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## SPECIAL ARTICLE

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# Trends of Teenage Pregnancy and Pregnancy Outcomes

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### Trends of teenage pregnancy

Adolescent birth rate is one of expanded indicators of Millennium Development Goal5 in addition to the maternal mortality ratio, delivery by skilled birth attendant, contraceptive prevalence rate and antenatal care coverage<sup>(1)</sup>. Adolescent or teen is defined as women when aged 10-19 years by WHO definition which called as adolescents aged 15-19 years and younger adolescent when aged 10-14 years<sup>(2,3)</sup>. Adolescent birth rate is calculated as the number of teens giving birth per 1000 adolescent population<sup>(1)</sup>.

High variation of sexual activity was revealed in Africa, Eastern Europe, Central Asia, Asia and Latin America. Female adolescents had sexual experiences less than male in Sub-Saharan Africa and Asia but it showed the same proportion between female and male in developed countries<sup>(3)</sup>. Adolescent sexual activity and pregnancy is concerned globally. A review on teenage pregnancy reported that 25% of all pregnancies in Sub-Saharan Africa and Asia end in an induced abortion. Delay in seeking abortion, resort to unskilled providers, use of dangerous methods and delay in seeking help after complications developed were high for adolescents<sup>(4)</sup>.

Rate and trend of teenage pregnancy had been reported variously in different countries. This may be explained by different study design, study settings, definition of teenage mothers and temporal transitional change. In the United State of America (USA), before legalization of abortion, adolescent birth rates were

highest in 1950s and 1960s; however, it declined sharply in 1973 after legalization of abortion. In 1991, the adolescent birth rate was 35% for women aged 15-17 years and 20% for women aged 18-19 years<sup>(5)</sup>. According to the Data from National Survey of Family Growth (NSFG), trends of unintended (mistimed or unwanted) and intended pregnancy among women aged less than 20 and 20-24 years increased from the year of 1995 to 2002 in USA<sup>(6)</sup>. A review on the rate of teenage pregnancy among 1,000 women aged 15-19 year during 1994 and 2002<sup>(7)</sup>, showed that it was also declined from 49.2 in 1994 to 33.9 in 2002 in Canada. This declining trend was similar to the report from USA from 106.1 to 76.4. In contrast, it was slightly increased from 58.7 to 60.3 per 1,000 women aged 15-19 years in the United Kingdom (UK)<sup>(7)</sup> and the Statistics of UK reported the conception rate in 1998 and 2003 among 1,000 women aged 15-17 years was 46.6 and 42.1, respectively<sup>(8)</sup>. On the other hand, a retrospective study during 6-year period in a hospital in Greece presented the rate of adolescent pregnancy (women aged less than 19 years) was 7.5% of all total births<sup>(9)</sup>.

Similarly, the Thailand's National Health Plan since 1997 has established the target to reduce the prevalence of teenage pregnancies to less than 10% of all pregnancies. However, it has not been achieved and the rate of teenage pregnancy and birth varies across country<sup>(10-17)</sup>. Almost all studies reported the rate of teenage pregnancy in Thailand since 1998 were hospital-based data which consider the number of

teenage deliveries as a nominator and the number of total or live births as a denominator. For two studies conducted in Southern Thailand, the rate of primiparous mothers aged less than 20 years in 1991-1994 and in 1996-2004 was 4.4% and 21%, respectively<sup>(10,11)</sup>. A retrospective study in 2000-2005 conducted a hospital in Central part of Thailand reported 9% of birth rate among primigravida aged 13-20 years<sup>(12)</sup>. For two retrospective studies conducted in the hospitals in the Northeast between 2006 and 2007, the rate of mothers aged 10-19 years was 15.9% and those aged 13-19 years was 17.6%<sup>(13,14)</sup>.

A population-based cohort study in 2000, reported the rate of teenage pregnancy in 13.3%<sup>(15)</sup>. Pregnant mothers who delivered at age less than 20 years from four districts across Thailand in 2000 were interviewed. Among these 464 teenage mothers (13.3%), 5.1%, 26.1% and 68.8% of them delivered at age of 14-15 years, 16-17 years and 18-19 years<sup>(16)</sup>. The report from Department of Health, Ministry of Public Health presented the teenage pregnancy rate from 2000 to 2003 were 10.4%, 11.7% and 12.4% per year, respectively. The Country Report of Thailand 2008 showed 12%-13% of women aged less than 20 years giving the first baby<sup>(17)</sup>.

