

WORK IN PROGRESS

Premarital Sex, Conception and Birth among Young Adults in

Jakarta, Bekasi and Tangerang, Indonesia

Iwu Dwisetyani Utomo, Peter McDonald, Terence Hull, and Anna Reimondos¹

Abstract

Based on a sample of 3006 young adults aged 20-34 years, the **2010 Greater Jakarta Transition to Adulthood Survey** is the first comprehensive survey of transition to adulthood in Indonesia. Questions relating to sexuality and risk taking behaviours were asked using a self administered questionnaire to ensure confidentiality. Among the never married, only 5 percent of females reported experience of sexual intercourse compared to 16 percent of males. Ten per cent of ever-married respondents reported they had sexual relationships before marriage. However, among those who had had a premarital conception, the majority of respondents reported that they did not have sex before marriage. Reports of self masturbation and oral sex were significantly more common among males than females, though almost equal numbers of male and female respondents reported masturbation with a partner. Understanding of sexual behaviours among young adults provides an evidence base for reproductive health policy.

Keywords: premarital sex, premarital pregnancy, methodology issues of question on premarital sex, young people, Greater Jakarta

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**Premarital Sex, Conception and Birth among Young Adults in
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**Reproductive health knowledge and premarital sexual behavior of young adults in
Greater Jakarta**

This paper concentrates on sexual behavior of young people aged 20-34 years old living in Jakarta, Bekasi and Tangerang based from *The 2010 Greater Jakarta Transition to Adulthood Survey-2010 GJTAS* (N=3006). In Indonesia, young people in this aged group represents of more than 61 million from the total 237 million people and 23.52 percent of these young people are living in Greater Jakarta where our survey was conducted (Central Bureau of Statistics, 2011). This big cohort of young people becomes a very important issue as they are in the reproductive age, can be sexually active and are capable of bearing children. Suyono (2011), stated that this largest cohort of young people need to be attended by the government because of their capability to reproduce. Nevertheless accessibility of reproductive health and sexuality services for those who are still single are not easily available. As by law, it is only married couples who can have access to family planning services, hence reproductive health services (Utomo and McDonald, 2009; 2008). Most worrying from our previous analysis (Utomo and McDonald et al., 2010) level of young people's knowledge on HIV/AIDS and STIs are not as high as expected, not to mentioned safe sex practices.

Though this survey was conducted in Greater Jakarta, the capital of Indonesia and its surrounding areas, where access to information and education would be greater compared to other provinces and remote regions throughout Indonesia, 15 percent of the sample had never heard of HIV/AIDS, though education level was a very important determinant. Whereas one third (33%) of those with primary school or less had never heard of HIV/AIDS, the equivalent figure was only 7 percent for those with a university degree. Level of knowledge about STIs was considerably lower than for HIV/AIDS with around 60 per cent of respondents indicating that they had never heard of STIs, though males were more likely to have heard of STIs, as were those with higher education.

In regards to sexual behavior of the 2010 GJTAS's respondents, 11 percent of never married respondents and 98 percent of ever-married respondents had had sex. Among the ever-married, around 10 percent were not married during the time of their first sexual encounter. In relations to premarital sexual intercourse there is a significant difference between males and females, only 5 percent of never married females had had sex, compared to 16 per cent of males. Other studies found similar results (Utomo I., 1998; Situmorang, 2001; Purdy, 2006; Diarsvitri and Utomo et al., 2011).

Table 1 demonstrates various types of sexual activities that young people in Greater Jakarta experiences. This study is the first representative sample survey in Indonesia that asked about

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very sensitive sexual behaviour including masturbation (self or with partner) and oral-genital sex. The results revealed that masturbation started at quite a young age (16.9), though males are 7 times more likely to masturbate compared to females. Interestingly masturbating with a partner is quite common among both female and male as one third of both female (27.3) and male (27.8) respondents have experienced mutual masturbation. More than twenty per cent of males compared to 15.6 per cent of females have ever experienced having oral sex. The question that arises is, are respondents telling the truth of their sexual experiences? Is there a difference between male and female responses in revealing honesty on their sexual behavior?

