

## ORIGINAL ARTICLE

## Comparison of Health status among married and unmarried girls of late adolescent age in an urban slum of Delhi

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### Abstract

**Background:** Late adolescent girls are being forced into marriage and the burden of marital responsibilities, most notably partner's sexual demands and childbearing and child-rearing, led to significant emotional distress and depression. Thus, early marriage for girls might have profound impact on their health status. **Aims & Objectives:** To study impact of early marriage on health status of married girls of late adolescent age and to compare them with unmarried girls of same age. **Material & Methods:** A comparison study was conducted among girls of late adolescent age in an urban slum of North East Delhi. One sixty study participants were included in each group. A pretested interview schedule was used for collecting details such as knowledge on reproductive health, physical parameters and anemic status. Chi square tests were used and odds ratio was calculated. **Results:** Majority of married girls, 102(63.8%) had middle school education while 93(58.1%) of unmarried girls had high school education. The mean (SD) age of marriage of married adolescent girls was 17(±) years while their husband age at time of marriage was 21.6(±) years. Levels of hemoglobin were low in both groups 87.5% in married girls and 98.75% in unmarried girls. **Conclusion:** Early marriage was found to have impact on menstruation, reproductive health and nutritional status of adolescent girls.

### Keywords

Late Adolescent Age; Early Marriage; Health Status

### Introduction

Adolescence literally means "to emerge" or "to attain identity". (1) WHO defines adolescence as the

age between 10 to 19 years marked by special attributes like rapid physical growth and development, social and psychological maturity as well as experimentation with physical and sexual

behaviour. There is also transition from total social-economic dependence to relative independence. (2,3) In 2011, adolescents contribute 20.9% of total population. (4) Late adolescence between 16 to 19 years is marked by various physical, mental and social changes. (5,6,7)

Legal age for marriage for women in India is 18 years, but many girls are married much before this legal age for marriage. (8) According to NFHS-4, more than one fourth (27%) of women aged 20-49 years were married before age 15 and more than half (58%) were married before 18 years. (9) Factors such as poverty, customs, threat of being kidnapped and old beliefs, were reported to be the reasons behind this social evil. (10)

Early marriage during adolescence period for girls has profound physical, psychological and emotional impacts. Educational status plays an important role in ability to tackle such issues. (8) Sexual violence is highest in the girls married early —around 13% of ever married women aged 15-19 years reported sexual violence. (10) The family pressure to bear children soon after marriage can have serious consequences on both mother and child (9,10,11).

Evidence on overall well-being of married and unmarried adolescent girls from India is virtually minimal.

### Aims & Objectives

To compare the health status of married and unmarried girls of late adolescent age and to study the knowledge of impacts of early marriage.

### Material & Methods

#### Study design and study population

The study was a cross sectional study conducted in an urban slum of North-east Delhi. The study included a comparison group, with the study population of married girls compared with unmarried girls of late adolescent age (16-19 years). Pregnant married girls were excluded from the study. (As pregnancy is accompanied with a lot of biochemical and physiological changes which can affect the outcome, hence pregnant women are excluded from the study). Approval for the study was obtained from the Institutional Ethical and Scientific Committee.

#### Sampling and Sample size determination

Simple Stratified sampling was used for recruiting the study subjects. The sample size for the present study was calculated considering prevalence of pregnancy among adolescent girls (age group 15-19

years). According to NFHS 4 survey, prevalence of anemia in late adolescent girls in 15-19 age group was 54%. (12) Sample size calculation was done using the formula,  $n=4pq/L^2$ ,  $p=54$ ,  $q=46$ ,  $L=8\%$  and the size arrived was 155. Considering non-response rate of 5%, the total sample size of study was 160. Thus, in our study a total of 160 married adolescent girls were included and a comparison group of 160 unmarried girls were also recruited. The study was carried out from November 2017 to October 2018.