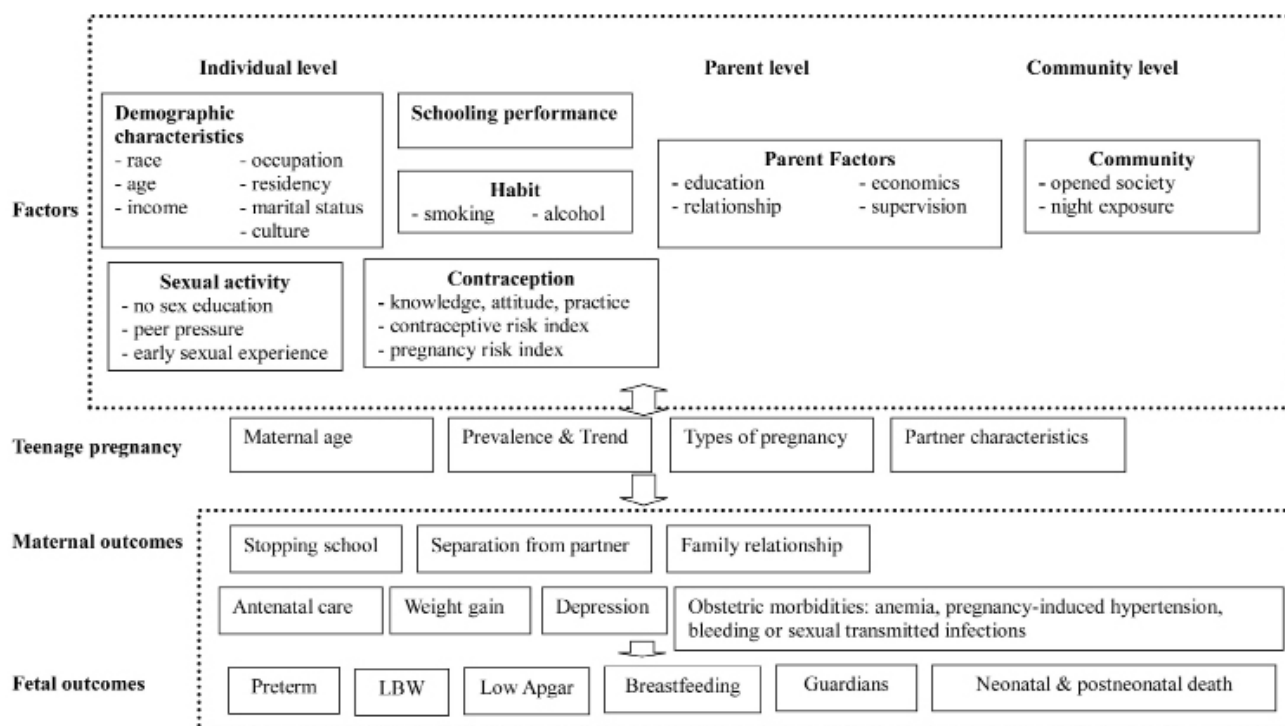
### **Pregnancy outcomes of Teenage pregnancy**

The UNICEF reported that 1.25 million teenagers become pregnant each year. About half a million pregnancies will be terminated and three quarters of a million will become mothers. Among 13 million births from women aged less than 20 years each year, more than 90% of these births were in the developing countries. Highest risk of maternal death in young girls was shown in Africa and others outside Africa that were Afghanistan, Bangladesh, Guatemala, Haiti, Nepal, Nicaragua and Yemen<sup>(18)</sup>. In addition, a population-based study using the National Center for Health Statistics 1995-2000 revealed that teenage pregnancy was associated with increased risk of both neonatal and postneonatal death after adjusted with other confounding factors. However, when all adjustments were considered with gestational age at birth, teenage

pregnancy was not associated with neonatal death, whereas the increased postneonatal death was still existed. Neonatal death showed the relationship with preterm birth<sup>(19,20)</sup>.

Likewise, pregnant adolescents were more likely to have premature babies, Low Birth Weight (LBW) infants, low 5-minute Apgar score and higher rates of preeclampsia, eclampsia, perineal tears and episiotomy<sup>(21,22)</sup>. Both LBW and preterm births were confirmed and remained higher after adjusting with other potential factors<sup>(23,24)</sup>. LBW is a reliable indicator in monitoring and evaluating the success of maternal and child health programs<sup>(25)</sup>. It is estimated worldwide of 15.5% of all livebirths per year of which more than 95% of them are born in developing countries especially in Asia accounted for 72%<sup>(26)</sup>. LBW was related to preterm birth and intrauterine growth retardation<sup>(27)</sup>. Subsequently, cumulative prevalence of depression among adolescent girls with LBW was high to be 38.1% (95% CI 16.3-66.0%) compared with 8.4% (5.2-13.3%) with normal birth weight<sup>(28)</sup>.

However, the pregnancy outcomes of teenage mothers were also associated with other independent factors. Summary of review on associated factors and maternal and fetal outcomes is presented in Fig. 1. Lower maternal age, previous history of LBW, maternal smoking during pregnancy and history of hypertension increased the risk of LBW<sup>(27)</sup>. In both developing and developed countries, poor demo-socioeconomic characteristics and limited access to quality of health care or services among teen mothers were disclosed widely<sup>(22,23,29)</sup>. Well-documented risk factors for LBW were young maternal age, low education, low income, unmarried status, short inter-pregnancy interval, health-eroding personal behaviors (smoking, alcohol intake and illicit drug use), and inadequate prenatal care use<sup>(30)</sup>. Almost half of teenage mothers had at least one subsequent pregnancy within the following two years of postpartum. Teens with depressive symptoms had a subsequent pregnancy significantly sooner compared with those without symptoms<sup>(31)</sup>.



**Fig. 1** Summary of review on associated factors and maternal and fetal outcomes

## Conclusion

Adolescent or teenage birth rate, one of indicators of Millennium Development Goal 5, is a concern worldwide. Its rate and trend vary across countries depending on study design of data collection either hospital- or population-based information, age-limited variation for adolescent either 10-19 or 15-19 years, study setting either developing or developed countries, or different year of reference. Adolescent birth rate is calculated as the number of teens giving birth per 1000 adolescent population. Teen mothers presented the adverse pregnancy outcomes as well as the other potential attributed factors.

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