Other opportunistic survey conducted by Purdy in 2006 among 474 young people aged 15-24 years old in Jakarta, Surabaya, Medan and Bandung, revealed very similar results as our findings where as 22 percent of males and 16 percent of females have experienced oral sex behaviour. In his study, age group was not a factor as 19 percent of those aged 15-19 and 19 percent aged 20-24 had had oral sex (Purdy, 2006). But more representative survey for example the 2003 and 2007 Indonesian Young Adult Reproductive Health Surveys (IYARHS) seems to find lower rate of premarital sex behavior. In the 2003 and 2007 IYARHS that were conducted among unmarried respondents aged 15-24 years old revealed that only 1 percent of females and 5 percent of males and 1 percent of females and 6 percent of males respectively reported that they have been engaged in premarital sexual intercourse. The 2003 and 2007 IYARHS was conducted based on face to face interview using a standardized questionnaire (Central Bureau of Statistics et al., 2004; 2008). Is there a methodological error in how questions relating to sexuality are asked? This will be explored in our paper.

Table 1. Percentage of respondents who reported experience in different sexual activities, Greater Jakarta, 2010

	Male	Female	Total	Average age
	%	%	%	
Self-masturbation	48.5	6.9	24.1	16.9
Masturbation with a partner	27.8	27.3	27.5	21.9
Oral sex	21.2	15.6	17.9	22.3
Anal sex	1.1	1.4	1.3	-
Group sex	0.6	0.1	0.3	-
Total N	1,228	1,730	2,958	

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

From our previous analysis among those who had ever had sex, nearly 90 per cent reported that they had only had sexual intercourse with one person including their current partner or spouse (Table 2, Utomo and McDonald et al., 2010). Similar findings were found from the Vaginal Practices Survey conducted in Yogyakarta among women aged 18-60 years old. In the Vaginal Practices Survey which was conducted in four countries, South Africa, Mozambique, Thailand and Indonesia (Yogyakarta), reported number of life time sexual partners among women in marital or stable union (3.1%) as well as suspicion that their spouse had other partners (1.3%), were lowest in Yogyakarta compared to South Africa (KwaZulu-Natal) and Mozambique where the percentages increased 6 times and 5 times higher respectively (Hull et al., 2011, Table 1:

p.4). The authors would like to pin point that there could be a methodological problems in asking questions relating to sexuality and women are more likely to under report their sexual behavior. Table 1 and Table 2 strongly demonstrate this hypothesis where women reported sexual behaviours were lower than that of men.

Table 2. Reports of lifetime number of sexual partners, including current partner or spouse, by sex, **Greater Jakarta, 2010**

	Male		Female		Total	
Number of sexual partners	N	%	N	%	N	%
One person	471	89	1,057	96	1,528	94
2-5 people	45	9	30	3	75	5
6-9 people	5	1	9	1	14	1
10-19 people	7	1	6	1	13	1
Total	528	100	1102	100	1630	100

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Is there a methodology issues in asking question relating to sex in surveys?

In this paper the authors will investigate characteristics of first sexual experience through: demographic characteristics such as age, sex, respondent and parental education; the context of relationship, whether the respondent is still single, married or divorced; respondent's knowledge about contraception and safe sex and whether the respondent was using contraception or not. Further the authors will also investigate whether premarital responses were consistent with timing of the first birth among married respondents, meaning whether those having premarital sex had premarital conception but marital birth. Hence, in this case they were honest in revealing their sexual behavior prior to marriage. On the contrary those who said that they did not have premarital sex but had marital birth that was born less than nine months after their marital date, meaning that these respondents might not have been honest in admitting that they had had sexual intercourse before marriage is also investigated.

