ORIGINAL ARTICLE

A review of teenage pregnancy research in Malaysia

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ABSTRACT

Objective: To summarise the published research on teenage pregnancy in Malaysia, discuss the impact of the findings on clinical practice, and identify gaps in teenage pregnancy research in Malaysia.

Methods: There were 31 articles related to teen pregnancy found after searching a database dedicated to indexing all original clinical research data published in Malaysia from year 2000 to 2014. Twenty-seven articles (including reports from the National Obstetrics Registry) were selected and reviewed on the basis of clinical relevance and future research implications. This literature review has been divided into eight sections: epidemiology, age at first marriage, adolescent fertility rate, unmarried childbearing, risk factors, maternal risks and neonatal outcome, future plan after delivery, and contraceptive use.

Results: More than 19,000 births to teenage mothers were recorded each year between 2009 and 2011. Adolescent fertility rates were recorded at 6 births per 1000 women ages 15–19 years in 2013. Many of these births were from unwed pregnancies, which accounted for 1.99% of total deliveries. A majority of young mothers were willing to take care of their baby, although some of them planned to put their baby up for adoption. Risk factors for teenage pregnancy were found to be similar to those published in studies worldwide.

Conclusion: More research is needed to better understand the issue of teen pregnancy. For the best results, collaborative studies among nationwide hospitals and institutions should be the way forward.

KEY WORDS:
Adolescent, contraception, Malaysia, teen pregnancy, unmarried

INTRODUCTION

Teen pregnancy is defined as any pregnancy occurring among adolescent girls aged 19 years or younger.[1] In recent decades, the number of teens who have become pregnant worldwide has increased and become a major health issue for both developing and developed countries. It is estimated that in 2010, there were over 1.8 billion young people globally, with 90% living in developing countries.[2] More worrying is the fact that in many countries, women aged 20–24 years are likely to have been married before age 15.[3]

The impacts of teenage pregnancy are many, mostly affecting the health of the mother as well as that of the new-born. Owing to denial and fear of rejection by their family, pregnant teenage mothers tend to skip antenatal care and in the worst case scenarios, do not booked their pregnancy at all.[4] Furthermore, teenage pregnancy can disrupt a girl's healthy development and prevent her from achieving her full potential and enjoying her basic human rights. The effects of this can include social isolation, low academic achievement, nutritional depletion, low income-earning potential, and lifelong poverty.[5-7] The impacts of teen pregnancy can echo throughout a girl's entire life and carry over to the next generation.

In Malaysia, there were more than 5.5 million young people in the age group 10-19 years in 2010, constituting about 19.4% of the total population.[8] With such vast numbers of teens, it is important to review the scenario of teenage pregnancy using local data. The aim of this review is to summarise the published literature on teenage pregnancy in Malaysia, to discuss the impact of research findings in terms of clinical practice, and to identify gaps in research on teenage pregnancy in Malaysia.

MATERIALS AND METHODS

A literature search of articles was carried out (as described in "Bibliography of clinical research in Malaysia: methods and brief results"), [9] and 18 articles on teenage pregnancy in Malaysia were retrieved. The authors also searched for related articles indexed in PubMed, Scopus and other health journals between 2000 and 2014, accessed on 15 September 2014 using the keywords "teen pregnancy", "teenage pregnancy", "adolescent pregnancy", and "Malaysia". In total, there were 35 articles related to teen pregnancy found via a database search. Twenty-seven articles (including reports from the National Obstetrics Registry) were selected by the authors (a medical officer, a family medicine specialist, and an obstetrician) for review, on the basis of clinical relevance and future research implications.

RESULTS

Epidemiology and Incidence

The incidence of teenage pregnancy in Malaysia has been recorded since the 1960s. According to Tey, the incidence rate for teenage pregnancy in 1964 was 10% (n = 33,348) of total births.[10] In 1984, this rate had reduced to 4.7% (n = 18,172). Since then, the number of births to teens has declined. In 2010, using data from the National Obstetrics Registry (NOR), 7077 cases of teenage pregnancy were reported from 14 general hospitals in Malaysia.[11] This figure can be

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translated to 5% of total deliveries or 50 per every 1000 deliveries.

