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National Demographic Goal and Fertility Dynamics of Kuki Tribes in Manipur

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ABSTRACT: *Under the question of what are the gaps between national demographic goal and fertility level in Manipur, a cross sectional as well as community based study of 1137 ever-married women of Kuki tribes was conducted in hill districts of Manipur through cluster sampling technique. The survey was performed during March, 2011 to December, 2011. In addition to the classical statistical tests investigating fertility differentials, binary logistic regression explores the four main causes of failure in national goal of replacement fertility that total fertility rate (TRF) of 2.1 by 2010 and retargeted by 2014. With the TFR of 4.2, early age at marriage (P<0.01), sex of 2nd birth (P<0.05) and low education of wife have been detected to be major causes of the failure in national fertility goal.*

KEYWORDS: *age at marriage, replacement fertility, odds ratio, education, son preference*

I. INTRODUCTION

Following the International agenda on fertility control, India's National Population Policy (NPP) - 2000 had formulated the short, medium and long term objectives. While the medium-term objective is to bring the total fertility rate to replacement level (2.1) by 2010 failing which it is retargeted by 2014, its long-term objective is to achieve a stable population by 2045, at a level consistent with the requirements of sustainable economic growth, social development, and environmental protection. The policy also gives special attention to the tribal and backward communities and recommends special provisions for health services and the treatment of infertility among them in view of the fact that many tribal communities are dwindling in numbers. To accelerate the policy, Union Government also implements the National Rural Health Mission (NRHM, 2005) throughout the country. Despite, the rural and backward communities have still been facing a lot of problems in many aspects. With more than 8% of the country's population, Indian tribes may broadly be divided into three main groups – Negrito, Proto-Australoid and Mongoloid. Negrito group are mainly found in Andaman and Nicobar Islands and in the isolated pockets of Nilgiri district in South India. The Proto-Australoid tribes are mostly distributed in the mid-Indian belt comprising parts of the states of Madhya Pradesh, Chhatisgarh, Jharkhand and parts of Orissa, Maharashtra, Gujarat and Andra Pradesh. In North East, there is very high concentration of tribal population belonging to Mongoloid race, but it comprises only 12% of the total tribal population of the country. The tribes of northeast are socio-economically better off than their counterparts in the mid-Indian region. Khasis, Jaintias, Nagas and Mizos are the major tribes inhabit this region.

There are 33 schedule tribes with about 30% of the total population in Manipur having a unique feature that it has large number of dialects with least population. They are Aimol, Anal, Angami, Chiru, Chothe, Gangte, Hmar, Kabui, Kacha Naga, Koirao, Koireng, Kom, Lamgang, Mizo, Lushai, Maram, Maring, Mao, Monsang, Moyon, Paite, Ralte, Sema, Simte, Suhte, Tang Khul, Thadou, Vaiphei, Zou, Poumei Naga, Tarao, Kharam, and Kuki tribes. The Mao tribes are mostly concentrating in the Senapati district, the Kabui in the Tamenglong district, the Anals and Marings in the Chandel district and Thadou and Kuki in the Churachandpur district (Government of Manipur, 2011). Among these, Kuki tribes of Manipur are one of the most dominant tribes who inhabit the hilly regions. While the valley of Manipur is largely inhabited by the Meiteis and Meitei Pangal (Muslim), the hilly regions which surround the capital of Imphal are inhabited by the Kuki and Naga tribes. So, in case of fertility scenario in the State, Kuki tribes are very important owing to their distinctly marked for their lifestyle which includes their economic, political, social and religious structure in the changing pattern of life and growing modern education, along with spread of Christianity and various changes that has been initiated by the government for the upliftment of these tribal groups.