Research topics related to sexuality in Indonesia are quite difficult to study due to the sensitivity of cultural and political settings, government policies, and the research environment. Sex is regarded as a private and not a public matter, and in some parts of the society is still taboo in discussion. Besides a cultural and political environment that makes sexual behaviour difficult to study, the marginality of literature on sexuality in Indonesia is also still a wide concern. This does not mean that sexuality research is impossible in an Indonesian cultural environment, but the extreme sensitivity may results in underreporting of sexual behaviours.

Many studies on sexuality in Indonesia are conducted by anthropologists on female chastity, modernity, violence against women and reproductive health issues (Bennet, 2005; 2007; Blackburn 2000; Harding, 2006; Idrus, 2003; Jennaway, 2008; Manderson et al., 1999; Smith-Hefner, 2005) and gay relation (Belstorff 2003; 2004ab; 2005; Oetomo; 2001). While others researching reproductive health issues in Islamic context (Keech-Marx, 2005; Munir, 2002) and Islamic boarding schools (Kholifah, 2005; Narish, 2010; Sanusi, 2006). Participant observations and in-depth interviews were the approaches used and the results showed how sexuality in Indonesian is described as more open and respondents would talk freely about

their sexual experiences. Participant observations and in-depth interviews seem also suitable when studying about gay relationships that was once condemn by the Indonesian society. A number of small scale surveys on sexuality behaviour using opportunistic sampling design have also been conducted by Indonesian researchers, but were not published in international journal so difficult to cite. These studies also showed a higher reporting of sexual behaviour compared to national surveys on sexual behaviour.

Hull from the Australian Demographic and Social Research Institute, Australian National University started research on abortion, penile implants, vaginal practices and sexuality in Indonesia which expanded to South East Asia and Africa. His studies on sexuality were followed by his colleague and students: Utomo (1997); Situmorang (2001); Diarsvitri, (Forthcoming ab) and Aryanti (Forthcoming). All of the sexuality and reproductive health studies conducted in ADSRI-ANU, used both quantitative and qualitative approaches. In general the results of these studies showed a higher premarital incidence compared to the national surveys. The combined methods used by researchers from ADSRI-ANU also demonstrated a more holistic understanding of sexuality in Indonesia, specifically about young people sexuality, abortion, vaginal practices and reproductive health education.

In Indonesia, Centre for Health Research University of Indonesia, lead by Utomo B. (Utomo B. et al. 1997ab; 2000; 2001), is a leading institute that conduct national surveys on HIV/AIDS, drug use and abortion. The Centre for Health Research University of Indonesia also used a combined method of survey and qualitative in-depth interviews in their studies. On the other hand Central Bureau of Statistics, The National Family Planning Coordinating Board and Ministry of Health in collaboration with USAID and Macro International have been responsible for conducting the Indonesian Demographic Health Survey (IDHS, ever married women aged 15-49) and recently also conducted the Indonesian Young Adult Reproductive Health Survey (2003 and 2007 IYARHS, never married males and females aged 15-24). Results of premarital sex incidence from the national surveys are always lower compared to other anthropological studies, opportunistic sample and combined methods using survey and qualitative approaches.

Western survey methodology assumes that it is especially difficult to obtain data on certain topics referred to as 'ego-threatening' (Kahn and Cannell, 1987), 'sensitive' (Richardson et al., 1965; Boshier, 1989: 5-6) or 'taboo topics' (Rogers, 1973: 64; Herold, 1989: 30). Topics included in these categories are sexual attitudes and behaviour, attitudes towards and the use of various drugs, and criminal behaviour (DeLamater and MacCorquodale, 1975: 215), contraceptive use, vasectomy and abortion (Rogers, 1973: 64).

The objective of this paper is to explore whether respondents can be honest in revealing their premarital sexual behaviours and is there gender difference in the reporting? Various studies in Indonesia have demonstrated that women reported a lower premarital sexual behaviour compared to men. The authors speculate that reported premarital sex incidence among respondents is understated. In an attempt to overcome this shortfall indirect calculations are made by comparing date of marriage and date of first birth to estimate apparent frequency of premarital conception among those who have been married.

