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CONTENTS

TABLES AND FIGURES

ABSTRACT

A better understanding of the role men play in women's reproductive health can have a significant impact on women and can improve the effectiveness of family planning programs. Men's opposition to contraception and men's fertility preferences can affect women's unmet need for family planning. While women's fertility, fertility preferences, and use of reproductive health services are well understood, there is a lack of research on men and reproductive health. Surveys of male populations provide useful information on how men perceive, define, or act out their roles in matters of family planning and fertility. A better understanding of men's perceptions and preferences can support evidence-based male sexual and reproductive health programs and improve their effectiveness.

This report focuses on current use of modern contraception and fertility preferences among men age 15-49 in Myanmar. To study the predictors of current modern contraceptive use and fertility preferences among men, we conducted a secondary data analysis using the 2015-16 Myanmar Demographic and Health Survey. The study population for the use of modern contraception was sexually active men, and for fertility preferences it was currently married men.

The results showed that 39% of married men were currently using modern contraception at the time of the survey, and 60% said they would like to have more than two children. The results of multiple logistic regression indicated that men living in the coastal, delta, and plain regions were more likely to use modern contraception compared with men living in the hilly region. Regarding occupation, professional men, clerical manual workers and agricultural workers had higher levels of modern contraceptive use compared with jobless men. Men in the middle household wealth quintile used modern contraception methods more than the poorest quintile. Although the prevalence of modern contraceptive use was higher among men who desired more than two children, it was not a statistically significant factor. Fertility preference for more than two children was higher among men living in the coastal, and plain regions compared with the hilly region. Men with a higher level of education were less likely to want to have more than two children compared with men with no education.

These findings suggest that future policies and programs should focus on addressing regional disparities in accessibility and availability of modern contraception by maintaining the quality of family planning services, especially for men in the hilly region and for men without jobs. Future interventions for promoting men's contraception should be considered to bundle with local job agencies and occupational health services by improving awareness of family planning among men.

Key words: Current use of modern contraception, fertility preferences, men age 15-49, Myanmar Demographic and Health Survey

1 INTRODUCTION

1.1 Background

Demographic change is one of the major challenges facing developing and underdeveloped countries. While fertility rates have been decreasing throughout the world (UN Secretariat 2000), the age of first sexual exposure for both men and women is under age 25 (MacQuarrie et al. 2015; Johnson and Gu 2009). Therefore, not only women but also men play an important role in women's reproductive health (Davis et al. 2016). For men and adolescent boys, the Global Sexual and Reproductive Health Package was operationalized by IPPF and UNFPA, including contraception, sexual dysfunction, and infertility (Shand et al. 2017). Myanmar's Ministry of Health and Sports (MOHS) also updated the National Sexual and Reproductive Health and Rights (SRHR) policy framework and reprioritized areas to be in line with global standards. The new SRHR policy framework aims to provide comprehensive SRHR services for people of all ages. It is strengthened by learning from global experience, focusing on the country's needs with multi-stakeholder involvement, and fostering gender-based strategies (Myanmar SRHR Policy Factsheet 2018).

Although in many countries the majority of men are willing to participate in family planning, there are few male contraceptive methods, limited male-focused family planning services, and a lack of attention to men in reproductive health policies (USAID 2018). Moreover, because of easier control of female ovulation, different fertility goals between men and women, and hierarchical norms in decision-making in family planning, there is limited use of male contraception. In most regions of the world, an estimated 1 in 10 married or in-union women who wanted no more children fail to use contraception (UN 2015) to fulfill their husbands' desire for additional children and opposition to contraception. In controlling the reproductive process, the unmet contraceptive needs among couples result in millions of unwanted pregnancies (UNFPA 2005).

The contraceptive use and fertility preferences of men influence the ideal number of children desired within the family in most societies. Studies of 40 developing countries have showed large regional variations in the reproductive preferences and behavior of men. Both within and among countries, significant variations were seen in spousal communication about important health issues. In most of the study countries, current modern method contraceptive use was higher among sexually active men who were not in-union than among men in union (Johnson and Gu 2009). The prevalence of male contraceptive method use was 16% among married women globally in 2015, but was lowest in Africa and highest in North America and Europe. Prevalence of male contraceptive method use among in-union women in Asia and Latin America are close to the global average (Ross and Hardee 2017). A study of men and contraception in 18 countries in Africa, Asia, and Latin America and the Caribbean found that men preferred to have more than two children, and it was the highest in West and Central Africa. Contraceptive use was higher among currently married men than among never-married men in most of the countries. A majority of men used a modern method, and use of male contraceptive methods was higher than female methods in most countries (MacQuarrie et al. 2015). This suggests that there may be contraceptive use among men that their wives are unaware of.

The involvement of men in reproductive health issues, including contraceptive use and fertility preferences, is related to sociodemographic characteristics, knowledge, and awareness (Paudel and Acharya 2018;

Bishwajit et al. 2017; MacQuarrie et al. 2017; Tamang et al. 2017; MacQuarrie et al. 2015; Johnson and Gu 2009; National Institute of Statistics, Ministry of Finance and Economic Planning and ORC Macro 2006).

