FACTORS AFFECTING THE FERTILITY DIFFERENTIAL IN DIFFERENT STATES AND REGIONS IN MYANMAR

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ABSTRACT:

Background: Fertility is an important component of population dynamics and plays a large role in changes in size and structure of population of a given area.

Methods: This study aimed to describe the fertility differential and to determine the factors influencing it among different states and regions in Myanmar. Myanmar is divided into 7 states and 7 regions. The 7 states mainly represent the 7 main ethnic groups, (i.e., Kachin, Kayah, Kayin, Chin, Mon, Rakhine and Shan) and 7 regions represent for Bamar ethnic group. Among these 7 States and 7 Regions, all 7 States and Mandalay Region were selected for the study. The 7 States represent the 7 ethnic groups and Mandalay Region represents for Bamar ethnic group, as over 95% of Bamar people lived in this region. The selected states and regions represent for 8 major ethnic groups in Myanmar. Secondary data from fertility and reproductive health survey 2007, out of 8352 ever married women in whole country, 3086 from the study areas were analyzed with bivariate and multiple regression, using SPSS software.

Results: Age at first marriage and women's education were the main predictors of the fertility differential among the 8 study areas. These factors were significantly associated with number of children ever born in all study areas (P <0.01). Regarding the relationship between age at first marriage and child ever born, it meant that marrying one year later could help decrease the number of 0.12 children in Kachin state, 0.17 in Kayah state, 0.15 in Kayin state, 0.22 in Chin state, 0.15 in Mandalay Region, 0.17 in Mon state, 0.19 in Rakhine state, and 0.10 children in Shan state. As for the relationship between women's education and child ever born, it also implied that one additional year in school, decreased the number of children ever born by 0.26 child in Kachin, 0.20 child in Kayah, 0.16 child in Kayin state, 0.35 child in Chin state, 0.06 child in Mandalay Region, 0.16 child in Mon state, 0.14 child in Rakhine state and 0.15 child in Shan state. The information of factors affecting the fertility differential gives some idea of the future proportion of each group in the total population and can help to project more accurately the future population size of the entire country. The results of this study revealed that the differential of fertility among the studied ethnic groups was minimal.

Conclusions: The data set analyzed did not include complete information on culturally-related factors such as beliefs and birth control practices. It would be highly desirable to include such information in future research on fertility and ethnicity in Myanmar. Future research should also include qualitative approaches as appropriate.

Keywords: Fertility differential, Children ever-born, Myanmar

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INTRODUCTION

Fertility Differentials is the fertility rate of a group compared to another group. It has been observed that the levels of fertility vary considerably in various sub-groups of the same population. These sub-groups may be based on residence, urban or rural, social and economic status in terms of educational attainment, occupation, income, religion, caste, race, contraception method uses, unmet need etc. [1].

In Myanmar, the states and regions are divided into districts under which are townships.

Classification of urban and rural area is made at

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the township level: the wards in town are classified as urban and the village tracts as rural [2]. All 7 states are more or less mountainous and some are hard- to- reach areas but regions are situated in the flat plain. The poor quality of land inhibits development and transport and communication remain a problem today, poverty, lack of development. Fertility trends may be differing substantially across ethnic groups because of the low availability of education opportunities, employment opportunities, and knowledge of contraceptive uses and so on. .Myanmar is an ethnically different country with 135 minor ethnic groups[3]. These are arranged into eight Major National Ethnic Races: Kachin 1.47%, Kayah 0.5%, Kayin 6.36%, Chin 2.06%, Bamar 68%, Mon 2.75%, Rakhine 4.17% Shan 9.24% [4].The different fertility and family behaviors between the ethnic groups remain when one controls for important socio-economic factors such as level of education, place of residence, level of religiosity and union status [5]. Physical attributes, language, history, clothing, food, dance and other traditions differentiate the various ethnic groups within Myanmar. It would not be appropriate to assume similarities amongst the groups; a Kayin and a Bamar, for example, may not see themselves as having anything in common. At the same time, however, many values and beliefs are the same; there may be greater similarities between a Bamar Christian and a Kayin Christian than between a Bamar Christian and a Bamar Buddhist [6]. In fact, there have been many researches related to fertility differentials among some ethnic groups in many countries [for example, Thailand, Malawi, Kenya etc.]. But, in Myanmar, there is very little research on ethnic fertility differentials at the national level. For these reasons, it is important to investigate the fertility level of each ethnic group in Myanmar.