The 2010 Greater Jakarta Transition to Adulthood Survey

The *2010 Jakarta Transition to Adulthood Survey (N=3006)*, is based on two standardized questionnaires. The first questionnaire covers questions relating to demographic, social, cultural, education, work, migration, gender, health and well-being, and attitudes and values.

The second questionnaire consists of reproductive health and sexual behaviour questions. The first questionnaire was administered by interviewing the respondent, while the second questionnaire is self administered and hand-in in envelop to the interviewer after the respondent is finish answering the questions. This was deliberately designed to assure confidentiality of the respondent. In cases where the respondent is not able to answer the second questionnaire due to education level or disability, then the respondent is asked whether the respondent would be interviewed by the interviewer. On average the first questionnaire took about 45 minutes to an hour.

We specifically chose to choose self administered questionnaire (SAQs) because it is less threatening to the respondents in the light that respondents would be more willing to answer questions relating to sexual behaviour. This approach has been validated by early research as follows:

“... the present results suggest that SAQs provide a less threatening experience than interviews.” (Joseph, McDermott and Pollack, 1986: 70).

The sampling process of the 2010 GJTAS involved a two-stage cluster sample using the PPS method. In the first stage, 60 *Kelurahan* (District) were selected using PPS. In the second stage, five neighbourhoods (*Rukun Tetangga/RT*) were chosen within each selected *Kelurahan* by systematic random sampling. The 300 selected RT were then censused and mapped by trained interviewers. The census collected information on the age, sex, marital status and relationship to head of household. From the census, a listing of all eligible respondents (aged 20-34) living in the *Rukun Tetangga* was compiled. Eleven eligible persons were then selected by simple random sampling from the eligible RT population. Thus, 3,300 names were selected for interview with the aim of obtaining a sample of 3,000 allowing for refusals and non-contact. These names were allocated to interviewers with a standard interviewer load consisting of 110 named individuals. In this paper the survey data will be utilised and not including the qualitative in-depth interviews as the later have not been completed.

Analysis

The data was analysed using descriptive bivariate analysis as well as multivariate regression analysis³. In analysing the data, several calculation methods were applied as follows:

1. Life tables survivorship function of premarital intercourse

In many ways the timing of the first sexual encounter is a reflection of the timing of the first marriage, as illustrated by the survivorship graphs shown below. The survivorship functions have been derived from life tables for time to first sex and time to first marriage. As Rosero-Bixby (1991:26) notes, the proportion of women who have ever had premarital intercourse is a somewhat misleading figure because it measures both the risk (per unit of time) of initiating sexual activity before marriage as well as the length of the exposure to the risk. Life table methods are therefore appropriate because they are able to deal with the censoring of younger women who have not yet married.

2. Event-history approach in examining the timing of first sexual intercourse including those who had never had sex

³ Using STATA 11.1

Multivariate analysis was employed to further examine the time to first intercourse. In order to examine the determinants of the timing of first sex, in a way that includes the sample that had never had sex an event-history approach was used.

The data was organized into a person-year format, so that for each respondent there was one record for every year from when they were 12 years old up until the age when they first had sex, or up until their current age [max 35] in the case of respondents that were censored [never had sex]. Three discrete-time event history models were run. The first one examined the overall time to first sex. The second and third ones examined the competing risk of first sex within marriage and first sex outside of marriage respectively.