In Myanmar, the population increased by almost 16.2 million people between 1983 and 2014. According to the 2014 Myanmar population and housing census, the median age was 27.1 years and more than half the population was younger than age 30. The median age at first birth for women age 15-49 in Myanmar was 24.7. The total fertility rate (TFR) in Myanmar has declined from 4.7 to 2.3 children per woman over the past 33 years (MOIP/DOP 2015). Compared with other countries in the Southeast Asia region, the TFR for all Myanmar women age 15-49 is slightly lower, at 2.5 children per woman (UN 2013). There may be more decrease in the fertility rate in recent years, because the 2015-16 Myanmar DHS revealed a total wanted fertility rate of 2.0 children per woman (MOHS and ICF 2017).

On the other hand, the maternal mortality ratio (MMR) in Myanmar is 282 deaths per 100,000 live births, which is the second highest among ASEAN countries. Approximately 2,800 Myanmar women die during pregnancy or childbirth every year (Jhpiego, MOHS and FP2020 2017) and almost 5% of all pregnancies end in abortion (UNFPA 2009). Moreover, men's status is still superior to women's in Myanmar because of cultural norms, affecting access to sexual and reproductive health and rights (Thein 2015). Current use of modern contraception among married women in Myanmar was 51% in 2016, which is lower than the 58% in Indonesia, 57% in Vietnam, and 54% in Bangladesh (DHS Program). In 2015-16, there were an estimated 746,000 unwanted pregnancies in Myanmar, according to UNFPA (UNFPA 2016). Overall contraceptive prevalence among women age 15-49 in Myanmar was 31% in 2016, far below the prevalence of 51% among married women—a level that needs to reach 60% in 2020 (Einda 2016; UNFPA 2016).

A study in Mandalay City concluded that the unmet need for reproductive health services was significantly influenced by exposure to mass media, peer exposure, and knowledge of services (Thin Zaw et al. 2012). A significant linkage of risky sexual debut with exposure to sexual and reproductive health information and media was also found among poor Myanmar youths (Thin Zaw et al. 2013). Service availability and health worker support are significant factors influencing family planning practices, according a study in Yangon (Lwin et al. 2013). In rural areas of Myanmar, use of contraception was higher among wives who discussed contraception with their spouse (Mon and Liabsuetrakul 2012). Bishwajit et al. (2017) argued that men's active involvement in reproductive health is positively associated with maternal and child health outcomes. A study in Uganda explored men's low participation in contraceptive use and reproductive health programs, and highlighted the urgent need for evidence-based male involvement in family life decision-making (Blake and Babalola 2002). Greene and Barker (2010) advised researchers, policymakers, and program managers to give attention to male involvement in family health decision-making. Therefore, shared responsibility of both men and women in reproductive health is an increasingly important issue.

Recognizing changing demography, fertility patterns, cultural norms, and current health status, reproductive health is a crucial component for prioritized areas of health in Myanmar. These situations highlight the need to understand fertility preferences and contraceptive use among men in Myanmar in order to develop programs that can help meet the overall goal for the nation's health. While sustaining essential maternal and child health care and ensuring family planning access are critical, men's role for contraceptive adoption is important to include in sexual and reproductive health. Moreover, evidence-based male sexual and reproductive health programs could be provided efficiently and effectively by understanding men's

perceptions and preferences. Surveys of male populations provide useful information on how men perceive, define, or act out their roles in matters of family planning and fertility.

In Myanmar, research on men and reproductive health is less frequently conducted compared with the many studies on women's sexual and reproductive health and service utilization. There is a need to explore current use of modern contraception and fertility preferences among Myanmar men and also their predictors. This study addresses the gap in the literature by assessing trends and determinants of modern contractive use and fertility preferences among currently married men age 15-49 in Myanmar.

1.2 Research Questions

The study attempts to answer the following research questions:

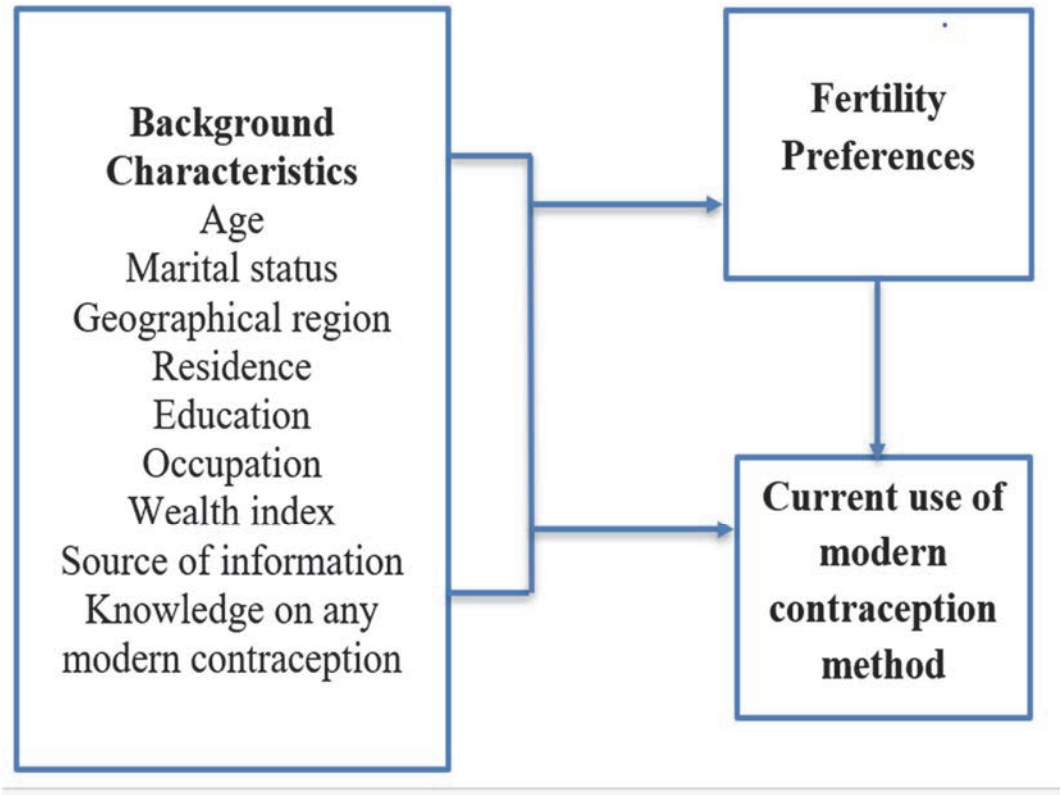
- What are the trends in current use of modern contraceptive methods among men age 15-49 in Myanmar?
- What are the predictors of current modern contraceptive use among men age 15-49 in Myanmar? How do they vary by sociodemographic characteristics?
- What are the predictors on fertility preferences among men age 15-49 in Myanmar?

1.3 Conceptual Framework

According to the 2015-16 Myanmar Demographic and Health Survey, the reasons for contraceptive discontinuation include disapproval of husbands. Fertility preference to have more children is found to be higher among men than women, and 16% of married women have unmet need for family planning (MOHS and ICF 2017). These findings highlight the importance of men's adherence to contraception for minimizing unmet need. Therefore, it is important to understand what factors influence men's contraception and fertility preferences. Our conceptual framework is hypothesized to explore predictors on current use of modern contraception and fertility preferences among men age 15-49 in Myanmar. Based on the evidence of influencing factors of contraceptive use and fertility (Blackstone and Lwelunmor 2017; Solenke 2017; Sunnu et al. 2016), sociodemographic characteristics and source of information about contraception are incorporated for the analysis of predictive factors on the two outcomes—men's contraceptive use and fertility preferences. Knowledge on any modern contraceptive method among the study population is also described.

Sociodemographic characteristics include age, marital status, geographical region, residence, education, occupation, and wealth index. Marital status is considered as a predicting factor for modern contraceptive use among sexually active men. Variation by geographical regions and residence is also important for analyzing current modern contraceptive use and fertility preferences. Men's age, education, occupation, and household wealth index could be positively associated with both outcome variables. Men's access to any source of information may have an effect on use of modern contraception and on fertility preferences. As shown in the conceptual framework, there could be direct links between socioeconomic factors and the two outcomes variables. The sources of information about modern contraceptive methods and fertility preferences are also adjusted as covariates for analysis of predictors of current use of modern contraception.

Figure 1 **Conceptual framework of predicting factors on current use of modern contraception and fertility preferences among men age 15-49 in Myanmar**



2 DATA AND METHODS

2.1 Data

This study is based on data from the nationwide 2015-16 Myanmar Demographic and Health Survey (DHS), conducted by the Ministry of Health and Sports and ICF (MOHS and ICF 2017). The 2015-16 Myanmar DHS, which was the first DHS survey in the country, was designed to provide a nationally representative sample. It followed a stratified two-stage sample design at the national level and for each of the seven States and eight Regions of Myanmar. For each sampling stage, separate sampling weight was calculated based on sampling probabilities. The first stage involved selecting clusters consisting of EAs or ward/village tracts. The second stage was selection of households from each selected cluster using equal probability systematic sampling. There was an average of 1.2 men age 15-49 per household and the eligible response rate was 91%. The survey interviewed a total of 4,737 men age 15-49 in the selected households. From this group, 3,248 men who ever had sexual intercourse were selected as the sample for contraceptive use, after excluding 1,467 men who had never had sex and 22 missing cases. Data on ideal number of children is analyzed for fertility preferences among 2,956 currently married men. From this group, 2,831 men were selected for the sample after excluding 125 missing cases.

