Original Article

FACTORS ASSOCIATED WITH TERMINATION OF PREGNANCY AMONG MARRIED ADOLESCENT GIRLS IN PAKISTAN: SECONDARY ANALYSIS OF DATA FROM PAKISTAN DEMOGRAPHIC AND HEALTH SURVEY

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ABSTRACT:

Background: Child marriage exposes girls to increased health problems and violence, denies them access to social networks and support systems, and perpetuates a cycle of poverty and gender inequality. Termination of pregnancies can be the consequence of teenage pregnancy. This study aims to find the association of factors in teenage mothers that lead to termination of pregnancy.

Material and Methods: The sample of 5694 women 10-17 years of age was selected from Pakistan Demographic and Health Survey (PDHS) 2012-2013.

Results: It was considered that women married as children had more risk of termination of pregnancy. Out of the total, 37% of women married as children experienced termination of pregnancy. A higher number of women married as children were poor, uneducated and living in rural areas. This indicates that child marriages are a huge concern for Pakistan and drastically increased risk of maternal morbidity and mortality.

Conclusion: Despite early age and social inequity other factors such as the experience of violence, blood relation with husband, few antenatal visits, low education level and employment status of women has a profound effect on termination of pregnancy.

Key Words: Maternal mortality, Reproductive health, Pregnancy

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INTRODUCTION

Termination of pregnancy has serious implications for women's health. It can be a stillbirth or miscarriage. World Health Organization defines stillbirth as a baby born with no signs of life at or after twenty-eight weeks' gestation. Miscarriage is the spontaneous termination of a pregnancy at an early stage before the embryo is capable of surviving outside the womb, and it is a common risk in a first pregnancy. Pregnancy loss can have various adverse effects on the physical and mental health of a woman.

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A spontaneous abortion is a trauma that affects the woman's basic belief system.[1] Woman who experiences termination of pregnancy or spontaneous abortion are likely to have depression and mental illness as well as may face difficulties to cope with further pregnancies including weak mother fetus bonding. Miscarriages may lead to future health-related complications such as anemia, infections, and difficulty in conceiving next time.[2] Studies show that miscarriage is one of the most common pregnancy complications and one out of every five pregnancies end in miscarriage out of which three-quarters occur in the first twelve weeks of pregnancy.[3] When pregnancy is abruptly ended a woman faces a traumatic event that augments a severe mental shock.[4] Some several factors

and causes are associated with the termination of pregnancies. Some of these are medical reasons such as endocrine misbalances, infections, exposure to chemicals, chromosome abnormalities, and uterine abnormalities.5 Other factors that are associated with the termination of pregnancy are socio-demographic factors such as illiteracy, low economic status, violence such as emotional or severe physical violence, poor social support, lack of antenatal care, and maternal age. Maternal age is a vital factor that contributes to the complications of pregnancy. Mothers aged less than 20 years and more than 35 years are more likely to have spontaneous abortions.[6] Several studies provide evidence that termination of pregnancies is common among women married as children. According to Child Marriage Facts and Figures, "One-third of girls in the developing world are married before the age of 18 and 1 in 9 are married before the age of 15.[7] In 2010, 67 million women 20-24 around the world had been married before the age of 18. If present trends continue, 142 million girls will be married before their 18th birthday over the next decade. That is an average of 14.2 million girls each year. While countries with the highest prevalence of child marriage are concentrated in Western and Sub-Saharan Africa, due to population size, the largest numbers of child brides reside in South Asia". Nasrullah, Muazzam, Bhutta & Raj, 2013 state that a high proportion of early marriages in Pakistan are a great apprehension that results in poor fertility outcomes including, pregnancy termination. Under-age marriages are an emerging public health issue in Pakistan.[8] Both boys and girls are victims of child marriages although girls are excessively affected. Child marriage is practiced extensively and can lead to a lifetime of disadvantage and deprivation. Studies show that women who are married at an early age are more likely to be uneducated, poor, live in rural areas, and have less access to health care services which contributes to maternal mortality and morbidity leaving an adverse effect on the health of women.[9] Strong association has been found between the maternal mortality, morbidity, and age of the mother. A great chance of adverse obstetric outcomes can occur in the case of teenage pregnancies (Khan & Jamal, 2003).[10] Given this backdrop child marriage is a phenomenon that should be studied in relation to other socio-demographic factors which are associated along with underage marriages that in turn result in complications in form of maternal mortality and morbidity. It is difficult to understand what factors are associated with the pregnancy complications in young pregnant females and to what extent. Hence there is an important need, use a well-designed study to examine the associated factors that lead to pregnancy complications in women married at an early age in Pakistan. This study aims to find the association of factors in teenage mothers that lead to termination of pregnancy.

