Early teenage marriage and subsequent pregnancy outcome

S. Shawky and W. Milaat

Volume 6, Issue 1, 2000, Page 46-54

ABSTRACT The relationship between marriage before 16 years and pregnancy outcome throughout the childbearing period was examined. Participants included all married women attending six randomly selected primary health care units in Jeddah with at least one infant and complete medical files. Early teenage marriage was found for 27.2% of women. Most of these were illiterate (57.1%), housewives (92.4%) and grand multiparae (66.7%). They were at twice the risk of spontaneous abortion, four times the risk of combined fetal death and infant mortality, and twice the risk of losing pregnancies any time during their childbearing years. They remained at high risk of poor pregnancy outcome throughout their reproductive lives. Despite tradition, marriage should be discouraged before 16 years.

Le mariage précoce à l'adolescence et l'issue de la grossesse ultérieurement

RESUME On a examiné la relation entre le mariage avant 16 ans et l'issue de la grossesse durant toute la période de procréation. Ont été incluses dans cette étude toutes les femmes mariées fréquentant six centres de soins de santé primaires sélectionnés au hasard à Djeddah qui avaient au moins un enfant ainsi qu'un dossier médical complet. On a constaté que pour 27,2% des femmes, le mariage avait eu lieu tôt à l'adolescence. La plupart d'entre elles étaient illettrées (57,1%), femmes au foyer (92,4%) et grandes multipares (66,7%). Elles ont été exposées deux fois au risque d'avortement spontané, quatre fois au risque que leur enfant meure in utero ou en bas âge, et deux fois au risque d'interruption de leur grossesse à tout moment durant leurs années de procréation. Elles ont continué de courir un risque élevé d'issue défavorable de la grossesse tout au long de leur vie génésique. Malgré la tradition, le mariage avant l'âge de 16 ans devrait être découragé.

Introduction

The association between maternal and infant morbidity and mortality and young-age pregnancy has been a public health concern for many years [*1*]. There has been great controversy regarding the pregnancy performance of teenage mothers and many studies have suggested that they are at higher risk of morbidity and mortality [*2*-*5*]. Toxaemia of pregnancy [*6*-*8*], pregnancy-induced hypertension [*9*] and cephalopelvic disproportion [*10*] are among the conditions related to adolescent pregnancy. Unfavourable pregnancy outcome in the form of low birth weight, preterm labour, stillbirths and perinatal deaths has also been reported in young mothers [*11*-*14*]. Some authors however have attributed poor teenage pregnancy outcome to socioeconomic status [*15*-*18*], nutrition [*19*], prenatal care [*20*] and lifestyle of the mother [*21*] rather than to her age alone.

Marriage during puberty is believed to ensure early fertility of the married couple [*22*]. The average age of menarche worldwide is approximately 13.0 years [*23*]. Girls require about 2-3 years to achieve physical and biological maturity after the onset of menstruation [*24*,*25*]. Thus girls who marry and conceive before their 16th birthdays are not yet fully prepared for the demands of the childbearing period. In Saudi Arabia there is no minimum legal age for marriage. As in other Arab countries, it is known to have high rates of early marriage at ages close to menarche, a practice related to traditions and beliefs [*26*].

Data on the pregnancy performance of teenagers in Arab countries are not sufficient. Even in Western countries where numerous studies have examined the role of young maternal age on the mother's and infant's health, results have been directed toward the index pregnancy and its outcome. Our knowledge of the cumulative effect of pregnancy and delivery on the biologically immature bodies of teenagers and on subsequent pregnancy outcomes throughout the childbearing period is lacking. Thus we examined whether early teenage marriage, i.e. marriage before the age of 16 years,

exposed the woman to a higher risk of poor pregnancy outcome throughout her reproductive life and not merely during the first pregnancy.

Subjects and methods

Primary health care (PHC) centres in Jeddah provide preventive and curative services and essential care to residents of the city and surrounding areas. Antenatal care and well-baby clinics are among these services. The antenatal care clinics provide regular care for pregnant women and the well-baby clinics provide regular medical check-ups and vaccinations for children under 5 years of age. Women attending PHC centres represent low and middle social class residents of Jeddah and surrounding regions.