	Censor variable [1=Yes, 0=No]	Time measured if not censored	Time measured if censored
Model 1	Has had sex or not	Age at first sex	Current age (if never had sex)
Competing risk			
Model 2	Sex within marriage	Age at first sex (if sex occurred within marriage)	Age at first sex (if sex occurred outside marriage) or Current age (if never had sex)
Model 3	Sex outside of marriage	Age at first sex (if sex occurred outside marriage)	Age at first sex (if sex occurred within marriage) or Current age (if never had sex)

The following independent variables were included in the models:

Fixed

- Sex
- Age group (cohort effect)
- Mother's education level
- Father's education level
- Religion
- Ethnicity

Time-varying

- Age (and age squared)
- Whether the individual was studying or not

3. First intercourse and relationship context

To further investigate the characteristics of those who had sex for the first time outside of marriage as compared to within marriage, a set of logistic regression models were run. The dependent variable in this case was defined as 0 if the first sexual experience had taken place within marriage, and 1 if it had been outside of marriage. Therefore any of the

odds ratios that are below 1 indicate a lower odds of sex outside of marriage, while an odds ratio above 1 indicates a higher likelihood of having had sex outside of marriage, compared to the reference category.

The models were also run for the sexes combined as well as separately. Six models are run, the first three included the total sample, while the last three models only modeled the odds of having had sex outside of marriage during the first intercourse, for those that had ever had sex.

4. Sex before marriage and pre-marital conceptions

For respondents that are currently married were asked “Did you have any sexual intercourse with your spouse before your were married?” A number of variables such as age at first marriage, and highest education, were examined in relation to this variable but the only variable that consistently showed a significant result was the respondents’ sex. While 13 per cent of men said that they had sex before their current marriage, this was only the case for 5 per cent of women.

In most cases it is impossible to know whether or not the respondents are being truthful in their answers to the question about pre-marital sex. However, in a limited number of cases pre-marital sex is known objectively to have occurred because there is evidence that the couple’s first child was conceived *before* marriage. For these respondents we are able to check how they responded to the question on pre-marital sex.

Possible answer patterns for respondents who had had pre-marital sex with their current spouse

Premarital sex, but no conception	No	Incorrect	Impossible
	Yes	Correct	Impossible
Premarital sex, with conception	No	Incorrect	Possible
	Yes	Correct	Possible

The timing of conceptions in relation to marriage is analysed, respondents who had been married two or more times are excluded from the analysis.

5. The relationship between conception and marriage was further analyzed in a number of ways. In the first instance, following the approach used by Hirschman and Rindfuss (1982), respondents who had had a child were classified into three main groups depending on when that child was conceived and born as follows:

- **Premarital conception & Premarital birth.** The first child was born before the marriage, or the child was born outside of marriage (i.e childbirth was not followed by marriage, or a marriage occurred but it is not possible to tell whether that marriage was to the father/mother of the child).
- **Premarital conception & marital birth.** The first child was conceived at least 3 months before the marriage, but was born within marriage.
- **Marital conception & marital birth.** The first child was conceived either after marriage, or not more than 2 months before marriage, and it was born within

marriage⁴. If the month of marriage was not given, respondents were still included in this category if the child was born at least two calendar years after the year of marriage, or at least one calendar year after the year of marriage if the month of childbirth was from September onwards.

- A fourth group was used to classify cases where it was not possible to tell whether or not the child was conceived before or after marriage. This was the case when the month of marriage was not known, but the year of marriage and the month and year of childbirth was known. A respondent was included if the year of marriage was the same as the year of childbirth, or if the child was born within 9 months of the year following the year of marriage.

Results

Percentage of sample that had ever had sex

Among respondents who provided a valid answer to question “Have you ever had sex?”, six out of ten had had sex at some point in their lives. Women were more likely to have had sex compared to men, however this is likely due to the fact that the women in the sample were slightly older on average and also more likely to be married. Both these factors, age and marital status, were themselves strongly related to sexual experience (Table 3).

Table 3. Percentage of respondents that had ever had sex, by selected characteristics

	%	Total N in group
Sex		
Male	49	1,226
Female	69	1,727
Age group		
20-24	29	990
25-29	66	939
30-34	86	1,024
Relationship status		
Married	99	1,600
Dating	15	684
Single-previously married	95	39
Single- never married	9	609
Total	61	2,953

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

⁴ There is a small chance that some of these births could have occurred outside of marriage. This would have happened if the respondent married, then the marriage ended and a new non-marital relationship started which resulted in a pregnancy and childbirth. However since we are only examining respondents with one marriage in this group, the chance of this occurring is very slight.