MATERIAL AND METHODS

It is a cross-sectional study. The data was selected from Pakistan Demographic and Heath Survey (PDHS) 2012-2013 and secondary analysis was done. In Pakistan, PDHS is the fifth-largest national survey and 3rd consecutive worldwide research project, implemented by ORC (opinion research company), Macro, and financed by USAID. DHS has become the gold standard of survey data in developing countries. This survey is conducted after every 3-5 years. It contains a wide range of information on health issues and determinants of health. This survey is either conducted in Urdu language or any other regional languages such as Punjabi, Sindhi & Pashto. It consists of a sample of over 95,000 households in Pakistan. However, some areas, such as FATA, FANA, and AJK were not included in the survey due to security reasons. Numerous modules on malaria, fertility, child immunization, nutrition, and reproductive age female's health were considered in this survey. We defined early age marriage as <18 years of age. Analysis of secondary data was done in this study. This data is publicly available so ethical approval from any institution was not

required. To represent estimates of the national population all data was entered and analyzed using SPSS 21 version. Our analysis was limited to women married as children that are, 10-17 years of age.

The sample comprises of n= 5694 women with age at first cohabitation to assess the factors associated with pregnancy complications among early aged married women. 10,601 women who were married aged 15-49 years were recognized in DHS, of whom 10,023 were interviewed successfully (response rate 95%). A sample of ever-married females 10-17 years of age (n= 5694) was selected. All participants were assessed for demographic information by asking questions regarding their "age", "educational status", "region", "type of place of residence", "respondent's employment status", "partner's education status", "told about pregnancy complications", "violence (physical & emotional) during pregnancy", "number of antenatal visits", "blood relation with husband" and "socioeconomic status". Socio-economic status was calculated between 1 (poor), 2 (middle), and 3 (rich). Violence can be assessed by asking a question if the respondent experienced any emotional violence or husband/ partner ever hurt her during pregnancy. No. of antenatal visits categorized into less than 4 and 4-10 visits. World health organization (WHO) recommended four visits in normal cases. We assessed pregnancy complications in terms of two main outcomes (i.e. miscarriages/abortions and stillbirths) in this study. Pregnancy termination before seven months is called a miscarriage and after seven months it is called a stillbirth. These outcomes will be assessed by asking the question to respondents whether they ever had a terminated pregnancy. A total sample of females aged 10-17 years was analyzed for the prevalence of early age marriage and its statistics. Statistical significance was calculated for categorical variables. We considered a two-tailed p value less than 0.2 to be statistically significant. Using logistic regression models associations between early age marriages and pregnancy complications (miscarriages and stillbirths) were evaluated by calculating odds ratio (OR) with a 95% confidence interval after controlling for age and demographics. We assessed model fit using the "Hosmer-Lemeshow test goodness-of-fit test" (P-value < 0.05). Further multivariate analysis was done on the variables which were significant at <0.2 P value.

