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Pregnancies and births among adolescents
A population-based prospective study in rural Vietnam

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ABSTRACT

Objective: To describe birth rates and pregnancy outcomes, specifically stillbirth, preterm delivery and low birth weight (LBW) in relation to socio-demographic characteristics, among adolescent women in a rural district in northern Vietnam.
Material and method: Within an epidemiological field laboratory, quarterly surveillance of 7767 adolescent women in the ages 15–19 during the period January 1999 to December 2005 was conducted. Birth rates were calculated and pregnancy outcomes were described in relation to background factors.
Result: A total of 1021 pregnancies were reported by 926 adolescent women during the period of whom 17% were below 18 years. The estimated adolescent birth rate during 1999–2005 was 27/1000 women-years. The incidence of stillbirth among all births was 19/1000 births. These were more likely to be delivered preterm. The incidence of preterm deliveries and LBW infants was 193 and 75 per 1000 live births, respectively. There were no differences in socio-demographic background for stillbirth, preterm delivery or LBW.
Conclusion: Adolescent birth rates were similar to those found in the recent Vietnamese DHS and considerably lower than the average for South-East Asia. Higher rates of stillbirth and preterm delivery were found than those previously reported for Vietnam, indicating the need for careful monitoring of adolescent pregnancies and their infants. Further research is needed to explore if and how much socio-demographic variables influence pregnancy outcome, comparing more differentiated groups, as a basis for interventions to assure access to adequate reproductive health care services for all women.
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Introduction

The rapid fertility decline occurring in many low-income countries is generally associated with a trend toward postponed marriage and childbearing. However, in some population groups, usually in rural areas, families are caught between traditional and modern norms and values and early marriages and childbearing are still common [1]. More than one-third of all women in low-income countries give birth before the age of 20, ranging from an average of 8% in South-East Asia to up to 50% in West Africa [2,3]. The average age-specific fertility rate (ASFR) for South-East Asia is reported to be 42/1000 women aged 15–19 while the corresponding figure for North-East Asia is 4/1000 [4]. Early marriage and childbearing are often associated with negative social and health consequences. Major causes of morbidity and mortality among women aged 15–19 are complications of pregnancy, delivery and unsafe abortion [5]. Both population- and hospital-based studies report that infants of adolescent mothers are at increased risk for preterm birth and/or low birth weight (LBW, weight below 2.5 kg) [2,3,6–8], which are important risk factors for infant and child morbidity and mortality globally. Causes of adverse pregnancy and perinatal outcomes among adolescents may be due to individual factors such as immature physical development at the time of pregnancy (determined by gynecological age (GA), defined as chronological age minus age at menarche) [9]. Social status, level of education and substance use are further factors described to affect the outcome of the pregnancy [1–3]. Marriage and childbearing during the period of adolescence often limit the young women's opportunities in life as they are expected to take on parental responsibility before social maturity and before finishing their education [10].

Until recently, government policy in Vietnam limited family size to two children. The marriage and family law states 18 years

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as the legal minimum age for women and recommends that first childbirth be delayed until the woman is 22 years old. According to the Vietnam Demographic and Health Survey (VDHS) 2002, over three percent of women aged 15–19 had begun childbearing, practically all of whom were married.

Adolescent childbearing is described to be more common in rural areas than in urban, approximately four and two percent, respectively. Women below 20 years ran almost double the risk of giving birth to a LBW infant and were less likely to be assisted by a doctor or midwife/nurse at delivery when compared to women aged 20–34. The national health care system in Vietnam is organised on the basis of communal health centres (CHCs) responsible for primary health care including antenatal care, family planning and delivery care. Women's access to reproductive health care varies and information on factors related to antenatal care utilization is limited in Vietnam. Non-utilization of antenatal care among adolescent women is estimated at 20%, while 35% of adolescent women delivered at home [11,12]. Abortion has been legal in Vietnam since 1945, available on request at both public and private health facilities and became widely used in the 1980s. Abortion rates from the mid 90s estimate a lifetime abortion rate of 2.5 per women which is among the highest in the world [13]. Contraceptive prevalence rate among women aged 15–49 is reported to be 78% [14].

