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**Research Paper**

# Effect of Son Preference on Fertility Regulation in Manipur

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***ABSTRACT:-*** *To investigate the effect of sex preference on the fertility dynamics, a cross sectional as well as community based study is conducted in Churachandpur district of Manipur. Under cluster sampling scheme, 979 currently married women were surveyed during May, 1-Oct. 25, 2013 using pre-tested and semi-structural schedule as a tool through personal interview method. Desire number of son (P<0.01), Islamic religion (P<0.01), duration of marriage (P<0.01) have been confirmed to be positively and contraceptive use (P<0.05), and educational level (P<0.05), negatively associated with high fertility. The statistical inference is drawn under regression analysis through SPSS vs 19.*

***KEYWORDS:-*** Desire number of son, Age at marriage, Educational level, Religion

## I. INTRODUCTION

In traditional societies with high fertility regimes, there is not much of sex preference for children. When the fertility declines a relatively greater demand for sons than daughters is noticed. It is not generally considered in Western-industrial societies. Analyzing the data from the United States, Pollard and Morgan (2002) find an evidence of preference for a balance family with at least one son and one daughter. Hank and Kohler (2000) support the balance family in many European countries. But they also find some countries with a girl preference. In Denmark say for instance, there is a preference for balanced composition of sex, but also a mild girl preference in the families (Jacobsen et al. 1999). In many developing countries, reproductive intentions and behaviours are strongly influenced by sex of surviving children (Arnold, 1997; Hussain et al. 2000; Youssef, 2005; Khawaja and Randall, 2006). Utilizing Demographic and Health Survey (DHS) data from fifty-seven countries, Arnold (1997) empirically shows that son preference exists particularly strong in Southern Asian Countries. Women's contraceptive use and duration of last birth interval are also linked to stopping childbearing after the birth of a son in Nepal (Leone et al., 2003, Singh at al., 2012, Nath et al., 2012).

Many past studies conducted in India have identified three major factors that underlie such socio-demographic phenomenon. They are economic, socio-cultural and religious utilities. Sons are more likely than daughters to provide family labour on the farm or in family business and support their parents of old age, although there is some recognition that sons are no longer a dependable source of old age support (Nath and Deka, 2004, Singh at al., 2012). A son brings upon marriage a daughter-in-law into his family and she provides additional help around the house as well as an economic reward in the form of dowry payments. In the context of India's patriarchal family system, having one son is imperative for continuation of the family line, and many sons provide additional status to the family. The utility of having sons also arises from the important religious functions that only sons can provide. According to Hindu tradition, sons are needed to kindle the funeral pyre of their deceased parents and to help in the salvation of their souls. Most of the Indian couples have thus a strong preference for sons over daughters. In an effort to have sons, many couples continue to have children after achieving their desire family size. In case of intention, about 20% of Indian couples want more sons than daughters, but only 2 to 3% of them want more daughters than sons (IIPS, 2007). In Manipur, 31.2% of ever married women who want more sons than daughters according to NFHS-3:2005-06 which is declining from that of 36.5% in NFHS-2:1998-99 and 43.4% in NFHS-1:1992-93 (IIPS, 2008). Despite, no community based study has so far been conducted in the state particularly in rural areas where 'natural fertility' seems to be existed. Thus, it is to investigate the socio-demographic determinants of fertility differential and the third birth transition.

## II. MATERIALS AND METHODS

A cross sectional as well as community based study of 979 currently women was conducted through a cluster sampling scheme in the Churachandpur district of Manipur during May, 1-Oct. 25, 2013. The cluster is defined according to Population of Manipur (Directorate of Economics & Statistics, 2008). The multiple regression and logistic regression models are adopted in addition to the classical statistical tests. Here, the response variable 'fertility' is defined by the number of children ever born to a mother and the third birth transition is quantified by the issue of third live birth. The processing and analysis of the empirical data is performed through SPSS vs 19.

