SURVEY

Desire to limiting child birth and the associated determinants among married females: Sukh Survey-Karachi, Pakistan

Shama Razzaq,[1] Saleem Jessani,[2] Sumera Aziz Ali,[3] Zahid Abbasi,[4] Sarah Saleem[5]

Abstract

Objective: High rates of population growth negatively influence the social and economic development of a country. This study aimed to determine the women's desire to limiting child birth in future (fertility intention) and its determinants among Pakistani women of reproductive age resident of Karachi.

Methods: A community-based, multistage cross-sectional study was carried out among residents of the squatter settlements in Karachi. The were 4,485 married residents, and currently non-pregnant females of 18 to 49 years old. Framework adapted has been based on "Pullum 1980" to operationalize the outcome of determining the desire to limiting childbearing and the factors related with controlling the family size. Multivariable logistic regression using SPSS 13.0 was used.

Results: The survey comprised of a total sample of 4485 females who participated and acquiring a median (interquartile range) age of 30 (25 to 35) years. Whereas, the living children count was found to be [median: 3 children; (IQR: 2 to 4)]. From the total, 2109 (47%) wanted to limit the future child birth. Multivariable logistic analysis showed that women who did not want to limit child birth significantly (p-value <0.05) belonged to age groups 18 to 27 years (adjusted odds ratio [aOR]=0.25), and 28 - 37 years (aOR=0.39) compared to the women aged > 37 years (referent category), who belonged to poor wealth category (aOR=0.41), were ever contraceptive users (aOR=0.49), were currently not a contraceptive user (aOR=0.53), not educated (aOR=0.34), and having sons less than the daughters (aOR=0.74). Conversely, females with perceived family structure of ≤two children ideally (aOR=2.62), were autonomous (aOR=1.25) and who had equal daughters and sons (aOR=1.13) rather than more number of sons, had more probability to limiting child birth at a statistically significance (p-value) of less than 0.05.

Conclusion: The survey highlights the strategic independent determinants and there is a need of devising behaviour modification modalities accordingly to expedite the use of contraceptive methods and to encourage fertility decline among women.

Keywords: Fertility preference, Determinants, Currently married, Women, Squatter, Pakistan.
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Introduction

Pakistan stands the sixth most densely inhabited nation around the globe.[1] Nearly 35% of Pakistanis are categorized as a dependent population i.e. under 15 years of age, and around 4% are 60 years old and above, indicating a 'dependency ratio' in a higher bracket.[2] Increment in population at a higher rate negatively impact a country's economic growth by increasing the demand of available resources.[3] This can result in resource depletion, employment inequities, impoverishment, unrest among people, increasing social evils and crimes, mental health disturbances etc.[4,5]

Fertility is a fundamental contributor for expanding population that predicts the population growth rate.[6] Fertility preference provides direction towards the magnitude of desired size of the family one wants to acquire, and indicates as a proxy indicator towards the use of contraceptives.[7] Owing to cultural, social, and economic structure of the society, more children is valued and there is low demand for family planning methods which tends to result in high fecundity.[8]

A nationally Demographic survey (2017-18) conducted in Pakistan, reports that nearly 44% of currently married women have a desire to limiting childbearing or they are sterilised permanently.[6] The survey also mentioned that the number of children currently living also influence the childbearing i.e. more number of living children, lesser the probability of future childbearing.[6] Despite strategies, programmes, and policies in Pakistan, documented Total Fertility Rate (TFR) in terms of births/women is found to be 3.6, and the prevalence of contraceptive rate is reported to be 35.4%. The TFR is lesser in the urban region standing at 2.9 children/women, which nonetheless indicates a relatively larger size of the family.[6] A framework, "Pullum 1980" indicates several factors that influence fertility

[1]Health Services Academy, Islamabad, [2,4,5]Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan, [3]Department of Epidemiology, Columbia University, New York, USA.
Correspondence: Shama Razzaq. Email: shama.razzak@gmail.com

intentions. These include socio-cultural status, economic and demographic attributes, and intra-spousal interaction.[7] Therefore, determining fertility desires, its associated predictors, and ascertainment of the extent to which the factors predict the fertility intentions, is vital for effectively rolling out the programmes and policy based on population control and devised to encourage family planning.[7] Henceforth, this survey aimed to assess fertility preferences and determinants related to limiting childbearing among Pakistani females, residents of Karachi.