Data were collected from 6 PHC centres selected randomly from 36 centres in Jeddah during March and April 1997. All mothers having at least one child and attending the well-baby clinics were included in the study. A structured questionnaire was completed for each woman. Each woman was also interviewed by trained medical staff in the clinic during the study period. The questionnaires included the sociodemographic characteristics of the mother (age, nationality, education, occupation, age of menarche, marital age and parity) as well as the number of abortions, fetal deaths and/or infant mortalities that she had experienced during her reproductive life. The information collected from each mother was validated with her medical record in the antenatal clinic and with her child's medical record in the well-baby clinic. Mothers with incomplete medical records were excluded from the study.

In accordance with the definition used in Saudi Arabia, spontaneous abortion was defined as any loss of fetus before 28 weeks of gestation; fetal death as any infant born dead at 28 weeks gestation or thereafter; and infant mortality as any infant born alive who died during the first year of life [*27*].

Statistical analysis was carried using *SPSS* (version 7.0). The c^2 test, Student *t*-test and ANOVA were used to detect significant differences. A logistic regression model was fitted to calculate the adjusted odds ratio for an unfavourable pregnancy outcome by woman's marital age. Adjustment was made for the woman's current age and nationality. The dependent outcome was: 0 for never experienced an unfavourable pregnancy outcome and 1 for experiencing at least one unfavourable outcome during the childbearing period. Unfavourable pregnancy outcome referred to spontaneous abortion, fetal death and infant mortality.

Results

A total of 386 women fulfilling the study criteria were included in the study. The majority were Saudis (66.8%). Marital age ranged from 10 years to 36 years (mean ± standard error of the mean = 18.5 ± 0.2 years) and 27.2% of women had had early teenage marriages (< 16 years) (Table 1).

Tables 2 and 3 give mean marital age and number and proportions of early teenage marriage (< 16 years) by mother's current age, age of menarche, education, occupation and parity. The ages of the mothers ranged from 15 years to 45 years (mean ± standard error of the mean = 28.7 ± 0.3 years). The youngest mean marital age (16.0 ± 0.3 years) was found among current young age mothers (< 20 years of age) rather than among the older age groups (P = 0.0045). Approximately 32.1% of current young mothers had married before their 16th birthday, but the proportion of early teenage marriages did not statistically differ by mother's current age. Saudis exhibited a significantly lower mean marital age than non-Saudis. Although the proportion of Saudis who married before the age 16 years (29.8%) was higher than non-Saudis, nationality was not found to be a statistically significant factor.

Mean age of menarche for all mothers was 13.3 ± 0.1 years. Mothers who reported early onset of menarche (< 12 years) had a younger mean marital age compared with mothers with older ages of menarche (P = 0.0487). Approximately 44.4% of mothers who started their menstrual cycles before

the age of 12 years had married early. The proportion of early teenage marriage decreased with increase in age of menarche (P = 0.0421).

Illiterate and primary-school-educated mothers accounted for 60.4% of all mothers. Women with low educational levels had a significantly younger mean marital age than those with higher educational levels (P = 0.0000). Of the illiterate mothers, 40.5% had married before 16 years, while lower proportions of early teenage marriages were observed among those with higher educational levels (P = 0.0000). The majority of mothers were housewives (87.3%). Houswives had a significantly younger mean marital age than working mothers (P = 0.0000). There was also a difference in the proportion of teenage marriages among housewives (28.8%) compared with working mothers (16.3%) but it was not statistically significant.

Parity ranged from 1 to 12 with an average of 4 living children. Grand multiparity (para 5+) was reported by 43.3% of mothers, 62.9% of whom had married in their early teens. The youngest mean marital age of 16.7 ± 0.3 years was observed among grand multiparae as compared with lower parities (P = 0.0000). The highest proportion of teenage marriages (41.9%) was seen among grand multiparae as compared with lower parities (P = 0.0000).

A total of 138 woman (35.8%) reported that they had experienced at least one unfavourable pregnancy outcome. Spontaneous abortion was reported by 110 women (28.5%), fetal death by 19 (4.9%) and infant mortality by 30 (7.8%). As the number of women reporting fetal death and infant mortality were few they were grouped together.

Women of early teenage marriage had the highest proportion of unfavourable pregnancy outcomes at all stages (Table 4). After adjusting for age and nationality, logistic regression analysis indicated that early teenage marriages were always at highest risk of unfavourable pregnancy outcome throughout the childbearing period. There was approximately double the risk (95% CI = 1.1-2.3) of spontaneous abortion and approximately four times the risk (95% CI = 1.7-9.6) of losing a fetus or an infant with early teenage marriage. When adverse pregnancy outcomes were combined together, mothers from teenage marriages were at double risk (95% CI = 1.3-3.9) of losing the pregnancy at any stage during the childbearing period.