II. LITERATURE REVIEW

The fertility level of tribal community could not be reduced to national level in India. It is associated with the factors like low socio-economic status, disadvantages of communication and infrastructures etc (Bhagat and Chattopadyay, 2004; Nanda, 2005; Saha and Verma, 2006). Even after six decades of having national population policy since independence, fertility rates are higher in disadvantage groups say for instance 3.1 children per women among scheduled tribes, 2.9 among scheduled castes, and 2.8 among other backward classes, compared with women who are not any of these groups (2.4 children) while its all India figure of 2.7 (IIPS, 2008). According to Census 2001, India is classified more than eight percent population of the country that is about 84.32 million people as scheduled tribes, which is more than the population of Germany or the combined population of France and Australia. This motivated us to research whether fertility in this large socio-economically deprived group is consistent with mainstream of Indian society which is experiencing a rapid decline in fertility. Earlier studies indicate that strengthening the Reproductive & Child Health (RCH) services in tribal areas specifically targeting young tribal mothers is need of the hour. Promotion of larger inter-birth intervals by generating demand for family planning services particularly the uses of spacing methods and reduction of the gender preference for children by intervention of (IEC) in tribal areas are also required.

In the meantime, the third birth transition is a serious problem in population growth. Lack of education and son preference may be sole responsible to it. The past studies conducted in India have identified three major factors for son preference. 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 (Mason, 1992; Dharmalingam, 1996; Nath and Deka, 2004). 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 (Nath and Leonetti, 2001). 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).

III. OBJECTIVES

It is to identify causal socio-demographic factors of failure in achieving the national demographic goal of replacement fertility (TFR=2.1) in hill districts particularly Kuki Tribes dominated area of Manipur, one of the easternmost border states of India.

IV. MATERIALS AND METHODS

A cross sectional as well as community based study of 1137 eligible mothers was conducted in hill areas of Manipur – Chandel, Churachandpur, Senapati, and Sadhar Hill Senapati during the period from March, 2011 to December, 2011. The study population is one of the North Eastern Border States of India. Under cluster sampling scheme, the primary data was collected by using a pre-tested and semi-structural interview schedule as a tool for survey. The clusters are defined according to Population of Manipur - 2008 (Govt. of Manipur 2008). In this empirical study, the Kuki tribe includes Kuki, Thadou, Vaiphei, Mate, Zou, Paite, Haokip, Gangte, Saikot, Hmar, and Simte. The inclusion of the eleven different tribes under the caption of Kuki tribe is done according to their similarities of racial as well as cultural characters.

In addition to the classical statistical tests, binary logistic regression model is applied in the analysis. The logistic regression was used to examine the impacts of socio-demographic factors on the phenomenon of third live birth transition. This phenomenon is considered to be the failure in the national demographic goal of replacement fertility or so called total fertility rate (TFR) of 2.1 children. The model is based on the fact that the dependent variable is dichotomous which is defined to be 1 if the woman has at least third live birth and 0, the women has at most two live birth. The ten independent variables of interest are age at marriage of spouses (in completed year), present age of wife (in completed year), sex of 2^{nd} live birth (male=1, female=0), educational levels of spouses (levels: 1 – under matriculate; 2 – matriculate, 3 – 10+2 standard, and 4 – at least graduate), family monthly income (in'000Rs.) type of family (joint=1, nuclear=0), and couple's desire number of son. The age, income and desire number of son have their quantitative values and hence at present, no difficulties of measurement. And for categorical variables – sex of 2^{nd} birth and type of family, binary dummy variable (0, 1) is utilized. As the education has no quantitative value leading to some difficulties of measurement so that it has

been quantified by its levels such as 1=under matriculate; 2=matriculate, 3=10+2 standard, and 4= at least graduate. When interpreting the present findings, the P-value (significance level of the test statistics 'Wald' of the regression coefficient, □) and Odds Ratio (OR= e^{β}) with its 95% confidence interval (CI) are used. The analysis is performed through SPSS vs 19.

