Extended Abstract submission

Differentials in Fertility among Muslim and Non-Muslim: A Comparative study of Asian countries

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Background

Reproductive Health indicators like fertility and family planning methods are very important for the improvement and maintenance of health for women and children in any society. Where some of the indicators are essential to maintain child health, some of the indicators are helping to maintain maternal health directly and indirectly. Using and non-using various indicators determine the maternal mortality and morbidity, premature deliveries infant morbidity and mortality, born of underweight baby and fertility. There are several arguments advanced relating to religion and fertility. An argument of the 'particularized theology' says that it is the very essence of religion that influences fertility, irrespective of any socio-economic or demographic factors. On the other hand, others argue that fertility differentials are the outcome of differences in the socio-economic characteristics of the members of different religious groups. Thus, it is not religion per se, but the characteristics of the religious groups that are important in influencing fertility levels [Chamei 1977]. The vital new issues underscored by International Conference on Population and Development (ICPD) encompassed gender equity, violence against women, trafficking of women, female genital mutilation, child marriage, male roles and responsibilities, unsafe abortion, infertility, STDs/HIV/AIDS, safe(r) motherhood and antenatal care. What are the reproductive health (RH) issues in Muslim countries is a matter of concern. In theory, the RH issues in Muslim countries should be the same as in the rest of the world. Further, being the signatory to the ideals of Cairo, the Muslim countries like all other signatories should be following the same solutions and strategies towards the RH issues as prescribed by the ICPD. Islam is perceived as a religion hostile towards women. Gender is still believed as a western idea by majority of Muslim groups. The visible manifestations of religious commitments by the Muslims arouse exceptionally strong feelings and intense attitude by the West and have become a hot debate even within Muslims.

Main question:

Broad objective of the study is to examine the levels, trends, patterns and differentials in fertility among Muslim and Non-Muslim within and across the three selected Asian countries. Further, the factors determine fertility among the two groups is also addressed. We hypothesize that there is no difference in fertility and among Muslims and non-Muslims across the countries and over the period of time.

Sources of Data:

The data has been used from Demographic and Health Survey (DHS) for the present study. Three Asian countries namely India, Bangladesh & Indonesia are considered for the study purpose. Two rounds of DHS data for each country have been analyzed. In India NFHS-1(1992-93) & NFHS-3(2005-06), in Bangladesh BDHS (1993-94) & BDHS (2007) and in Indonesia IDHS (1994) & IDHS (2007) have been used for the study. DHS survey provides information on socio-economic characteristics, maternity history, family planning practices, fertility, mortality and different aspects of women for India, Bangladesh and Indonesia. There are several questions regarding the use of contraceptive and fertility behavior in the data set.

Methodology:

Selection of Country:

Three Asian countries namely Bangladesh, India and Indonesia are considered for study purpose. The largest Muslim country is Indonesia and home to 13 percent of the world's Muslim population. India is the third largest (11 percent) after Pakistan followed by Bangladesh (9 percent). In Indonesia and Bangladesh almost 90 percent population is belonged to Muslim religious group whereas, a considerable proportion of Muslims are residing in India (almost 14 percent).

Description of Variables:

- **Dependent Variables:** Fertility behavior is measured by mean number of children ever born (mean CEB) and total fertility rate (TFR).

- **Independent Variables:** The independent variables are: age of the women (15-24/25-34/35 and above), place of residence (urban/rural), education (no education/ primary/secondary/higher), mass media exposure (no exposure/any exposure), wealth index (poorest/poorer/middle/richer/richest), partner's education (no education/ primary/secondary/higher), current work status (not working/working) living children (0/1/2/3 and above), number of living sons & daughters (no son and no daughter/son greater than daughter/son less than daughter/equal son and daughter). For India (NFHS-1), Bangladesh (BDHS-1993-94) and Indonesia (IDHS-94) wealth index has been computed

using household ownership of durable assets (e.g. owning a bicycle or radio) and infrastructure and housing characteristics asset indicators (e.g. source of water, sanitation facility) by principal component analysis.

Methods:

Bi-variate analysis have been carried out to understand the levels, trends, patterns and differentials in fertility among Muslims and non-Muslim women in selected Asian countries.