2.2 Variables

2.2.1 Dependent variables

The study examined current use of modern contraception and fertility preference as the dependent variables. Contraceptive use is defined as current use of a modern method, categorized as a binary outcome of "yes" and "no". Responses of "don't know" and "missing" are excluded from the analysis. The responses of no method, folkloric, and traditional methods are assigned to the "no" category. Modern method involves not only barrier methods but also other types related to women's contraception. For current use of modern contraception, all sexually active men who ever had sex are selected as the sample, excluding men who never had sex. Fertility preference is defined as presenting a desire for more children regardless of any timing among married men. It is a binary outcome composed of "more than 2" and "2 and less". The cut-off value of 2 is based on the finding of the 2015-16 Myanmar DHS survey, where mean ideal number of children was more than 2 for all men age 15-49 (MOHS and ICF 2017). The study sample for fertility preferences is all currently married men.

2.2.2 Independent variables

The study explored the following independent variables—age, marital status, geographical region, residence, education, occupation, household wealth index, knowledge on modern contraception, and source of information about contraception.

Age is categorized into four age groups: 15-19; 20-29; 30-39; 40-49.

Marital status is defined as current marital status of the respondent and coded as a binary variable: married; never married.

Geographical region is recoded by geographical zone of Myanmar. The four regions are: the hilly region; the coastal region; the delta region; the plain region.

Residence is the place where the respondent lives and categorized into two groups: urban; rural.

Education is defined as educational attainment of respondent, in four categories: no education; primary; secondary; and higher.

Occupation is defined as current job or work of the respondent, categorized in five groups: no job; professional; clerical/sales/services; manual; agricultural.

Wealth index is the wealth status of the household, coded into quintiles: poorest; poor; medium; rich; richest.

Knowledge on any modern contraception is defined as knowing about either male or female methods including male sterilization, male condom, pill, IUD, injectables, diaphragm, female sterilization, implants, prolonged abstinence, lactational amenorrhea, female condom, foam and jelly, emergency pills, other modern method, and standard days method. It is a binary variable: know any method; don't know any method.

Source of information about contraception is defined as any source from which the respondent has heard about contraception (radio, TV, newspaper/magazine, a health person), coded as a binary variable: no; yes.

2.3 Statistical Analysis

STATA version 15.1 was used for analysis of this study. Descriptive statistics were applied for sociodemographic characteristics, source of information, knowledge on modern contraception, current use of modern contraception, and fertility preferences. For representativeness of the estimates and nonresponse, sampling weights were taken into account. The effect of complex survey design was adjusted in the regression analysis by using the *svy* command. Bivariate analysis was applied for association between dependent and independent variables. For analyzing predictors on outcome variables, multiple logistic regression analysis was used by adjusting for the covariates. Two separate models were fitted for two outcome variables, current use of modern contraception and fertility preferences. Multicollinearity between different covariates was also assessed with cutoff value 0.6. Because of collinearity with age, marital status was excluded from the adjusted model for current use of modern contraception. The results were presented using adjusted odds ratios (OR) with 95% confidence interval (CI), and p value <0.05 was set as level of statistical significance.

3 RESULTS

3.1 Background Characteristics

As Table 1 shows, the study sample included 3,248 sexually active men and 2,831 married men age 15-49. Most of the sexually active men (91%) were married. For both groups, sociodemographic characteristics of age, geographical region, residence, education, occupation, wealth index, and source of information are described. Marital status and knowledge on any modern contraception are described for sexually active men.

Among married men, 1.3% were under age 20, while married men age 30-39 and 40-49 each constituted nearly 40% of the sample. About one-third of married men (33%) lived in the plain region, while only 19% lived in the coastal region. About three-quarters of married men (74%) were rural. Only 6% had attended higher education, while 14% had no education. About half of married men (52%) worked in manual occupations, while only 0.8% of married men were jobless. There was an equal distribution of respondents by wealth quintiles. Only 43% of married men had received information about contraception from the media or a health worker. As might be expected—since only about 1 in 10 sexually active men are never married—the percent distribution by background characteristics of sexually active men resembles the distribution for married men. For sexually active men, almost all (96%) had knowledge of contraception.

Table 1 Percent distribution of men age 15-49 by selected sociodemographic characteristics