Vital Statistics Reports have also revealed a similar decreasing trend in the incidence of teenage pregnancy. Births to teenagers (10-19 years old) declined to 3.9% (n = 19,215) in 2009 [12] and 3.7% (n = 18 253) in 2010.[13] In 2011, the recorded number of births to teens was slightly higher at 3.8% (n = 19 538), of which 228 births were to girls under age 15.[14] This figure was lower than World Health Organization (WHO) statistics stating that about 11% of teenage girls give birth worldwide.[15] The rate of births to teen mothers was higher in Sabah and Sarawak states, representing 7.5% (n = 4124) and 9.2% (n = 3996) of total births, respectively.[14] Malay was the largest ethnic group with teen births (62.2%, n = 7863) in Peninsular Malaysia, compared with other ethnicities.[14]

Age at First Marriage

Age at first marriage has implications for women's health and fertility status.[16] Although Malaysian family law has some restrictions on teen marriage (teenagers aged 18 and below need parental consent to marry whereas Muslim girls below age 16 years can marry with the permission of Sharia authorities),[17] there are still a large number of young women getting married at an early age. The Malaysian Population and Family Survey (MPFS) conducted in 2004 estimated that some 2.6% of 3700 married women in Peninsular Malaysia had married before the age of 15 years, and 20.1% married between 15 and 19 years old.[18] In the same survey, it was found that the proportion of women from Sabah state who married before 19 years of age was much higher than other states (7.1% married under age 15 and 37.7% married between 15 and 19 years old).

The 2010 Population and Housing Census found that nearly 60% of the population aged 15 years and over was married and only 35.1% reported being unmarried.[8] The same report also revealed that 84,261 girls and 74,071 boys between the ages of 15 and 19 were already married.

Adolescent Fertility Rate

The adolescent fertility rate is defined as the annual number of births to women aged 15–19 years per 1000 women in that age group,[19] and represents the risk of childbearing among them. The adolescent fertility rate in Malaysia has declined from 32 per 1000 women aged 15–19 years in 1980 to 19 in 1990, and this was further reduced to 14 in the year 2000. By 2013, the recorded rate was 6 births per 1000 women aged 15–19 years.[20] Although the adolescent fertility rates in this country are relatively low compared with many other countries, they might not reflect the actual figure in view of rising cases of illegal abortion and abandoned babies among teenagers.

Non-marital Childbearing

Ruhaizan *et al.* reported 5200 cases of unwed pregnancies between 2011 and 2012, which accounted for about 1.99% of total deliveries.[21] The highest incidence of unwed pregnancy was reported at Sarawak General Hospital in 2011 with 446 cases and Kuala Lumpur General Hospital in 2012 with 377 cases. This worrying trend of non-marital childbearing is amplified by statistics from the National Registration Department.[22] Based on these, 38,258 of the 472,983 births in 2006 were registered as illegitimate child status, the term used to refer to children born out of wedlock. This figure has surged every year since then, with nearly 53,000 of 510,462 births recorded in 2013 registered with this status.[22]

Risk Factors for Teenage Pregnancy

Various factors contributing to this predicament have been studied. Key risk factors for teenage pregnancy include poverty, inadequate parental supervision, low educational expectations, and peer influence. Many of these likely relate to social disadvantage. Other risk factors are summarised in Table I.

Poverty

Research carried out by the United Nations Children's Fund (UNICEF) Malaysia revealed strong evidence that teenage pregnancy is associated with higher rates of poverty, with teen mothers ending up either unemployed or in low paid jobs.[23] This finding is in line with results from a case-control study of 102 adolescent participants and 102 adult controls at Kuala Lumpur General Hospital and Universiti Kebangsaan Malaysia Medical Centre. Teenage mothers were found to have significantly lower socioeconomic status during their pregnancy compared with their adult counterparts (79.5% vs. 34.5%, $p < 0.001$).[24] Salamatussaadah et al. also suggested that most adolescent shelter home residents came from low-income families.[25]

Lack of Parental Supervision

Salasiah *et al.* conducted a questionnaire-based study among 50 pregnant adolescents at two women's shelter homes and found that almost half of respondents agreed that communication with their parents was low when it came to discussing their personal problems.[26] Furthermore, most respondents' parents are busy at work, resulting in a lack of attention and supervision of their teenagers.[27] A focus group study by Zakiyah *et al.* also found the same family problem among six pregnant adolescents.[28] The lack of love and attention from parents or excessive freedom led this adolescent population to engage in premarital sex and become pregnant.

