Original Article

# MODELING TOWARDS FERTILITY PREFERENCE IN PAKISTAN

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## ABSTRACT:

**BACKGROUND:** To access the socio demographic determinants that have potential influence on fertility preferences among Pakistani women of reproductive age 15-49.
**DATA**: Pakistan Demographic and Health Survey (PDHS) of ever married women with sample size 13558 was used.
**SETTING:** The National Institute of Population Studies coordinated this survey with the technical support from ICF International and Pakistan Bureau of Statistics and the USAID supported the financially.
**METHODS:** Bivariate and multinomial logistic regression analysis carried out.
**RESULTS:** Higher proportion (42.6%) of women wants no more children. Bivariate analysis revealed that age, place of residence, education status, media access, wealth index, occupation, number of living children and ideal numbers of children are found to be significant with respect to fertility preference. Multinomial model showed that younger women were almost ten times [OR=9.76] preferred more children compared to older ages. Respondents belong to Baluchistan and Sindh province [OR=1.59 OR=1.49] were likely to have more children respectively compared to their counter parts lived in GB. An illiterate woman 1.20 times more wants children compared to women with higher educational degree. Women belong to Sindh and Punjab 1.79 and 1.62 times more used modern contraception (sterilized) respectively. Women dweller of Baluchistan region were more likely to declare in fecund compared to their counter parts lived in Gilgit Baltistan.
**CONCLUSION:** These statistical outcomes about fertility preference in Pakistan and exploration of significant socio demographic factors of ever married women can be an emerging for population management and control.
**KEYWORDS:** Fertility preference, multinomial logistic regression and PDHS

## INTRODUCTION:

During the past two decades, Pakistan is undergoing demographic transition, but still at early stages.[1] The total fertility rate continues to decline, but highest among South Asian countries except Afghanistan.5.4 to 3.6 from 1990-91 PDHS to 2017-18 PDHS.[2] The studies conducted after 1980, revealed that fertility was declined.[3,4] According to a case study report, decline in the fertility rate from 1980 to 2006 was 40%.[3] In a survey study almost 60% of women prefer 4 children.[3,4] Although, this was a significant decline, but not meet the required target. At the same time, National Population Policy 2010, has set a target and committed to bring fertility rate at 2.1 in 2025.[7,8] The high rate of population growth affects the country adversely in matters of health, socio-economically, and also has demographic implications. Although population welfare programme initiated in early 1960's, but did not provide significant change in the fertility. From 1951-2009, the population is increased rapidly more than 5 times (171 million), except in mid-1990 due to rise in awareness level regarding contraception use[7],

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the country experiencing high fertility rate of more than 6 children until mid-1980.[3,4] The total fertility rate is dropped from several studies revealed that socio demographic factors are consistently associated with fertility preference.[9-15] This study with a definite objective to address the socio-demographic aspects such as age, place of residence, education status, media access, wealth index, occupation, number of living children and ideal numbers of children and evaluating the statistically significant factors associated with fertility preference.

## METHODS AND MATERIAL:

**Data source:** So far three demographic health surveys have been conducted as part of the MEASURE DHS international series. The National Institute of Population Studies conducted these survey with the technical support from ICF International and Pakistan bureau of statistics and the USAID supported the financially. The most recent data set PDHS 2012-13 for ever married women with sample size 13558 used for present study.

Bivariate analysis is performed with the basic objective to determine the socioeconomic characteristics that have potential influence on fertility preference of ever married women. Pearson's chi- square test of independence was performed to evaluate the association between dependent and independent variable. The explanatory variables were age (15-49), place of residence (urban, rural), place of residence by province (Punjab, Sindh, KPK, Baluchistan and GB), educational level (Illiterate, primary, secondary and higher), media exposure (read newspaper, listen radio and watch TV), wealth index (poor, middle and rich), respondents occupation (working and not working), number of living children (no child, 1-2, 3-5 and 5+) and number of ideal children (no child, 1-2, 3-5 5+ and don't know). Multinomial Logistic Regression is simply the extension of binary logistic regression[12], when dependent variable has more than two categories. In the present study the response variable has five categories regarding fertility preference (i) wants more (ii) no more (iii) undecided. (iv) Sterilization and (v) declared in fecund. No more is considered as a baseline category.

