

Urban and Rural Differences Regarding Family Planning Outcomes in Assiut District, Assiut Governorate, Egypt

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ABSTRACT

Background: The study of family planning outcomes must take priority when the evaluation of family planning services is considered. Unmet needs of family planning, unwanted pregnancy, narrow birth interval, adolescent pregnancy, are considered adverse outcomes to family planning services underutilization.

Aim of the work: assessing the family planning outcomes in Assiut governorate in Egypt with stress upon rural/urban differences.

Subjects and Methods: This study was carried out in the two randomly selected primary health care units from Assiut district (urban and rural). Non-pregnant currently married women in reproductive age who seek services other than family planning were the target. Pearson's Chi-square was used to evaluate statistically the differences between urban and rural Assiut. SPSS Program version 20 was used.

Result: The overall modern contraceptive use was 62.8% with a significantly lower level in rural Assiut when compared with urban Assiut (p-value=0.04). Regarding family planning outcomes, unmet need prevalence was 29% without any significant urban/rural differences. A higher percentage of urban women had less than 3 children compared with rural (p-value=0.01). Adolescent pregnancy was higher in rural than in urban Assiut (p-value=0.01). The most method used was pills in urban and rural areas, intrauterine device use was more in urban women (p-value=0.00), while the implant was used significantly higher among rural women (p value=0.00).

Conclusion: There were significant differences in family planning outcomes between the urban and rural Assiut. Rural women were more disadvantaged regarding that they were less modern contraceptive users, more parous, more had adverse outcomes like adolescent pregnancy.

Keywords: Family planning; Assiut; contraceptives outcomes.

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INTRODUCTION

Family planning (FP) is the couple's ability to attain their desired number of children and the spacing and timing of their birth.¹ FP is being known for its direct and indirect effects on maternal deaths.² It reduces the deaths in two directions; first, by reducing the fertility of women and second, by reducing the risk associated with each birth.³ The most recent Egypt Demographic Health Survey (EDHS) documented an increase in the total fertility rate (TFR) to 3.5, up from a low of 3.0 that was previously recorded.⁴ The increase in TFR coincided with evidence of a shift toward childbearing at younger ages and among more educated women.⁵ FP outcomes are not always a focus of studies and are not routinely evaluated by programs. As a result, many questions on the outcomes and the impacts of FP programs remain unanswered.⁵ Reporting outcomes, even if results are against expectation, is essential to prevent the wasting of limited resources.⁶ Modern FP methods

are medical procedures that interfere with fertility. The most common FP modern methods are oral contraceptives pills, intrauterine devices (IUDs), implants, condoms (male and female), injectables, etc.¹ Unmet need for modern contraception is a good indicator of whether women are succeeding in achieving their desired birth timing and family size.⁷ Operationally, unmet need for FP is defined as the percentage of women of reproductive age, either married or in a union, who are in need to stop or delay childbearing but are not using any method of contraception.⁸ Unmet need for family planning remains a useful tool for detecting women at high risk of unintended pregnancy. Unintended pregnancy has an adverse impact on the health and welfare of women and children.⁹

Birth interval, defined as months between childbirth and the immediately preceding birth, has a critical effect on the health status of the mother and her child. Closely births intervals have a negative impact

on the health of the mother and also on the FP efforts.¹⁰

The age of the mother is a very important determinant in her pregnancy health. Adolescent pregnancy is a significant problem in the world.¹¹ Despite a steady decline in the prevalence of adolescent motherhood globally, it is still public health problem. Advanced maternal age also predisposes women to adverse pregnancy outcomes.¹²

This study sought to determine the prevalence of use, level of knowledge, and outcomes of modern contraceptive use among reproductive-aged non-pregnant women in Assiut governorate in Upper Egypt.

SUBJECTS AND METHODS

Study Design and Setting

The research applied a cross-sectional, health facility-based study design. The study was conducted in Assiut district that was chosen purposively as it is the most populous district in Assiut governorate, easy to access, and contains both urban and rural domains.¹³ The field study was conducted from October 2019 to March 2020.

Target Population

The target population of this study was current-married, not pregnant women, in reproductive age (15-49 years old), that came to primary health care (PHC) to receive any health services. To avoid the selection bias, any women who reported that they had a pregnancy, were not in a marriage union, and/or above or below the investigated age group (15-49) years, and/or coming to receive emergent or FP services were excluded from the study.

Sample Size Determination

The sample size was determined using epi info version 7 statistical software package by considering confidence level 95% ($Z = 1.96$), power 80%, depending on contraceptive prevalence that was reported in the last EDHS (60%)⁴ and q , the complementary probability of $P(1 - p)$, =0.40. The estimated minimum sample size required was $n=369$.