RESULTS

The sample consisted of 5694 women who married as children from age 10-17. Out of 5694 women, 1217 (21.4%) were married at the age of 10-14 and 4477 (78.6%) were married at the age of 15-17. They were selected from the areas of Punjab (22.9%), Sindh (22.9%), Baluchistan (16%), Khyber Pakhtunkhwa (21.8%), Gilgit Baltistan (12.4%), and Islamabad (4%). 2324 (40.8%) of which are living in urban areas and 3370 (59.2%) are residents of rural areas of Pakistan. The majority of these participants are uneducated (69.6%). More than half (78.5%) of the respondents were unemployed. 48.3% were having poor economic status while 31.8% were rich, the rest of them belong to the middle class. Partners of 39.2% women were uneducated while others had primary (15.4%), secondary (29.4%), and higher (16%) levels of education. Participants were asked if they were told about pregnancy complications, more than half (51.3%) were told about the complications while 48.7% were unaware of pregnancy complications. 2105 (37%) women had experienced pregnancy termination and 3589 (63%) did not experience termination. More than half of the respondents (65%) had cousin marriages. A higher number of respondents with child marriages were poor, uneducated, living in rural areas, and had not ever experienced any type of violence (emotion, physical or severe). 1445 (73.1%) i.e. more than half of the women had less than four antenatal visits. Respondents with ages 10-14 were more likely to have terminated pregnancies (22.3%) while women who were of the same age group and did not experience pregnancy

termination were less (20.8%). Respondents aged 15-17 years were less likely to have terminated pregnancy (79.1%) as compared to those who had terminated pregnancy (77.6%). The uneducated women were more likely to experience termination of pregnancy (72.6%) as compared to those who were educated (27.2%). The percentage of women who were unemployed and experiencing fewer terminations was slightly higher (80.7%) as compared to those who did not ever have terminated pregnancy (74.5%) among the same unemployed group while women who were employed were more likely to have terminated pregnancies (25.4%) as compared to those who did not experience pregnancy termination (19.2%).

Table-1: Prevalence of child marriage and socio demographic factors among ever married females aged 10-17 years, Pakistan Demographic and Health Survey 2012-2013. (n=5694)

Variables	Frequency	Percentage
Age of respondent at first cohabitation		
10-14	1217	21.4
15-17	4477	78.6
Region		
Punjab	1306	22.9
Sindh	1305	22.9
Khyber Pakhtunkhwa	1242	21.8
Baluchistan	909	16.0
Gilgit Baltistan	706	12.4
Islamabad (ICT)	226	4.0
Type of place of residence		
Urban	2324	40.8
Rural	3370	59.2
Highest Education level		
No education	3967	69.6
Primary	773	13.6
Secondary	758	13.3
Higher	196	3.4
Wealth Index		
Poor	2748	48.3
Middle	1136	20.0
Rich	1810	31.8
Told about pregnancy complications		
No	991	48.7
Yes	1042	51.3
Husband/partner's education level		
No education	2227	39.2
Primary	875	15.4
Secondary	1667	29.4
Higher	908	16.0
Respondent currently working		
No	4459	78.5
Yes	1223	21.5
Ever had a terminated pregnancy		
No	3589	63.0
Yes	2105	37.0
Experienced any injuries due to violence		
No	1393	89.3
Yes	167	10.7
Blood relation with husband		
No	1990	35.0
Yes	3701	65.0
Experienced any emotional violence		
No	1018	65.2
Yes	544	34.8
Experienced any less severe violence		
No	1066	68.2
Yes	496	31.8
Experienced any severe violence		
No	1435	91.9
Yes	127	8.1
Husband/Partner: who hurt respondent during pregnancy		
No	1337	88.7
Yes	171	11.3
No of antenatal visits		
<4	1445	73.1
4-10	531	26.9

The study did not find any significant association of early age marriage with pregnancy termination (OR 0.825, 95% CI 0.672-1.013, P value 0.179), the respondents resided in regions of Punjab (OR 0.901, 95% CI 0.675-1.201), Sindh (OR 0.893, 95% CI 0.670-1.191), Khyber Pakhtunkhawah (OR 0.863, 95% CI 0.646-1.152), Baluchistan (OR 0.772, 95% CI 0.573-1.041), Gilgit Baltistan (OR 0.755, 95% CI 0.555-1.027).

Table-2: Prevalence of termination of pregnancy among females aged 10-17 years by sociodemographic factors. Pakistan Demographic and Health Survey 2012- 2013.