Subjects and Methods

A community-based, cross-sectional study was carried out on systematically identified households where non-pregnant MWRA (Married Women of Reproductive Age, belonging to the age group of 18-49 years) were recruited and interviewed. The "Aman Community Health Program" (ACHP) assisted in accessing household's lists of all 10 Sukh stations for random selection of the households. For every Sukh station, the blocks comprised of 200 to 250 sequentially numbered households were formed. Subsequently, the households were approached in every randomly chosen block through systematic sampling method, after identifying one house randomly every fifth house was selected. Within a house, only one female was randomly recruited if $\geq$ 1 eligible woman was present to hold the interview.

Overall, 4485 currently non-pregnant MWRAs were interviewed for this study. These women were living at intervention sites i.e. ten Sukh Stations, under the initiative by tripartite partners termed as a 'Sukh initiative'. The tripartite partners were three foundations such as, 'David & Lucile Packard', 'Bill & Melinda Gates' and 'Aman services', which established a programme to cater the needs of family planning services.[9]

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

The interviews were carried out by field workers who were trained to collect quality data in a common language used by local residents. Additionally, the random recruitment of the participants from the community minimized the selection bias. Information was collected related to socio-demographic status, previous reproductive pattern, previous pregnancy (if any), and the use of contraceptive methods. An original framework developed by "Pullum (1980)" on "Fertility Preferences" was modified for this study to operationalize the outcome and to assess the predictors related to limiting the childbearing. This adapted framework discuss factors influences "desire to limit child bearing", outcome of interest of this study. These factors include socio-

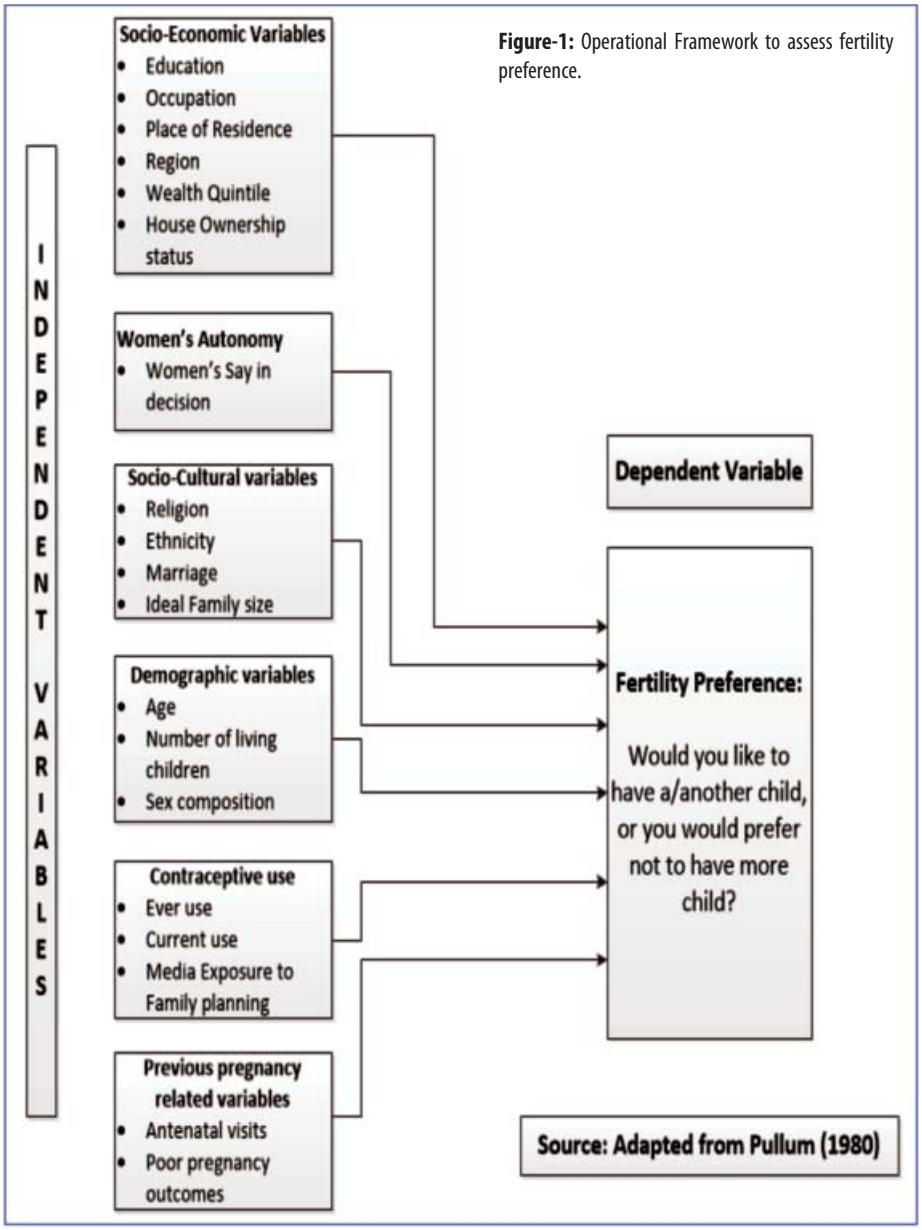

Figure-1: Operational Framework to assess fertility preference.

