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High rates of pregnancy among vocational school students: results of audio computer-assisted self-interview survey in Chiang Rai, Thailand

Chomnad Manopaiboon^{a,*}, Peter H. Kilmarx^{a,b}, Frits van Griensven^{a,b},
Supaporn Chaikummao^a, Supaporn Jeeyapant^a,
Khanchit Limpakarnjanarat^a, Wat Uthaiworavit^c

^a *Thailand MOPH-U.S. CDC Collaboration, Ministry of Public Health DDC7 Building, Tivanon Road,
Nonthaburi, Thailand*

^b *National Center for HIV, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, GA, USA*

^c *Department of Preventive medicine, Chiang Rai Regional Hospital, Ministry of Public Health, Chiang Rai, Thailand*

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Abstract

Unplanned pregnancy among young people can lead to adverse social, psychological, and health outcomes, particularly when it results in abortion. In 1999, we examined the prevalence of and factors associated with pregnancy and abortion among 1725 consenting vocational school students in northern Thailand. Results from an audio computer-assisted self-interview showed that 48% of the male and 43% of the female students reported ever having had sexual intercourse. Among those who had had intercourse, 27% of the women and 17% of the men said they or their partner had ever been pregnant. Among the last reported pregnancies that resulted in delivery or abortion, 95% were aborted. Age, current contraceptive use, early initiation of sexual intercourse (≤ 16 years), alcohol and drug use, and sexual coercion were associated with self or partner pregnancy. The high rates of pregnancy and abortion in this population indicate the need for better sexual health education and access to effective contraceptive methods.

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*Corresponding author. Tel.: +66-2580-0669; fax: +66-2580-0668.

E-mail address: cfm9@tuc.or.th (C. Manopaiboon).

1. Introduction

Young people worldwide are initiating sexual intercourse at an earlier age than did their older counterparts (Creatsas, 1997). In Thailand, premarital sex among young women has become more common (Gray & Punpuing, 1999). Young men are having premarital sex more often with girlfriends; whereas traditionally, premarital sex was usually with female sex workers (Gray & Punpuing, 1999; Piya-anant et al., 1999). Condom use among youth is reported to be infrequent in Thailand (Cash, Anansuchatkul, & Busayawong, 1999; Piya-anant et al., 1999; van Griensven et al., 2001) and in other countries (Creatsas, 1997; Jejeebhoy, 1998; Rasch, Silberschmidt, Mchumvu, & Mmary, 2000) as is use of contraceptives (Creatsas, 1997; Jejeebhoy 1998; Cash et al., 1999; Everett et al., 2000; Hacker, Amare, Strunk, & Horst 2000). This low use may result from lack of knowledge about or access to contraceptive methods and from cultural factors that discourage contraception.

Although young Thais have become more accepting of premarital sex for women (Podhisita & Pattaravanich, 1995; Gray & Punpuing, 1999), Thai girls are socialized to be sexually passive and are expected to suppress their own sexual feelings (Ford & Kittisuksathit, 1994; Gray & Punpuing, 1999). Initiation and discussion of sex by young women are socially prohibited (Ford & Kittisuksathit, 1994; Havanon, 1996; Knodel, van Landingham, Saengtienchai, & Pramualratana, 1996). These traditional sexual sanctions limit young women's power to practice or negotiate protected sexual intercourse (Ford & Kittisuksathit, 1994; Gray & Punpuing, 1999). Potential negative social consequences (e.g. being labelled as sexually experienced) may thus outweigh concerns about health (Cash et al., 1999).

Unprotected sexual intercourse can lead to negative health consequences such as infection with sexually transmitted diseases, including HIV, and unplanned pregnancy. In our study, the prevalence of chlamydial infection among sexually active students was 3.7% in men and 6.1% in women (Paz-Bailey et al., 2003). Pregnancy rates among young people are also high in many developing and developed countries (Pinto e Silva, 1998; Saito, 1998). In Thailand, the overall fertility rate is low, but approximately 27% of reproductive-age Thai women had their first child before they were 20 years old (Family Planning and Population, 1996).

