Unintended pregnancy and the associated factors among pregnant females: Sukh survey-Karachi, Pakistan

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ORIGINAL ARTICLE

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Abstract

Objective: Unintended pregnancy has become a substantially growing reproductive health concern in South Asian region. The objective of this survey was to assess the magnitude of unintended pregnancy along with its correlates among currently pregnant women residing in Karachi.

Methods: A community based, multistage, cross-sectional study was carried out among 612 currently pregnant women from squatter settlements of Karachi, inquiring for "unintended pregnancy", outcome of interest. Multivariable logistic analysis was done using SPSS v.19 to determine associated factors.

Results: Of 612 pregnant women interviewed, 168(27.4%) reported their pregnancies as unintended. The multivariable regression identified a high likelihood of unintended pregnancy among females aged $\geq$ 35 years (adjusted odds ratio =3.0, 95% Confidence Interval =1.2 to 4.9)], having: ideal family structure perceived as $\leq$ two children (Adj. OR=2.3, CI=1.3 - 4.5), no media exposure (Adj. OR=2.9, CI=1.7 to 5.0), no inter-spousal communication about planning a family (Adj. OR=1.5, CI=1.1 - 2.3), $\geq$5 children (Adj. OR=7.2, CI: 3.4 to 15.1), more sons than daughters (Adj. OR=4.0, CI=1.7 to 6.7), and positive attitude towards using family planning method (Adj. OR=1.8, CI=1.2 to 2.8). Unintended pregnancy decreased with increased age at marriage (Adj. OR= 0.8, CI=0.8, 0.7 - 0.9) and with use of contraceptive methods ever in life (Adj. OR=0.7, CI=0.5 - 0.9).

Conclusion: We found important predictors which suggest policy measures for enhancing media exposure, promoting effective family planning usage, and incorporating behaviour change models in reproductive health clinics to modify fertility intentions of couples.

Keywords: Unintended pregnancy, correlates, currently pregnant, women, squatter, Pakistan.

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Introduction

Of an estimated 210 million pregnancies worldwide, approximately seventy to eighty million are found to be unintended, mistimed or unplanned and almost up to 45 million gets aborted.[1] According to global estimates, the problem of unintended pregnancy is spread similarly across the world. Around all pregnancies, 35% in Iran and Nepal both, Japan 46%, and 49% in the USA, are unintended.[2,3] Evidence in Pakistan indicates that of an estimated nine million conception, unintended and unplanned pregnancies are 46% while 54% out of them ends with intended abortions.[3] An unintended pregnancy could be mistimed (occurs before than the actual point in time), or unplanned/unwanted (occurs despite the couple not wanting more children).[4] Therefore, pregnancies which are not intended may exert substantial health, economic and social impact on women and the children.[5] Females having unplanned conception are not willing for appropriate pregnancy care during antenatal period,

undergo unsafe induced abortion and have worse pregnancy outcomes.[3,6]

Despite Family Planning policies and programmes in Pakistan, contraceptive prevalence rate (CPR) has only gone up till 34%, while a TFR (total fertility rate) is 3.6 which has minimally dropped with respect to previous years.[7] Moreover, the demographic health survey conducted in Pakistan in 2017-18 reported that 42% of total married females do not intend to conceive a child, however, minimum 25% are using family planning methods, leaving an unmet need of 17%.[1] Furthermore, the report stated that prevention of unplanned pregnancies would reduce a TFR i.e. births/women to 3.1 in Pakistan.[1] Therefore, it is essential for the demographers and policy implementers to recognize the dynamics of mistimed and unwanted conception along with its determinants, such as contraceptive failure, socio-cultural and demographic factors, access to health information, autonomous women, and spousal communication for planning a family, in order to appropriately address the issue through reproductive health programmes.[2] Hence, the aim of this survey was to assess the magnitude of unintended pregnancy. We

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also explored predictors associated with unintended pregnancy in Pakistani currently married pregnant females residing in slum areas of Karachi.