demographic status, socio-cultural factors, economic conditions, women's practiced autonomy (defined by the women's participation in the decision of choosing a husband and selecting a date for marriage), use of contraceptives and about earlier pregnancy[7] (Figure-1). To determine the outcome i.e. "fertility preference"; non-pregnant MWRAs were inquired, "whether or not they would want to have a/another child" to determine a 'desire to limiting childbearing' as a dependent (outcome) variable.

The use of family planning methods reported in Karachi was 42.7% according to the national demographic health survey (PDHS).[10] Keeping bound on error as 2.5%, level of confidence as 95% and to keep 2.25 for a design effect to adjust for cluster sampling mentioned in aforesaid national level (PDHS) survey10, the optimum sample size calculated via the OpenEpi[11] v.2.3 was nearly 3,375 currently MWRAs. Taken into account the sensitivity associated with the topic of family planning methods usage, resulting in higher refusals to participate and non-response rate, the sample was inflated by 30% in order to adjust for refusals and no response and a total of 4485 participants were recruited.

Data analysis was conducted using SPSS version 19.0. For categorical variables, descriptive statistics were conducted to find out proportions (%) and respective frequencies (n). Cross-tabulations (chi square) were run for determining the participants' share with respect to the outcome i.e. 'desire to limiting childbearing'. Multi-collinearity was across independent categorical factors, where ≥ 0.5 was considered as a cut off for a correlation among those factors. To predict the determinants related to the desire to limiting child birth, a univariable logistic regression was conducted and odds ratios (crude) along with their confidence intervals at 95% and p-values were determined. Multivariable analysis was carried out further to adjust for confounders. Statistical significance of the analysis was kept at p-value < 0.05.

Results

The survey had a total sample of 4485 females who participated in this study acquiring a median (interquartile age range) of 30 (25 to 35) years. Whereas, the living children count was found to be [median: 3 children; (IQR: 2 to 4)]. Of total, approximately 47% i.e. 2109 women reported the future desire for limiting child birth.

The participants' distribution along variables which could affect the desire to limiting childbearing is mentioned in Table-1. There were significant differences in the intention to limit childbearing within categories of women's age,

Table-1: Frequency distribution of factors associated with desire to limit child bearing among women (n=4485), Karachi, Pakistan.

Characteristics	Want no more children N (% (95% CI)) 2109 (47% (43.9-50.1))	Want more children n (% (95% CI)) 2376 (53%(49.9-56.1))
Age *		
18 to 27 years	153 (7.3)	866 (36.4)
28 to 37 years	892 (42.3)	1199 (50.5)
38 years and above	1064 (50.5)	311 (13.1)
Education Status * [a]		
Not educated	812 (34.2)	882 (41.9)
Educated	1564 (65.8)	1227 (58.2)
Ethnicity		
Urdu	719 (34.1)	715 (30.1)
Punjabi	331 (15.7)	323 (13.6)
Sindhi	264 (12.5)	365 (15.4)
Pushto	270 (12.8)	309 (13.0)
Baluchi	73 (3.5)	163 (6.9)
Others	452 (21.4)	501 (21.1)
Ownership status of house		
Owned	1319 (62.6)	821 (34.6)
Rented	789 (37.4)	1555 (65.4)
Wealth quintile * [b]		
High	898 (42.6)	1015 (42.7)
Middle	410(19.4)	440 (18.5)
Low	801 (38.0)	921 (38.8)
Duration of marriage		
<5 years	88 (4.2)	812 (34.2)
5 to 10 years	468 (22.2)	965 (40.5)
>10 years	1553 (73.6)	599 (25.2)
Women autonomy * [c]		
Yes	1274 (60.4)	1178 (49.6)
No	835 (39.6)	1198 (50.4)
Currently contraceptive user * [d]		
Yes	1189 (56.4)	829 (34.9)
No	920 (43.6)	1547 (65.1)
Ideal Family Size *		
≤ 2 children	590 (28.0)	632 (26.6)
3 to 4 children	1203 (57.0)	1355 (57.0)
≥ 5 children	916 (15.0)	389 (16.4)
Media Exposure * [e]		
None	1349 (64.0)	1574 (66.2)
Any media exposure	760 (36.0)	802 (33.8)
Number of living children		
No children	25 (1.2)	289 (12.2)
1 to 2 children	288 (13.7)	1294 (54.5)
3 to 4 children	895 (42.4)	603 (25.4)
≥ 5 children	901 (42.7)	190 (8)
Living children composition * [f]		
Sons > daughters	905 (42.9)	855 (36.0)
Sons = Daughters	474 (22.5)	386 (16.2)
Sons < Daughters	689 (32.7)	842 (35.4)
No Children	41 (1.9)	293 (12.3)
Antenatal visits * [g]		
≤ 4 visits	1080 (51.2)	1220 (51.3)