Several health problems related to pregnancy in adolescents have been documented. Physically, their bodies may not be mature enough for pregnancy and as such, pregnancy can damage the reproductive system (Jejeebhoy, 1998). Medical complications such as anaemia, premature delivery, and stillbirth occur more often in adolescents than in older mothers (Jejeebhoy, 1998). These physical complications may be exacerbated for young unmarried women who oftentimes are subjected to social stigmatization and as such may be prevented from seeking appropriate antenatal care. If the pregnancy is unwanted, young women may opt for abortion, which can have adverse psychological effects, as well as physical morbidity and mortality (Koetsawang, 1990; Kulczycki, Potts, & Rosenfield, 1996). Other negative social consequences of unwanted pregnancy have been documented, for example, inability to continue education (Koster-Oyekan, 1998; Gray & Punpuing, 1999), disruption of personal and family life (Pinto e Silva, 1998; Gray & Punpuing, 1999), and child abandonment (Pinto e Silva, 1998).

It is estimated that unsafe abortion practices account for 2 of 10 maternal deaths worldwide; most of these occur in developing countries (Kulczycki et al., 1996). In Thailand, termination of pregnancy is illegal unless performed for medical reasons. Consequently, although abortion is

performed widely, it is often outside medical institutions and without medical support. Little systematic information on unwanted pregnancy, including behavioral and other risk factors, is available for Thai youth. The goal of this study was to determine the frequency of and risk factors for early pregnancy and abortion in this population. This information will be useful for the developing and implementing pregnancy prevention programs for young people in Thailand.

2. Methods

2.1. Study location

Chiang Rai, Thailand's northernmost province, borders Laos and Myanmar in an area known as the Golden Triangle, which is known for illicit drug production and trafficking. The 1.26 million people of Chiang Rai (1998 data) are largely rural and agricultural, and some 13% are from hill tribes. The prevalence of HIV infection in Chiang Rai is among the highest in Asia (Kilmarx et al., 2000). From 1990 through 1997 at Chiang Rai hospital, the largest provider of delivery services in Chiang Rai, 11.5% of deliveries were from women under 20 years old, and 6.7% of these young mothers were HIV-infected (Bunnell et al., 1999).

2.2. Study population and enrolment

In late 1999, 15–21-year-old students from three vocational schools in Chiang Rai were invited to participate in a cross-sectional survey regarding sexual and drug use behaviour. Information about the study was provided to students in classroom-based sessions. Participating students provided written informed consent. On the informed consent document, students were provided with 4 options: (1) anonymous linked participation (student retained a unique code for later retrieval of HIV and STD test results); (2) anonymous unlinked participation (student retained no code for retrieval of HIV and STD test results); (3) mock participation (students who did not want to participate but want to avoid disclosure of their refusal complete all study procedures and data and specimens are discarded); and (4) refuse participation. No names or other identifiers were collected as part of the study. Quotas were set for equal enrolment of male and female students and for each of the six grades. The study protocol was approved by the Ethical Review Committee of the Thai Ministry of Public Health and by an Institutional Review Board of the United States Centres for Disease Control and Prevention. More details of study procedures are reported elsewhere (van Griensven et al., 2001).

2.3. Data collection and analysis

In this study, we collected data using audio computer-assisted self-interviewing (ACASI), which is believed to increase the accuracy of reporting of sensitive behaviours (Turner et al., 1998; Des Jarlais et al., 1999). Questions asked about sociodemographic characteristics, knowledge and attitudes regarding HIV and sexually transmitted diseases, contraceptive practices, drug use, and sexual experiences. Pregnancy history and contraceptive use were assessed by the following questions:

- “Do you or your partner currently use any contraceptive method? If yes, what kind of contraceptive methods are being used currently?” (more than one answer possible)
- “Have you or your partner ever been pregnant? If yes, how many times and what was the outcome of the last pregnancy?”

Among those who reported having had sexual intercourse, factors associated with pregnancy were identified using univariate odds ratios and multivariate logistic regression analysis. Variables significant in univariate analysis ($p < 0.05$) and those of theoretical interest were included in the multivariate models. Multivariate analyses were performed by a backward stepwise logistic regression analysis using SPSS (Statistical Package for Social Sciences, version 10, SPSS Inc., Chicago, IL) with the p -value for removal set at 0.1.

