

# The prevalence of unplanned pregnancy among women attending antenatal primary care clinics in Qatar

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## Abstract

**Background:** Currently, 40% of pregnancies worldwide are unplanned and leading to approximately 42 million induced abortions per year, and 34 million unintended births.

**Objectives:** This study aims to ascertain the prevalence of unintended pregnancies among antenatal women attending antenatal clinics in Primary Care in Qatar and to establish any demographic differences among antenatal women around the choice of pregnancy.

**Methodology:** A cross-sectional descriptive study with convenience sampling was used to recruit the participants. A validated questionnaire (the London Measure of Unplanned Pregnancy (LMUP)) was used to look at the prevalence and hence the size of the problem.

**Results:** Among 107 participants, scores on the LMUP ranged from 0-12 with a median of 10. Most pregnancies 79.4%, (n=85) were categorized as planned, 17.8% (n=19) as ambivalent, and 2.8% (n=3) as unplanned. 71% of women (n=76) described their current pregnancy as 'wanted', and 20.6% (n=22) as 'mixed feelings' and 8.4% of women (n=9)

defined their pregnancy as 'unwanted'. Women who are married for more than 5-years ( $\beta$ : -1.50, 95%CI -2.47 to -0.52,  $p=0.003$ ) tended to have significantly lower LMUP scores, and hence a higher risk of having a more unplanned pregnancy. However, women who are non-Qatari's ( $\beta$ : 6.30, 95%CI 3.30 to 9.30,  $p<0.001$ ) and have more than 5-years since last delivery ( $\beta$ : 2.32, 95%CI 0.95 to 3.68,  $p=0.001$ ) have significantly higher LMUP scores and hence a lower risk of having a more unplanned pregnancy.

**Conclusion:** Unplanned pregnancies in this population are rare among women attending antenatal clinics. Less planned pregnancies tended to be more prevalent among Qatari women compared to expatriates. Unplanned pregnancy prevention services need to be included within pregnancy care services in primary care settings to offer preferred contraception on time to effectively maintain the low rate of unplanned pregnancies in the country.

**Key words:** Prevalence, unplanned pregnancy, antenatal clinics, primary care, Qatar

## Introduction

Unplanned pregnancies or unintended pregnancies include unwanted pregnancies where there is no desire for children or childbearing has been completed or has been mistimed that is earlier than anticipated (1). Studies have shown that 40% of pregnancies are unplanned worldwide leading to approximately 42 million induced abortions per year, and 34 million unintended births (2).

It is thought that unintended pregnancies are widespread in the Arab region with unintended consequences for individuals, families (3) and indirectly to the society as well (4). In areas like the Middle East, where the population growth has generally tripled between 1970 and 2010 (5), and in Qatar itself by an average of 10% a year in the decade to 2014 (6), unplanned pregnancies can have an impact on socio economic development as well as health systems (3) and education (6). The contraceptive use in Qatar is reported as 38% in 2012 and this is near similar for both Qatari and non-Qatari women (7). A local survey in Qatar done in 2012 suggested that the demand for contraception had been satisfied with only a small proportion suggesting it was unmet (7).

Although there has been a decrease in the total fertility rate (average number of children a woman would have during her reproductive years) for Qatari women from 3.9 children per woman in 2006 to 3.2 in 2015, it still remains high compared to the world average of 2.5 (8). This decline has been attributed to the preference by Qatari women for higher educational attainment with prioritization of work and career to marriage and childbearing as well as their reluctance to marry early (8).

In this context, the consequences of unintended pregnancy to health can be significant. According to international studies, its effects can be harmful to health (9) with many studies highlighting the risk of unsafe abortions where terminations are carried out by individuals lacking the necessary skills or in an appropriate medical environment (10). There can also be a delay in or inadequate prenatal care affecting both mother and child (11). Higher risk of low birth weight and developmental problems especially when the baby is born soon after a sibling has also been documented (11).