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5 to 8 visits	392 (18.6)	379 (16.0)
>8 visits	637 (30.2)	777 (32.7)
Ever contraceptive user * [h]		
Yes	1716 (81.4)	1424 (59.9)
No	393 (18.6)	952 (40.1)
Ever had poor pregnancies outcome * [i]		
Yes	754 (35.8)	664 (27.9)
No	1355 (64.2)	1712 (72.1)

*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] Current contraceptive user was defined as women using any contraceptive method currently.

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

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

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

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

[i] Ever had poor pregnancies outcome was defined as women if had any history of adverse obstetric outcome such as abortion, intrauterine death.

Table-2: Univariable analysis for factors associated with desire to limit child bearing among women, Karachi, Pakistan (n = 4485).

Characteristics	Unadjusted OR (95% CI)	P value
Age		< 0.001
18 to 27 years	0.45 (0.23-0.51)	
28 to 37 years	0.66 (0.35-0.78)	
38 years and above	1	
Education status [a]		< 0.001
Not educated	0.42 (0.29-0.61)	
Educated	1	
Ethnicity		
Urdu	1	
Punjabi	0.86 (0.67-1.11)	0.24
Sindhi	0.83 (0.63-1.82)	0.17
Pushto	0.85 (0.65-1.12)	0.26
Baluchi	0.54 (0.37-0.81)	0.003
Others	0.74 (0.59-0.93)	0.012
Ownership status		
Owned	1	
Rented	0.51 (0.31-1.21)	0.51
Wealth quintile [b]		
High	1	
Middle	0.53 (0.3-1.11)	0.25
Low	0.44 (0.29 - 0.61)	0.003
Duration of marriage		
< 5 years	0.49 (0.31-1.1)	0.057
5 to 10 years	0.33 (0.25-1.46)	0.13
>10 years	1	
Women's autonomy [c]		
Yes	1.37 (1.12-1.56)	< 0.001
No	1	
Current contraceptive user [d]		< 0.001
Yes	1	
No	0.61 (0.47-0.71)	
Ideal family size		
≤ 2 children	2.82 (2.17-3.31)	< 0.001
3 to 4 children	1.56 (1.31-1.82)	0.003
≥ 5 children	1	
Media exposure [e]		0.26
None	0.71 (0.32-1.10)	
Any media exposure	1	
Living children composition [f]		
Sons > daughters	1	< 0.001
Sons = Daughters	1.41 (1.17-1.52)	
Sons < Daughters	0.84 (0.67-0.91)	
No Children	0.67 (0.51-0.79)	
Antenatal Visits [g]		
≤ 4 visits	0.90 (0.79-1.12)	0.42
5 to 8 visits	1.12 (0.91-1.34)	0.23
>8 visits	1	
Ever contraceptive user [h]		< 0.005
Yes	0.56 (0.46-0.69)	
No	1	
Ever had poor pregnancies outcome [i]		0.12
Yes	1	
No	0.54 (0.21-1.11)	

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*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] Current contraceptive user was defined as women using any contraceptive method currently.

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

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

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

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

[i] Ever had poor pregnancies outcome was defined as women if had any history of adverse obstetric outcome such as abortion, intrauterine death.

education, practicing autonomy, contraceptive use, and perceived family size ideally of children ≤ 2, sex composition of children and media exposure with respect to limiting childbearing. Significance level of the test (p-value) was kept at less than 0.05.