Cross tabulation or Bivariate analysis have been performed to study the differentials by the selected background characteristics. Bivariate analysis is one of the simplest forms of the quantitative (statistical) analysis. It involves the analysis of two variables (often denoted as *X*, *Y*), for the purpose of determining the empirical relationship between them. In order to see if the variables are related to one another, it is common to measure how those two variables simultaneously change together.

Bivariate analysis can be contrasted with univariate analysis in which only one variable is analysed. Furthermore, the purpose of a univariate analysis is descriptive. Subgroup comparison – the descriptive analysis of two variables – can be sometimes seen as a very simple form of bivariate analysis (or as univariate analysis extended to two variables). The major differentiating point between univariate and bivariate analysis, in addition to looking at more than one variable, is that the purpose of a bivariate analysis goes beyond simply descriptive: it is the analysis of the relationship between the two variables.

Multivariate Poisson regression models are fitted to examine the effect of socio-demographic determinants on fertility.

Poisson regression is used to analyze non-negative whole number variables (count data) i.e. the number of births occurring to women over the course of a given period. It is a particular case of the generalized linear model, in which the conditional distribution of the dependent variable follows a Poisson law and the link function is logarithmic (Winkelmann et al., 1994; Trussell and Rodriguez, 1990; Cameron et al., 1998).

Results/Key findings:

Results indicate that overall fertility level was higher among Muslims compared to non-Muslims religious group except Indonesia however; TFR was declining gradually within and across the countries but the pace of decline varies. The highest TFR was observed among Muslims (4.41) in India in 1992-93 and within thirteen years of time it was falling down to 3.09 in 2005-06. Among Muslims TFR (2.49) in 2007 was lowest in Indonesia compared to other selected country. Absolute change and relative change in TFR indicates that there was greater decline among Muslims than non-Muslims in Bangladesh and India as well. Huge decline in TFR observed in India among Muslims compared to other country. In India more than 29 percent point decline in fertility has been observed followed by Bangladesh more than 21 percent and Indonesia more than 10 percent among Muslims. Decline rate was higher among Muslims compared to non-Muslim across the countries.

Discussion and Conclusion

Fertility reduction across all population subgroups is now an established fact despite the diversity in the level of socio-economic development in Asian countries. It is clear from the analysis that fertility has declined irrespective of religious status within and across the countries. Comparison between Muslims and non-Muslims indicate that still there is a gap between these two religious groups, the fertility rate among Muslims are remain higher compared to their non-Muslim counterparts except Indonesia however; over the period of time the gap is sinking gradually. There are number of socio-economic predictors which influence the fertility along with the religious status of women. There are many reasons which may lead to occur these kinds of scenario like faith, skepticism, and religious barrier. So, it can be concluded that religion has an influence on fertility among Muslims. Greater opposition to family planning among Muslims may be one of the explanations for their lower contraceptive use and higher fertility (Mishra, 2004). With the socioeconomic development and fertility is expected to fall down in all religious groups, may be with some lag for Muslims.

Table 1: Total fertility rate by religious status in selected Asian Countries						
Country	**TFR**		**Absolute Change**		**Relative Change**	
	Muslim	**Non-Muslim**	**Muslim**	**Non-Muslim**	**Muslim**	**Non-Muslim**
India						
1992-1993	4.41	3.26	-1.32	-0.69	-29.93	-21.17
2005-2006	3.09	2.57				
Bangladesh						
1993-1994	3.47	3.18	-0.75	-0.57	-21.61	-17.92
2007	2.72	2.61				
Indonesia						
1994	2.77	3.55	-0.28	-0.22	-10.11	-6.2
2007	2.49	3.33				

Table 2: Mean number of children ever born (CEB) among ever married women aged 15-49 by religious status in selected Asian countries						
Country	**Mean CEB**		**Absolute Change**		**Relative Change**	
	Muslim	**Non-Muslim**	**Muslim**	**Non-Muslim**	**Muslim**	**Non-Muslim**
India						
1992-1993	3.59	3.03	-0.25	-0.27	-6.96	-8.91
2005-2006	3.34	2.76				
Bangladesh						
1993-1994	3.49	3.23	-0.69	-0.74	-19.77	-22.91
2007	2.80	2.49				
Indonesia						
1994	3.03	3.21	-0.61	-0.47	-20.13	-14.64
2007	2.42	2.74				