Sampling procedure

A multistage sampling technique was applied to select participants. In the first stage, two PHC facilities were selected randomly by using the lottery technique; one PHC facility from urban and one from rural areas. In the second stage, the proportional size allocation was made from each selected PHC based on the average number of women who came to utilize any health services other than FP 3 months preceding the beginning of the study of each health facility. In the third stage, eligible and consenting women utilizing PHC services, other than FP, were recruited consecutively by a systematic random procedure (every third case) at the point of exit from

the health facilities until the required number to each selected facility was obtained.

Data Collection Instrument

Each eligible woman was asked to respond to an interviewer-directed questionnaire that was constructed from the last EDHS⁽⁴⁾ which is a well-validated questionnaire.

Study Variables

FP outcomes Indicators

Several FP-related outcomes are the focus of our study. The study identified women as current users of modern contraception if they reported that they were currently using IUDs, injectables, implants, pills, male condoms, female condoms, or if they reported having been sterilized. In addition to examining the current use of modern contraception, we look at several FP outcomes such as contraceptive types knowledge which was measured as a woman's identification of the names and shape of the method. All other indicators (Unintended pregnancy, unmet FP need, mother parity, narrow birth interval, adolescent pregnancy, and pregnancy in advanced age) were categorized as No/Yes category.

Statistical Analysis

For statistical analysis, we first examined data distribution using the Shapiro–Wilk test. The normal distribution of the data using this test was documented when $P \geq 0.05$. The quantitative data are expressed as mean and standard deviation (SD). Pearson's Chi-square test was employed at the bivariate level to examine the difference between urban and rural Assiut districts. Fisher's exact (FE) test was also used in the cases of 2 by 2 tables or if the expected cell count was less than 5. All associations with P - values less than 0.05 were considered significant values. When Pearson's Chi-square test was done, the χ^2 value was reported in the table. SPSS Program version 20 was used.

Ethical Consideration

Before beginning, the study was approved by the Ethics Committee in the Faculty of Medicine, Al-Azhar University. Approval from the Health Directorate in Assiut also was obtained. Verbal informed consent was obtained from each participant to perform the interviews.

RESULTS

From a total of 369 sampled mothers, 355 women gave a complete response with a rate of 96.2%.

Table 1 displays the general characteristics of the study participants. According to the mother's characters, the mean age was 30.1 years. The mean number of living children was 2.7 children. The majority of the women in the studied sample were from urban areas (62.8%), 96.9% were Muslims, 44.5% were university or postgraduate educated, and 67.3% were unemployed (housewife). About 90% of the study participants were in the middle and high socioeconomic group.

<i>General Characteristics</i>	<i>N (355)</i>	<i>%</i>
Respondent's Age (Years) Mean (SD)	30.1 (6.0)	
Number of Living Children Mean (SD)	2.7 (1.1)	
Type of Residence		
Rural	132	37.2
Urban	223	62.8
Religion		
Muslim	343	96.6
Christian	12	3.4
Respondent's Education		
No Education	33	9.3
Primary	57	16.1
Secondary	107	30.1
University / Postgraduate	158	44.5
Respondent's Work Status		
Housewife	264	67.3
Working	123	32.7
Socio-economic Level		
Low	34	9.6
Middle	161	45.4
High	160	45.1

Table 1: General Characteristics of the Studied Sample in Assiut, Egypt, 2020

<i>General Characteristics</i>	<i>Type of Residence</i>				<i>p-value*</i>
	<i>Rural (132)</i>		<i>Urban (223)</i>		
	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>	
Respondent's Education Level					0.005**
No Education	20	15.2	13	5.8	
Primary	24	18.2	33	14.8	
Secondary	42	31.8	65	29.1	
University / Postgraduate	46	34.8	112	50.2	
χ^2 value=12.9					
Religion					0.06
Muslim		124		93.9	
Christian		219		98.2	
		8		6.1	
				4	
Respondent's Work Status					0.00**
Housewife	108	81.8	131	58.7	
Working	24	18.2	92	41.3	
Socioeconomic Level					0.00**
Low	22	16.7	12	5.4	
Middle	68	51.5	93	41.7	
High	42	31.8	118	52.9	
χ^2 value = 20.9					

* Chi-Squared test or Fisher's Exact test when appropriate

** Significant < 0.05

Table 2: Differences between Urban and Rural in the Some General Characteristics among the Studied Women

The differences between urban and rural in some selected general characteristics are illustrated in table 2. Significant differences were obvious in education, work, and the socioeconomic level in favor of urban women.