Univariable logistic analysis reported that females acquire low probability to limit childbearing in future if they were younger (aged 18 to 27 years and 28 to 37 years compared to women aged more than 37 years), uneducated compared with women who had ever been to school, belonged to lower wealth quintile, current non-users of family planning methods, had no children or fewer sons than daughters, and ever-used family

Table-3: Multivariable analysis for factors associated with desire to limit child bearing among women, Karachi, Pakistan (n = 4485).

Characteristics	adjusted OR (95% CI)	P value
Age of respondents		
18 to 27 years	0.25 (0.19-0.33)	< 0.001
28 to 37 years	0.39 (0.22-0.47)	
38 years and above	1	
Education status [a]		0.002
Not educated	0.34 (0.21-0.53)	
Educated	1	
Wealth quintile [b]		
High	1	
Middle	1.01 (0.8-1.42)	0.42
Low	0.41 (0.25-0.57)	0.004
Women's autonomy [c]		0.003
Yes	1.25 (1.08-1.41)	
No	1	
Current contraceptive user [d]		< 0.001
Yes	1	
No	0.53 (0.44-0.63)	
Ideal family size		< 0.001
≤ 2 children	2.62 (2.07-3.32)	
3 to 4 children	1.45 (1.19-1.78)	
≥ 5 children	1	
Living children composition [e]		< 0.001
Sons > daughters	1	
Sons = Daughters	1.13 (1.09-1.38)	
Sons < Daughters	0.74 (0.62-0.87)	
No Children	0.53 (0.35-0.81)	
Ever used any contraceptive method [f]		
Yes	1	< 0.001
No	0.49 (0.35-0.61)	

*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] Current contraceptive user was defined as women using any contraceptive method currently.

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

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

planning method. Whereas, the women expressed high desire to limiting the childbearing were more likely to be autonomous, had perceived size of the family ideally as children ≤ 2 and had same count of daughters and sons (Table-2).

Multivariable logistic analysis showed that women who did not want to limit child birth significantly (p-<0.05) belonged to age groups 18 to 27 years (adjusted odds ratio: 0.25), and 28 - 37 years (adjusted odds ratio: 0.39) compared to the women aged > 37 years (referent category), who belonged to poor wealth category (adjusted odds ratio: 0.41), were ever contraceptive user (adjusted odds ratio: 0.49), were currently not a contraceptive user (adjusted odds ratio: 0.53), not educated (adjusted odds ratio: 0.34), and having sons less than the daughters (adjusted odds ratio: 0.74). Autonomous females (adjusted odds ratio: 1.25), who had equal daughters and sons (adjusted odds ratio: 1.13) rather than more number of sons, and women with perceived family structure of ≤ two children ideally (adjusted odds ratio: 2.62) were found with a higher desire for limiting child birth at a statistically significance (p-value) of less than 0.05 (Table-3).

Discussion

This community-based survey sought to examine fertility preferences among married women and potential factors associated with it. The finding that 47% of currently married women have intentions of limiting childbearing in future is comparable with the national level surveys of Pakistan and Ethiopia. PDHS 2017-18 and Ethiopian national demographic health survey revealed that approximately 44% and 43% of females who are married currently expressed a desire of limiting child birth, respectively.[6,8] Similarly, the intention to limit births or having more children was associated with the existing number of children, both in this and Ethiopian study.[8] In this survey, 42.4% of women who were having three to four children expressed an intention of limiting the child births further.

With regards to relationship of fertility desire with age of women, the finding from this study was different from some previous studies that showed women tend to express an intention for producing more children at both extreme limits of age. A survey among Kenyan women revealed that ≥ 24 years old women acquire less desire to limit family size.[7] Moreover, Bangladeshi females found to have greater number of children in their late reproducing age.[12] Similarly, in Nigeria DHS reported that younger women (15 to 24 years) were modern contraceptive users therefore had fewer children.[13] Conversely, this survey findings identified that 18 to 27 years old women tend to show less desire for limiting childbirth, which coincides with the findings of minimal usage of any type of family planning among young females ever. Low usage of contraceptive methods in our survey is consistent with other studies that highlight cultural barriers and resistance from family and husband for the use of contraceptive methods and undue socio-economic stress for more children, that eventually lessen an intention among young women to limit child births in future.[14,15] Few more factors are involved like inadequate

knowledge, anxiety of side effects, and insufficient reproductive facilities at outreach level related to family planning methods which eventually results in less demand for the services, driving females to bear greater number of children.[14,16,17]