Discussion

Early marriage deserves special attention for its repercussion on maternal and infant health. Early marriage is common and accounted for 27.2% of the women in our study population. Mean marital age was 18.5 years, slightly higher than the previously published mean marital age of 16.8 years in Saudi Arabia [*27*].

It was found that current young mothers (< 20 years) had the youngest mean marital age as well as the highest proportion of early teenage marriages. This confirms that early teenage marriage still exists.

Women who started menarche before 12 years reported the youngest mean marital age and 44.4% of them were married before their 16th birthday. This concurs with previously published data about the relation between early marriage and early age of menarche [*23*].

Early marriage hinders women's education either due to lack of motivation for schooling after marriage or due to the responsibilities she has to take on at a very early age. This in turn influences her chances of employment and the economic status of the family. In our sample, illiterate women reported the youngest mean marital age; 40.5% of them had married before 16 years. The proportion of early teenage marriage was highest among illiterate mothers as compared with those with higher educational levels. Similarly, housewives reported a younger mean marital age and a higher proportion of early marriage than working mothers. These findings agree with previously published

data which indicate that illiteracy, unemployment and low economic status are factors which have a negative impact on maternal and infant health [28,29].

Our sample had a wide range of parity (< 12), a pattern previously documented in the region [26,27,30,31]. Grand multiparae had the youngest mean marital age and the highest proportion of early teenage marriages when compared with women with lower parities. High parity has been reported to be a factor leading to poor pregnancy outcome among early teenage marriages [32,33].

A total of 35.8% reported at least one unfavourable pregnancy outcome during their childbearing period. The majority were spontaneous abortions; infant mortality and fetal deaths were less common. The small number of fetal deaths could be explained by under-registration, either because of the misuse of the definition or as a means to overcome the official process in cases of fetal death. Under-registration has been previously documented in other studies [27] but no research has been carried out to measure the reliability of the registration system.

Logistic regression analysis indicated that throughout the childbearing period there was double the risk (95% CI = 1.1-2.3) of spontaneous abortion and four times the risk (95% CI = 1.7-9.6) of losing a fetus whether born dead or alive in cases of early teenage marriage. When all unfavourable pregnancy outcomes were combined, there was double the risk (95% CI = 1.3-3.9) of losing the pregnancy at any stage during the reproductive life in cases of early teenage marriage. These results support previously published data that indict young maternal age as the underlying cause of poor pregnancy outcome [11-14,23]. Moreover, these results provide insights into the cumulative effect of marital age throughout the entire childbearing period. Because they only examined outcomes in the index pregnancy, some studies may have failed to detect a relationship between young maternal age and pregnancy outcome.

Early teenage marriage is fraught with problems throughout the childbearing period. Because of their age, very young mothers fall into a high risk category as they are biologically and psychologically immature [24,25,29]. Women who marry before 16 years remain at highest risk of spontaneous abortion, fetal death and infant mortality during the childbearing period. Moreover, early marriage cuts short the woman's education and employment chances. It burdens the girl with frequent pregnancy, childbearing and excessive responsibilities at an immature age. These additional factors aggravate the impact of early marriage upon the pregnancy outcome of these women.

It is recommended that even if early marriages are preferred and adopted as cultural norms, they be discouraged before the age of 16 years. It is highly recommended that educational programmes be directed to parents and to girls themselves to provide scientific information on the health and socioeconomic problems of early marriage. Recommendations include encouragement of girls' education, which has many advantages including the prospects of a better marriage, improved child-rearing, corrected role of women in the community, financial rewards and improved standard of living for the family as well as delay of marriage.

References

1. Mecklenburg ME, Thompson PG. The adolescent family life program as a prevention measure. *Public health reports*, 1983, 98:21-9.

2. Sarrel PM, Klerman LV. The young unwed mother. *American journal of obstetrics and gynecology*, 1969, 105:575-8.

3. Hassan HM, Falls FH. The young primipara. *American journal of obstetrics and gynecology*, 1964, 88:562-9.

4. Mussio TJ. Primigravidas under age 14. *American journal of obstetrics and gynecology*, 1962,

84:442-4.

5. Kushwaha KP et al. Pregnancies in adolescents: fetal, neonatal and maternal outcome. *Indian pediatrics*, 1993, 30(4):501-5.

6. Abi-Said D et al. Case-control study of the risk factors for eclampsia. *American journal of epidemiology*, 1995, 142(4):437-41.