Fertility in Myanmar has been declining. The Crude Birth Rate (CBR) decreased from 34.8 births per thousand populations in 1983 to 17.3 in 2007. The Total Fertility Rate (TFR) was 3.5 children per woman in 1991 decreasing to 2.0 children per woman in 2007For marital fertility (Total Marital Fertility Rate –TMFR) a married woman had 4.9 children in 2001 decreasing to 4.7 children in 2007.This is due to high proportion of unmarried women (over 46%) who contribute no birth . The number of children a married woman can expect to give birth to is still high though it has declined. Fertility decline in Myanmar is likely to be influenced by the factors such as residence, education, employment, increase in contraceptive use, increase in age at first marriage and increase in the proportion of women never married. The percentage of currently married women currently using any contraceptive method namely contraceptive prevalence rate (CPR) increased nearly twice from 16.8 percent in 1991 to 41 percent in 2007. With the increase in CPR between 1991 and 2007, the estimated unmet need for contraception decreased from 20.6 percent in 1991 to17.7 percent in 2007.Nuptiality has been undergoing a transition in Myanmar. Early marriage and universality of marriage are not features of marriage patterns in Myanmar. The mean age at first marriage was 26 years for women and 27 years for men in 2007 [7].

By studying differential fertility among ethnics groups, it can be useful in identifying the factors which determine fertility levels among these groups. This information can give some idea of the future proportion of each group in the total population and also helps to project more accurately the future population size of the entire country [8].By analyzing the differentials in fertility among ethnics groups can also benefit or help solve many problems in relation to reproductive health and family planning programmes because it helps to identify high fertility groups by which each programme efforts can be concentrated. It can also help to promote or provide the basic needs related to health, education, and employment to the groups which are in urgent needs. This population data can also provide to policy makers as well as potential researchers for further in-depth and holistic researches about ethnic groups.

MATERIALS AND METHODS

This study uses the secondary data from Myanmar Fertility and Reproductive Health Survey (FRHS) 2007. It was conducted by Department of Population (Ministry of Immigration and Population) with the financial and technical assistance of UNFPA. It is a nationally representative survey.

In FRHS 2007, there were a total of 31,942 households with 156,538 the household members distributed in 288 wards and 815 village tracts in household survey (phase I) and 8,352 ever married women aged 15-49 and 6,106 never married women aged 15-34 in individual survey (phase II). Out of 1103 segments selected from phase I survey, 415 segments were selected for phase II survey. On the average, a segment consists of 25 to 35 households [2].

In this study, out of 8,352 ever married women, 3085 women are analyzed from selected states and region. The sample covered those who lived in both urban and rural areas and also included women who had different level of education and occupation. The questions used in the survey questionnaire included

Table 1 Percentage of children ever born reported by female respondents classified by states and the region (N=3086)

No of children	Percentage of women in states and region								Total Respondents
	Kachin	Kayah	Kayin	Chin	Mandalay	Mon	Rakhine	Shan	
0	3.7	2.7	9.6	1.8	31.1	15.5	16.4	19.2	100
1	5.6	0.7	8.4	3.5	27.1	12.2	17	25.5	100
2	5.3	0.6	6.8	1.7	31.7	12.6	16.1	25.4	100
3	6.9	0.8	8.9	2.3	29.2	12.9	19.1	19.9	100
4	7.7	0.7	8.2	2.4	30.8	14	16.9	19.1	100
5	9.2	0.4	8.8	3.5	28.9	12.7	21.1	15.4	100
6+	6.3	0.3	8.3	6	26.4	8.9	27	16.7	100
total women	6.3	0.8	8.2	2.9	29.3	12.6	18.6	21.3	100

Table 2 Socio-demographic factors by states and region

States and region	Employment		Residence		Knowledge about contraceptive		Occupation status	
	Working	Not working	Urban	Rural	Know	Don't know	Unskilled	Skilled
Kachin	9.88	90.12	30.41	69.59	97.4	2.6	94.2	5.8
Kayah	15.38	84.62	100	0	91.7	8.3	92.3	7.7
Kayin	12.68	87.32	18.11	81.89	97.6	2.4	96.4	3.6
Chin	31.03	68.97	24.72	75.28	76.4	23.6	85.3	14.7
Mandalay	13.19	86.81	32.82	67.18	97.3	2.7	92.7	7.3
Mon	13.88	86.12	25.26	74.74	93.6	6.4	94.5	5.5
Rakhine	5.81	94.19	14.11	85.89	83.1	16.9	90.8	9.2
Shan	26.61	73.39	29.18	70.82	85.7	14.3	93.2	6.8
Total	13.94	86.06	26.54	73.46	91.1	8.9	93	7

all of the important characteristics such as women's fertility or number of children, age at first married, education level, employment or working status, knowledge about contraceptive methods, place of residence or respondent's locality, religion, occupational status, etc.