Sex preference of children may be measured in two ways (Gray and Evans, 2004). Firstly, by examining 'intention data' which focuses on the respondent's sex preference of future births. The second method is by examining 'behavioural data' which investigates respondent's fertility behaviour given the sex of existing children. The intention data is situation dependent (Marleau and Saucier, 2002). Behavioural data reveals actual preferences in that progression from at least one to higher parity based on existing children. However, this method cannot be used to look at sex preference of an only or first child (Goodkind, 1999). The present article focuses the effect of sex preference on fertility level using intention data quantified by the couple's desire number of son.

## III. ANALYSIS AND RESULTS

In this study, the two response outcome variables are taken – i) fertility which is defined by the actual number of live birth and ii) third birth transition, quantified to be 1, if the mother has at least third live birth and 0, otherwise. The explanatory variables considered are religion, type of family, educational level, employment status, age at marriage, duration of marriage, couple's desire number of son* (son preference), and use of contraceptives during transition of third birth. For categorical factors, binary (0, 1) dummy variable technique is utilized. The educational level is measured by the number of completed academic years in education. The inclusion of explanatory variables in the regression models is performed subject to the scanning of multicollinearity.

A multiple regression on current fertility with respect to explanatory variables of interest is adopted. Out of ten classified variables only four ones have been identified to have significant impacts on the current fertility differentials in then study population. They are duration of marriage ($P<0.001$), use of contraceptives ($P<0.05$) during the transition of third birth, couple's desire number of son ($P<0.01$) and the Islam religion ($P<0.001$) shown in Table-1. In this table, each four influential factors are observed their level of significance after adjusted the joint effects of other variables. The results are detected by the multiple regression model having its specifications – $R^2=70.5\%$, $F=68.74$, $P<0.001$, Durbin-Watson (D)=1.97. Under stepwise regression analysis, the elsewhere four variables can be detected to be the most important factors so called determinants of fertility indices in study population (Table-1a). The levels of significance and the directions of influence are also found to be similar in nature. But, the values of regression coefficients observed in the later model are somewhat different from the previous model owing to its model summary viz., $R^2=70.2\%$, $F=242.58$, $P<0.001$, $D=1.94$.

More specifically, a binary logistic regression analysis on the transition of third birth (1if at least 3$^{rd}$ birth occurred, 0 otherwise) is also carried out to identify the determinants thereof. Here, six determinants out of thirteen factors can be detected in both adjusted and stepwise methods shown in Table-2. However, the results are observed with a little bit varied of significance levels and odds ratios (OR) in the two models. The significant factors found in the last model are educational level of wife ($P<0.01$, OR=0.87 with 95%CI: 0.82-0.92), age at marriage of wife ($P<0.01$, OR=0.87 with 95%CI: 0.82-0.92), use of contraceptives ($P<0.05$, OR=0.23 with 95%CI: 0.08-0.71) and employment of husband ($P<0.05$, OR=1.88 with 95%CI: 1.13-3.12) elicited in Table-2a.

## IV. DISCUSSION

Four determinants of fertility differential are found to be duration of marriage, Islam religion, contraceptive uses and couple's desire number of son. As such, the four significant factors fit the last regression model. However, the duration of marriage is demographic factor which can not be managed by couple after marriage while religion is social factor which can not be controlled by individual level too. The duration of marriage is transformed from mother's age at marriage. Bavel (2003) also observed that for many pre-industrial populations that the duration of marriage influences age specific marital fertility. But, the reason remains unclear. The possible reasons are given by past findings of Kirdar et al. (2009) and Lieberman (2009). They stressed in their findings that the age at first association of younger partner in early marriage predicts fertility is that co-residence duration or duration of marriage serves as a cue to siblingship mainly for younger partner; older partners use a different kinship cue not influenced by durations of association. While adjusted the joint effects of three other variables in the last regression model, Islam religion is observed to be high influential factor ($P<0.001$) leading to high fertility in the present analysis. It might have thought to be caused by the fact

that Muslim women are low educated, having low income, taking early marriage and hence resulting high fertility. Many past findings emphasized that Muslim religious doctrine does not specially prohibit voluntary birth limitation, the institutional pressures to have many children, especially sons, are strong. It is again supported by Singh et al. (2007). and Singh et al., 2011.