7. Aznar R, Bennett AE. Pregnancy in the adolescent girl. *American journal of obstetrics and gynecology*, 1961, 81:934-40.

8. Dodge E. Pre-teenage pregnancies. *Journal of the American Women's Medical Association*, 1964, 19:849.

9. Duenhoelter JH, Jimenez JM, Bauman G. Pregnancy performance of patients under 15 years of age. *Obstetrics and gynecology*, 1975, 46(1):49-52.

10. Hulka J, Schaaf JT. Obstetrics in adolescents: a controlled study of deliveries by mothers 15 or younger. *Obstetrics and gynecology*, 1964, 23:678-85.

11. Jekel JF et al. A comparison of the health of index and subsequent babies born to school age mothers. *American journal of public health*, 1975, 65:370-4.

12. Elster AB, McAnarney ER. Medical and psychosocial risks of pregnancy and childbearing during adolescence. *Pediatric annals*, 1986, 9:89-94.

13. Phipps-Yonas S. Teenage pregnancy and motherhood: a review of the literature. *American journal of orthopsychiatry*, 1980, 50:403-31.

14. National Center for Health Statistics. Apgar score in the United States. *Monthly vital statistics*, 1981, Suppl.:30.

15. Baldwin W, Cain VS. The children of teenage parents. *Family planning perspectives*, 1980, 12:34-43.

16. Grazi RV et al. Offspring of teenage mothers. Congenital malformations, low birth weights and other findings. *Journal of reproductive medicine*, 1982, 27:89-96.

17. Hutchins FL, Kendall N, Rubino J. Experiences with teenage pregnancy. *Obstetrics and gynecology*, 1979, 54:1-5.

18. Mednick BR, Baker RL, Sutton-Smith B. Teenage pregnancy and perinatal mortality. *Journal of youth and adolescence*, 1979, 8:343-57.

19. Zuckerman B et al. Neonatal outcome: is adolescent pregnancy a risk factor? *Pediatrics*, 1983, 71:489-93.

20. Mahfouz AAR et al. Teenage pregnancy: are teenagers a high-risk group? In: *Proceedings of the National Symposium, Curative Services in Primary Health Care*. Al-Khobar, Eastern Province Office of the Saudi Society of Family and Community Medicine, 1994.

21. Rothenberg PB, Varga PE. The relation between age of mother and child health and

development. *American journal of public health*, 1981, 71:810-7.

22. Abou Zahr C, Royston E. *Maternal mortality. A global factbook*. Geneva, World Health Organization, 1991.

23. Senanayake P. Adolescent fertility. In: *Health care of women and children*. Oakland, California, Third Party Publishing Company, 1990:470-5.

24. Moerman ML. Growth of the birth canal in adolescent girls. *American journal of obstetrics and gynecology*, 1982, 143(5):523-8.

25. Hayes L, Crovitz E, Durham NC. Adolescent pregnancy. *Southern medical journal*, 1979, 72(7):869-74.

26. Harfouche JK, Verhoestrate LJ. *Child health*. *The state of child health in the Eastern Mediterranean Region*. Alexandria, World Health Organization Regional Office for the, Eastern Mediterranean, 1983, 9:131-63 (EMRO Technical Publication, No. 9).

27. Milaat WA, Florey CH. Perinatal mortality in Jeddah, Saudia Arabia. *International journal of epidemiology*, 1992, 21(1):82-90.

28. El Hamamsy L. *Early marriage and reproduction in two Egyptian villages*. New York, Population Council, 1994.

29. Dott AB, Fort AT. Medical and social factors affecting early teenage pregnancy. *American journal of obstetrics and gynecology*, 1976, 125(4) 532-6.

30. Omran AR, Standley CC, Bone MR. Family formation and social structure. In: Omran AR, Standley CC, eds. *Family formation patterns and health. Further studies. An international collaborative study in Colombia, Egypt, Pakistan and Syria*. Geneva, World Health Organization, 1981:101-2.

31. Hammam HM et al. Family formation and pregnancy outcome. Egypt. In: Omran AR, Standley CC, eds. *Family formation patterns and health. Further studies. An international collaborative study in Colombia, Egypt, Pakistan and Syria*. Geneva, World Health Organization, 1981:112-21.

32. Butler NR, Alderman ED. *The second report of the 1958 British perinatal mortality survey*. Edinburgh, Churchill Livingstone, 1969.

33. Forbes JF et al. Perinatal mortality in Scotland, 1970-79. *Journal of epidemiology and community health*, 1982, 36:282-8