Subjects and Methods

A multistage, cross-sectional, community based survey was carried out in urban squatter communities which were the intervention places for Sukh initiative in Karachi. We recruited participants through systematic sampling and pregnant MWRAs (Married Women of Reproductive Age) group were interviewed. Overall, ten Sukh stations were surveyed and households (HHs) lists were provided by the 'Community Health Workers Programme' services provided by Aman foundation. In each individual station, the blocks were labelled in sequence and comprised of 200 to 250 HHs. Subsequently, in randomly identified blocks the selection of every 5th HH was done, after random selection of first house, according to systematic sampling strategy. Within the house where more females were eligible to recruit for interview, random selection was done to select one female to participate in the study. In total, 612 MWRAs who were pregnant currently were interviewed for this study under Sukh initiatives. The initiative was based on a partnership among foundations i.e. the 'Bill & Melinda Gates','Aman Health', and 'David & Lucile Packard', which designed the initiative for contraceptive services.[8]

The study was conducted after ethical committee approval at The Aga Khan University (Ref: 2946-CHS-ERC-14).

The survey was carried out by field workers who were trained to collect quality data using the language common among local residents. In addition, participants from the communities were recruited randomly with the aim to reduce the selection bias. The information was obtained about demography, history of reproductive health, past pregnancy and delivery, and family planning.

The questionnaire to obtain the information was structured after literature search and adapted from PDHS (Pakistan Demographic and Health Survey, 2012-2013) questionnaire.[9] The information was collected on demographic characteristics: the woman's age, ideal number of children, parity, socioeconomic characteristics: education, wealth quintile; sociocultural characteristics: ethnicity, women's autonomy (defined by the women's participation in decision of choosing a husband and selecting a date for marriage), inter-spousal communication about pregnancy, and future

fertility desire for more children; access to family planning related information through media, ever contraceptives user, and attitude towards its use in the future. To operationalize unintended pregnancy as an outcome variable; currently pregnant women were asked whether or not they wanted the pregnancy to happen at that time of conception.

Data analysis was performed through SPSS v.19.0. Descriptive statistics for categorical variables were run to determine proportions and related frequencies. To assess Participant's distribution with respect to 'unintended pregnancy', outcome status was assessed via Chi square test. Multi-collinearity was assessed between all the factors assessed in the study, keeping '$\geq$ 0.5' as a cut off to label correlation among these factors. To find out the predictors related to unintended pregnancy, univariable logistic regression was performed to estimate odds ratios (OR) in crude form along with their confidence intervals (CI) at 95% and p-values which was kept at < 0.25 to keep variables in multivariable model. Multivariable logistic analysis was carried further to adjust confounders. The significance (p-value) for the multivariable model was marked statistically at < 0.05.

Results

The survey studied 612 females who were currently pregnant. The reported prevalence of unintended pregnancy among the participants was 168 (27.5%) women. The distribution of unintended pregnancies was significantly different within the categories of respondents' age, wealth quintile, living children and their sex composition, antenatal visits in last pregnancy, ever-use of family planning and attitude towards family planning use in future, fertility desire for future children, media exposure and mean age at marriage with respect to unintended pregnancy at a p-value of less than 0.05 (Table-1).

Univariable logistic model showed that unintended pregnancy was more likely among women aged 35 years and above, having: low wealth quintile, no media exposure, $\geq$ 5 children and more sons than daughters, ideally perceived family structure based on $\leq$ 2 children, frequent antenatal visits ($\geq$ 8 visits) in last pregnancy, no inter-spousal communication about pregnancy, intention to use contraceptive method in future, and no future desire for children. While unintended pregnancy decreased with the increase in age at marriage, and ever contraceptives user (Table-2).

In the multivariable model (Table-3), the likelihood of

Table-1: Frequency distribution of correlates associated with unintended pregnancy among pregnant women (n=612), Karachi, Pakistan.