#### Study tool

The study tool was questionnaire based which was pre-designed, pre-tested, semi structured questionnaire. The questionnaire included variables such as demographic details, knowledge of adolescent girls, perception towards early marriage, measurement of physical parameters and anemic status. Modified Kuppaswamy Scale was used for classification of study subjects into various socio economic strata.

#### Data collection

The total population of the urban slum was 70501 and adolescent comprise approximately 12% of total population (i.e.  $n=8460$ ). Among the adolescent population, late adolescent who were married at the time of study was 380. Among this, a total of 160 married and 160 unmarried late adolescent girls were included in the study. Informed written consent from was obtained from each participant. General health assessment including physical examination and hemoglobin estimation (Sahli's method) (100) was carried out. The questionnaire was administered to the participants. Hemoglobin estimation with the cut off value of Hb 12.0 gm% as per the WHO criteria). (101) Further categorization of the study subjects as mild, moderate and severe anemia was done. Weight was recorded asking the girl to stand still on the weighing machine, with the body weight evenly distributed between both feet. Light indoor and culturally acceptable clothes were allowed, but shoes, sweaters, belts, jackets, etc. were removed. Weight was recorded to the nearest 100g. Weight was taken using spring type portable weighing machine. ICMR standards for weight for age were used for comparison. Height of the girl was measured barefooted. She was asked to stand on a flat surface (floor), with weight distributed evenly on both feet, heels together, and the head positioned so that the line of vision is perpendicular to the body. The girl was asked to inhale deeply and maintain a fully erect position. The wooden scale was brought

onto topmost point on the head with sufficient pressure to compress the hair. The height was recorded to the nearest 0.1 cm. The vertical surface (wall) on the back side of girl was marked at the level of the scale. The height was measured from the floor to the mark. ICMR standards for height for age were used for comparison. BP was measured by auscultatory method using the standard clinical sphygmomanometer, in seated position with the back supported. Its cuff was placed on her right hand 2 cm above the cubital fossa and two readings were taken for each participant before classifying them as hypertensive. JNC8 Hypertension guidelines was used for classification.

#### Data analysis

The data was analyzed with Statistical Package for Social Sciences (SPSS-IBM version 21.0). Proportions and mean values were calculated. After applying the tests of normality, Chi square test was applied and odds ratios were calculated. P value of <0.05 was considered to be significant.

### Results

The study included a total of 320 study participants out of which 160 (50%) were married and 160 (50%) were unmarried. Among married girls 41.9% were between age group 18 to 19 years whereas 41.9% of unmarried girls were between 17-18 years. There were 135 girls belonging to Hindu families and 185 from Muslim families. The Muslim representation was higher both in married girls (55%) as well as in unmarried girls (60.6%). ([Table 1](#))

#### Menstrual complaints

Age at menarche was on average 13.7 years in married girls and 13.4 years in unmarried girls. Both groups study participants, had complaints during menstruation. The most common complaint among married girls was dysmenorrhea (21.25%) and polymenorrhoea (21.25%). The other symptoms reported was among study participants were backache (7.5%) and irregular periods (16.25%). Among unmarried group, most frequent reported problem during menstruation was dysmenorrhea (18.1%) followed by backache (5%), oligomenorrhoea (5%), irregular periods (5%) and polymenorrhoea (3.8%). The married girls (cases) had more complaints than controls.

Majority of unmarried girls knew the legal age of marriage in India correctly than the married girls and this difference was statistically significant. OR (95% CI) = 0.200 (0.10-0.38). Knowledge about

government beneficiary schemes including various schemes of savings was much higher in unmarried girls when compared to their counterparts. OR (95% CI) = (0.28-0.71) ([Table 2](#))

Levels of hemoglobin were lower than normal in both groups 87.5% in married girls and 98.75% in unmarried girls. Less than 10 gm/dl of Hb was present in 83(51.87%) in married girls and 115(71.8%) in unmarried girls. Severe anemia (Hb less than 7gm/dl) was seen in 2 unmarried girls only. The odds of having low hemoglobin levels were much lower in married girls when compared to unmarried girls. ([Table 3](#))

Mean (SD) BMI of married and unmarried girls was 20.8 ( $\pm$ 3.72) and 19.7( $\pm$ 2.86) respectively. Measuring the nutritional status revealed that 33(25.7%) of married girls were malnourished and none of the unmarried girls were malnourished. 24 (15%) of unmarried girls were overweight and 2(1.25%) of married girls were obese as shown in table 4.