## RESULTS:

The maximum (20.1%) and the minimum (4.2%) respondent fall in age group 25-29 and 15-19 respectively. The percentage of rural (53.2%) respondents is higher compared to urban (46.8%). Punjab and Sindh has higher percentage of ever married women followed by KPK, Baluchistan and GB. More than half (56.2%) of the ever married women are illiterate. 43.5% ever married women are wealthier followed by poor (37.4%) and middle (19.1%) families. Television is accessed by higher proportion of women compared to other media sources. Higher proportion (40.2%) of women with number of living children is three to five. Nearly two third women agreed that three to five are the ideals number of children. The detail description is illustrated in Table 1.

Various questions are asked about fertility preference depict in Table 2. The higher proportion of ever married women agreed that no more children while about 41.6% wants more children. Small proportion of the women is declared in fecund followed by undecided and sterilized.

**Bivariate analysis:** By incorporating the bivariate analysis the findings revealed that age and fertility preference are disproportionately associated ($p<0.000$) i.e. early age groups for both respondents have wants more children i.e. higher proportion (87.3%) of the ever married women with age group 15-19 years old are preferred more children. As age increases the demand for more children decreased. Small proportions of women with that age group are undecided regarding fertility preference and none of respondent is going to be sterilized. Place of residence is found to be significant with respect to fertility preference. Sindhi women wants more children, Balochi women are more likely to be remained undecided regarding their fertility, Punjabi and Sindhi women are more used serialization and higher proportion of women belong to Baluchistan are declared in fecund. Women education and fertility preference are found to be significant ($p<0.001$) and negatively associated. Newspaper, radio and television are significant ($p<0.001$) with respect to fertility preference. Ever married women watching television and listening radio are more prone to use modern

contraception method sterilization. Wealth index and fertility preference have association ($p<0.001$) poor wants more children compared to middle and rich families. While the rich women more interested in sterilization. Respondent occupation are associated with fertility preference, women with working status less need more child. Number of living children and ideal number of children are statistically significant. Women with more than 5 children are more prone to use modern contraception methods sterilization. The detail explanations of bivariate analysis are illustrated in table 3.

**Table 1: Socio demographic characteristics of ever married women (n=13558)**

| PDHS 2012-13 | | |
|---|---|---|
| Covariate | Response | Frequency (%) |
| Age | 15-19 | 567 (4.20) |
| | 20-24 | 2048 (15.1) |
| | 25-29 | 2723 (20.1) |
| | 30-34 | 2438 (18.0) |
| | 35-39 | 2300 (17.0) |
| | 40-44 | 1808 (13.3) |
| | 45-49 | 1674 (12.3) |
| Place of residence | Urban | 6351 (46.8) |
| | Rural | 7207 (53.2) |
| Residence by province | Punjab | 3800(28.0) |
| | Sindh | 2941 (21.7) |
| | KPK | 2695 (19.9) |
| | Baluchistan | 1953 (14.4) |
| | GB | 1216 (9.0) |
| | Islamabad (ICT) | 953(7.0) |
| Education status | No education | 7625 (56.2) |
| | Primary | 1831 (13.5) |
| | Secondary | 2415 (17.8) |
| | Higher | 1687 (12.4) |
| Wealth index | Poor | 5072 (37.4) |
| | Middle | 2589 (19.1) |
| | Rich | 5897 (43.5) |
| Access to media | Not read newspaper | 10068 (74.3) |
| | read newspaper | 3490.0 (25.7) |
| | No Access to radio | 11172 (82.4) |
| | Access to radio | 2386 (17.6) |
| | No access to TV | 4309 (31.8) |
| | Access to television | 9249 (68.2) |
| Number of living children | No | 1695(12.5) |
| | 1-2 | 3916(28.9) |
| | 3-5 | 5448(40.2) |
| | 5 + | 2499(18.4) |
| Ideal number of living children | No | 86(0.60) |
| | 1-2 | 1917(14.1) |
| | 3-5 | 8295(61.2) |
| | 5 + | 2702(19.9) |
| | Don’t know | 558(4.1) |