V. ANALYSIS AND RESULTS

When the fertility of women of 40 year and above is treated to be total fertility, the TFR is 4.2 ± 1.8 children in the population which is far behind the national goal of 2.1. It is significantly higher (2.6 ± 1.3) for the women of below 40 year (P<0.01). About 80% of the women in the study population are also found to be married before 25 year of their age so that the present TFR indicates that the eligible women under study do not practice effective contraceptives at their fertile reproductive period (Table - 1). Comparing the educational levels of the couples, wife education has more impact (P<0.01) on the fertility regulation than that of husband (P>0.05) in the population in the sense that the mean fertility is monotonically declined from 3.3 ± 1.6 for under matriculate mothers (42.3%) followed by 2.6 ± 1.2 for matriculate mother (28.8%) to 1.9 ± 1.0 for graduate and above mother (11.3%). This significant impact can not be observed in the case of husband counterpart. The fertility differential has been significantly influenced by the source of income of the family (F=5.46, P<0.01) dealing with the highest fertility level of 3.2 ± 1.6 is associated with the agriculture and allied activities in the main source of income. It may be associated with low education, early age at marriage and son preference too. It may also be reemphesised that the couple's desire number of son is strongly influencing the fertility dynamics in the population (wife, P<0.05 and husband, P<0.01). Considering the couple's desire number of son, husband may likely take main decision on fertility limitation.

In the population, out of 1137 eligible women, about 60% of the women are found to have their third birth. A logistic regression analysis on the failure in national goal of replacement fertility, 2.1 children (1 if at least third birth to a mother, 0 otherwise) is carried out to identify the causal factors thereof. In the logistic models, only three out of the ten variables can be identified to have their significant impacts on the failure in national goal of replacement fertility. The adjusted OR levels of the variables with their 95%CI are manifested in Table - 2. While controlled the joint effects of other nine variables, the significant factors found in the model are age at marriage of wife (P<0.05, OR=0.54), present age of wife (P<0.01, OR=1.65) and sex of 2nd live birth (P<0.05, OR=0.14). The significant age at marriage and sex (male) of 2nd live birth are negatively associated with the failure in the national goal. It indicates that as the women married in later age may be significantly free from the risk of failure in the national goal. If the women delay one year in her marriage, she may be free by 46% of the risk of failure in national goal of replacement fertility which is quantified by OR value (0.535 with 95%CI: 0.33-0.86). The risk of the failure in the national fertility goal may be significantly reduced by 86% if the sex of the second live birth is male than that of female (OR: 0.14 with 95%CI: 0.02-0.83). But, the higher risk (65%) of failure in the national fertility goal may be faced by the women to each increase of her present age in the population after adjusted or keeping constant the joint effects of other nine variables under study. Apart from the statistical significance, to each increase in the couple's desire number of son the risk of failure in the national goal may also be increased by about three times (OR: wife=2.98 and husband=3.45).

Applying stepwise method in the logistic regression (Forward Wald), the major causes of third birth transition is found to be four factors. It says that only four independent variables have been identified to be elements of the best set of third birth transition in the population. They are education of wife, present age of wife, age at marriage of wife, and sex of second live birth (Table - 3). In the last best model, the logistic regression is fitted with the four such variables. In one sense, the model is significant with these four independent variables. After adjusted the joint effects of combination of three other variables in the last model, male sex of second baby and age at marriage of wife and her higher educational level are found to be negatively associated with the third birth transition. Among the four causal variables, only one factor – the present age of wife has positive impact on the phenomenon.

In the last fitted model, keeping constant the effects of three other variables, the risk of having third birth can significantly be reduced (P<0.01) by 45% as advancement of one level in wife's education as its OR-value (0.553). One year advance in the present age of wife (mother), the women is having 53% more risk of third birth in the sense that at an average a woman has 57% more risk of being third birth with respect to one year earlier of her age (P<0.01, OR=01.533). One of the most important findings in this logistic regression analysis is that the ill behavior of son preference effect is again reemphasized that high risk of third birth phenomenon (P<0.05) can be quantified to be 72% in the previous 2nd child is female than that of male (OR=0.182 for male sex) when the joint effect of other three factors in the last model is typically controlled. While adjusted the effects of three variables say present age of wife, education of wife and sex of second live

birth, the chance of having third birth transition can be reduced by 33% (P<0.01) if the mother has been married only one year delay (OR=0.671).