#### Marital history

The mean age of marriage of married adolescent girls was 17 years while mean husband age at time of marriage was 21.6 years. Upon enquiry about the reason behind early marriage, 58.1% of girls cited that financial problem of family, 30.6% mentioned that early marriage was a family custom, 7.5% got good bridal groom match and 3.8% told their parents had no trust on them.

Among 160 married girls, 22 of married girls had 1 child and 138 had no children. Among the child births, all the deliveries were institutionalized and normal delivery. Again, who had first conception live birth was 22 and abortion was reported in 22 participants. Mean age of child birth was 18 years.

Domestic violence that includes either verbal or physical abuse was experienced by 83(51.95%) of married and 54(33.8%) of unmarried girls. The married girls had high odds of facing domestic violence (OR (95% CI) = 2.116(1.34-3.32) (p value=0.000).

#### Perception about early marriage

None of the married girls recommended early marriage. The reasons for not recommending early marriage are mentioned in Figure 1. Majority in both the groups had opinion that they are physically not prepared for marriage. Other reasons were that they don't know the marital responsibility, forced to leave studies and fear of missing parental love. Out of the 5 girls in control group who recommended early marriage 3(1.95) were of the opinion that they would

have the chance of knowing the spouse early in their lives and 2(1.2%) were of the view that with these responsibilities of parents get fulfilled early. The association of facing gender inequality was much higher in married girls compared to unmarried and this was also statistically significant. (p value =0.000, OR= 0.17) as shown in table 5.

## Discussion

The study was conducted among the married and unmarried girls of late adolescent age group in an urban slum of Delhi. The study showed that mean age of marriage was 17 year while mean age of husband at the time of marriage was 21.6 years. Similar findings have been reported in Baseline Survey for Social and Financial Empowerment of adolescents by Bhattacharjee A. et al where more than two third of married adolescent girls got married before the age of 18 years. (13).

In this study, it was observed that among 85% of married girls were either illiterate or educated up to primary class but among unmarried girls 79.4% were educated up to middle school or high school with the difference in literacy being statistically significant. As per Indian census 2011 percentage of girls who were educated less than primary level and married below 18 years of age was 34.5%. The percentage of married women who were educated either to primary or middle school was 30.9% and 25.4% respectively. This was further reduced to 15.35 if girls had attained high school education. (4). The data indicates that the early marriage of the girls takes away the opportunity from them to pursue education. The association between education of both parents and marriage were statistically significant. Educated parents have a positive impact to promote an atmosphere in which girls are married at age when they are really ready for marriage. (14) 17.5% married girls had unemployed fathers whereas in only 1.2% unmarried girls fathers were unemployed. As employment can be related to the financial conditions of the families so if parents are not financially stable, a young girl may be regarded as an economic burden. This can be seen as a practice common in some Middle Eastern and South Asian societies where this is regarded as family survival strategy.(9)

75% of unmarried girls and 65% of married girls possessed the knowledge of maintaining hygiene during menstruation like change of pads, cleaning of genitalia etc. There was statistically no significant

difference between two groups. In a study in Uttar Pradesh, 90% of adolescent girls were unaware of maintaining hygiene during menstruation. (15) These studies have revealed that the hygienic practices of adolescent girls during menstruation are far from adequate.