Aim

The aim of this study was to describe birth rate and pregnancy outcomes among adolescent women 15–19 years old in a rural district in northern Vietnam over the period 1999–2005. Specifically, age at first marriage, birth rate and pregnancy outcomes (stillbirths, preterm deliveries and low birth weight) have been analysed by socio-demographic characteristics of the adolescent women. The findings are discussed in the light of national population policies and the reproductive health care needs of adolescent women.

Setting

The study was carried out in Bavi District, Ha Tay Province in northern Vietnam. Bavi includes lowland, highland and mountainous zones. The population is approximately 240,000 living in 32 communes. The main economic activities are rice farming and stock breeding (80%) followed by forestry (8%), handicrafts (6%), small trade (3%) and fishing (1%) (15). There is one district hospital (DH) in the area, three polyclinics and 32 commune health centres (CHC). Vietnam is a multi-ethnic nation with one main ethnic group called Kinh (85%) and around 60 different minority groups that often live in remote, less accessible areas, and their health care utilization is generally lower [12]. In Bavi, the majority group is Kinh (95.7%) while 4.3% belong to an ethnic minority (mainly Muong and Dao).

Subjects and methods

The study was conducted within a demographic surveillance site, called FilaBavi, established in 1999 in Bavi District, comprised of 67 clusters, randomly selected from a total of 352 clusters. Within FilaBavi, there are around 12,000 households with around 50,000 inhabitants in the selected clusters. Socio-economic information of the households and all their members are regularly updated in biannual censuses. Quarterly surveillance of all vital events is carried out among the study population. The information is obtained through household interviews, using standardized questionnaires, conducted by 36 women, specifically trained and full-time employed as surveyors. Questions about births, deaths, migration and personal changing of marital status were asked. If a woman reported a pregnancy, the date of last menstrual period was asked and the pregnancy outcome noted in subsequent quarterly surveillance. Questions regarding the entire household were normally asked to the head of the household, usually a man, or to other adult family members, while all questions regarding each woman's pregnancies, its outcome and place of delivery were asked to the individual woman [15]. The final dataset contained information on socio-economic factors such as age, ethnicity, marital status, educational level, occupation and geographical area as well as pregnancy outcome, gestational age, birth weight and place of delivery.

In the quarterly surveillance of 7767 adolescent women in the ages 15–19 during the period January 1999 to December 2005, 1021 pregnancies were reported in which the pregnant women were 15–19 years old (at the time of conception). The pregnancies have 926 unique women among 7767 women all together contributing 19,396 person-years within the time period and age span mentioned. At the end of the study period, 31 of these pregnancies were on-going and 29 (2.9%) were lost to follow-up. Thus, the analysis of pregnancy outcomes includes 961 pregnancies.

Definitions

Pregnancy outcomes were live births, stillbirths (dead after more than 169 days of gestation and/or intrapartum death), induced abortions and spontaneous abortion (foetus dead before 169 days of gestation) (14). Gestational age at birth was defined as the number of days from the first day of LMP to delivery date. The perinatal outcomes were preterm delivery (live birth earlier than 37 weeks gestation) and low birth weight (LBW) (birth weight less than 2500 grams at birth) [14]. Information on LMP, date for outcome and birth weight was obtained from the women. A woman's age at conception was defined by the date of last menstrual period (LMP). Age at first pregnancy, educational level, occupation, ethnicity and geographical area have been associated with increased risk of negative pregnancy outcomes [15] and are thus included in the analysis.

Analysis

Data were analysed using Statistical Package for Social Sciences (SPSS) version 12.1. Descriptive statistics were used to describe socio-demographic characteristics, birth rate and pregnancy outcomes among the women. The birth rate was calculated by dividing the total number of adolescent live births with the total number of woman-years observed. Two different measurements of the woman's age were used (a) age at conception, used for the analysis of pregnancy outcomes, and (b) age at delivery used for the calculation of birth rate to enable comparison with the data from the VDHS 2002. The pregnant adolescents who were 20 years old when giving birth are thus excluded from the calculation of birth rates. Means and proportions were calculated and intergroup comparisons made between age groups 15–17 and 18–19 years. Chi-square test was used for comparison of proportions. *P*-values are equal to or less than 0.05 and were considered statistically significant.

Ethical permission for the FilaBavi household surveillance system was approved by The Research Ethics Committee at Umeå University (reference number 02–420).

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