Age of respondent at first cohabitation	Ever had terminated pregnancy		Odds ratio	95% CI	p-value
	No %	Yes %			
10-14	20.8	22.3	0.825	0.672 – 1.013	0.179
15-17	79.1	77.6	1		
Region					
Punjab	22.4	23.7	0.0901	0.675 – 1.201	0.195
Sindh	22.5	23.5	0.893	0.670 – 1.191	0.476
Khyber Pakhtunkhwa	21.7	21.9	0.863	0.646 – 1.152	0.441
Baluchistan	16.5	14.9	0.772	0.573 – 1.041	0.317
Gilgit Baltistan	12.9	11.4	0.755	0.555 – 1.027	0.090
Islamabad (ICT)	3.7	4.3	1		
Type of place of residence					
Urban	40.4	41.4	1		
Rural	59.5	58.5	0.958	0.859 – 1.068	0.439
Highest Education level					
No education	67.9	72.6	1.883	1.355 – 2.619	0.000
Primary	14	12.8	1.610	1.129 – 2.298	0.000
Secondary	13.9	12.1	1.530	1.071 – 2.185	0.009
Higher	4	2.3	1		0.019
Wealth Index					
Poor	48.8	47.3	0.889	0.796 – 1.017	0.168
Middle	20.2	19.3	0.887	0.760 – 1.034	0.090
Rich	30.8	33.3	1		0.125
Told about pregnancy complications					
No	51.1	44.5	0.766	0.639 – 0.918	0.004
Yes	48.8	55.4	1		
Husband/partner's education level					
No education	38.9	39.6	0.996	0.828 – 1.335	0.428
Primary	15	16	1.046	0.864 – 1.267	0.964
Secondary	30	28.1	0.918	0.776 – 1.085	0.642
Higher	15.8	16.1	1		0.315
Respondent currently working					
No	80.7	74.5	1		0.000
Yes	19.2	25.4	1.438	1.264 – 1.635	0.000
Experienced any injuries due to violence					
No	90.6	87	1		0.246
Yes	9.3	12.9	1.433	1.037-1.980	0.029
Blood relation with the husband					
No	36.1	32.8	1		
Yes	63.8	67.1	1.157	1.033 – 1.296	0.012
Experienced any emotional violence					
No	66.6	62.7	1		
Yes	33.3	37.2	1.189	0.960 – 1.472	0.112
Experienced any less severe violence					
No	70.9	63.7	1		
Yes	29	36.2	1.393	1.120 -1.731	0.003
Experienced any severe violence					
No	93.1	89.8	1		
Yes	6.8	10.1	1.529	1.062 – 2.202	0.022
Husband/Partner: who hurt respondent during a pregnancy					
No	89.1	87.9	1		
Yes	10.8	12	1.119	0.810 – 1.546	0.496
No of antenatal visits					
<4	74.5	70.6	0.825	0.672 – 1.013	0.066
4-10	25.4	29.3	1		

There was significant association found between all levels of education i.e. no education (P value 0.000), primary (P value 0.000), secondary (P value 0.009) and higher (P value 0.019), weather respondent was told about pregnancy complication (OR 0.766, 95% CI 0.639-0.918 P value 0.004), employment status (OR 1.438, 95% CI 1.264-1.635, P value 0.000) less severe violence (OR 1.393, 95% CI 1.120-1.731, P value 0.003), severe violence (OR 1.529, 95% CI 1.062-2.202, P value 0.022), blood relation with husband (OR 1.157, 95% CI 1.033-1.296, P value 0.012) and less than four antenatal visits (OR 0.825, 95% CI 0.672-1.013, P value 0.066) and termination of pregnancy.

Table-3: Factors associated with the termination of pregnancy among females aged 10-17 years by socio-demographic factors. Pakistan Demographic and Health Survey 2012-2013.