Descriptive statistics will be used to present the general characteristics of women under study such as age at first marriage, education, employment, occupational status and religion. In bivariate analysis, the correlation test was used for the correlation between proximate determinants and socio-demographic factors on an individual's fertility were comprehensively done.

RESULTS

There were 3086 women states and region, according to 2007 FRHS, 26.5 % of women lived in urban areas. About 81% of women got married at age 15-24, and only 1% married at age over 35 years old. More than half of the ever married women (i.e. 58%) had obtained primary or lower than primary education whereas one-fourth of the women finished secondary level of education, and only 7% finished university level. Nearly half of the women had only two or less than two children and 81% of women had four or less than four children and 44% of married women used any contraceptive method whereas about only 14% of women were working prior to the survey period, Regarding the religion, 87% were Buddhists.

Table 1 shows the number of children ever born reported by the female respondents or women classified by states and the Region. It is very clear that the biggest group of respondents (almost 30%) were from Mandalay Region whereas the second and the third largest groups in this study were from Shan (21.3%) and Rakhine (18.6%) states. When looking at the highest number of children the women had (or 6+) of each state and the Region, although we expected that there are so much differences between Rakhine and Mandalay as Rakhine is the hard to reach area and mostly Islamic people lived in this state and Mandalay is centre of Myanmar and had good communication services, we found very interesting figures of both Rakhine and Mandalay. Although the highest percentage (27%) was found in Rakhine state, but actually, it was not so much different from the figure of Mandalay which was 26.4%.

Table 2 also shows that the description of some socio-economic factors in states and region. Generally only 14% of women are working, women from chin state contribute the highest percentage, followed by Shan state and then Kayah state.

Regarding to the residence, 26.5% lived in Urban. It is not surprising that, rural population is higher than urban population in all states and region

Table 3 Number of children ever born by some socio-demographic factors

Children ever born	Employment (%)		Occupational status (%)		Knowledge about contraceptive (%)	
	Working	Not working	Skilled	Unskilled	Know	Don't know
0	19	81	10.9	89.1	86.3	13.7
1	15.8	84.2	11.3	88.7	92.6	7.4
2	16.1	83.9	9.5	90.5	95	5
3	15.8	84.2	5.5	94.5	92.8	7.2
4	16	84	3.5	96.5	92	8
5	11.3	88.7	3.5	96.5	91.7	8.3
6	17.8	82.2	2	98	84.3	15.7
7	23.5	76.5	0	100	79.7	20.3
8	28.6	71.4	0	100	70.8	29.2
9	37.5	62.5	0	100	78.8	21.2
10	64.7	35.3	0	100	85.7	14.3
11	78.6	21.4	0	100	50	50
12^{+}	80	20	0	100	33.3	66.7

Table 4 Relationships between children ever born and some socio-economic factors by State and region

Children ever born by states and region	Age at first marriage	Number of schooling	Working/not working	Urban/ rural	Religion	Knowledge about contraceptive	Skilled/ Unskilled workers
	B	B	B	B	B	B	B
Kachin	-.117**	-.257***	-.156	-.937**	-.143	-2.452**	-1.561*
Kayah	-.170**	-.204	-1.136	N.A	3.000	1.773	-1.833
Kayin	-.151***	-.157**	-.869	.050	.125	1.769*	-1.269
Chin	-.218**	-.350***	-.378	-.806	-.249	-.452	-2.400**
Mandalay	-.148***	-.060**	-.432	-.208	.103	-.686	-.480
Mon	-.169***	-.164***	-.653	-.502*	.017	.100	-.427
Rakhine	-.192***	-.144***	-1.100	-1.099***	.669***	-1.443***	-1.201**
Shan	-.102***	-.145***	.043	.332*	.127	-.495*	-1.325***

*P<0.05, **P<0.01, ***P<0.001

N.A Not available

except Kayah state. For this state all the respondents are urban women, so we cannot analyze the urban-rural residence for this state.

When we look at the knowledge about contraceptive use by percent in each state and region, it shows that among 100 women from Kachin state, 97Kachin women knows about knowledge of contraceptive use and 3 women didn't know about it, among 100 women from Kayah state, 92Kachin women knows about knowledge of contraceptive use and 8 women didn't know about it and so on. In this study, most of Myanmar women know about it as it shows at least 76% of women know about it.

When we compare occupational level of states and region, we can see that skilled workers are lower than unskilled workers in all states and region.

Table 3, we can see that the percentage of non-working women are higher fertility than working women in every category. For women who have no child category, non-working women contribute higher percentage than working women; it may based on contribution of the percentage of working women.