**Table 2: Respondent's fertility preference statistics**

| Fertility preference | Frequency (%) |
|---|---|
| Have another | 5400(41.6) |
| Undecided | 727(5.6) |
| No more | 5534(42.6) |
| Sterilized | 983(7.6) |
| Declared in fecund | 332(2.6) |

**Multinomial logistic regression analysis:**
Factors along with odds ratio are shown in table 4 the models revealed that the earlier age groups are more prone to be have another child [OR=9.76] as compared to upper age groups for ever married women. Respondents belong to Baluchistan and Sindh province [OR=1.59 OR=1.49] were likely to have more children respectively compared to their counterpart GB. An illiterate woman 1.20 times more wants children compared to women with higher educational degrees. Ever married women having no access to radio and TV are more likely to have more children compared to their counterpart having access to these media modes. As the number of living children increases the fertility preference declined .i.e. ever married women with no living child 1422 times more wants a children compared to their counterpart women with more than five children. This likelihood decreases for instance, women with three to five living child 5.37 times more wants a children compared to their counterpart women with more than five children. Ever married women are more prone to have more than five ideal number of children [OR=2.99] compared to don't know the ideal number of children. Women belong to Sindh and Punjab 1.79 and 1.62 times more used sterilization respectively compared to those lived in GB. Women residence in Baluchistan region was more likely to declare in fecund compared to their counterpart lived in GB.

## DISCUSSIONS AND CONCLUSION:

The generally finding revealed that higher proportion of women (42.6%) of women want no more children. While the bivariate analysis conformed that age, place of residence, education status, media access, wealth index, occupation, number of living children and ideal numbers of children are found to be significant with respect to fertility preference. Age is an important indicator in social studies. The fertility is positively associated for younger but negative for older aged women.[16] Our finding revealed that younger women were almost ten times prone to have children compared to their counter part with older ages. Place of residence yet another important variable by means of social and medical studies, rural setting areas are more prone to have more children and less likely to use modern contraception compared to urban. Among the provinces, the respondents from Baluchistan are more likely to have more children in our findings; the reason might be the province has low status in term of health, education gender equality indicators, economic development and physical status comparing with other provinces and Pakistan taken as whole. The urban women experience lower fertility than rural.[17] The reason behind this could be the awareness of contraceptive use among urban women, which differ them from rural women.[18] In our finding women belong to Sindh and Punjab 1.79 and 1.62 times more used modern contraception (sterilized). Furthermore, the trend of early marriage is common in rural areas, particularly in Islamic country a study conducted in Oman revealed that early marriage is still prevalent in Oman.[19] Education is statistically significant indicating and negatively associated to fertility rate; it plays a major role in determining the size of a family. Childbearing among educated women is seen at later ages because of employment opportunities and sometimes they prefer high income husbands. The desire of more children has reduced because they could create hurdle in their career.[20-22] The awareness about family planning and birth control could distinct them from uneducated women, who have early childbearing and more number of children. There is a negative relationship between fertility and urbanization, female labour force