Among the two behavioural factors – desire number of son (B= 0.152, P<0.01) has more influential on high fertility than use of contraceptives which can reduce the current fertility (B= -0.463, P<0.05). From this result, it may be interpreted as couple's desire of one more son gives an increase of 0.15 in current fertility level with 95%CI: 0.06-0.25. The finding is in agreement with some other past findings. In many developing countries, reproductive intentions and behaviours are strongly influenced by sex of surviving children (Hussain et al. 2000; Youssef, 2005; Khawaja and Randall, 2006; IIPS, 2007). This ill behave may have retarded India's fertility decline and therefore the present fertility level is far behind the national socio-demographic goals to be achieved by 2010 according to National Population Policy 2000. Educational level, age at marriage and contraceptives have also negative as well as significant impacts on third birth transition for many reasons. It is witnessed in the logistic regression analysis. The significance of the factors may be interpreted as similar in the case of multiple regression analysis.

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**Table-1: Regression coefficients on current fertility**

| Predictor variables | B | SE | t | P-value | 95% CI for B | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| **Constant** | .941 | .395 | 2.382 | .018 | .164 | 1.717 |
| **Type of family** | .029 | .083 | .348 | .728 | -.135 | .193 |
| **Religion (Hindu)** | -.141 | .120 | -1.169 | .243 | -.378 | .096 |
| **Religion (Islam)** | 2.191 | .349 | 6.274 | .000 | 1.505 | 2.878 |
| **Education of husband** | .002 | .014 | .157 | .875 | -.025 | .030 |
| **Education of wife** | .004 | .010 | .341 | .733 | -.017 | .024 |
| **Empl. status of husband** | .020 | .088 | .228 | .820 | -.153 | .193 |
| **Empl. status of wife** | -.106 | .191 | -.553 | .580 | -.482 | .270 |
| **Age at marriage** | -.007 | .009 | -.779 | .436 | -.026 | .011 |
| **Use of contraceptive device** | -.497 | .195 | -2.553 | .011 | -.880 | -.114 |
| **Duration of marriage** | .129 | .005 | 23.925 | .000 | .119 | .140 |

**Model Diagnostics: $R^2$=0.705, F= 68.739, P< 0.001; Durbin-Watson = 1.973**

**Table-1a: Stepwise regression coefficients on current fertility**

| Step | Predictor variables | B | SE | t | P-value | 95% CI for B | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| **1** | **(Constant)** | **.742** | **.062** | **11.974** | **.000** | **.620** | **.864** |
| | **Duration of marriage** | **.135** | **.005** | **27.959** | **.000** | **.125** | **.144** |
| **2** | **(Constant)** | **.721** | **.059** | **12.281** | **.000** | **.605** | **.836** |
| | **Duration of marriage** | **.134** | **.005** | **29.266** | **.000** | **.125** | **.143** |
| | **Religion (Islam)** | **2.299** | **.326** | **7.057** | **.000** | **1.659** | **2.939** |
| **3** | **(Constant)** | **.425** | **.111** | **3.814** | **.000** | **.206** | **.643** |
| | **Duration of marriage** | **.132** | **.005** | **29.161** | **.000** | **.123** | **.141** |
| | **Religion (Islam)** | **2.384** | **.324** | **7.368** | **.000** | **1.748** | **3.020** |
| | **Couple's desire no. of son** | **.151** | **.049** | **3.119** | **.002** | **.056** | **.247** |
| **4** | **(Constant)** | **.873** | **.213** | **4.093** | **.000** | **.454** | **1.293** |
| | **Duration of marriage** | **.132** | **.005** | **29.127** | **.000** | **.123** | **.140** |
| | **Religion (Islam)** | **2.406** | **.322** | **7.479** | **.000** | **1.774** | **3.039** |
| | **Couple's desire no. of son** | **.152** | **.048** | **3.141** | **.002** | **.057** | **.246** |
| | **Use of contraceptive device** | **-.463** | **.188** | **-2.459** | **.014** | **-.832** | **-.093** |