Then, we study the number of children ever born in relation to the occupational status of women. It was evident that most of the women in the survey were unskilled labour or workers. It was also very surprising when looking at the categories 7 to 12^{+} children or those who reported that they had between 7 to 12^{+} children, all of them or 100% of each category were unskilled workers. Also, very interesting to see that most of skillful workers had only one or two children whereas those skilled workers with no child was about 11%.

When we analyzed the number of children ever born in relation to the women's knowledge about contraceptive methods, it was quite clear that most of the women in all categories had perceived the existence or the availability of contraceptive methods. Also, those women who reported the number of children ever born between 0-6 persons seemed to share much higher percentage of knowledge about contraceptive methods than their

counterparts in the other categories. In other words, those who reported the number of children more than 6 persons seemed to share lower percentage of their knowledge about contraceptive methods.

From Table 4 shows the relation between children ever born and some socio-economic factors by each State and Region.

Regarding the relationships between age at first marriage and child ever born, the age at first marriage had a negative effect on children ever born in every state and region. It also meaned that marrying one year later could help decrease the number of 0.12 children in Kachin state, 0.17 in Kayah state, 0.15 in Kayin state, 0.22 in Chin state, 0.15 in Mandalay Region, 0.17 in Mon state, 0.19 in Rakhine state, and 0.10 children in Shan state. These were found significant at 0.001 level in Kayin, Mon, Rakhine, Shan states and Mandalay Region and 0.01 level in Kachin and Kayah states and 0.05 level in Rakhine state.

As for the relationships between women's education and child ever born, it also showed that women's education had a negative effect on children ever born in every state and region. It also implied that one additional year in school, decreased the number of children ever born by 0.26 child in Kachin state,0.20 child in Kayah state, 0.16 child in Kayin state, 0.35 child in Chin state,0.06 child in Mandalay Region,0.16 child in Mon state,0.14 child in Rakhine state and 0.15 child in Shan state. These are significant at 0.001 level in Kachin, Chin, Mon , Rakhine and Shan states and 0.01 level in Kayin state and Mandalay Region and not significant in Kayah state.

For the relationships between women's employment and child ever born, it was shown that women's employment had a negative effect on children ever born in every state and region except Shan state. However, it was rather surprising that women's employment had a positive effect on children ever born in Shan State. Very clearly, the working status of women could help decrease the number of children ever born by 0.16 child in Kachin state, 1.14 child in Kayah state, 0.87 child in Kayin state, 0.38 child in Chin state, 0.43 child in Mandalay Region, 0.65 child in Mon state, 1.1 child in Rakhine state but increase the no of children ever born by 0.15 in Shan state. These variables were not statistically significant in all states and region.

Furthermore, the analysis of the relationships between women's residence [urban/rural] and child ever born revealed its result as follows : women's residence had a negative effect on children ever born in Kachin, Chin , Mon, Rakhine states and Mandalay Region, but found positive effect in Kayin and Shan states. For Kayah State, the relationships between women's residence and child ever born in Urban. The results show that if the women lived in urban, the number of children ever born decrease by 0.94 children in Kachin state, 0.81 children in Chin State, 0.21 children in Mandalay Region,0.50 children in Mon State and 1.1 children in Rakhine State. The results also showed that if the women lived in rural areas, the number of children ever born decrease by 0.05 children in Kayin State and 0.33 children in Shan state. However, these were statistically significant in only Kachin, Mon, Rakhine and Shan States.

When looking at the relationships between religion and child ever born, the relation is statistically significant at 0.001 levels only in Rakhine State. Mostly Muslim people lived in Rakhine State. It was a negative relationship between religion and child ever born in Kachin and Chin State, but not statistically significant. Kachin and Chin people are mostly Christians.

As for the relationships between knowledge about contraceptive methods and children ever born, it revealed that the knowledge about contraceptive methods had negative effect on children ever born in Kachin, Chin, Mandalay, Rakhine and Shan. It also implied that women from these states and region were less likely to have children than women who had not perceived of any contraceptive methods. However, the knowledge about contraceptive methods had positive effect on children ever born in Kayah, Kayin, and Mon states. It means that women from these states and region were more likely to have children than women who had no knowledge about contraceptive methods. These were found significant only in Kachin, Kayin, Rakhine and Shan states. The reasons why the knowledge about contraceptive methods was not directly effect on children ever born in some states could be related to many causes such as women's desire of children and the cost of contraceptive methods etc. Therefore, the knowledge about contraceptive methods could both positively and negatively effect on children ever born.