**Table 3: Cross tabulation of outcome variable versus explanatory variables**

| | | Fertility preference | | | | | |
|---|---|---|---|---|---|---|---|
| Covariate | Response | Wants more % | Undecided % | No more % | Sterilized % | Declared infecund % | p-value |
| Age | 15-19 | 87.3 | 4.7 | 3.0 | 0.0 | 5.0 | <0.0001 |
| | 20-24 | 80.9 | 5.8 | 11.0 | 0.3 | 1.9 | |
| | 25-29 | 60.0 | 8.1 | 27.1 | 2.0 | 2.9 | |
| | 30-34 | 39.2 | 6.7 | 47.0 | 5.2 | 1.9 | |
| | 35-39 | 22.5 | 6.0 | 57.9 | 11.3 | 2.2 | |
| | 40-44 | 10.6 | 2.9 | 67.3 | 16.3 | 2.9 | |
| | 45-49 | 6.1 | 2.1 | 70.2 | 18.5 | 3.1 | |
| Place of residence by region | Punjab | 39.9 | 3.0 | 45.8 | 10.5 | 0.8 | <0.0001 |
| | Sindh | 49.6 | 2.0 | 37.9 | 10.0 | 0.5 | |
| | KPK | 39.1 | 4.2 | 51.8 | 2.5 | 2.4 | |
| | Baluchistan | 38.1 | 20.4 | 26.8 | 4.9 | 9.8 | |
| | GB | 40.2 | 3.5 | 47.2 | 6.1 | 3.0 | |
| Residence | Urban | 38.7 | 5.7 | 44.7 | 8.3 | 2.5 | <0.0001 |
| | Rural | 44.1 | 5.6 | 40.8 | 6.9 | 2.6 | |
| Educational level | Illiterate | 48.5 | 4.1 | 40.2 | 5.9 | 1.3 | <0.0001 |
| | Primary | 48.2 | 5.5 | 38.2 | 6.1 | 1.9 | |
| | Secondary | 42.2 | 4.4 | 42.4 | 9.9 | 1.1 | |
| | Higher | 37.8 | 6.2 | 44.7 | 7.9 | 3.4 | |
| Read newspaper | No | 40.3 | 5.7 | 43.3 | 7.7 | 2.9 | <0.0001 |
| | Yes | 45.3 | 5.2 | 40.8 | 7.2 | 1.6 | |
| Listen radio | No | 41.4 | 5.3 | 43.3 | 7.5 | 2.5 | <0.0001 |
| | Yes | 42.5 | 7.1 | 39.7 | 8.1 | 2.6 | |
| Watch TV | No | 41.2 | 6.7 | 43.8 | 4.7 | 3.6 | <0.0001 |
| | Yes | 41.8 | 5.1 | 42.1 | 8.9 | 2.1 | |
| Wealth quintile | Poor | 45.1 | 6.7 | 39.6 | 5.6 | 3.0 | <0.0001 |
| | Middle | 39.4 | 5.3 | 44.3 | 8.2 | 2.8 | |
| | Rich | 39.6 | 4.8 | 44.6 | 9.0 | 2.0 | |
| Respondent occupation | No working | 42.2 | 6.0 | 42.1 | 6.8 | 3.0 | <0.0001 |
| | Working | 39.6 | 4.1 | 44.8 | 10.5 | 1.1 | |
| No.of living children | No | 87.4 | 4.1 | 1.5 | 0.1 | 6.9 | <0.0001 |
| | 1-2 | 72.1 | 6.2 | 19.3 | 0.9 | 1.5 | |
| | 3-5 | 22.1 | 6.0 | 59.0 | 10.9 | 2.0 | |
| | 5 + | 5.6 | 4.7 | 71.3 | 15.9 | 2.5 | |
| Ideal No.of children | No | 21.2 | 8.8 | 60.0 | 7.5 | 2.5 | <0.0001 |
| | 1-2 | 41.7 | 4.5 | 47.4 | 4.6 | 1.8 | |
| | 3-5 | 44.1 | 3.8 | 42.5 | 7.8 | 1.9 | |
| | 5 + | 38.0 | 10.5 | 37.2 | 9.1 | 5.3 | |
| | don't know | 23.6 | 13.0 | 54.2 | 7.6 | 1.6 | |