Among 61% of married girls most common complaint among married girls were dysmenorrhea (21.25%) and polymenorrhoea (21.25%). The unmarried girls (34.5%) also reported the most frequent problem to be dysmenorrhea (18.1%) followed by backache (5%), oligomenorrhoea (5%), irregular periods (5%) and polymenorrhoea(3.8%). Bej P. reported dysmenorrhea (67.2%) as the commonest problem and 63.1% had one or the other symptoms of premenstrual syndrome (PMS). (1)

The knowledge of contraceptives among married girls was very low (8.8%) when compared to unmarried girls. The difference between the knowledge of contraceptives between two groups was statistically significant. This result is relatively low when compared with the study of M.M. Rahman and M. Kabir in which 99.8% of married adolescents were aware of at least one method of contraceptive and 41.3% of the currently married adolescents used atleast one contraceptive. (16) In the present study only 8.8% married girls were using the contraceptives and none of unmarried girls had reported to use contraceptives. This observation may be due to stigma attached to pre-marital sex and thus denial of unmarried girls of using any contraception.

The unmarried adolescent girls (28.1%) had adequate knowledge on Sexually Transmitted Diseases (STD) when compared to married adolescent girls (14.4%) and the difference between the groups was statistically significant. Similar result was reported in a study conducted in rural Rajasthan where 23 % of the adolescents aged between 15-20 years have ever heard about Reproductive Tract Infection or Sexually Transmitted Infection. (17) The lack of knowledge about STD's which was more among married girls can be attributed to literacy of girls, low social mobility and health interaction when compared to unmarried adolescence girls.

The married girls (30.6%) had less knowledge about the legal age of marriage when compared to unmarried girls (8.2%). The association between response to legal age of marriage and marriage at adolescent age was statistically significant. A study

from rural Rajasthan found that only 35 % of the girls were aware of the correct age of marriage. (18) The marriage at early age was not recommended by both married and unmarried adolescent's girls. The reason given by unmarried girls were their age is not mature enough to take the marital responsibility (27.5%), physically unpreparedness(25%) and not being able to complete their education (24.4%).The reasons given by married girls were physically unpreparedness(25.6%),unable to get enough parents love(17.5%),having children at an early age(15.6%), marital responsibility(15%),not able to complete education(14.4%),not having decision making power (10.6%) and getting depression(1.2%).The 5 girls in control group who have favored early marriage only 3 (1.95%) reasoned that they would have the chance of knowing the husband better and 2(1.2%) were of the view that the responsibilities of parents get reduced. Thus, the married adolescent girls were of the opinion that marriage at an early age was more harmful than beneficial.

In spite of being so common domestic violence which include physical abuse or being scolded verbally is not acknowledged openly. The 51.95% of married girls and 33.8% of unmarried girls faced domestic violence. The odds of facing domestic violence were 2.2 times more in married adolescent girls than unmarried girl. India has the highest level of domestic violence (67%) among women married at the age of 18. In Bangladesh domestic violence is socially not often recognized as a crime and remains the biggest threat to woman's security. Murder of a wife by her husband accounted for over 70% of reported domestic violence cases involving individuals 13-18 years. Thus, early marriage makes girls more vulnerable to more violence, abuse and exploitation. (19)

The odds of married girls (87.5%) having anemia were less than in unmarried girls (98.7%). Mean Hb in married girls was 9.72gm/dl while for unmarried girls was 9.52 gm/dl. Thus, prevalence of anemia was significantly higher in unmarried than married. Rao et al. (2011) reported a mean hemoglobin level of 11.07 g/dl and 46.4% of married adolescent girls of age group 15 to 19 years in rural areas of Pune were suffering from anemia. (20) The factors like higher maternal parity ( $\geq 2$ ), younger age at marriage ( $< 19$  years), and poor pre-pregnancy weight ( $< 40$  kgs) had significant odds ratio for Iron deficiency anemia.

In our study it was found that 20.62% married girls were underweight while none of the unmarried girls came under the category of being underweight.15% of unmarried girls were overweight and only 0.62% and 1.25% of married girls was overweight and obese respectively. In a study of adolescent girls in an urban slum area of Andhra Pradesh reported an overall prevalence of stunting at 28.3% (Indian standard), underweight at 22.9% and thinness at 20.6%. The study highlighted the fact that an urban slum adolescent girl is subjected to more physical challenges compared to a rural adolescent girl. (Prashant and Shaw 2009).(21) The adolescent undernourished girls get married and make the transition from their natal homes to marital homes, where they have the least ability to negotiate or influence decisions to improve their own or their children's health and nutrition status. This sociocultural dimension to nutrition among adolescent girls magnifies the complexity of the issue (22).