As for the relationships between women's occupational status and children ever born, it was found that the occupational status had negative effect on children ever born in every states and the Region. It strongly indicated that skilled workers were less likely to have children ever born than unskilled workers. However, this variable was found significant only in Kachin, Chin, Rakhine and Shan states.

DISCUSSIONS

The important results derived from the analysis were as follows: age at first marriage and number of schooling were found having significant relationships with children ever born in almost all States and the Region. Women's employment and occupation were also effected on children ever born although some states and region are not statistically significant. Women's residence, religion and knowledge about contraceptive methods were not so much directly associated with children ever born except for the case of Islamic women. However, women's employment, women's occupational status and place of residence may affected on age at first marriage and this latter factor strongly influenced over the fertility differentials in all of the States and the Region.

Also, we can assume that children ever born were not only associated with age at first marriage, but with education as well. In the meantime, education could also associated with age at first marriage, place of residence and employment. It could be explained that due to the different characteristics of urban-rural location of residence or place of settlement, it could imply the differences in educational level or opportunity as well as the difference in women's employment and thereby, led to the differences in the age at first marriage, which finally effected on women's fertility. However, knowledge about contraceptive methods did not have much effects on children ever born in some states.

The results of this study revealed that the differential of fertility among the female ethnic groups was minimal. This could be because the lack of qualitative complex data that this study could not yet reach. Therefore, future studies using qualitative approach or mixed methods would surely enable more profound and realistic findings.

In conclusion, some of the findings from this study were consistent with the previous studies and some were against or inconsistent with some of the former studies.

Age at first marriage is an important demographic factor influencing fertility [9].The finding of relation between age at first marriage and fertility is consistent with the previous findings of Ahmad Kabir [10] and Prosannajid Sarkar [11].They found that age can strongly effect on fertility level. If age at first marriage is low, it can provide long reproductive span and have higher fertility in societies where contraceptive use is low[10, 11] .In this study also showed that age at first marriage is strongly effected on fertility.

Education is one of the significant variables affecting the differential of fertility. The role of education changes the fertility behaviour of a woman [12]. The finding of relation between education and fertility is consistent with the findings of numerous studies such as (Myanmar Fertility and Reproductive Health Survey 2007 [2], Justin Mc.crary& Royer [13] and Tsegaye [14]. They found that fertility has a negative relationship with education and the more increase in level of education of couple can reduce age at first marriage and early births [2, 13,14]. In this study, it showed that that fertility had a negative relationship with education.

Women's employment involves an important role in changing fertility levels within and between countries[15].This finding of relation between women's employment and fertility is consistent with the findings of Tsegaye [14]. He said that "women's employment will have a negative impact on the fertility level of women" but he also said that "the relationship between women's employment and fertility behaviour is also varied in the regions of a given nation as well"[14]. In this study, women's employment had a negative impact on the fertility level of women, but it is not significant in all states and region.

Urban-Rural Residence is also considered as a factor influencing the fertility differential in a population. Myanmar Fertility Reproductive and Health Survey in 2001,2007 and 1997found that rural fertility was higher than urban fertility[1, 2, 8]. But, David Shapiro [16] pointed that there is no consistent fertility differences by rural and urban place of residence in developing countries[16]. Asad Ali Khan [17] also said that rural and urban fertility was found to be more or less identical in Pakistan. In this study, urban- rural residence is both positive and negative effect on child ever born.

CONCLUSIONS

Conclusion was made in relation to the objectives of the study stated at the outset, however, it would be practical to draw explicit conclusion in relation to each objective as follows:

To describe fertility differential among different states and the Region in Myanmar, empirical evidences showed that fertility was slightly different in different States and the Region.

To determine the factors that affected the fertility differentials among different States and the Region in Myanmar, the results from linear regression analysis revealed that age at first marriage, education, employment, place of

residence, religion, occupational status, awareness or perception about contraceptive methods, some factors were found positively related or associated with the dependent variable or the number of children ever born, but some were negatively associated with the dependent variable.

RECOMMENDATIONS

1. The government should provide the programs to increase skilled people for working group population by providing more education facilities and job opportunities and by encouraging them to study more at school or more to participate in labor force. Only the skilled people can improve the development of the country.

2. The lack of detailed and in-depth knowledge and/or data about cultural diversities such as beliefs, practices of birth control in relation to diversified and complex cultures which were also related to the changing complex contexts of each region/state which are linked to the globalization and modernization in current Myanmar were not yet include in this study due to limited feature of available secondary data. Therefore, alternative perspectives and/or new research paradigms as well as qualitative approach are very strongly for the future researches about fertility of various ethnic groups in Myanmar.

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