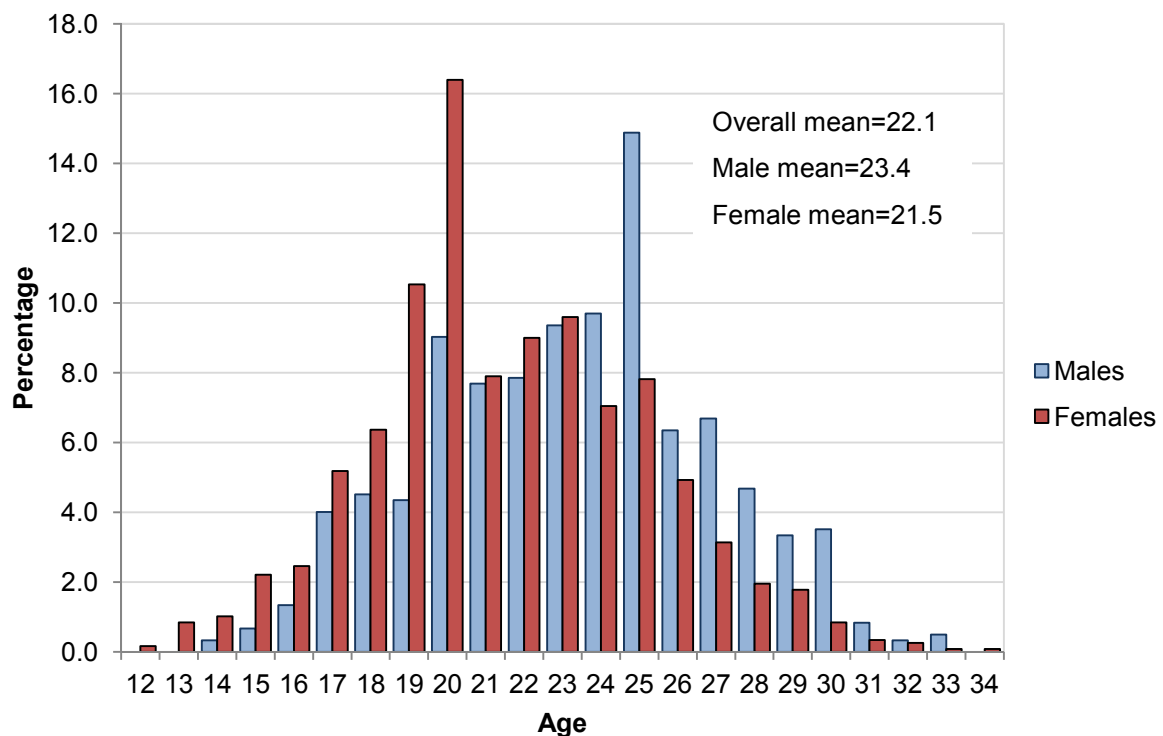
Characteristics of first sexual experience

First intercourse: Age

Of the 1,787 respondents that had ever had sex, 1,775 gave a valid answer for the age at first intercourse.

The distribution of the ages is shown in Diagram 1. The modal category for males was 25 years, while for females it was 20. While the average age at first sex was 22.1, there was a significant difference in age at first sex for males (mean=23.4) and females (mean=21.5); $t(1,773)$, $p < 0.01$. Further information about the mean age at first intercourse, by relationship status at the time and by (current) highest level of education is presented in Table 4.