3. Results

3.1. Participant characteristics

Of 1749 students invited, 1725 agreed to participate (enrolment rate 99.4%). Of these, 52% were young men, most were northern Thai, and most came from an agricultural background (Table 1). About one-third of participants, male and female, lived with a friend or on their own and not with any family member.

Alcohol use was common among both men and women; but other substance use, i.e. tobacco, methamphetamine, and marijuana use, was more common among men (Table 1). Of note, 39% of men and 18% of women reported ever having used methamphetamines.

3.2. Sexual experience

Almost half (48%) of the men and 43% of the women said that they had ever had sexual intercourse. Of these, 60% of the men and 46% of the women said that they had had two or more partners with whom they had had sexual contact or intercourse. About 3% of all participants said that they had ever sold sex, and 6% of the men and 21% of the women said that they had ever been sexually coerced (Table 2).

3.3. Pregnancy and contraception

Among those who had ever had sexual intercourse, 27% of the women and 17% of the men said that they or their partner had ever been pregnant (Table 3). Of those, about 24% reported multiple pregnancies. Of the 153 latest pregnancies that resulted in delivery or abortion, 95% were aborted.

Fifty-one per cent of students who had had sexual intercourse reported current use of one or more contraceptive methods (Table 3). Of these contraceptive methods, the oral pill use was the most common (69.5%). Many participants reported use of unreliable contraceptive methods, i.e. periodic abstinence, withdrawal before ejaculation, and use of “morning after” pill. These unreliable methods were usually used together with other unreliable methods or with condoms,

Table 1

Demographic characteristics and drug use behaviours of 1725 adolescents in three vocational schools in Chiang Rai, Thailand, 1999

	Male <i>n</i> = 893 (%)	Female <i>n</i> = 832 (%)
<i>Demographic characteristic</i>		
Age, years		
15–18	51.3	52.8
19–21	48.7	47.2
Northern Thai	92.7	94.8
Farmer father	66.3	66.3
Vocational school year		
1–3	60.0	52.0
4–6	40.0	48.0
Not living with family members	29.6	32.5
Parents separated or divorced	18.9	22.7
<i>Drug use behavior</i>		
Went out drinking/dancing ≥ 3 times in past 3 months	62.4	44.7
Consumed ≥ 3 alcoholic drinks at one time in past 3 months	63.4	42.5
Smoked cigarettes in past 3 months	52.4	14.5
Ever used methamphetamines	39.2	18.0
Ever used marijuana	21.5	3.6

Table 2

Sexual experience of 1725 adolescents in three vocational schools in Chiang Rai, Thailand, 1999

	Male <i>n</i> = 893 (%)	Female <i>n</i> = 832 (%)
<i>Sexual experience</i>		
No sexual contact or intercourse	33.8	41.6
Sexual contact only ^a	17.9	15.3
Sexual intercourse ^b	48.3	43.1
First sexual intercourse at age ≤ 16 years ^c	44.5	21.7
≥ 2 sex partners ^d in lifetime	60.4	45.6
Had steady sex partners in past 3 months	41.8	46.6
Always or almost always used condoms with steady partner in past 3 months ^e	15.6	10.5
Ever sold sex	2.7	3.1
Sexually coerced ^f	6.5	21.0
Coercion involved intercourse ^g	31.0	51.4

^a Defined as stimulation of genitals, including oral sex, but not anal or vaginal penetration.^b Defined as penile penetration of the vagina or anus.^c Among those reporting sexual intercourse.^d Defined as the number of person(s) study participants had sexual contact or sexual intercourse with in their lifetime.^e Among those with steady partners.^f Defined as being physically or mentally forced to have sexual contact or sexual intercourse against one's will.^g Among those reporting sexual coercion.

