHS Program STATcompiler, ICF, Rockville, MD, available at: www.statcompiler.com (accessed 22 June 2019).
- United Nations Development Program (UNDP), the Ministry of National Planning (2015), "Egypt's progress towards millennium development goals (MDGs), background paper", United Nations Development Program (UNDP), the Ministry of National Planning.
- Way, A. (2003), "Contraceptive use dynamics in Egypt: an in-depth analysis", Perspectives on Women's and Children's Health in Egypt, Results of Further Analysis of the 2000 Egypt Demographic and Health Survey, DHS Further Analysis Reports No. 42, ORC Macro, Calverton, MD.

Further reading

- Rutstein, O. and Rojas, G. (2006), *Guide to DHS Statistics. Demographic and Health Surveys*, ORC Macro, Calverton.

Corresponding author

Mona Khalifa can be contacted at: monakhalifa2010@gmail.com