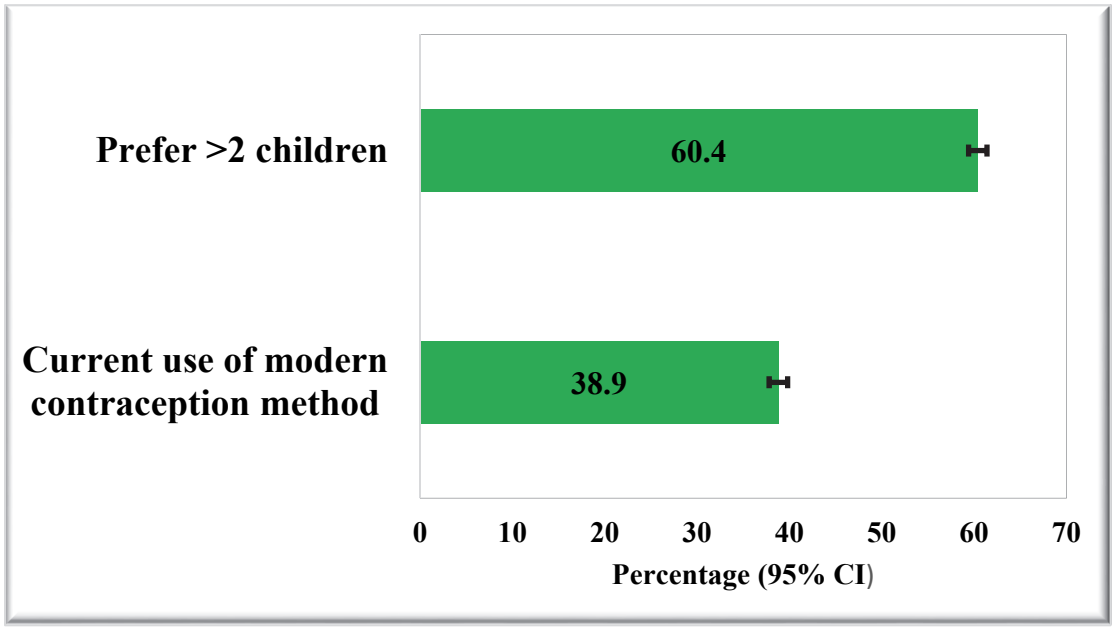
Background characteristics	Married men (n = 2,831)		Sexually active men (n = 3,248)	
	Number	%	Number	%
Age				
15-19	36	1.3	54	1.7
20-29	658	23.2	806	24.8
30-39	1,097	38.8	1,212	37.3
40-49	1,040	36.7	1,176	36.2
Marital status				
Married			2,939	90.5
Never married			309	9.5
Geographical region				
Hilly region	512	18.1	635	19.5
Coastal region	272	9.6	310	9.6
Delta region	1,112	39.3	1,241	38.2
Plain region	935	33.0	1,062	32.7
Residence				
Urban	733	25.9	881	27.1
Rural	2,098	74.1	2,367	72.9
Education				
No education	395	13.9	460	14.2
Primary	1,209	42.7	1,334	41.0
Secondary	1,049	37.1	1,244	38.3
Higher	178	6.3	210	6.5
Occupation				
No job	22	0.8	42	1.3
Professional	204	7.2	243	7.5
Clerical/sales/services	318	11.2	362	11.2
Manual	1,476	52.3	1,696	52.4
Agricultural	803	28.5	894	27.6
Wealth index				
Poorest	600	21.2	662	20.4
Poorer	574	20.3	654	20.1
Middle	580	20.5	656	20.2
Richer	568	20.0	647	19.9
Richest	509	18.0	629	19.4
Source of information				
No	1,620	57.2	1,868	57.5
Yes	1,211	42.8	1,380	42.5
Knowledge on any modern contraception				
Don't know any modern method			115	3.6
Know any modern method			3,133	96.4

Eleven men in contraceptive uses and eight men in fertility preference had missing information on occupation.

3.2 Current Use of Modern Contraception and Fertility Preferences

Figure 2 shows the use of modern contraceptive methods among the 3,248 men who ever had sex and shows fertility preferences among the 2,831 married men. Less than half of sexually active men (39%) were currently using modern contraception. The fertility preference data focus on men's desire to have more children, regardless of timing. A majority of married men (60%) desire more than two children, while 40% want two or fewer.

Figure 2 Current use of modern contraception among sexually active men and fertility preferences among married men age 15-49



3.3 Differences in Fertility Preferences and Current Use of Modern Contraception

Men's use of modern contraception and men's fertility preferences are independent variables considered for their association with sociodemographic characteristics including age, marital status, geographical region, residence, education, occupation, wealth index, and source of information on contraception. The variable on fertility preferences is also considered for association with current use of modern contraception.

Table 2 shows which variables of sociodemographic characteristics are associated with ideal number of children, more than two as fertility preferences, and current use of modern contraception among men age 15-49 in Myanmar. Men age 30 and older were most likely to want to have more than two children, at 60% among men age 30-39 and 64% among men 40-49, while among men age 20-29 the proportion was lower, at 54%. Among the regions, the delta region showed the lowest proportion of men with a preference for more than two children, at 45%. There was a significant difference according to residence, at 50% in urban areas versus 64% in rural areas. Men's preference for more than two children decreased as their level of education increased, from 66% among men with no education to 42% for those with higher education. Similarly, men in the richest quintile had significantly lower desire to have more than two children, at 47% versus 60% or higher for the other four wealth quintiles. Different types of occupation were also significantly associated with fertility preferences; among men with no job, 74% wanted to have more than two children, versus 50% of men with professional and clerical/sales/services occupations. Source of information on contraception was not associated with fertility preferences among men.

Regarding current use of modern contraceptive methods, there was a significant association with age of respondents. Men age 20-39 had the highest prevalence, at 45%, followed by men age 30-39, at 44%. Among young men age 15-19, contraceptive prevalence was 28%. Married men used modern contraception

significantly more than men not married, at 42% versus 14%. Geographical distribution had a significant association with modern contraceptive prevalence, at 38% in the plain region and 51% in the delta region. Around 40% of men with primary, secondary, and higher education used modern methods versus 28% of men with no education. A significant association was found between source of information on contraception and the use of modern contraceptive methods, among men who ever had sex. The ideal number of children was significantly associated with the use of modern contraception; among men who wanted to have no more than two children, prevalence was 45%, versus 37% among men who preferred to have more than two children. Residence and wealth index were not associated with use of modern contraception.