Table 3

Reproductive health among vocational school students who reported having had sexual intercourse, by sex of the participant, Chiang Rai, northern Thailand, 1999 ($n = 790$)

	Male ($n = 431$)	Female ($n = 359$)
Partner or self ever pregnant	16.9	27.3
Total pregnancies, n	93	129
Among those reporting pregnancy, n	73	98
Multiple pregnancies	24.6	24.4
Last pregnancy outcome		
Delivery	5.5	4.1
Abortion	87.7	82.7
Other ^a	6.8	13.3
Current use of any contraceptive method	52.4	50.4
Methods currently used ^b		
Oral pill	69.0	70.2
Condom	48.4	28.7
Periodic abstention	47.3	28.2
Withdrawal before ejaculation	46.0	40.3
Emergency contraceptive	29.6	13.3
Injectable	8.4	4.4
IUD ^c	6.2	5.0

Results are percentages except where noted.

^aIncluding currently pregnant, miscarriage, still birth.

^bAmong those using contraceptives at the time of interview.

^cIUD = intrauterine device.

oral pills, or an intrauterine device. Condom use as a current contraceptive method was reported by 39.7% of participants who were using a contraceptive method.

3.4. Factors associated with pregnancy

Factors associated with pregnancy were analysed among female and male students who reported having had sexual intercourse ($n = 790$). Univariate analysis showed history of pregnancy to be associated with age and for women, also school grade (Table 4). Living away from the family was related to partner pregnancy among men; otherwise, neither living arrangements or parental separation nor presence of peer or family support were related to pregnancy.

With regard to drug use, men who reported that they had ever used marijuana were more likely to report partner pregnancies than men who had not. Women who said they used methamphetamines ≥ 3 times in the prior 3 months more often had a history of pregnancy than those who had not. However, women who reported having ≥ 3 alcoholic drinks at least once in the prior 3 months were less likely to have ever been pregnant.

For both men and women, current contraceptive use was related to pregnancy. A history of sexual coercion was related to pregnancy among women.

Table 4

Univariate risk factors for pregnancy or partner pregnancy among vocational school students who reported having had sexual intercourse, by sex of the participant, Chiang Rai, northern Thailand, 1999 ($n = 790$)

	Male ($n = 431$)			Female ($n = 359$)		
	No.	% Pregnant	OR (95% CI)	No.	% Pregnant	OR (95% CI)
Demographic factors						
<i>Age, years</i>						
15–18	158	8.9	Ref	153	19.0	Ref
19–21	273	21.6	2.8 (1.5–5.2)	206	33.5	2.1 (1.3–3.5)
<i>Vocational school year</i>						
1–3	199	13.6	Ref	149	18.8	Ref
4–6	232	19.8	1.5 (0.9–2.6)	210	33.3	2.1 (1.3–3.5)
<i>Living situation</i>						
Living with family members	291	14.1	Ref	215	27.0	Ref
Not living with family members	140	22.9	1.8 (1.0–3.0)	144	27.8	1.0 (0.6–1.6)
<i>Parents' situation</i>						
Parents living together	327	15.6	Ref	272	27.6	Ref
Parents not together	104	21.2	1.4 (0.8–2.5)	87	26.4	0.9 (0.5–1.6)
Social support						
<i>Having family member to talk to</i>						
No	91	20.9	Ref	109	24.7	Ref
Yes	340	15.9	0.7 (0.4–1.2)	250	28.0	1.1 (0.6–1.8)
<i>Having close friend to talk to</i>						
No	28	21.4	Ref	24	20.8	Ref
Yes	403	16.6	0.7 (0.2–1.8)	335	27.8	1.4 (0.5–4.0)
Alcohol and drug use						
<i>Went out drinking and/or dancing</i>						
<3 times in past 3 months	93	9.7	Ref	135	32.6	Ref
≥3 times in past 3 months	330	18.8	2.1 (1.0–4.4)	200	24.0	0.6 (0.4–1.0)
<i>Drinking alcohol</i>						
<3 drinks in past 3 months	70	14.3	Ref	102	34.3	Ref
≥3 drinks in past 3 months	337	17.5	1.2 (0.6–2.6)	192	21.9	0.5 (0.3–0.9)
<i>Smoking cigarettes in past 3 months</i>						
No	149	17.4	Ref	284	26.8	Ref
<i>Using methamphetamines ≥ 3 times in past 3 months</i>						
No	116	17.2	Ref	49	12.2	Ref
Yes	109	21.1	1.2 (0.6–2.4)	44	34.1	3.7 (1.2–10.6)
<i>Ever having used marijuana</i>						
No	296	12.8	Ref	336	26.8	Ref
Yes	135	25.9	2.3 (1.4–3.9)	23	34.8	1.4 (0.5–3.5)
Sexual behavior						
<i>Having first sexual intercourse at age ≤16 years</i>						
No	239	13.8	Ref	281	26.3	Ref
Yes	192	20.8	1.6 (0.9–2.7)	78	30.8	1.2 (0.7–2.1)
<i>Having ≥2 lifetime sex partners</i>						
No	82	12.2	Ref	165	26.7	Ref
Yes	349	18.1	1.5 (0.7–3.2)	194	27.8	1.0 (0.6–1.6)