Characteristics	Unintended Pregnancy n (%) 168 (27.5%)	Intended Pregnancy n (%) 444 (72.5%)
Age *		
15 to 24 years	49 (29.2)	177 (39.9)
25 to 34 years	95 (56.5)	231 (52.0)
35 years and above	24 (14.3)	36 (8.1)
Education Status[a]		
Intermediate and above	40 (23.8)	128 (28.8)
Middle to matric	24 (14.3)	63 (14.2)
Primary or no schooling	104 (61.9)	253 (57.0)
Ethnicity		
Urdu	64 (38.1)	155 (34.9)
Punjabi	41 (24.4)	96 (21.6)
Sindhi	37 (22)	108 (24.3)
Pushto	18 (10.7)	50 (11.3)
Baluchi	8 (4.8)	35 (7.9)
Ownership Status		
Owned	103 (61.7)	282 (63.5)
Rented	64 (38.3)	162 (36.5)
Wealth Quintile *[b]		
High	66 (39.5)	202 (45.5)
Middle	20 (12.0)	83 (18.7)
Low	81 (48.5)	159 (35.8)
Age at marriage (mean ± SD) *	18.9 ± 3.66	19.6 ± 3.77
Women Autonomy[c]		
Yes	52 (31.0)	165 (37.2)
No	116 (69.0)	279 (62.8)
Ideal Family Size		
≤ 2 children	64 (38.1)	129 (29.1)
3 to 4 children	81 (48.2)	230 (51.8)
≥ 5 children	23 (13.7)	85 (19.1)
Media Exposure related to FP *[d]		
None	21 (12.5)	129 (29.1)
Any media exposure	147 (87.5)	315 (70.9)
Inter-spousal Communication about pregnancy		
Yes	59 (35.1)	212 (47.7)
No	109 (64.9)	232 (52.3)
Number of Living Children *		
No children	20 (11.9)	112 (25.2)
1 to 2 children	66 (39.2)	203 (45.7)
3 to 4 children	51 (30.4)	98 (22.1)
≥ 5 children	31 (18.5)	31 (7.0)
Living Children Composition *[e]		
Sons > daughters	56 (33.3)	136 (30.6)
Sons = Daughters	39 (23.2)	51 (11.5)
Sons < Daughters	53 (31.6)	145 (32.7)
No Children	20 (11.9)	112 (25.2)
Antenatal Visits in last Pregnancy *[f]		
Not Pregnant Previously	16 (9.5)	98 (22.1)
≤ 4 visits	83 (49.4)	174 (39.2)
5 to 8 visits	25 (14.9)	79 (17.8)
>8 visits	44 (26.2)	93 (20.9)

Ever Used Family Planning Method *[g]		
No	103 (61.3)	232 (52.3)
Yes	65 (38.7)	212 (47.7)
Attitude towards using FP method after current pregnancy *		
Yes	120 (71.4)	263 (59.2)
No	48 (28.6)	181 (40.8)
Fertility Desire for future children *		
Want more children	82 (48.8)	311 (70.0)
Want no more children	86 (51.2)	133 0.0)

*P-value < 0.05
[a] Educational level was defined as those who never attended school or did not know how to read or write were considered as not educated while those who had been to school were categorized as educated.
[b] Wealth quintile was defined as high middle and low based on household possessions,
[c] Women autonomy was defined as those having a say in choosing husband and deciding the date of marriage.
[d] Media exposure was defined as exposure to any media such as radio, television or newspaper providing information related to family planning methods.
[e] Living children composition was categorized as having number of sons greater, equal to or less than number of daughter.
[f] Antenatal visits were defined as frequency of antenatal visits during last pregnancy.
[g] Ever contraceptive user was defined as women who have ever used any contraceptive method.

Table-2: Univariable analysis for correlates associated with unintended pregnancy among pregnant women (n=612), Karachi, Pakistan.