Table 3: Poisson regression analysis for factors affecting fertility among ever married women aged 15-49 by religious status in India, 1992-93 & 2005-06

Explanatory Variable	India											
	1992-93						2005-06					
	Muslim			Non-Muslim			Muslim			Non-Muslim		
	EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)	
		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Age												
15-24®												
25-34	2.500***	2.411	2.591	2.374***	2.342	2.407	2.340***	2.262	3.462	2.064***	2.034	2.095
35+	3.668***	3.536	3.805	3.343***	3.297	3.39	3.343***	3.229	2.421	2.764***	2.722	2.806
Place of residence												
Urban®												
Rural	1.006	0.977	1.305	0.992	0.981	1.002	0.958***	0.936	0.98	1.003	0.994	1.012
Education												
No Education®												
Primary Education	0.897***	0.868	0.927	0.884***	0.875	0.894	0.870***	0.844	0.896	0.876***	0.866	0.886
Secondary Education	0.742***	0.711	0.774	0.733***	0.723	0.742	0.766***	0.744	0.787	0.751***	0.742	0.759
Higher Education	0.500***	0.438	0.571	0.523***	0.511	0.536	0.526***	0.491	0.564	0.545***	0.534	0.555
Mass Media Exposure												
No Exposure®												
Any Exposure	0.921***	0.896	0.946	0.934***	0.925	0.943	0.885***	0.863	0.906	0.894***	0.885	0.903
Current Work Status												
Not working®												
Working	0.924***	0.897	0.951	0.956***	0.948	0.964	0.938***	0.917	0.96	0.979***	0.971	0.987
Partner's Education												
No Education®												
Primary Education	0.982	0.954	1.012	.977***	0.966	0.987	0.998	0.971	1.027	0.992	0.979	1.005
Secondary Education	0.938***	0.906	0.971	0.957***	0.946	0.969	0.961***	0.936	0.987	0.986**	0.975	0.998
Higher Education	0.947	0.883	1.015	.930***	0.913	0.946	0.947**	0.902	0.994	0.959***	0.943	0.975
Wealth Quintiles												
Poorest®												
Poorer	0.992	0.956	1.03	0.984**	0.971	0.996	1.001	0.964	1.04	0.945***	0.932	0.959
Middle	1.02	0.981	1.06	0.964***	0.951	0.976	0.944***	0.908	0.98	0.898***	0.884	0.911
Richer	0.987	0.946	1.029	0.925***	0.911	0.939	0.886***	0.85	0.923	0.851***	0.838	0.865
Richest	0.977	0.924	1.033	0.880***	0.864	0.896	0.826***	0.789	0.866	0.787***	0.773	0.801

Note: ® reference category
***p<0.01, **p<0.05, *p<0.10

Table 4: Poisson Regression analysis for factors affecting fertility among ever married women aged 15-49 by religious status in Bangladesh, 1993-93 & 2007