No studies highlighting unplanned pregnancies have been published in Qatar and very few have been documented in the Middle East even though this has been highlighted as widespread in the Arab region (11). Anecdotal evidence through attendance at the antenatal clinics in Qatar suggests that it may be a significant problem in clinical practice. Unplanned pregnancies can have a significant impact on family planning, economic and social well-being among women. Therefore, this study is to investigate the scale of the problem by looking into its prevalence and to establish any demographic differences among antenatal women around the choice of pregnancy. This would be the initial building block towards further research into awareness and the psychosocial impact of the condition.

## Materials and Methods

Across-sectional descriptive study design with convenience sampling was used to recruit the women from the antenatal clinics at various Primary Health Care Centers in the State of Qatar for 6 months. Survey methodology with validated questionnaires was used to look at the prevalence and hence the size of the problem.

Primary Healthcare Corporation (PHCC) is the primary healthcare provider for the people of Qatar. Currently, the PHCC is operating 27 primary health care centers in three health regions namely; Central, Western, and Northern. Thirteen of these health centers are in Doha city (Central Region), whilst the other centers are in the Northern and Western parts of the country. The Health Centers provide appropriate and effective health care services focused on the needs of patients. Services delivered emphasize health promotion, prevention and diagnosis, as well as treatment and provision of long-term and appropriate support to patients and their families.

Every woman irrespective of nationality/ethnicity over the age of 16 years who can speak or read Arabic or English attending either their first or follow up antenatal appointment was invited to participate in the study after providing their informed consent. Once agreed and the consent form signed, the London Measure of Unplanned Pregnancy (LMUP) questionnaire (12) was given to them for completion. Women who did not wish to be included in the study, and where questionnaires were incomplete, were excluded from the study.

LMUP was used to measure the prevalence of unplanned pregnancies. The LMUP does not assume that women have clearly defined pregnancy intentions, allowing them to express ambivalence towards becoming pregnant. The measure contains six items asking about contraceptive use, pre-conceptional preparations, partner influences, personal circumstances and timing of pregnancies, desire for pregnancy and motherhood, and intention to become pregnant. Each item was scored 0 to 2, with a total score ranging from 0 to 12; the higher the score, the more pregnancy is planned and intended. For prevalence estimates, the authors suggested a division of scores into a minimum of three groups, with scores 0–3 categorized as 'unplanned', 4–9 as 'ambivalent', and 10–12 as 'planned'.

The LMUP is a psychometrically validated measure of pregnancy planning/intention developed by Geraldine Barrett and colleagues. Originally developed in the UK, the LMUP has now been validated for use in countries across five continents. LMUP consists of six questions, each scored 0, 1, or 2. These are added to obtain the final scores. Pregnancies with scores of 0-3 are classified as unplanned, 4-9 as ambivalent, and 10-12 as planned. Written responses would be evaluated about why women were not using the contraceptive method they wanted to use. In addition, demographic details around age, marriage date, nationality, gravida, date of last delivery if previously pregnant, miscarriages, type of contraception

normally used, years in Qatar if non-Qatari, education, work status and total household income and about unplanned pregnancy was taken.

Four health centers from different regions in Qatar providing antenatal clinics were chosen for this study. All these four health centers are providing a similar pattern of antenatal services. The study required minimal logistical support as most of the clinics and required patients are booked at the health center through the existing pathways and procedures followed at PHCC. In the clinic the slots range from 14-18 patients per session lasting 20-30 minutes each. Initially patients are seen and counselled by the health counsellor as well as the nurse who does the vital signs. The study was explained by the health counsellor/lead nurse in charge of the antenatal clinic. Convenience sampling of consecutive women attending their antenatal clinic (ANC) appointment were invited into the study after giving their informed consent. The patients who agreed to participate in the study completed the questionnaire and returned it. After receiving the questionnaire and written informed consent, the lead researcher collected data from the patient's medical records. The collected data were anonymized before being processed.