The mean age of child birth was 18 years. It was less than the age if compared with another study by Francesca Marchetta and David E. Sahn in which they found, the mean age at first birth was at 19.5 years (23)

## Conclusion

The study results confirmed that there is a firm need for special attention to improve the health and nutritional status of the adolescence in urban slums. With onset of puberty they have a serious social, economic and health problems like out of school, menstrual problems, and early marriage, teenage pregnancy, work in vulnerable situation, sexually active, nutritional deficiency and malnourishment.

## Recommendation

1. Legislation needs to be reassessed and enforced in the interest of the rights and health of adolescent girls.
2. To end the practice of early marriage, resources must be mobilized at all levels, within a coordinated and cooperative structure.
3. Gender sensitization should be stressed upon.
4. Promoting both the education of girls and parental education must be stressed upon and school timings need to be adjusted to suit the needs of the girls.
5. Schemes to address anemia among adolescents like Kishori Balika scheme and WIFS program need to be implemented in more effective way.

6. Information, Education and Communication and Behaviour Change Communications initiatives need to be implemented at the community-level to raise awareness about nutrition, menstrual hygiene, reproductive tract infections and rights of girls.
7. Helping already married girls to avoid early pregnancy and when pregnant have access to appropriate care during pregnancy, childbirth and postpartum (including access to family planning).

### Limitation of the study

Adolescent girls of late adolescent age were only taken. To understand the impact of early marriage and to get the true reflection of the community, girls of early and middle adolescent age could also have been taken.

### Relevance of the study

The study not only tell about the various social factors leading to early marriage but also the effect of it on girls.

### Authors Contribution

SG: Concept, study designing, data acquisition, data analysis, manuscript preparation, manuscript review. NT: Definition of intellectual content, literature search, data acquisition, data analysis, manuscript preparation, manuscript review. VGC: Definition of intellectual content, literature search, data analysis, statistical analysis, manuscript preparation, manuscript review. FL: Literature search, data analysis, manuscript preparation, manuscript editing, manuscript review

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**Tables****TABLE 1 DISTRIBUTION OF SOCIO DEMOGRAPHIC VARIABLES AMONG STUDY PARTICIPANTS. (N=320)**

S.No	Variables	Married Girls (N=160)	Unmarried Girls (N=160)	p Value Chi Square Value
1.	Education of Study Subjects			0.000* X <sup>2</sup> =140.23
	Illiterate	58(36.2%)	6(3.8%)	
	Middle School	102(63.8%)	61(38.1%)	
	High School and Above	0	93(58.1%)	
2.	Socio Economic Status			0.000 * X <sup>2</sup> =37.385
	Lower Class	72(45%)	27(16.9%)	
	Upper Lower	88(55%)	119(74.4%)	
	Lower Middle	0	14(8.8%)	
3.	Education of Father			0.000* X <sup>2</sup> =135.75
	Illiterate	144(90%)	38(23.8%)	
	Middle School	10(6.2%)	96(60%)	
	High School and Above	6(3.8%)	26(16.2%)	
4.	Education of Mother			0.000* X <sup>2</sup> =20.96
	Illiterate	150(93.8%)	85(53.1%)	
	Middle School	10(6.2%)	69(43.1%)	
	High School and Above	0	6(3.8%)	
5.	Occupation of Father			0.000* X <sup>2</sup> =85.01
	Unemployed	28(17.5%)	2(1.2%)	
	Unskilled Worker	32(20%)	48(30%)	
	Semiskilled Worker	50(31.2%)	5(3.1%)	
	Skilled Worker	25(15.6%)	65(40.6%)	
	Shop Owner	25(15.6%)	38(23.8%)	
	Semi Professional	0	2(1.2%)	
6.	Occupation of Mother			0.000 * X <sup>2</sup> =20.94
	Unemployed	160(100)	137(85.63)	
	Employed	0	23(14.37)	

p Value &lt; 0.05 Was Significant

**TABLE 2 DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THE KNOWLEDGE ABOUT REPRODUCTIVE HEALTH AND OTHER INFORMATION. (N=320)**