Table 2 Fertility preferences and current use of modern contraception by sociodemographic characteristics among men age 15-49

	Fertility preferences (Ideal number of children > 2)			Current use of modern contraception		
Variables	%	CI	p value	%	CI	p value
Age			<0.01			<0.001
15-19	58.1	[38.2,75.6]		28.0	[16.6,43.0]	
20-29	54.3	[49.2,59.4]		44.7	[40.5,49.0]	
30-39	60.3	[55.7,64.6]		43.5	[40.0,47.1]	
40-49	64.4	[60.6,68.1]		30.8	[36.5,41.4]	
Marital status						<0.001
Married				41.5	[39.0,44.1]	
Never married				14.3	[10.0,19.8]	
Region			<0.001			<0.001
Hilly region	60.8	[54.6,66.7]		20.1	[14.7,26.8]	
Coastal region	76.0	[69.1,81.8]		31.5	[26.9,36.5]	
Delta region	45.4	[39.4,51.6]		51.4	[47.2,55.5]	
Plain region	73.4	[69.2,77.3]		37.8	[34.0,41.8]	
Residence			<0.001			0.69
Urban	50.3	[45.2,55.4]		39.7	[35.4,44.2]	
Rural	63.9	[60.1,67.5]		38.6	[35.8,41.6]	
Education			<0.001			<0.01
No education	66.2	[58.5,73.2]		27.4	[21.2,34.5]	
Primary	65.3	[60.8,69.6]		39.7	[36.2,43.4]	
Secondary	55.7	[51.7,59.6]		42.1	[38.6,45.7]	
Higher	42.0	[33.7,50.7]		40.6	[33.2,48.3]	
Occupation			<0.001			<0.01
No job	73.8	[51.6,88.2]		16.5	[7.3,33.2]	
Professional	49.5	[40.3,58.7]		38.7	[29.3,48.9]	
Clerical/sales/services	49.9	[42.4,57.4]		48.8	[42.9,54.8]	
Manual	61.3	[57.4,65.0]		38.2	[35.1,41.4]	
Agricultural	65.2	[60.0,70.1]		37.4	[32.9,42.2]	
Wealth index			<0.001			0.09
Poorest	62.5	[55.4,69.1]		35.6	[30.9,40.6]	
Poorer	64.6	[59.3,69.6]		36.3	[31.6,41.3]	
Middle	65.9	[60.6,70.9]		42.6	[38.1,47.2]	
Richer	60.4	[55.7,64.9]		42.3	[37.2,47.6]	
Richest	46.8	[41.5,52.3]		37.9	[33.8,42.2]	
Source of information			0.26			<0.001
No	61.7	[57.5,65.6]		35.6	[32.6,38.7]	
Yes	58.7	[54.7,62.5]		43.5	[40.0,47.0]	
Ideal number of children						<0.01
≤ 2				44.5	[40.3,48.7]	
>2				36.5	[33.7,39.4]	
Total	60.4	[57.3,63.4]		38.9	[36.5,41.4]	

3.4 Adjusted Multiple Logistic Regressions: Fertility Preferences and Current Use of Modern Contraception

Table 3 shows results of the adjusted multiple logistic regressions for men's fertility preferences and current use of modern contraception. A preference for having more than two children was statistically higher among men from the coastal, and plain regions compared with the hilly region. Men with a higher level of education were less likely to desire more than two children compared with men with no education. Working men had lower odds of wanting more than two children compared with jobless men. Wealth quintile did not have an association with fertility preference, nor did exposure to information about contraception on the media or from a health worker.

The analysis of any modern contraceptive use was based only on respondents who had ever had sex. The odds of current use of any modern contraceptive method were higher among men age 20-29, 30-39, and 40-49 compared with men age 15-19, but these differences were not significant as a determinant of current modern contraceptive use. Men in the coastal, delta, and plain regions were significantly more likely to use modern contraception compared with men in the hilly region. Higher odds of modern contraceptive use were found for all occupational categories compared with the jobless. Men in the middle wealth quintile had higher odds of modern contraceptive use compared with the poorest quintile. Several other variables, including residence, education level, and exposure to information on mass media, were not significant predictors of contraceptive use. Although the use of modern contraception was higher among men who wanted more than two children, it was not statistically significant.