Table 3 describes in detail the modern FP utilization outcome indicators among women in the reproductive age in Assiut district. FP utilization prevalence was 62.8% with a significantly higher level among urban women than rural women (66.8% versus 56.0%, p value=0.04). The percentage of unmet need for family planning was 29% with no statistical differences between urban and rural. Women with 3 children or less were more in urban than rural Assiut with a statistically significant difference (83.0% versus 71.2%, p value=0.01). The

percentage of women who didn't wait for 24 months as a birth space was 20.4% with no statistical differences between urban and rural. Adolescent pregnancy prevalence (pregnancy less than 18 years old) was 3.4% with a significantly higher percentage among rural women than urban women (6.8% versus 1.3%, p value=0.01). The prevalence of pregnancy in advanced age (above 35 years old) was 15.2% with no statistical differences between urban and rural Assiut districts.

FP Outcome Indicators	Total		Rural		Urban		P-Value ^d
	N	%	N	%	N	%	
Modern FP Use ^a	223	62.8	74	56.0	149	66.8	0.04*
Unmet Need of Family Planning ^b	52	29.0	20	27.0	32	29.1	0.86
Less than 3 Children	279	78.6	94	71.2	185	83.0	0.01*
Birth Spacing Less than 24 Months	59	20.4	22	19.6	37	20.9	0.88
Unintended Last Pregnancy ^c	92	26.3	37	28.5	55	25.0	0.35
Adolescent Pregnancy	12	3.4	9	6.8	3	1.3	0.01*
Pregnancy in Advanced Age (Pregnancy above 35)	54	15.2	18	13.0	36	16.1	0.54

* Significant < 0.05

(a) This indicator calculated among currently married not pregnant (Rural=132, Urban=223)

(b) Percentage here calculated as a dominator is women who do not need more children n=179

(c) Exclude Women which was the first pregnancy n=306

(d) Fisher Exact test rural versus urban

Table 3: Main Family planning Outcome Indicators among the Studied Women in Assiut, Egypt, 2020

Respondent's Knowledge about Types of Modern Contraceptive Method	Total	%	Rural		Urban		p-value*
			N (132)	%	N (223)	%	
Intrauterine Device	331	93.2	118	89.4	213	95.5	0.03**
Contraceptive Pills	333	93.8	122	92.4	211	94.6	0.44
Injection	308	68.8	114	86.4	194	87.0	0.87
Implants	273	76.9	102	77.3	171	76.7	0.82
Male Condom	129	36.3	32	24.2	97	43.5	0.001**
Female Condom	46	13.0	10	7.6	36	16.1	0.02**
Female Sterilization	77	21.9	18	13.6	59	26.8	0.003**
Male Sterilization	41	11.6	6	4.5	35	15.8	0.001**

*Fisher Exact test rural versus urban

** Significant < 0.05

Table 4: Rural-Urban Differences Regarding Knowledge of Modern Contraceptive Method among the Studied Women

Table 4 shows the differences between rural and urban women in the studied women regarding their modern contraceptives' knowledge. Women from urban Assiut significantly had more knowledge about IUDs (95.5% versus 89.4%, p value=0.03), male condom (43.5% versus 24.2%, p value= 0.001), female condom (16.1% versus 7.6%, p value=0.02), female sterilization (26.8% versus 13.6%, p value=0.003) and male sterilization (15.8% versus 4.5%, p value=0.001) compared to women from rural Assiut. On the other hand, the differences between rural and urban women regarding the other FP methods were statistically insignificant.

Current Contraceptive Method N=223	Total		Rural		Urban		p-value*
	N (223)	%	N (74)	%	N (149)	%	
Pills	93	41.7	34	45.9	59	39.6	0.90
IUD	64	28.7	10	13.5	54	36.2	0.00**
Condom	8	3.6	2	2.7	6	4.0	0.50
Implants	34	15.2	20	27.0	14	9.4	0.00**
Injection	24	10.7	8	10.8	16	10.7	0.83

*Fisher Exact test rural versus urban

** Significant < 0.05

Table 5: Rural-Urban Differences Regarding Type of Modern Contraceptive Method Use among the Studied Women Who are Currently Modern Methods Users, Assiut, Egypt, 2020

Table 5 shows the differences between rural and urban women regarding the type of modern method utilization. The significant difference was obvious regarding IUDs and Implants usage. Urban women used IUDs more than rural women (36.2% versus 13.5%, p value=0.00) while rural women used implants more than urban women (27.0% versus 9.4%, p value=0.00). In the remaining other modern methods utilization (pills, condom, and injection) there were no significant differences between rural and urban women in the studied sample in Assiut district.