Characteristics	Unadjusted OR (95% CI)	P value
Age		
18 to 27 years	1	
28 to 37 years	1.48 (0.99 - 2.21)	0.054
38 years and above	2.41 (1.31 - 4.41)	0.004
Education Status [a]		
Intermediate and above	1	
Middle to matric	1.21 (0.67 - 2.19)	0.510
Primary or no schooling	1.31 (0.86 - 2.01)	0.203
Ethnicity		
Urdu	1	
Punjabi	1.03 (0.64 - 1.65)	0.887
Sindhi	0.83 (0.51 - 1.33)	0.440
Pushto	0.87 (0.47 - 1.61)	0.661
Baluchi	0.55 (0.24 - 1.25)	0.158
Ownership Status		
Owned	1	
Rented	1.08 (0.74 - 1.56)	0.675
Wealth Quintile * [b]		
High	1	
Middle	0.73 (0.42 - 1.29)	0.288
Low	1.55 (1.06 - 2.29)	0.024
Age at marriage (mean ± SD) *	0.95 (0.90 - 0.99)	0.040
Women Autonomy [c]		
Yes	1	
No	1.32 (0.90 - 1.92)	0.152
Ideal Family Size		
≤ 2 children	1.83 (1.10- 3.17)	0.031
3 to 4 children	1.30 (0.76 - 2.20)	0.326
≥ 5 children	1	

Media Exposure * d

Any media exposure	1	
No media exposure	2.86 (1.73 - 4.73)	0.001

Inter-spousal Communication about pregnancy *

Yes	1	
No	1.68 (1.17 - 2.43)	0.005

Number of Living Children *

No children	1	
1 to 2 children	1.82 (1.05 - 3.15)	0.033
3 to 4 children	2.91 (1.62 - 5.22)	0.001
≥ 5 children	5.60 (2.81 - 11.14)	0.00

Living Children Composition * e

Sons > daughters	2.55 (1.49-4.36)	0.001
Sons = Daughters	2.48 (1.33-4.65)	0.004
Sons < Daughters	1.19 (0.63-2.25)	0.588
No Children	1	

Antenatal Visits in last Pregnancy * f

Not Pregnant Previously	1	
≤ 4 visits	2.92 (1.62 - 5.26)	0.001
5 to 8 visits	1.93 (0.93 - 3.88)	0.062
> 8 visits	2.89 (1.53 - 5.48)	0.001

Ever Used Family Planning Method * g

No	1	
Yes	0.69 (0.48 - 0.99)	0.045

Attitude towards using FP after current pregnancy *

Yes	1.71 (1.17 - 2.52)	0.006
No	1	

Fertility Desire for future children *

Want more children	1	
Want no more children	2.45 (1.70 - 3.53)	0.001

*P-value < 0.05.

[a] Educational level was defined as those who never attended school or did not know how to read or write were considered as not educated while those who had been to school were categorized as educated.

[b] Wealth quintile was defined as high middle and low based on household possessions.

[c] Women autonomy was defined as those having a say in choosing husband and deciding the date of marriage.

[d] Media exposure was defined as exposure to any media such as radio, television or newspaper providing information related to family planning methods.

[e] Living children composition was categorized as having number of sons greater, equal to or less than number of daughter.

[f] Antenatal visits were defined as frequency of antenatal visits during last pregnancy.

[g] Ever contraceptive user was defined as women who have ever used any contraceptive method.

unintended pregnancy became higher among females aged ≥ 35 years (adjusted odds ratio [Adj. OR]=3.0, Confidence Interval [CI]=1.2 to 4.9), having; ideal family structure of children ≤ 2 (Adj. OR=2.3, CI=1.3 - 4.5), no media exposure (Adj. OR=2.9, CI=1.7 to 5.0), no inter-spousal communication about conception (Adj. OR=1.5, CI=1.1 - 2.3), ≥ 5 children (Adj. OR=7.2, CI=3.4 to 15.1), more sons than daughters (Adj. OR=4.0, CI=1.7 to 6.7), and positive attitude towards using family planning method (Adj. OR=1.8, CI=1.2 to 2.8). Unintended pregnancy decreased as age at marriage increased (Adj. OR=0.8, CI=0.7 - 0.9) and with the use of contraceptive methods ever (Adj. OR=0.7, CI=0.5 - 0.9).