Variable s	Married girls	Unmarried Girls	p value	OR (95% CI)
Knowledge about menstrual hygiene			0.51	0.61 (0.38-1.00)
Yes	104(65%)	120(75%)		
No	56(35%)	40(25%)		
Problems related to menstruation			0.485	0.85 (0.53-1.34)
Yes	55(34.45%)	61(38.1%)		
No	105(65.6%)	99(61.9%)		
Knowledge of contraceptives			0.000*	0.17 (0.09-0.32)
Yes	14(8.8%)	57(35.62%)		
No	146(91.2%)	103(64.37%)		
Knowledge of STD's			0.003*	0.42 (0.24-0.75)
Yes	23(14.4%)	45(28.1%)		
No	137(85.6%)	115(71.9%)		
Knowledge about legal marriage age			0.000 *	0.200 (0.10-0.38)
Yes	111(59.4)	147(91.8)		
No	49(30.6)	13(8.2)		
Knowledge of govt. schemes			0.001*	0.45 (0.28-0.71)
Yes	82(51)	112(70)		
No	78(49)	48(30)		

p value ≤0.05 was significant

**TABLE 3 DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THE ANEMIA. (N=320)**

Anemia	Married girls (n=160)	Unmarried girls (n=160)	p value	OR (95%CI)
Present	140(87.5%)	158(98.75%)	0.000*	0.089 (0.020-0.386)
Absent	20(12.5%)	2(1.25%)		

**TABLE 4 DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO VARIOUS PHYSICAL PARAMETERS**

Physical Parameters	Married Girls (N=160) Mean (±Sd)	Unmarried Girls (N=160) Mean (±Sd)
Hear Rate Per Minute	73(3.05)	73(4.36)
Height (Cm)	144(6.8)	139(5.44)
Weight (Kg)	40(8.12)	41(6.8)
Systolic Blood Pressure (MmHg)	108(6.36)	109(5.86)
Diastolic Blood Pressure (MmHg)	70(5.77)	70(6.18)
Respiratory Rate Per Minute	12(0.56)	13(0.89)
Body Mass Index Bmi(Kg/M2)	20.8(3.72)	19.7(2.86)

**TABLE 5 DISTRIBUTION OF STUDY PARTICIPANTS ACCORDING TO THEIR PERCEPTION TOWARDS EARLY MARRIAGE. (N=320)**

S.no	Variable	Married girls	Unmarried Girls	p value	OR(95%CI)
1.	Early marriage is detrimental			0.065	0.56 (0.30-1.04)
	Yes	129(80.6)	141(88.1)		
	No	31(19.4)	19(11.9)		
2.	Early marriage is beneficial			1.000	1 (0.48-2.07)
	Yes	16(10)	16(10)		
	No	144(90)	144(90)		
3.	Early marriage is recommended			0.024 *	-
	Yes	0	5(3.1)		
	No	160(100)	155(96.9)		
4.	Ever faced domestic violence (verbal and physical)			0.001*	2.11 (1.34-3.32)
	Yes	83(51.9)	54(33.8)		
	No	77(48.2)	106(66.2)		
5.	Believe in financial independence			0.001*	-
	Yes	145(90.6)	153(95.6)		
	No	15(9.4)	2(1.3)		
	Don't know	0	5(3.1)		

P<=0.05 significant

**Figures**

**FIGURE 1 DISTRIBUTION OF ADOLESCENT GIRLS ACCORDING TO THE REASONS OF NOT RECOMMENDING EARLY MARRIAGE**