**Last Model Diagnostics: $R^2$=0.702, F= 242.58, P< 0.001; Durbin-Watson = 1.941**

**Table-2: Adjusted Odds Ratios on 3rd birth transition**

| Variable | $\beta$ | S.E. | Wald | P-value | $e^{\beta}$ | 95% CI for $e^{\beta}$ | |
|---|---|---|---|---|---|---|---|
| | | | | | | Lower | Upper |
| **Religion (Hindu)** | .013 | .358 | .001 | .972 | 1.013 | .502 | 2.042 |
| **Religion (Islam)** | -.129 | 1.025 | .016 | .900 | .879 | .118 | 6.554 |
| **Education of husband** | .025 | .043 | .341 | .559 | 1.025 | .943 | 1.115 |
| **Education of wife** | -.143 | .031 | 21.311 | .000 | .867 | .816 | .921 |
| **Age at marriage of wife** | -.122 | .042 | 8.628 | .003 | .885 | .815 | .960 |
| **Age at marriage of husband** | -.025 | .038 | .439 | .508 | .975 | .905 | 1.051 |
| **Couple's desire no. of son** | .154 | .156 | .975 | .323 | 1.167 | .859 | 1.586 |
| **Empl. status of husband** | .570 | .268 | 4.546 | .033 | 1.769 | 1.047 | 2.989 |
| **Empl. status of wife** | -.333 | .676 | .242 | .623 | .717 | .191 | 2.697 |
| **Use of contraceptives** | -1.525 | .594 | 6.595 | .010 | .218 | .068 | .697 |
| **Constant** | 4.448 | 1.180 | 14.219 | .000 | 85.442 | | |

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**Table-2a: Stepwise Odds Ratios on 3rd birth transition**

| Step | Variable | $\beta$ | S.E. | Wald | P-value | $e^{\beta}$ | 95% CI for $e^{\beta}$ | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | Lower | Upper |
| 1 | Education of wife | -.158 | .024 | 42.757 | .000 | .854 | .814 | .895 |
| | Constant | .789 | .246 | 10.251 | .001 | 2.201 | | |
| 2 | Education of wife | -.123 | .026 | 22.556 | .000 | .884 | .840 | .930 |
| | Age at marriage of wife | -.134 | .029 | 21.780 | .000 | .875 | .827 | .925 |
| | Constant | 3.539 | .645 | 30.109 | .000 | 34.427 | | |
| 3 | Education of wife | -.124 | .026 | 22.155 | .000 | .884 | .839 | .930 |
| | Age at marriage of wife | -.137 | .029 | 22.101 | .000 | .872 | .824 | .923 |
| | Use of contraceptives | -1.376 | .565 | 5.945 | .015 | .252 | .083 | .763 |
| | Constant | 4.920 | .889 | 30.633 | .000 | 137.054 | | |
| 4 | Education of wife | -.138 | .027 | 25.495 | .000 | .871 | .825 | .919 |
| | Age at marriage of wife | -.134 | .029 | 20.999 | .000 | .875 | .826 | .926 |
| | Empl. status of husband | .582 | .253 | 5.312 | .021 | 1.790 | 1.091 | 2.937 |
| | Use of contraceptives | -1.302 | .562 | 5.363 | .021 | .272 | .090 | .819 |
| | Constant | 4.717 | .892 | 27.977 | .000 | 111.874 | | |