**Table 4: Multinomial Logistic Regression analysis about fertility preference**

| | | Fertility preference | | | |
|---|---|---|---|---|---|
| Variables | Category | Wants more | Undecided | Sterilized | In fecund |
| Age (ref 35-49) | 15-24 | 9.76*** | 5.39*** | 0.18*** | 2.15*** |
| | 25-34 | 4.28*** | 3.08*** | 0.45*** | 1.47** |
| Residence (ref rural) | Urban | 0.95 | 1.01 | 0.90 | 0.97 |
| | Punjab | 0.94 | 0.86 | 1.62** | 0.26*** |
| Place of by region (ref GB) | Sindh | 1.49*** | 0.72 | 1.79*** | 0.22*** |
| | KPK | 0.76* | 0.97 | 0.38*** | 0.60* |
| | Baluchistan | 1.59*** | 9.56*** | 1.15 | 5.07*** |
| | Illiterate | 1.20** | 0.97 | 1.40 | 1.38 |
| Education (ref higher) | Primary | 0.89 | 0.95 | 1.64 | 0.71 |
| | Secondary | 1.03 | 1.25 | 1.12* | 1.25 |
| Read Newspaper( ref yes) | No | 1.02 | 0.89 | 0.98 | 1.09 |
| Has Radio(ref yes) | No | 1.12 | 0.85 | 0.88 | 1.07 |
| watch TV ( ref yes) | No | 1.05* | 1.10 | 0.61*** | 1.25 |
| Wealth index (ref rich) | poor | 1.30* | 1.19 | 0.71* | 0.85 |
| | Middle | 1.00 | 0.85 | 0.94 | 0.86 |
| Occupation (ref work) | No work | 1.07 | 1.36* | 0.83* | 2.29*** |
| | No | 1422.00*** | 115.97*** | 0.28 | 753.42*** |
| No. of living children (ref 5+) | 1-2 | 68.43*** | 11.29*** | 0.34*** | 9.58** |
| | 3-5 | 5.37*** | 2.32*** | 0.99 | 1.92* |
| | no | 0.18*** | 0.16*** | 0.81 | 0.27 |
| Ideal no.of living children (ref don't know) | 1-2 | 0.16*** | 0.09*** | 0.80 | 0.30* |
| | 3-5 | 0.79 | 0.18*** | 1.21 | 1.04 |
| | 5+ | 2.99*** | 0.66* | 1.49* | 3.25* |

Key: values represent odds ratio; ref implies reference category;
***p<0.001, **p<0.01, *p<0.05 and GB= Gilgit Baltistan

participation and female education in Pakistan.[13] Our finding measure the same phenomena, an illiterate woman 1.20 times more wants children compared to women with higher educational degrees. Newspaper, radio and television are significantly associated with respect to fertility preference in our findings. Social researchers have been trying for many years to inquire the relationship between mass media and behaviour of couples towards fertility. Infact, mass media campaigns upgrade the knowledge of contraception and family planning methods, which reduces the child preference.[23] Mass media played a vital role to determine the size of the family. Wealth index is also found to be a significant with respect to fertility preference in our findings. The wealth of women certainly decreases the fertility as it increase.[24] The desire of determining ideal number of children by women decision could fix the family size[25] **,** the desire number of sons increases the fertility level[26]. As the target set by National Population Policy 2010 to decline the fertility rate, it can only be possible the impact of socio demographic factors and attitudinal factors exposed to the basis of scientific study, so therefore this study might be helpful in anti-fertility seeking measures and mechanism.

Finally it is concluded that age, palace of residence, education status, media access, wealth index, occupation, number of living children and ideal numbers of children are found to be significant with respect to fertility preference. The availability of these statistical outcomes can be handy for the formulation of adequate policies to control the fertility rate.

## STUDY LIMITATIONS:

This study based on secondary data set taken from PDHS, in which a few limited questions asked about fertility preference to a small proportion of ever married women, which does not allow establishing temporal relationship on the basis of these findings. This study, goal was to only pinpoint the socio demographic factors that might be helpful in population management and control.

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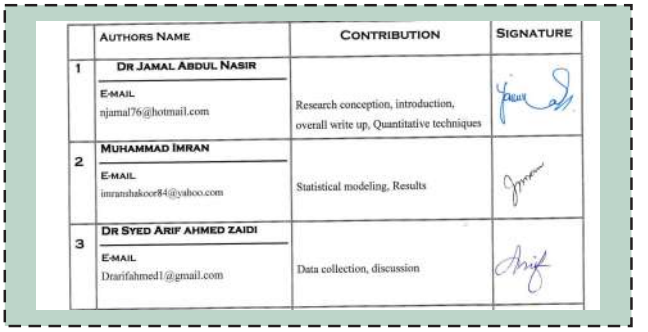

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