Table-3: Multivariable analysis for factors associated with unintended pregnancy among pregnant women (n=612), Karachi, Pakistan.

Characteristics	Unadjusted OR (95% CI)	P value
Age		
15 to 24 years	1	
25 to 34 years	1.53 (0.91 - 2.91)	0.050
35 years and above	3.01 (1.28 - 4.90)	0.034
Mean age at marriage	0.87 (0.72 - 0.94)	0.004
Ideal Family Size		
≤ 2 children	2.39 (1.31 - 4.51)	0.031
3 to 4 children	1.61 (0.90 - 2.85)	0.106
≥ 5 children	1	
Media Exposure related to FP a		
Any media exposure	1	
No media exposure	2.96 (1.74 - 5.03)	0.000
Inter-spousal Communication about pregnancy		
Yes	1	
No	1.55 (1.12 - 2.31)	0.031
Number of Living Children		
No children	1	
1 to 2 children	1.99 (1.21 - 3.52)	0.017
3 to 4 children	3.19 (1.73 - 5.86)	0.001
≥ 5 children	7.22 (3.45 - 15.12)	0.001
Living Children Composition b		
Sons > daughters	4.01 (1.78 - 6.78)	0.040
Sons = Daughters	2.81 (1.41 - 4.25)	0.001
Sons < Daughters	0.75 (0.51 - 0.97)	0.001
No Children	1	
Ever Used Family Planning Method c		
No	1	0.045
Yes	0.71 (0.54 - 0.98)	
Attitude for using FP method after current pregnancy		
Yes	1.88 (1.24 - 2.84)	0.003
No	1	

[a] Media exposure was defined as exposure to any media such as radio, television or newspaper providing information related to family planning methods.

[b] Living children composition; having number of sons greater, equal to or less than number of daughter.

[c] Ever contraceptive user was defined as women who have ever used any contraceptive method.

Discussion

The current study assessed the factors associated with unintended pregnancy. Our survey reported 27.5% prevalence of unintended pregnancy. Viewed in light of the impact it has on the mother with respect to induced abortion and on child with respect to neonatal mortality or still birth, this is a high rate.[10] The prevalence estimate in this study is comparable to 29.7% in a survey in Northern Ethiopia,[11] and 29% in nationwide demographic and health survey in sub-Saharan Africa.[12]

Women's age has been found to be an important predictor of unplanned pregnancy. Various studies carried out in Iran and Nepal among pregnant females reported that the

probability of having unplanned pregnancies get higher with increasing females' age.[2,13] Evidence from these studies supported this study's finding that unplanned pregnancies are significantly more prone to happen among females aged 35 years and above.

Likewise, females' age at the time of marriage emerges as another key determinant for unintended pregnancy — this could be because marriage at an early age tends to initiate early sexual intercourse and thus the women are exposed towards the risk of unintended pregnancy.[14] Another justification that females with early marriage might not have complete access towards family planning and reproductive health services and might not be able to practice birth spacing due to cultural influences.[2] This finding was supported by a survey in Japan by Goto et. al which reported that teen marriages increased the likelihood of unwanted pregnancy.[14] Similar to the survey in Nepal,[2] this study found that the probability of unintended pregnancy in females can be minimized with increase in age at marriage.

Exposure to media pertaining to family planning services played a significant role for planned pregnancy. A study conducted in Nepal found that females were having less likelihood to experience an unplanned pregnancy if they had an uninterrupted radio access.[2] In this study, any media exposure about family planning led to significant reduction in unintended pregnancy. This finding is comparable to a population based survey carried out in Southern Ethiopia in which enhanced media exposure among currently married women reduced the risk of unplanned pregnancy.[10] Past studies from Kenya and Nigeria have also established that mass media influences fertility intentions of women.[15,16] Mass media creates awareness about family planning services, thus increasing its uptake is associated with decreased likelihood of unintended pregnancy.