Totally 107 participants were recruited from June to December 2018. Ethical approval for the study was obtained from the Department of Clinical Research committee of all participating health centers. Due to a paucity of any local studies available regarding unplanned pregnancies, and taking into consideration the prevalence rates in literature, 7 percent was chosen as the estimated number of unplanned pregnancies in Qatar. The sample size for the descriptive epidemiology study was done using the following references (10).

$$Z = 1.96, p = 0.07, d = 0.05$$

$$n = Z^2 P(1-P) / d^2$$

### Statistical analysis

Descriptive analyses were performed by using frequencies (percentages) for categorical variables and means (ranges) for continuous variables. The LMUP was treated as a continuous instead of a dichotomous variable (J. Hall, personal communication), and thus, the lower the score on LMUP, the less planned a pregnancy was. The LMUP was not normally distributed, therefore, nonparametric tests were used. Spearman rank correlation coefficient was performed to analyze correlations between LMUP scores and continuous demographics and outcomes. Mann-Whitney U tests and Kruskal-Wallis tests were used to compare differences in LMUP across categorical demographics and outcomes. Multiple linear regression analysis was performed using the 'enter method' to obtain the best-fit model predicting more unplanned pregnancies. The model included socio-demographic and antenatal variables found to be significant during simple regression analysis. Before running the regression model few response options were collapsed and fitted in the model. The analysis was done by using The Statistical Package for the Social Sciences (SPSS) version 16 for data analysis (IBM Corporation, Armonk, NY, USA). A value of  $P < 0.05$  was considered statistically significant.

## Results

Socio-demographic and antenatal characteristics are presented in (Table 1). Due to a paucity of any local studies available regarding unplanned pregnancies, and taking into consideration the prevalence rates in literature, 7 percent was chosen as the estimated number of unplanned pregnancies in Qatar and we calculated 100 participants for this study. We recruited a total of 107 women, and they completed the questionnaire followed by the informed consent form. The mean age of participating women was 30.2 years and a few of them (4.7%) are of Qatari nationality. Approximately half of the participants had been married for 1-5 years and 97.1% were multi-gravid. The majority of the participants were housewives (57.1%), and had no miscarriage (78%), used no contraception (52.5%), had undergraduate education (32%) and had 5000-10000 QR household income (33.3%) (Table 1).

### Prevalence of unplanned pregnancy

Scores on the LMUP ranged from 0 to 12 with a median of 10 (interquartile range (IQR): 2). Most pregnancies (79.4%,  $n = 85$ ) were categorized as planned, 17.8% ( $n = 19$ ) as ambivalent, and 2.8% ( $n = 3$ ) as unplanned (Fig. 1). 71% of women ( $n = 76$ ) described their current pregnancy as 'wanted', and 20.6% ( $n = 22$ ) as 'mixed feelings' and 8.4% of women ( $n = 9$ ) defined their pregnancy as 'unwanted'.

### Associated factors

Estimates from a multiple linear regression suggest that women who were married for more than 5 years ( $\beta$ : -1.50, 95%CI -2.47 to -0.52,  $p = 0.003$ ) tended to have significantly lower LMUP scores, and hence a higher risk of a more unplanned pregnancy. However, women who are non-Qatari's ( $\beta$ : 6.30, 95%CI 3.30 to 9.30,  $p < 0.001$ ) and have had more than 5 years to last delivery ( $\beta$ : 2.32, 95%CI 0.95 to 3.68,  $p = 0.001$ ) have significantly higher LMUP scores and hence a lower risk of an unplanned pregnancy. Nationality and years to the last delivery had significant effect on unplanned pregnancies. Compared to Qataris, non-Qataris have a low risk of having unplanned pregnancies. Regardless of the nationality, the women who were married more than 5 years had a high chance to have more unplanned pregnancies due to the lower LMUP score. Other demographic factors show no significant effect on the LMUP score of unplanned pregnancy (Table 2).