VI. DISCUSSION

In the binary logistic regression model, only three out of ten independent variables have been observed to have their significant impact on the third birth transition in the population when the effects of other nine factors are controlled. They are age at marriage of wife, present age of wife and sex of the second live birth. Apart from the statistical significance, couple's desire number of son has been observed to be influencing on the higher fertility level particularly the third birth. It is evidenced in the multiple logistic regression model indicating the OR values of 2.98 for wife and 3.45 for husband. But in the last fitted model by applying stepwise method, education of wife has also been found to be negatively influencing factors of fertility regulation in addition to the aforesaid three causal factors. It reveals that when controlling the joint effects of three other variables, each of the four causal factors – wife's age at marriage (OR: 0.67), mother's (wife) present age (OR: 1.53), sex of the second live birth (male, OR: 0.18) and education of wife (OR: 0.55) have significant impacts on the third birth transition. In other words, the four variables may be treated as the causal factors of third birth transition in the Kuki tribes' population in the sense that the four factors obstruct the national demographic goal of replacement fertility 2.1 children.

In many Indian societies as the couples are educated, eagerness to restrict the family size increases. The present findings also observe the similar view. But, comparing the effects of education of husband with the wife counterpart, it is evident that the education of wife plays more significant role in preventing third birth transition. It emphasized that wife's education has consisted with decision taking of reproduction stopping particularly, of third birth transition when controlled the joint the effects of other three causal factors – wife's age at marriage, sex of second live birth and present age of wife. This effect of education may lead delaying age at 2nd delivery, reduction in the desired number of son, increase opportunities for personal advancement, awareness of social mobility and freedom from close familiarities of women outside the home and greater exposure to knowledge and favourable attitude towards family limitations. Thus, enhancement of education is supposed to result in non-familial aspiration and a greater understanding of the process and ways of controlling high fertility. This view is supported by the findings of Yadava and Sharma (2004). Again from the event-history analysis of 2000 Egyptian Demographic and Health Survey, Vignoli (2006) stresses that the difficult change in the fertility of women with high educational status seems to be responsible for the stalling fertility decline during recent years.

However, the sex of the second live birth is demographic factor which can not be managed by human hand. However, the value of the OR say 0.18 (male) means that the risk of third birth transition is reduced by 82% when the previous that is second child is male than that of female counterpart while adjusted the joint effects of three other causal factors. It is thought to be caused by the fact that influence of son preference is high in the population. This view is supported by Singh et al. (2007) and Singh et al. (2011). They found that the duration of waiting time to conception is significantly short as the desire number of son increases. The finding is in agreement with some other past findings too. In many developing countries, reproductive intentions and behaviours are strongly influenced by sex of surviving children. (IIPS, 2007; Hussain et al., 2000; Youssef, 2005; Khawaja and Randall, 2006) This ill behave may have retarded India's fertility decline in general and therefore the present fertility level is far behind the national demographic goals for replacement fertility 2.1 children.

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Table - 1: Mean fertility according to socio-demographic factors