Table 6 (continued)

	Male (n = 431)			Female (n = 359)		
	No.	% Pregnant	OR (95% CI)	No.	% Pregnant	OR (95% CI)
<i>Having ever sold sex</i>						
No	414	16.4	Ref	338	28.4	Ref
Yes	17	29.4	2.1 (0.7–6.2)	21	9.5	0.2 (0.06–1.1)
<i>Having ever been coerced to have sexual intercourse</i>						
No	16	25.0	Ref	43	20.9	Ref
Yes	15	20.0	0.7 (0.1–4.1)	85	43.5	2.9 (1.2–6.8)
<i>Using contraceptive</i>						
No	205	11.7	Ref	178	20.2	Ref
Yes	226	21.7	2.0 (1.2–3.5)	181	34.3	2.0 (1.2–3.3)

OR = odds ratio.

CI = confidence interval.

Table 5

Factors associated with partner pregnancy among male vocational school students who reported having had sexual intercourse, Chiang Rai, Thailand, 1999 (n = 431)

Risk factors	AOR (95% CI)
Age \geq 19 years	3.0 (1.6–5.8)
Current contraceptive use	2.1 (1.2–3.6)
Ever used marijuana	2.0 (1.1–3.6)
First sexual intercourse at \leq 16 years	1.8 (1.0–3.1)

Backward stepwise logistic regression; variables removed from the model were school grade, living situation, going out drinking and/or dancing, and methamphetamine use.

AOR = adjusted odds ratio.

CI = confidence interval.

A multivariate logistic regression analysis of men showed that those who were 19 years or older were about 3 times more at risk for partner pregnancy (Table 5). Men who reported that they or their partner currently used contraceptives and men who had ever used marijuana were about 2 times more at risk for partner pregnancy. Reported first sex at a younger age was also related to partner pregnancy among men.

Multivariate logistic regression analysis of women showed that those who were 19 years or older and those who had ever been coerced to have sexual intercourse were 3 times more at risk for pregnancy (Table 6). Those who had had first sexual intercourse at age 16 years or younger, reported use of methamphetamines \geq 3 times during the prior 3 months and currently used contraceptives were approximately 2 times more at risk for pregnancy. However, those who reported consuming \geq 3 alcoholic drinks at one time during the prior 3 months were less likely to report a history of pregnancy.

Table 6

Factors associating with pregnancy among female vocational school students who reported having had sexual intercourse, Chiang Rai, Thailand, 1999 ($n = 359$)

Risk Factors	AOR (95% CI)
Age ≥ 19 years	3.1 (1.7–5.7)
Ever forced to have sexual intercourse	3.0 (1.7–5.2)
First sexual intercourse at age ≤ 16 years	2.3 (1.1–4.6)
Methamphetamine use ≥ 3 times in past 3 months	2.3 (1.0–4.8)
Current contraceptive use	2.2 (1.3–3.7)
Consumed alcohol ≥ 3 drinks at a time in past 3 months	0.5 (0.3–0.8)

Backward stepwise logistic regression; variables removed from the model were school grade and ever having used marijuana.

AOR = adjusted odds ratio.

CI = confidence interval.