Poor Academic Achievement

Khairani *et al.* found that teenagers in their cohort who had given birth had lower educational levels compared with adult controls.[24] The majority of pregnant teenagers attended up to secondary school, with a small percentage (22.5%) having only completed primary education and 2.9% not having received any formal education. Another interesting finding of this study is that teenagers who do not involve themselves in school activities have a significantly higher chance of becoming pregnant ($p<0.001$). Another study by Kwa *et al.* in a Malaysian semi-rural clinic showed a similar finding, whereby 32.5% of pregnant teenagers had a low educational background.[29] Dropping out of school predisposes teenagers to possessing inadequate knowledge about reproductive health and hence to engage in risky sexual activity.

Lack of Sexual and Reproductive Health Information

Good knowledge of sexual and reproductive health is critical among teenagers. It empowers them to be able to understand and weigh the risks, responsibilities, outcomes, and consequences of sexual actions. However, research on this issue among Malaysian teenagers is inadequate. Ab Rahman

et al. conducted a cross-sectional study among 1034 secondary school students in Kelantan and found that knowledge about certain important aspects of sexual and reproductive health was low.[30] Items that scored low marks were whether one can become pregnant after a single act of sexual intercourse (30.4%), whether sexually transmitted diseases (STDs) can be obtained by sexual intercourse (12.4%), and whether washing the vagina after sexual intercourse prevents pregnancy (17.0%). Another study conducted among 1695 female students at a public university in Malaysia also revealed similarly low knowledge levels, with mean total score only 4.3 out of a total score of 10.[31] Various sources of information about sexual and reproductive health that may give incorrect facts were identified among teenagers. Early in 1998, a national survey found that 50% of adolescents aged 14-15 years had read pornographic materials and 44% had seen pornographic images from magazines or videos.[32] More recently, Kamrani et al. discovered that the majority of secondary school girls in the Klang Valley reported that their mother was the main source of information.[33] Contrarily, almost 65% of adolescents in Kelantan claimed that their main source of sexual information was friends.[30]

Peer Influence

Teenagers are easily influenced by their peers during their development process. Results of a qualitative study by Khadijah *et al.* using in-depth interviews of six pregnant teenager residents at a rehabilitation centre showed that peer influence is a major element contributing to teen pregnancy.[34] This finding concurs with the results of Faizah *et al.* on the illegitimate childbearing scenario among unwed mothers in a health care programme in Johore, which suggested that peer involvement contributes significantly to teen pregnancy.[35]

Premarital Sexual Practice

Involvement in sexual activities among Malaysian teenagers has escalated and contributed to the rise in the teen pregnancy rate.[36-38] In their cross-sectional study of 26 teenagers, Tan *et al.* found that 63% became pregnant as the result of premarital consensual sexual activity.[39] Approximately 13% of 468 adolescents in Klang Valley were reported to have experienced premarital sexual intercourse. More surprisingly, 72% of them did not use any contraception at first intercourse (76% of boys, 61% of girls), which put the girls at risk of becoming pregnant.[40] Another larger scale study involving 4500 secondary school students in Negeri Sembilan showed that 5.4% reported having had sexual intercourse.[37] The same study reported that the proportion of male students who had had sex was higher (8.3%) than female students (2.9%), with mean age at first sexual intercourse for male students was 14.9 years.

Maternal Risk and Neonatal Outcome

In general, teenage pregnancy is believed to carry a higher risk of adverse maternal and neonatal outcomes. This is based on the fact that teenage mothers are too physically and biologically immature to go through the pregnancy period. This is supported by findings from the 8th Report on Confidential Enquiries Into Maternal Deaths in Malaysia, where women younger than 20 years old had a Maternal Mortality Ratio (MMR) of 32.0 per 100,000 live births in 2006 (n = 5 cases).[41] However, this figure had decreased to almost half (16.9 per 100 000 live births) in 2008 (n = 3 cases).

A 3-year retrospective study conducted at a Malaysian university hospital showed that nearly a quarter of the teenage mothers had preterm deliveries (24.3%), less antenatal care visits and significant risk of delivering low-birth-weight babies compared with an adult group.[42] In their study on teenage pregnancies at two major hospitals in Klang Valley, Khairani *et al.* found that teen mothers had had less antenatal care follow-up, more frequent anaemia, and were more unsure about their expected delivery date.[24] Respondents' babies also had significantly lower birth weight ($p<0.001$) and risk of perinatal complications within one day after delivery ($p=0.004$). These findings were consistent with results of another study conducted at a teaching hospital.[43]

A recent report from NOR that analysed data from 12,817 teenage deliveries also found a similar pattern in maternal risk and neonatal outcomes.[11] Interestingly, all four studies mentioned above did not find significant associations between teenage pregnancy and pregnancy-induced hypertension, gestational diabetes mellitus, antepartum and postpartum haemorrhage, and frequency of operative delivery. All the above findings are summarised in Table II.