Factors (% of n)		Mean ± S.D	95%CI for mean	Test value
Age at marriage of wife (in yr)	< 20 (37.9)	3.1 ± 1.2	2.9 - 3.4	r= -0.26; P<0.01 & F=5.03 P<0.01
	20-25 (41.3)	2.8 ± 1.6	2.5 - 3.2	
	25-30 (15.7)	2.2 ± 1.4	1.7 - 2.6	
	30+ (5.1)	2.2 ± 1.3	1.3 - 3.0	
Age at marriage of husband (in yr)	< 20 (6.4)	3.4 ± 0.7	3.0 - 3.8	r= -0.12; P>0.05 & F=1.37 P>0.05
	20-25 (44.3)	2.8 ± 1.3	2.6 - 3.1	
	25-30 (32.3)	2.8 ± 1.7	2.5 - 3.2	
	30+ (17.0)	2.5 ± 1.3	2.1 - 3.0	
Present age of wife (in yr)	<40 (86.8)	2.6 ± 1.3	2.4 - 2.8	t= 6.0; P<0.01
	40+ (13.2)	4.2 ± 1.8	3.5 - 4.8	
Educational level of wife	Under matriculate (42.3)	3.3 ± 1.6	2.9 - 3.6	F=7.45; P<0.01
	Matriculate (28.8)	2.6 ± 1.2	2.3 - 3.0	
	10+2 standard (17.6)	2.5 ± 1.2	2.2 - 2.9	
	Graduate & above (11.3)	1.9 ± 1.0	1.5 - 2.3	
Educational level of husband	Under matriculate (26.2)	3.0 ± 1.5	2.7 - 3.4	F=1.35; P>0.05
	Matriculate (19.1)	2.8 ± 1.3	2.4 - 3.2	
	10+2 standard (25.8)	2.5 ± 1.3	2.2 - 2.9	
	Graduate & above (28.9)	2.9 ± 1.5	2.6 - 3.3	
Family monthly income (in '000Rs.)	< 5 (24.4)	3.1 ± 1.2	2.8 - 3.4	r=-0.11; P>0.05 & F=1.09; P>0.05
	5-10 (32.0)	2.7 ± 1.7	2.3 - 3.1	
	10-15 (11.6)	2.8 ± 1.4	2.2 - 3.4	
	15-20 (10.2)	2.9 ± 1.6	2.1 - 3.8	
	20+ (21.8)	2.5 ± 1.5	2.1 - 3.0	
Main source of income	Agriculture & allied (35.9)	3.2 ± 1.6	2.9 - 3.6	F=5.46; P<0.01
	Govt. services (24.9)	2.8 ± 1.2	2.5 - 3.1	
	Business (17.5)	2.5 ± 1.3	2.0 - 2.9	
	Labourer (21.7)	2.3 ± 1.4	1.8 - 2.7	
Type of family	Nuclear (52.3)	2.9 ± 1.5	2.6 - 3.2	t=0.78; P>0.05
	Joint (47.7)	2.7 ± 1.3	2.5 - 3.0	
Desire number of son by wife	At most 1 (18.9)	2.8 ± 1.2	2.4 - 3.1	F=3.59; P<0.05
	At most 2 (53.2)	2.6 ± 1.4	2.4 - 2.9	
	At least 3 (27.9)	3.2 ± 1.7	2.8 - 3.7	
Desire number of son by husband	At most 1 (10.8)	1.8 ± 1.3	1.1 - 2.4	F=8.22; P<0.01
	At most 2 (46.5)	2.6 ± 1.4	2.3 - 2.9	
	At least 3 (42.7)	3.2 ± 1.5	2.9 - 3.5	
Total		2.8 ± 1.5	2.5 - 3.0	

Table - 2: Odds Ratios of variables on the failure in national fertility goal

Variable	OR (e^{β})	P-value	95%CI for OR
Age at marriage of wife (in year)	0.535	0.010	0.332, 0.863
Age at marriage of husband (in year)	1.193	0.342	0.829, 1.717
Present age of wife (in yr)	1.651	0.003	1.187, 2.297
Sex of 2nd birth: Female	1.000		
Male	0.140	0.031	0.024, 0.833
Education of wife (in level)	1.016	0.977	0.336, 3.078
Education of husband (in level)	0.557	0.296	0.185, 1.670
Monthly family income (in '000 Rs.)	0.956	0.264	0.883, 1.035
Type of family: Nuclear	1.000		
Joint	0.721	0.724	0.117, 4.440
Desire number of son by wife	2.983	0.153	0.666, 3.364
Desire number of son by husband	3.454	0.212	0.492, 4.238
Constant	0.003	0.167	

Table - 3: Stepwise Odds Ratios of variables on the failure in national fertility goal

Step	Variable	OR (e^{β})	P-value	95%CI for OR
1	Education of wife (in level)	0.501	0.008	0.302, 0.832
	Constant	10.682	0.000	
2	Present age of wife	1.203	0.007	1.051, 1.377
	Education of wife (in level)	0.412	0.004	0.225, 0.753
	Constant	0.063	0.149	
3	Age at marriage of wife	0.710	0.003	0.566, 0.890
	Present age of wife	1.467	0.001	1.176, 1.829
	Education of wife (in level)	0.495	0.039	0.254, 0.966
	Constant	0.151	0.374	
4	Age at marriage of wife	0.671	0.002	0.519, 0.868
	Present age of wife	1.533	0.001	1.193, 1.969
	Sex of 2nd live birth	0.182	0.028	0.040, 0.829
	Education of wife (in level)	0.553	0.098	0.275, 1.115
	Constant	0.262	0.573	