Table 3 Predictors on fertility preferences and current use of modern contraception after adjusting for covariates among men age 15-49

	Fertility preferences (Ideal number of children > 2)		Current use of modern contraception	
Variables	**AOR**	**95%CI**	**AOR**	**95%CI**
Age				
15-19	1.0		1.0	
20-29	1.0	[0.4,2.4]	2.0	[1.0, 4.1]
30-39	1.2	[0.5,3.0]	1.9	[0.9, 4.0]
40-49	1.4	[0.6,3.4]	1.1	[0.5, 2.3]
Geographic region				
hilly region	1.0		1.0	
coastal region	2.1***	[1.4,3.3]	1.9**	[1.2, 2.8]
delta region	0.5***	[0.4,0.8]	4.1***	[2.8,6.1]
plain region	1.8***	[1.3,2.5]	2.5***	[1.7,3.7]
Residence				
Urban	1.0		1.0	
Rural	1.0	[0.7,1.4]	1.2	[0.9,1.6]
Educational level				
No education	1.0		1.0	
Primary	1.0	[0.7,1.4]	1.3	[0.9,1.8]
Secondary	0.8	[0.5,1.1]	1.2	[0.8,1.8]
Higher	0.6*	[0.3,1.0]	1.0	[0.5,1.8]
Occupation				
No job	1.0		1.0	
Professional	0.5	[0.1,1.6]	4.1**	[1.5,11.4]
Clerical/sales/services	0.6	[0.2,1.8]	4.0**	[1.6,10.0]
Manual	0.6	[0.2,1.9]	2.8*	[1.1,7.1]
Agricultural	0.7	[0.2,2.4]	2.7*	[1.0,6.7]
Wealth index				
Poorest	1.0		1.0	
Poorer	1.0	[0.7,1.4]	1.1	[0.8,1.5]
Middle	1.1	[0.8,1.5]	1.4*	[1.1,1.9]
Richer	0.9	[0.6,1.3]	1.4	[0.9,2.0]
Richest	0.7	[0.4,1.0]	1.0	[0.7,1.6]
Source of information				
No	1.0		1.0	
Yes	1.2	[1,1.5]	1.2	[1.0,1.5]
Number of children preferred				
≤ 2			1.0	
>2			1.2	[1.0,1.5]
Constant	2.4	[0.5,10.9]	0.0***	[0.0,0.1]
N	2,775		3,041	

AOR = adjusted odds ratio

***p<0.001, **p<0.01, *p<0.05

4 DISCUSSION

Men together with their partners can protect reproductive health by ensuring effective contraception, avoiding sexually transmitted diseases (STDs), and preserving fertility. For improvement of health status of the community, reproductive health has been in place as an inclusive and coherent approach in Myanmar since 1996 (WHO 2014). The present study focused on common issues of male reproductive health: contraception and fertility. The knowledge and source of information about contraception, prevalence of modern contraceptive use, and fertility preferences among men age 15-49 in Myanmar were examined using data from the 2015-16 Myanmar DHS (MOHS and ICF 2017). To improve men's roles in reproductive health, factors influencing their contraceptive use and fertility preferences need to be well known. Therefore, this paper used multiple logistic regressions to assess the predictors of current modern contraceptive method use among sexually active men and to examine fertility preferences among currently married men age 15-49 in Myanmar.

Less than half of men studied (39%) were currently using a modern contraception method at the time of the survey, which is lower than the nationwide contraceptive prevalence among currently married women in Myanmar, at 51% (MOHS and ICF 2017; Family Planning 2020). Our study focused only on contraceptive use among sexually active men with their partners. Therefore, it is lower compared with the majority of contraceptive users—currently married women. The finding points out the need to increase the prevalence of contraceptive use to meet the commitment of the national family planning program, up to 60% prevalence in 2020 (Einda 2016). In the multiple logistic regression model, some covariates such as age, education, and source of information on contraception that showed an association with current use of modern contraception in the bivariate analysis were no longer significant predictors. When excluding men over age 49 in this study, there was no significant difference in modern contraceptive use among different age groups. Because of geographical variation in attitudes and norms, differentials in employment, and differences in household wealth, which reflect on affordability and accessibility to health care (MacQuarrie et al. 2015, USAID 2018), education and source of information on contraception were not found as significant predictors of contraceptive use.

Variation in family planning services, including provision of contraceptive methods according to client's choice, adequacy of trained staff to provide birth spacing services, and client's perspective of family planning outcomes, was found according to different geographical regions (DMR-POLB, DoPH, DMS, and UNFPA 2016). In Myanmar, the regional groupings reflect geographic disparities in access to modern contraception or accessibility and quality of family planning services. Because of physical distance to the health care facilities, people in the hilly areas face difficulty accessing health services (Tang et al. 2017). Lack of health professionals, poverty, low education, and language differentials are major challenges in availability and accessibility of health services, especially in hard-to-reach areas including the hilly region in Myanmar (Latt et al. 2016; Wangmo et al. 2017). Based on our study, men residing in the coastal, delta, and plain regions are more likely to use modern contraception than men residing in the hilly region, net of other factors. Therefore, it reveals an emphasis on geographical regions as a considerable predictor for modern contraceptive use among men in Myanmar.