	AOR	95% CI	p-value
Highest Education Level			
No education	1.820	0.614-5.389	0.690
Primary	1.642	0.533-5.061	0.280
Secondary	1.933	0.617-6.060	0.388
Higher			0.258

DISCUSSION

This study has assessed that among 10-17 years females, 1217 (21.4%) had their first cohabitation in the range of age 10-14 while more than half (78.6%) of the women had their first cohabitation in the range of 15-17 years of age according to PDHS data. Most of these women had poor socio-economic status. They were an inhabitant of rural areas, poor and uneducated. However, taking into account these inequalities, females married as children had many other factors that were associated with pregnancy terminations. These findings indicated that early age marriages are a huge concern for Pakistan and are contributing to drastically increased risk of maternal morbidity and mortality of the whole country (Nasrullah, Zakar &Krämer, 2013).[11] Present study adds to the literature by showing that, women who get married at an early age experience more pregnancy complications. However, despite early age and social inequity indicators such as poor economic status, low education level, and rural residence some more factors are involved in the onset of pregnancy complications like miscarriages and stillbirths. These factors include employment status of women, cousin marriages, physical and emotional violence, number of antenatal visits taken, poor socio-economic class, and rural residency. Isaranurug, Mo-Suwan & Choprapawon, 2006; Taffa, 2003 stated that sociodemographic characteristics of individuals such as illiteracy, socioeconomic status, social support, and lack of antenatal care also affect pregnancy complications including termination of pregnancy.[12,13] In addition to the above-mentioned factors pregnant teenagers experience an increased risk of maternal complications like pre-eclampsia, eclampsia, hypertension, cephalon pelvic disproportion, delayed labor (Kumar, Singh, Basu, Panday & Bhargava, 2007; Goonewardene, Waduge, 2005).[14]
(United Nations Children's Fund [UNICEF]) (2005) reported that girls married at an early age are less likely to have awareness about issues of reproductive health. Obtaining healthcare may be difficult for them because of the barriers such as financial problems, powerlessness, and low education level.[15] They need to take permission from husbands or in-laws which can thus lead to an increase in the risks of morbidity and maternal mortality for teenage mothers. Pakistan ranks 100th regarding 'gender empowerment by the United Nations Development Program out of 102 countries, showing low female empowerment and a high level of gender inequality.[16] Girls married at an early age are

not empowered to make their own decisions, considering these social inequalities these females also experience some emotional and physical violence and therefore increased risk of maternal morbidity and mortality. Our study advances in the literature that pregnancy complications have a strong association with <4 antenatal visits that also attributed to a socially and economically dependent female. Contrary to findings in previous studies that showed a significant relationship between teenage mothers and termination of pregnancy, our study did not find a significant relationship between early age marriages and pregnancy complications. We found a significant association with social indicators and we can conclude that experiencing violence, having blood relation with husband, taking fewer antenatal visits, low education level and employment status affect pregnancy complications such as termination of pregnancy.

The limitations of this study are that data available from PDHS which is a secondary source of data so we were not able to involve other biological factors which might affect pregnancy complications in teenage mothers. Secondly, the outcome variable is not properly explained whether pregnancy termination is by force, violence, induced abortion, or natural termination. Moreover, the presence of a large number of missing values in more relevant variables i.e. BMI (body mass index) of mothers in PDHS data, which were considered in other studies. This study is done on women aged 10-17 years so its results cannot be generalized, to all women of reproductive age in the country. Furthermore, some qualitative and longitudinal studies are needed to explore more factors that may involve in provoking complications in teenage pregnancies.

Hence, the findings support the contribution of socio-cultural factors that provoke child marriages. Effective interventions are needed to prevent child marriages like engaging all levels of socio-political systems to raise awareness and manifestation of law regarding child marriages and adherent violence with special reference to pregnancy complications. Moreover, empowering females by increasing education; creating job opportunities, promoting civil, sexual, and reproductive health rights, and improving the role of women in family decision-making can help in reducing child marriages.

AUTHOR'S CONTRIBUTION

AT: Data analysis, Manuscript writing, and Reference management
RZ: Supervision of manuscript writing
BSK: Data analysis
MFH: Discussion
RA: Methodology

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