Table-1: Associations between demographic characteristics and LMUP score

Characteristics	Mean( $\pm$ SD)	Median (IQR)	p-value
Age (years, n=106)	30.2( $\pm$ 4.1)	30(5)	0.037 <sup>a</sup>
Characteristics	n(%)	LMUP score <sup>b</sup>	p-value
<b>Nationality (n=107)</b>			0.045 <sup>c</sup>
Qatari	5(4.7)	7(7)	
Non-Qatari	102(95.3)	10(2)	
<b>Years of marriage (n=105)</b>			0.413 <sup>d</sup>
<1	1(0.9)	11(0)	
1 to 5	48(44.9)	10(2)	
6 to 10	38(35.5)	10(4)	
11 to 15	14(13.1)	10(1)	
>15	4(3.7)	9.5(5)	
<b>Number of Pregnancies (n=105)</b>			0.396 <sup>c</sup>
Primi-gravid	3(2.9)	11(2)	
Multi-gravid	102(97.1)	10(2)	
<b>Years since last delivery (n=90)</b>			0.085 <sup>d</sup>
<1	31(34.4)	10(2)	
1 to 5	46(51.1)	10(3)	
6 to 10	12(13.3)	10.5(1)	
11 to 15	1(1.1)	12(0)	
>15	0(0.0)	-	
<b>Miscarriage (n=104)</b>			0.479 <sup>c</sup>
No	81(77.9)	10(3)	
Yes	23(22.1)	10(2)	
<b>Years in Qatar for non-Q (n=101)</b>			0.409 <sup>d</sup>
<1	1(0.9)	11(0)	
1 to 5	36(35.6)	10(2)	
6 to 10	29(28.7)	10(3)	
11 to 15	11.9)	10(1)	
>15	23(22.8)	9(5)	
<b>Contraception (n=99)</b>			0.115 <sup>d</sup>
None	52(52.5)	10(2)	
Withdrawal method	16(16.2)	10(4)	
Condoms	18(18.2)	10(1)	
Pill	9(9.1)	8(3)	
Coil	4(4.0)	10(1.5)	
<b>Highest level of formal education (n=99)</b>			0.423 <sup>d</sup>
School	9(9.3)	9(2)	
College	27(27.8)	10(3)	
Undergraduate	31(32.0)	10(2)	
Postgraduate without degree	8(8.3)	9.5(3)	
Postgraduate with degree	22(22.7)	10(1)	



**Table-1: Associations between demographic characteristics and LMUP score (continued)**

<b>Work (n=84)</b>			0.499 <sup>d</sup>
Housewife	48(57.1)	10(2)	
Student	3(3.6)	11(2)	
Housemaid	1(1.2)	10(0)	
Nurse	7(8.3)	10(6)	
Receptionist	4(4.8)	9.5(2.5)	
Secretary	6(7.1)	11(1)	
Teacher	6(7.1)	9.5(1)	
Other professional	9(10.7)	11(1)	
<b>Total household income (n=81)</b>			0.485 <sup>d</sup>
1000-5000	7(8.6)	9(5)	
5000-10000	27(33.3)	10(2)	
10000-15000	26(32.1)	10(1)	
15000-20000	7(8.6)	9(6)	
20000-30000	9(11.1)	10(2)	
30000-40000	1(1.2)	12(0)	
40000+	4(4.9)	7.5(7.5)	

a Spearman rank correlation coefficient

b Data are presented as median (interquartile range)

c Mann–Whitney U tests

d Kruskal–Wallis tests

SD: Standard deviation

IQR: Interquartile range

LMUP: London Measure of Unplanned Pregnancy

**Table 2: Results of multiple linear regression analysis predicting LMUP-Final model**

Characteristic	Unadjusted	p-value	95% CI <sup>a</sup>	Adjusted $\beta$	p-value	95% CI <sup>a</sup>
<b>Nationality</b>						
Qatari	ref			ref		
Non-Qatari	3.12	0.005	0.94 to 5.30	6.30	<0.001	3.30 to 9.30
<b>Years of marriage</b>						
≤ 5 years	ref			ref		
> 5 years	-0.98	0.04	-1.93 to -0.02	-1.50	0.003	-2.47 to -0.52
<b>Years since last delivery</b>						
≤ 5 years	ref			ref		
> 5 years	1.59	0.031	0.16 to 3.02	2.32	0.001	0.95 to 3.68