With respect to education, our survey highlighted that 'not educated' females who were around 66% were less intended to limit family size than their comparative group. This finding is consistent with the evidence by pooled analysis of 57 DHS, that reported 'education' being a vital determinant of childbearing and had a considerable influence on fertility in future.[18] A Colombian empirical study highlighted educated females tend to have lower demand for an additional child.[19] Similarly, surveys carried out in China, Bangladesh and India reported a linear reverse association between the women's fertility preference and their educational status.[20-22] The justification and likelihood of such relationship is that education increases thinking capability and creates awareness among females appreciating the economic and health-wise advantages of controlling the family structure.[18]

In our study, females having same number of daughters and sons tend to show the higher desire for controlling family size further. This finding was comparable to a Kenyan study with respect to sex ratio which found that females who had no or fewer sons than daughters wanted more children than those females carrying same number of daughters and sons.[7] Likewise, an Ethiopian study identified that females who had equal daughters and sons had a lesser desire for an additional child.[8] Such verdicts could be well justified by Hoffman's renowned theory "value of children".[23,24] The theory suggests that children are an economic asset in developing countries as they provide support to parents as they age, mainly via providing a means of earning. As a result, females are more likely to bear additional children acquiring hope to have more sons with the aim of increasing economic security for parents.[23,25]

With respect to the socio-economic condition, our study findings mentioned that females in low wealth quintile expressed a lesser desire for limiting further childbearing. This might be because children of impoverished families are recognized as an asset who will financially assist when parents get old. This is taken as 'high economic gain' in African culture and norms.[8]

Regarding autonomy, our survey highlighted that females who were relatively more autonomous tend to control further child birth. Our survey results are in consistency with a local Pakistani research which reported that the autonomy practiced by women was substantially correlated with current and ever use of contraceptives and eventually reflects a lower family preference for further use.[26]

Importantly, the use of contraceptive methods has a significant role in limiting child birth and future fertility. A study from Kenya suggested an inverse relationship between the intention towards no more child births and a contraceptive usage currently.[7] Similarly, a survey on Nigerian female population suggested that reduction in fertility was significantly predicted by the usage of any family planning method.[13] Such supported evidences are similar to our survey results that reported similar association between the usage of family planning method and limiting the intentions towards further child birth.

There are few limitations of this study. This survey could not identify fertility intentions of the husband: planning a family and choices for childbearing is a mutual decision which are based on negotiable agreement process between both partners. Whereas taking this matter into consideration, husbands' involvement must be compulsory to provide the couple an inclusive awareness towards their future choices of child birth, the decision towards use of contraceptives, and reproductive cycle. Besides, our survey findings cannot be generalized to rural women as they have different socio-cultural and reproductive practices than urban population included in our study. Further, the survey could not measure temporality due to this 'cross-sectional' study design limitation as changes occur in the fertility preferences over time along with changes in socio-economic and societal circumstances, economic, size of the family, and unprecedented actions, e.g. conflicts, wars and natural calamities.

In spite of the above mentioned limitations, to our knowledge, this survey is the first of its kind conducted in Pakistan which highlighted the key determinates of a desire for limiting childbearing at the community level and would have positive implications in strategizing family planning initiatives. Additionally, this survey comprised of a general inhabitants within a community which means the findings report true estimates and give an authentic representation of the female population. Our survey findings can also be generalized to any comparable urban regions of Pakistan and other neighbourhood regions. Selection bias in our survey was minimized through the use of sampling technique to include respondents. The calculation of sample size included relevant measures from PDHS thus increasing its robustness.

Additionally, the SUKH initiative acquired a vision of women empowerment in order to accessing family planning facilities and services via enhancing awareness and knowledge about family planning, enhancing services' delivery quality and presences of the 'basket of choices' hence, increasing modern contraceptives usage. Whereas partnership made among various international and national organizations such as JHPIEGO located in Pakistan, Aman Telehealth (ATH), Aman Health Care Services, Aahung and dkt Pakistan, the initiative employed strategies by CHWs (Community Health Workers) of Aman services that comprised of house-to-house health related community services delivered for family planning counseling, refill of contraceptive supplies and referral if required.[9]

Conclusion

Our community based survey illustrates that wealth quintile, education, age, children's sex composition, autonomy and contraceptive use were highlighted as key determinants of women's future desire to limit child birth. Such predictors offer a ground to recommend policy measures for promoting family planning through sensitization and devising specific approaches to enhance health literacy associated with benefits of contraception especially among poor, young and illiterate women as the results suggest thus creating a demand for effective contraceptive use. There is an utmost need of planned interventions which include behaviour change models, for sensitizing women and their spouses to the idea 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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