DISCUSSION

Family planning remains an important public health intervention and a cost-effective strategy to reduce maternal mortality, avert unintended pregnancies, and control population explosion, especially in developing countries.¹⁴

The current study found the overall prevalence of modern contraceptive use was 62.8%, similar to some extent to the 60% reported by EDHS⁴, but below the Millennium Development Goals (MDGs) family planning target rate of 72%.¹⁵ A previous study conducted in Alexandria reported usage of modern contraceptives at 80%.¹⁶ This difference could be attributed to that Upper Egypt is the most disadvantaged region in Egypt with the least prevalence of modern methods use.¹⁷

The modern contraceptive prevalence is significantly lower in the rural Assiut district than in the urban areas. In Egypt, women in rural areas have poorer knowledge of family planning methods and family planning services than urban women.¹⁸

The percentage of unmet need for family planning was 29% with no statistical differences between urban and rural. This result is somewhat similar to a recent study that was done in Dakahlia, Egypt that reported the prevalence of unmet need of family planning as 24%.¹⁹ In Egypt, there is a belief of many mothers that they are not at the risk of becoming pregnant especially in the post-partum period.¹⁶

In the present study, it was estimated that 20% of births still occur at intervals less than 24 months with no significant rural/urban difference. Globally, women with birth interval less than 24 months estimated as 25% with most of the cases of short birth intervals were observed in Central Asia at 33%.²⁰

The current study revealed that the prevalence of unintended pregnancy was 26.3% with no rural/urban significant difference. The result is exactly mimic the result reported by a study in Sohag²¹ Egypt that was 30.7%. Worldwide, an estimated 44% of pregnancies were unintended.²²

In the present study, 3.4% of the interviewed mothers were in the 15-19 age group in their last birth which was significantly higher in rural Assiut than urban. In EDHS, 2014 this percentage varied between 4% to 11% according to the place of residence with the highest levels of teenage childbearing are found in rural Lower Egypt.⁴

In the present study, the percentage of pregnancy in advanced age was 15.2% with no significant difference between urban and rural Assiut. The overall prevalence of advanced maternal age globally was 12.3%, ranging from 2.8% in Nepal to 31.1% in Japan. Although the global interest and focus on FP and reproductive health education for adolescents is indeed warranted, women over 35 years of age represent a larger, and growing, population group that also has inherently higher risks of severe adverse outcomes compared with others.¹²

Regarding the knowledge of modern contraceptives, the majority of participants had good knowledge about the common modern contraceptive methods (IUDs, pills, injections, implants). The least contraceptives aware of was male sterilization and female condom. In this study, a significantly higher percentage of urban respondents knew about modern contraception than those in rural areas. This level of contraceptive knowledge among respondents agrees with studies in other Egyptian governorates.^{23,24} In this study, knowledge of FP did not translate to practice. Although the majority of the respondents had good knowledge of modern contraceptive methods, less than two-thirds of the women were using a modern method of family planning. Primary care providers and other health workers should intensify health education and links the knowledge of FP to the FP practice.²⁵

Regarding modern contraceptive usage, the three most common methods were contraceptive pills (41.7%), IUDs (28.7%), and implants (15.2%). The least common method was male condoms by 3.6%. This observable shift from IUDs to pills in the present study was reported in EDHS, 2014.⁴ This may be due to Egypt's elimination of a financial system that granted providers incentives for insertion of IUDs over other methods in 2011 and the discontinuation of IUDs insertion training programs for physicians. However, the transition from the most effective to the less effective one may contribute to the rise in total fertility rates that was observed recently in Egypt.²⁶ Urban women used IUDs more than rural women while rural women used implants more than urban women. Another study in Egypt highlighted that IUDs was more common in urban than rural women while implants and injections were used more by rural women.²⁷

CONCLUSION

The study provides insights into the family planning use and outcomes and also highlights the differences between rural and urban Assiut. Findings reveal that the modern contraceptive prevalence in Assiut was 62.8% which didn't reach the global recommended level, and it was significantly lower in the rural Assiut than the urban areas. Rural Assiut still faces family planning challenges compared to urban. This appears strongly in negative family planning outcomes like high fertility, adolescent pregnancy, and knowing less about family planning. Unmet need of family planning, unintended pregnancy, and pregnancy over 35 years were negative family planning outcomes in both urban and rural Assiut. Over 90 % of the mothers had good knowledge of modern contraceptive methods especially IUDs and pills while the knowledge was poor regarding condoms and sterilization. The three most common family planning methods used by women in Assiut were pills, IUDs, and implants, and the least common methods were condoms. Urban women used IUDs more than rural women while rural women used implants more than urban women. Family planning outcomes in Assiut indicated that family planning services need more intensive efforts to reach women especially those in rural areas.

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