Studies on the psychosocial implications of teenage pregnancy have also been conducted. A cross-sectional study of residents in a shelter home found that nearly 93% suffered from an emotional problem, followed by sleeping problems (57.7%) and low self-efficacy (46.2%).[44] In addition, the teenagers in that study used avoidance, withdrawal, and help from others as their coping strategies to deal with these challenges. A study by Saim concluded that unwed young pregnant women and young mothers were rejected by local society.[45] She found that many families used shelter homes as a strategy to avoid shame after learning of their daughter's pregnancy out of wedlock. Losing their attachment with their family puts these teens at risk for postpartum depression.

Future Plan after Delivery for Mother and New-borns

Another important aspect in managing teenage pregnancy is future planning for both the teen mother and the new-born baby. In their cross-sectional study on pregnant adolescents residing in a government home, Tan *et al.* found that 27% intended to care for their baby with the support of family members.[39] Another 15% planned to raise their baby with their partner, 7.7% planned to raise the baby on their own, and 42.3% planned to place their baby for adoption. However, the reasons for these teen mothers to choose to raise their baby or to place the child for adoption were not explored further.

Contraceptive Use

Contraceptive needs and use among teenagers regardless of their marital status remains a major concern. As information about contraception is not widely discussed with teenagers in Malaysia and there is limited access to contraception, more unintended pregnancies are seen, many of which lead to unsafe abortions and abandoned babies. Findings from the Malaysian Population and Family Survey of 2004 showed that women who married early tend to have more children.[18] The mean number of children born during the lifetime of

Table I: Summary of marital status and risk factors for teenage pregnancy

Author (Ref)	Institution	No. of teenagers included	Marital status		Risk factors found
			Married	Unmarried	
Khairani O *et al.* 2010[24]	KLGH & UKMMC	102	48	54	Lower educational level, Low socio-economic status, Unemployed, Raised by single parent, Peer influence, Not active in school activity.
Salamatussaadah *et al.* 2009[25]	Shelter home	5	0	5	Low income family, Peer influence, Lack of attention from family.
Salasiah *et al.* 2012[26]	Shelter Home	50	0	50	Weak religiosity, Gullibility, Poor communication with family, Desire to try new thing sexually
Salhah *et al.* 2014[27]	Four rehabilitation centres	75	Not mentioned	Not mentioned	Lack of moral conscious.
Zakiyah *et al.* 2013[28]	Not mentioned	6	0	6	Family conflict / lack of attention, Free intermingling with peers, Poverty.
Faizah *et al.* 2013[35]	Health Centre	14	0	14	Love, Peer influence, Promiscuity
Tan *et al.* 2012[39]	Government	26	3	23	Consensual sexual activity.

Abbreviations: KLGH – Kuala Lumpur General Hospital; UKMMC – Universiti Kebangsaan Malaysia Medical Centre

Table II: Maternal risks and neonatal outcomes of teenage pregnancy

Author (Ref)	No. of teenage pregnancy reported	Maternal Risk	Neonatal Outcome
Maimunah F *et al.* 2012[11]	12 817	Anaemia, Premature birth	Not mentioned
Khairani O *et al.* 2010[24]	102	Late antenatal booking, Anaemia, Preterm Labour	Low birth weight,Increase perinatal morbidity
S. Sulaiman *et al.* 2013[42]	177	Less antenatal care visit, Preterm birth	Low birth weight
Siraj HH *et al.* 2000[43]	78	More unbooked cases	Low birth weight

women who married before age 17 years was 5.1. For those who married between ages 17 and 18 years, the mean was 4.2 whereas women who married between ages 25 and 29 years had an average of only 2.4 children.[18]

The Contraceptive Prevalence Rate (CPR) for all methods has remained at about 50% over the past 30 years.[18] However, contraceptive use among married teenagers (aged 15–19 years) was only 33.3%. Birth control pills and male condoms were the most popular modern methods, with 85.7% and 14.3% of teenagers using them, respectively. None of the teenagers studied used any kind of traditional method. In the same study, it was reported that the majority of teenagers who were not using a contraceptive method (71.4%) claimed that they were planning for a pregnancy. The next common reason given was fear of the side effects of contraceptive methods (7.1%). Objection from their male partner (7.1%) was another reason that women did not practice any family planning method.[18]

DISCUSSION

Although the prevalence of teenage pregnancy in Malaysia is low, this small figure may only be the tip of the iceberg. There may be unreported cases of teenagers who deliver at home or who terminate their pregnancies outside of the hospital. Looking at the trend provided by the National Statistics Unit, it can be projected that the current rate of teenage pregnancy will persist over the next few years.