The analysis showed that working men had higher odds of using modern contraception than nonworkers, which is similar to the findings of other studies in Myanmar and Nepal (Thin Zaw et al. 2012; Chaudhary

et al. 2016). Regarding wealth index and contraceptive use, our finding is similar to findings in DHS surveys in 18 countries in Asia, Africa, and Latin America and the Caribbean (MacQuarrie et al. 2015). There is variation of adherence to modern contraceptive use in different wealth quintiles according to the type of modern methods. Data further have demonstrated that men from wealthier households are more likely to have positive attitudes toward contraception. In a study among sexually active men in Kenya, the wealth index is a significant predictor of use of modern contraception (Ochako et al. 2017); increases in the level of household wealth are directly proportional to increases in modern contraceptive prevalence, apart from highest and lowest wealth index groups. Moreover, affordability of travel and service costs have been shown as contributing factors for use of reproductive health services (Thin Zaw et al. 2012). According to our study, the wealth index is one of the predictors on modern contraceptive use among men in Myanmar, indicating the need to improve family incomes and economic condition for promoting adherence on contraception.

For the variable on source of information on contraception, we assessed access to messages on radio, television, and newspaper/magazine, and from health providers. Although it is not a significant predictor, the use of modern contraception among men who have access to information is 20% higher than for men without access, which is consistent with another Myanmar study (Thin Zaw et al. 2013). In our study, age, residence, education, source of information on contraception, and the number of children preferred are not significant predictors for use of modern contraception. These findings differ from a Bangladesh study of male involvement in reproductive health care, which showed that residence, education, and source of information were significant predictors on maternal health issues (Bishwajit et al. 2017). On the other hand, our finding of geographical zone and wealth quintile as significant predictors for modern contraceptive use is consistent with a finding of a Nepal study (Paudel and Acharya 2018).

Men's involvement in women's sexual and reproductive health is a significant predictor of a positive health outcome for their partners and children (Assaf and Davis 2018). Men's influence on desired number of children within the family is also essential for family planning. In Myanmar, the proportion of women who desire no additional children is increasing, and the ideal number of children is declining (Soe et al. 2018). In countries where the total fertility rate is decreasing, as in Myanmar, fertility preferences of not only women but also men are an important factor to be prioritized. In our study, over half of married men state that they want to have more than two children. These fertility preferences among Myanmar men are higher than found in the studies conducted in Nepal and Rwanda (Paudel and Acharya 2018; Westoff 2018). Previous studies have found that the number of children preferred within families is influenced by education, residence, economic status, and exposure to media (Adhikari 2010; David 2014; Raymo et al. 2015; UNFPA 2015; Roy 2017; Sarvestani et al. 2017). However, our study also points out regional variation in fertility preferences in Myanmar, which is consistent with a study among currently married men in Kenya (Mashara 2016). Because of differences in acceptability and accessibility within different cultures and customs in Myanmar, geographical area is one of the factors to be considered for providing reproductive health services according to people's needs.

Strength and Limitation of the Study

The strength of the study is that its results are based on data from the recent nationally representative Demographic and Health Survey in Myanmar. To our knowledge, this is the first study to report predictors on use of modern contraceptive method and fertility preferences among men in Myanmar. We explore

regional differences in contraceptive use and fertility preferences. As the 2015-16 Myanmar DHS is a cross-sectional study, however, causality of the associations between the variables of interest cannot be made. Also, the variable on the use of modern contraception is based on responses by survey participants and cannot be verified directly. We excluded never-married men from the DHS datasets for analyzing fertility preferences; therefore, the results are not generalizable for all Myanmar men age 15-49. One of the limitations of the study is that, although it is focused on understanding men's preferences and behaviors, it does not also include women's preferences and behaviors. Therefore, analyses on a subsample of married men linking their data to data from the wives could provide additional information.

5 CONCLUSIONS

In this paper, we found that current use of modern contraceptive methods was relatively low among sexually active men, at just 39%. We also found that 60% of married men would prefer to have more than two children. Sociodemographic characteristics including age, geographical region, education, and occupation are associated with current modern contraceptive prevalence and with fertility preferences among men. Residence and the level of household wealth are associated with current use of modern contraception, while exposure to information on contraception from the media and health providers is associated with fertility preferences. The results of the multiple logistic regression indicate that, net of other factors, geographic region and occupation are statistically significant covariates of contraceptive use, while geographic region also shows a statistically significant correlation with fertility preferences.

Contraception among men can help couples to shape their own lives, improve reproductive health, and reduce poverty. Myanmar has committed to increase contraceptive prevalence and reduce the level of unmet need for family planning with prioritized actions (Family Planning 2020). Based on our study findings, key predictors of modern contraceptive use and fertility preferences among men that could be considered for service prioritization include the country's geographic regions and men's occupation. Specifically, future policies and programs are suggested to focus on addressing regional disparities in accessibility and availability of modern contraception by maintaining the quality of family planning services, especially for men living in the hilly region and men without jobs. Future interventions for promoting men's use of contraception should be considered to bundle with local job agencies and occupational health services by improving reproductive health knowledge and awareness of family planning among men. Our study also alerts stakeholders to the need for emphasizing male involvement in family planning and decision-making, especially in regard to contraceptive use. Finally, because reproductive health research prioritizing men's issues has been limited in Myanmar in the past, we recommend further studies for policy implications and interventions.

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