This survey also identified that spousal communication about planning a family decreases a probability of unintended pregnancy. This finding was supported by a survey carried out in Southern Ethiopia which suggested that unintended pregnancy was higher among women whose husband opposed practicing contraceptive mechanisms and planning family size.[10] A recent study documented that family planning uptake was lower among couples where husbands were against contraception. This indicates the importance of communication about preferred family size for reducing the occurrence of unintended pregnancies.[17]

In terms of perceived ideal family size, the probability of unintended pregnancy increases with a decrease in perceived count of children ideally which was reported by a nationally represented survey conducted in Nepal.[2] This study has shown similar findings of higher likelihood of an unintended pregnancy, with a perceived ideal family size of ≤ 2 children.

In this study, women who had ≥ 5 children expressed more the current pregnancy as unintended. Similar findings were observed in other regional studies such as, Zambia,[18] Northern Ethiopia,[11] East Ethiopia[19] and China.[20] This could be due to the large family size occupying women with busy schedules which might not permit them to seek reproductive healthcare services timely.

Son preferences among living children and gender composition have been studied extensively in the regions of South-East Asia and research suggests that sons are considered to be economically valuable to a family.[21] Our study reported higher chance of pregnancy to be unintended among females having more number of sons as compared to daughters. The finding implies that women do not intend to have more children if they were having more sons as compared to daughters, thus are more likely to consider the current pregnancy unintended. A study conducted in North India showed that having more sons is associated with a decreased likelihood of wanting more children.[22]

Favourable intention towards contraceptive method usage and ever-use of it make timely and wanted pregnancies more likely. This was evident in regional surveys carried out in Ghana[23] and in Khartoum state of Sudan.[24] Ever contraceptive users have decreased the chances of unintended pregnancy in our study too, whereas, unwanted pregnancy was reported to be higher among those who showed an intention for using contraceptive methods in the future. This could be due to the realization of importance of contraceptive method as of now.

There were certain limitations in our study. First, the opinion of the male partner was not taken into account related to pregnancy decisions; practically, however, planning for family size and fertility intentions depends on mutual agreement of both partners. Second, our study was conducted in an urban population, therefore the findings cannot be generalized to rural population due to difference in culture, norms, demography, and reproductive behaviours. Third, the cross-sectional study design does not allow for causal associations to be established.

Regardless of aforementioned limitations, the survey is

first of its kind conducted in Pakistan that highlighted the potential determinants related to unintended pregnancy at community level and might have substantial effects once strategized according to the relevant findings. Additionally, the survey was based on general population that means the findings report true estimates and give an accurate population's representation. Moreover, generalizability of this survey results can be done to other urban places in Pakistan and similar regional neighbourhood countries. The random sampling technique for selecting respondents reduced the probability of introducing selection bias. In addition, SUKH initiative implies a core vision related to female empowerment to access and avail family planning and reproductive health facilities via creating and enhancing awareness, providing quality supplies and services, and keeping the choices open for selecting contraceptive methods and increasing modern contraceptives usage. Multiple partners at international and national level: 'JHPIEGO, Aman Health Care Services, Aman Telehealth (ATH), dkt Pakistan, Aahung'; employed community health services, a door-to-door facility provided by Community Health Workers (CHWs) of Aman Foundation for reproductive health and family planning counselling, refill of equipment and contraceptive supplies, and referral if needed.[8]

Conclusion

The community based study reported a substantially higher magnitude of unintended pregnancy and identified its predictors; age of the women, age at the time of marriage, family structure ideally perceived, exposure of media for family planning content, spousal communication, living children and sex composition, and use of contraceptive methods. These factors offer a ground to recommend policy measures for enhancing the reach of electronic media to people, increasing the age of marriage or encourage women to delay teenage pregnancies. Healthcare workers can play a role in promoting family planning through sensitization and devising specific approaches to enhance health literacy associated with benefits of contraception thus, creating demand for effective contraceptive use. In order to avoid unintended pregnancy, behaviour change models should be designed for sensitizing women and their spouses that more children could pose an economic liability rather than benefit, in order to bring reproductive behaviour change and lower the fertility rate among women.

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