Risk factors for teen pregnancy in the Malaysian population were found to be similar to those published in studies worldwide, namely, poverty, poor academic achievement, inadequate knowledge about sexual and reproductive health, lack of parental supervision, peer influence, and premarital sexual activity. Preventing these risk factors should be a national priority if the rate of teenage pregnancy is to be reduced in the future. Engagement by all stakeholders-families, communities, schools, and health care providers-is essential to bring about change by reshaping the social norms and practices that maintain teenage pregnancy rates and compromise the futures of teenage girls.

Teen pregnancy, especially out of wedlock, is not well accepted within the Malaysian community. Because they feel shame and guilt, teen mothers may not use maternity services, hence putting their own life and that of their infant at risk. To access and use maternal and child health services,

pregnant teenagers must be certain of confidentiality and privacy. Thus, it is important to provide these young mothers with non-judgmental services and to engage with the family members when disclosing the adolescent's condition. It is essential that every healthcare centre form a multidisciplinary support team comprising obstetricians, paediatricians, counsellors, psychiatrists, religious officers, and school teachers to manage teenage mothers. Teen mothers should not only be managed during hospital admission but should receive continuous follow-up once she and her baby return to their community after being discharged from the hospital.

Many reviewed articles have found that teenage mothers can have as favourable an obstetric and neonatal outcome as their older peers. Several studies have demonstrated that the majority of these mothers will have a complication-free pregnancy and delivery. Extra attention should be given to teenage mothers who plan to place their baby with a foster family or shelter home for adoption. Owing to the burden of raising a baby alone and with limited financial resources, there is a risk that the infant may be adopted through illegal channels or end up in the hands of infant traffickers. It is suggested that mothers who intend to give up their baby should be seen by a law enforcement officer who can provide advice and guidance on the legal adoption process. Awareness campaigns about the importance of contraception and family planning need to be enhanced. Contraceptive services must be made available and accessible in government health facilities, especially to teens who are married to space up their childbirth. Members of legislative bodies need to become engaged and review this matter.

In general, there are limited articles published in medical journals on teenage pregnancy related to Malaysia. Articles on this issue are found mostly in newspapers, social science journals, or as part of unpublished postgraduate theses. More studies are needed to address the lack of data on this problem, especially from the states of Sabah and Sarawak where the rates of teenage pregnancy are higher than in other states. Furthermore, there is wide variation among the rates of teenage pregnancy in Malaysia reported by the NOR and in Vital Statistics Reports. For more accurate determination of this rate and analysis of teenage pregnancy, the NOR should be expanded with support from more participating hospitals.

Since 2009, the Reproductive Health Education Policy and National Social Policy on Reproductive Health and Social Education have been implemented for teenagers at various adolescent centres, the National Service Training Programs and schools.[46] However, studies on the effectiveness of such programmes to prevent teenage pregnancy are lacking and should be an area for future research.

The majority of reviewed research has been conducted among female teenagers. There is a lack of information about how male teenagers and teenage husbands are affected by pregnancy (i.e., contraception knowledge, paternal depression, and so on), and how they cope with raising a family at a very young age. There is also information lacking on the psychosocial implications of teen pregnancy. Most of the reviewed studies were conducted at shelter homes. The impact on young mothers who return to the community, either to raise their baby alone or with support from family members, must be explored further in the future.

Teenagers with unwed or out-of-wedlock pregnancies are another area of interest. This population may react differently toward pregnancy and childbirth compared with teenagers who are legally married. Studies on unwed pregnant mothers carried out worldwide have found that this group is prone to under-utilise maternity services.[4-5] The reason for this should be studied in our local population. Their obstetric performance and neonatal outcomes may differ, offering potential areas for upcoming studies.
Finally, it is recommended that all future research be conducted using large populations, to reflect the true results for this issue. Research findings should be communicated either through professional conferences or publication in peer-reviewed journals.

CONCLUSION

In conclusion, numerous works have been done to study various aspects of teenage pregnancy in Malaysia. However, gaps remain in certain areas that should be explored for better understanding of this issue. Collaborative research among centres nationwide should be the way forward for results that can be translated into action by policy makers and stakeholders.

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