4. Discussion

According to our study, 45% of vocational school students were sexually active. The percentage of participants in our study reporting unprotected sexual intercourse is worrisome since this practice puts them at risk for sexually transmitted diseases, including HIV, and for early pregnancy. Among sexually experienced students who reported contraceptive use, condom use was reported even less often than unreliable contraceptive methods such as withdrawal or periodic abstinence. The percentage of Thai participants reporting condom use was lower than the percentage of US high school students reporting condom use; report of withdrawal was higher among Thais (Everett et al., 2000).

Eighteen per cent of those who had had sexual intercourse; 8% of the students overall, reported abortion either for themselves or their sex partner. We asked only about the most recent pregnancy, so this result could have been somewhat higher had we asked about the outcomes of previous pregnancies. Other studies in Thailand reported lower rates of abortion: 5% among 15–24-year-old electronic factory workers in Pathumthani, and 4% among secondary, vocational, and undergraduate students in Chiang Mai (Gray & Punpuing, 1999). Nationwide, it has been estimated that about 10% of all pregnancies have been aborted each year (Prajayayothin & Dhamprapha, 1996). The higher rates of abortion reported by our study participants may in part be due to the use of ACASI as our data collection method. Most (69%) participants reported that they thought ACASI made them more likely to provide truthful information about pregnancy and abortion (data not shown). It could also be that students who had children were not enrolled in school and those who aborted were overrepresented. It is possible that the reported number of abortions in our study may be inflated through double counting of male and female students who were sexual partners. However, to avoid risk factors being biased through double counting, we analysed risk factors for partner pregnancy in male students and for pregnancy in female students separately.

We found that current use of contraceptives was independently associated with pregnancy. If used correctly and consistently, contraceptive methods such as the oral pill can effectively prevent pregnancy with a failure rate of only 0.1% (Dreyfus, 1992; American College of Obstetricians and

Gynecologist, 2000). The most likely explanation for this association is that our study participants started using contraceptives after having become pregnant.

Among women in our study, a history of forced sexual intercourse was related to pregnancy. The association between coerced sex and pregnancy has also been found in studies in other countries, e.g. India (Jejeebhoy, 1998), and the United States (Zierler et al., 1991; Stock, Bell, Boyer, & Connell, 1997; Wingood & Di Clemente, 1997). However, because of the cross-sectional nature of our study, it is difficult to ascertain whether pregnancy is a predisposing factor or a consequence of sexual coercion. One study suggested that pregnancy could result from the high-risk behaviour of adolescent girls who had been abused (Stock et al., 1997). The high prevalence of sexual coercion reported here suggests that health professionals in Thailand need to be more aware of the frequency, the potential consequences, and the associated circumstances of sexual coercion. Particular attention needs to be given to young women, as the frequency of reported sexual coercion was higher. Over one-third of sexually active girls in this study reported that they had been sexually coerced mostly by male partners. In Thailand, sexual mores have been undergoing significant changes and this may affect the circumstances where coercion can occur. Virginity at marriage is no longer expected among young Thai women (Podhisita & Pattaravanich, 1995) and there has been a trend towards seeing premarital relationships as friendships with shared interests and pastimes (Im-Em, 1999). On the other hand, it is still inappropriate for young women to talk about sexual matters (Ford & Kittisuksathit, 1994) and there remains a belief that men have stronger sexual drives than women and that women should behave in ways that curb these drives in male–female relationships (Knodel et al., 1996). While in the past sex workers were considered appropriate sexual outlet for young men (Knodel et al., 1996), men patronage of sex workers has declined since the AIDS epidemic started and premarital sex with girlfriends or other non-commercial partners has become more common (Celentano et al., 1998; Kitsiripornchai et al., 1998; Jenkins et al., 1999). This changing context together with persistent beliefs about differences in men and women sexual drives and differences in gender roles regarding sexuality may create situations where sexual coercion can occur. It would appear that professional communities which provide education, health, and social services should consider how this changing context of sexual norms may create situations that could lead to sexual coercion and be better prepared to identify sexual coercion, address potential consequences and the needs of the coerced, and develop appropriate services for them.