a 95% Confidence Interval

## Discussion

Our study aimed to assess the prevalence and associated factors of unplanned pregnancies ending in birth. We found that in our population 79.4% of the pregnancies were planned, 17.8% were ambivalent and only 2.8% of the pregnancies were unplanned. Our study results differ from previous studies, which reported higher prevalence of unplanned pregnancies and they are consistent with studies from European countries that were also using the LMUP, which reported a prevalence rate of 2–9% for unplanned pregnancies leading to birth (13-17). All these findings show that the differences in definition and measurements may lead to inconsistent prevalence rates which supports the requirement of a clear definition and a proper measurement tool that takes into account the complexities of the construction (18-20).

In previous studies, another important finding was that women with low socio-economic status and lower education tended to have a higher risk of less planned pregnancies and these pregnancies were more likely to be high-risk pregnancies with no preconception use of folic acid or vitamins, fewer antenatal care visits, smoking during pregnancy, more stress, lower relationship satisfaction, and less social support (21-23). Also, researchers reported there is a possibility that socially disadvantaged women can fail to use contraception correctly and consistently due to knowledge, access, cultural, personal, and relationship factors (24). Ambivalence towards avoiding pregnancy is also more common among women of lower socio-economic status (25, 26). Fedorowicz et al., mentioned that some women who live in a fragile socio-economic environment often see motherhood as an escape from hardship to a better life and an attainable goal that will provide personal satisfaction and achievement (24, 27). Our findings suggest no major differences in pregnancy outcome according to the level of education. We haven't looked at the socio-economic status due to the well-developed economic situation in Qatar. Future studies are required with a large number of populations to define this further.

Unplanned pregnancies are associated with an increased risk of adverse antenatal and birth outcomes. But some later study results propose no major differences in pregnancy outcome according to pregnancy planning. This discrepancy could be attributed to differences in definition and methodology (28).

There are possibilities of having higher risk for poor pregnancy outcomes in unwanted pregnancies rather than mistimed or unplanned pregnancies (29). In this study we haven't looked at the antenatal outcome parameter of unplanned pregnancies and low prevalence in unplanned pregnancy may support the mentioned study results.

Researchers also suggested the opposite cause-effect relationship, namely that pregnancy-related nausea and vomiting, poor social support and unplanned pregnancy are factors that contribute to stress, which harms maternal psychosocial adaptation (30). Further research is required

to investigate the relationship between pregnancy planning and hyperemesis gravidarum.

The proportion of women included in this study was based on the following characteristics: age, nationality, years to marriage, number of pregnancies, last delivery date, years to last delivery, miscarriages, years in Qatar for non-Qataris, contraception, education, work and household income, contraception use, time of pregnancy, before becoming pregnant, desire, partner, and health. Our results show that nationality and years since the last delivery have a significant effect on planned pregnancies. Compared to Qataris, non-Qataris have a low risk of having unplanned pregnancies. Regardless the nationality, the women who have been married more than 5 years have a high chance to have more unplanned pregnancies due to the lower LMUP score. Other demographic factors show no significant effect on the LMUP score of unplanned pregnancy. Unplanned pregnancies may have a significant impact on family planning, and economic and social well-being among women. It is required to be explored further in future studies.

## Conclusion

In summary, we found that unplanned pregnancies in this population are rare among women attending antenatal clinics. Less planned pregnancies tended to be more prevalent among Qatari women compared to expatriates. More unplanned pregnancies deserve attention as they were more likely to be high-risk pregnancies. This study emphasizes the importance of targeting women through community-based interventions to help reduce unplanned pregnancies. Unplanned pregnancy prevention services need to be included within pregnancy care services in primary care settings to offer preferred contraception promptly to effectively maintain the low rate of unplanned pregnancies in the country.

### Data Availability

The datasets generated and/or analysed during the current study are not publicly available but are available from the corresponding author on reasonable request.

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