Explanatory Variable	Bangladesh											
	1993-94						2007					
	Muslim			Non-Muslim			Muslim			Non-Muslim		
	EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)	
		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Age												
15-24®												
25-34	2.428***	2.344	2.514	2.244***	2.039	2.471	2.279***	2.206	2.356	2.186***	1.986	2.406
35+	4.142***	4.001	4.288	3.685***	3.355	4.046	3.375***	3.262	3.492	3.188***	2.892	3.514
Place of residence												
Urban®												
Rural	1.025	0.989	1.063	1.075	0.985	1.173	1.030**	1.003	1.057	1.044	0.957	1.139
Education												
No Education®												
Primary Education	0.975*	0.947	1.003	0.880***	0.816	0.948	0.953***	0.928	0.98	0.957	0.879	1.043
Secondary Education	0.805***	0.765	0.848	0.717***	0.648	0.795	0.802***	0.774	0.831	0.789***	0.71	0.878
Higher Education	0.537***	0.478	0.603	0.551***	0.444	0.683	0.576***	0.541	0.613	0.615***	0.507	0.745
Mass Media Exposure												
No Exposure®												
Any Exposure	0.924***	0.900	0.948	0.930**	0.871	0.993	0.899***	0.876	0.922	0.919*	0.841	1.006
Current Work Status												
Not working®												
Working	0.902***	0.873	0.932	0.928**	0.862	0.999	0.894***	0.873	0.916	1.152***	0.831	0.963
Partner's Education												
No Education®												
Primary Education	1.023*	1.000	1.06	1.004	0.927	1.087	0.999	0.97	1.028	0.951	0.865	1.045
Secondary Education	1.010	0.974	1.047	1.026	0.944	1.116	0.943***	0.914	0.974	0.945	0.851	1.051
Higher Education	0.950*	0.896	1.007	0.935	0.816	1.072	0.894***	0.851	0.939	0.884	0.745	1.048
Wealth Quintiles												
Poorest®												
Poorer	1.030	0.993	1.068	1.053	0.948	1.171	0.974	0.939	1.010	0.929	0.829	1.041
Middle	1.018	0.982	1.054	1.037	0.943	1.140	0.970*	0.935	1.006	0.907	0.804	1.023
Richer	1.036*	0.997	1.075	1.044	0.943	1.156	0.962**	0.925	1.000	0.875**	0.769	0.996
Richest	0.996	0.955	1.04	1.005	0.907	1.114	0.915***	0.873	0.958	0.854*	0.721	1.011

Note: ® reference category
***p<0.01, **p<0.05, *p<0.10

Table 5: Poisson Regression analysis for factors affecting fertility among ever married women aged 15-49 by religious status in Indonesia, 1994 & 2007

Explanatory Variable	Indonesia											
	1994						2007					
	Muslim			Non-Muslim			Muslim			Non-Muslim		
	EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)		EXP (B)	95% C.I EXP (B)	
		Lower	Upper		Lower	Upper		Lower	Upper		Lower	Upper
Age												
15-24®												
25-34	2.390***	2.326	2.456	2.237***	2.018	2.479	2.025***	1.976	2.076	2.003***	1.896	2.177
35+	4.130***	4.02	4.242	3.715***	3.354	4.115	3.501***	3.415	3.589	3.184***	3.016	3.361
Place of residence												
Urban®												
Rural	1.037***	1.016	1.059	1.009	0.968	1.052	1.028***	1.01	1.046	1.026	0.986	1.068
Education												
No Education®												
Primary Education	0.979*	0.955	1.044	0.959*	0.915	1.005	0.902***	0.871	0.935	0.919***	0.866	0.975
Secondary Education	0.802***	0.776	0.829	.835***	0.787	0.886	0.770***	0.742	0.8	0.811***	0.762	0.864
Higher Education	0.604***	0.566	0.644	.696***	0.623	0.779	0.631***	0.601	0.663	0.701***	0.645	0.762
Mass Media Exposure												
No Exposure®												
Any Exposure	0.930***	0.909	0.952	0.924***	0.886	0.964	0.950***	0.93	0.97	0.949***	0.914	0.986
Current Work Status												
Not working®												
Working	na	na	na	na	na	na	0.955***	0.94	0.969	0.954***	0.925	0.985
Partner's Education												
No Education®												
Primary Education	1.042***	1.011	1.075	1.073***	1.018	1.131	1.026	0.984	1.069	1.061	0.985	1.143
Secondary Education	0.997	0.962	1.034	1.094***	1.027	1.165	0.995	0.952	1.039	1.082**	1.001	1.17
Higher Education	0.988	0.937	1.042	0.992	0.904	1.089	1.016	0.965	1.071	1.078	0.984	1.181
Wealth Quintiles												
Poorest®												
Poorer	0.967**	0.941	0.994	1.01	0.964	1.058	0.938***	0.917	0.96	0.882***	0.843	0.924
Middle	0.962***	0.936	0.99	.910***	0.863	0.96	0.890***	0.868	0.913	0.813***	0.774	0.854
Richer	0.949***	0.921	0.978	.897***	0.845	0.951	0.849***	0.826	0.871	0.746***	0.706	0.788
Richest	0.962**	0.929	0.995	.834***	0.784	0.887	0.849***	0.825	0.873	0.696***	0.657	0.736

Note: ® reference category
***p<0.01, **p<0.05, *p<0.10