The overall high rates of pregnancy and abortion reported in this study suggest the need for comprehensive sex education, counselling, and effective family planning for this population. This need for a more effective sex education has been noted previously by other countries (Creatsas, 1997; Saito, 1998). In Thailand, sex education has been taught in primary and secondary schools and in colleges for many years. However, Rewthong (2001) argued that the curricula do not seem to respond to the needs of young people, and most teachers use traditional methods to cover only the aspects of sex education with which they are comfortable, e.g. physical and emotional development and sexually transmitted diseases, while overlooking aspects such as gender roles that could promote healthier sexual behaviour. Many teachers also think that sex education could encourage students to have sex at a younger age. Thailand has been undergoing many social changes as the country shifted away from a predominantly rural-based to more urbanized, and less to family-bound society (Klausner, 1997). Sexual norms regarding premarital sex have become more permissive in recent decades. These social changes have made young people

vulnerable, particularly young women, for whom social messages about their sexuality have been mixed between permissiveness and stigmatization. It is critical that sex education curricula address these issues and the implications they may have upon young people's lives and that teachers understand and agree with the goals of sex education.

In Thailand, family planning services are widely available and the country has been highly successful in lowering fertility rates, but most of these services are inaccessible to young people (Ford & Kittisuksathit, 1994). In Chiang Rai, most family planning clients are married women with a mean age of 27 years (Xu et al., 2000); few young, unmarried women use these services. While acceptance of premarital sex is increasing in Thailand, girls seeking contraception are still at risk of being stigmatized (Ford & Kittisuksathit, 1994). Such a barrier to contraception may indeed lead young women to resort to abortion. In Thailand, as in many other countries, a mother is a symbol of virtue and selflessness, a sacred image that must not be violated, and Thai women are supposed to feel fulfilled in their roles of mother and wife (Mulder, 1996). A woman who has an abortion implies that she denies her prescribed role as a good mother, thus violating the sacred image of motherhood. Abortion is also illegal and allowed only if the pregnancy endangers the women's life or is the result of forced sex or forced prostitution. On the other hand, Thai society condemns a woman who is pregnant without being married, particularly if she is young and still a student; pregnant students are traditionally expelled from schools. Such societal, religious, and legal pressures force many young women to have clandestine and unsafe abortions, which could adversely affect their reproductive and mental health. Family planning service programs for sexually active youth should take into account these social barriers to contraception and should accordingly facilitate access and effective use of family planning services by this population. Safer sex practices, including use of effective contraceptive methods such as oral pill use, should be promoted. Male condom use alone, as shown by a US study, may not be adequate because the failure rate is 15% during the first 12 months of using condoms (Fu, Darroch, Hass, & Ranjit, 1999).

Our study provides useful information about the prevalence of and risk factors for pregnancy among young people in northern Thailand, but the descriptive and cross-sectional nature of our data limits interpretation. Our findings, however, do suggest areas for further study. A prospective cohort study of young people would provide more information about unplanned pregnancy and other sexual risk factors in this population. Qualitative research would provide more insight into how factors such as recent alcohol use, drug use, early sexual initiation, and current contraceptive use fit into the context in which pregnancy in young people occurs.

Because our study included only northern schools, our sample may not be fully representative of all Thai youth. However, approximately 33% of the 7.5 million 15–21-year-olds attend upper secondary schools and schools of higher education, including vocational schools (Anonymous, 1997). Therefore, our data are certainly indicative of a large segment of this population.

In conclusion, young people in northern Thailand are sexually active and are at risk for early and unwanted pregnancy. Programs to prevent or reduce unplanned and unwanted pregnancy among young people must address the social and cultural barriers to contraception and should take into account lifestyle aspects such as drug use, early sexual initiation, forced sex, and their association with unprotected sex and unwanted pregnancy. Family planning information and sex education programs that are responsive to the needs of young people are urgently needed, and access to safe and effective contraception should be facilitated (Klima, 1998). In addition, health

care professionals need to be better prepared to address sexual health issues and the needs of the young. These needs have been pointed out in nearly all studies about sexuality and reproductive health of young people; but until these needs are met, early and unwanted pregnancy in youth cannot be prevented.

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