Diagram 1. Distribution of age at first intercourse, by sex



Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Table 4. Mean age at first intercourse by relationship status, highest education level and sex

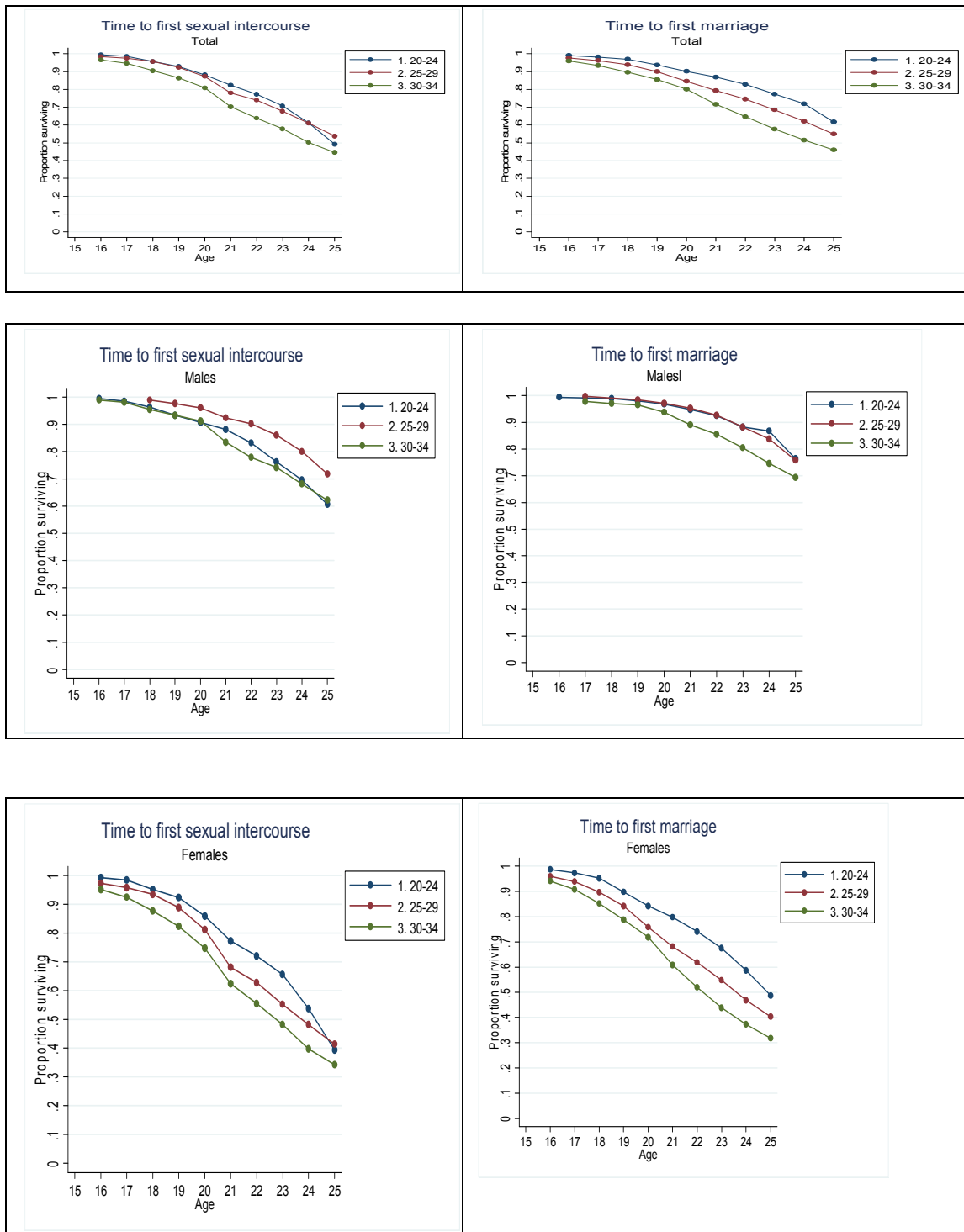
	Males		Females	
	Mean age	N	Mean age	N
Relationship status at time of first intercourse				
Not married	21.2	139	20.4	94
Married	24.4	404	21.6	1,083
Highest education level				
Primary school or less	22.3	68	19.4	256
Junior high school	23.0	114	20.3	265
Senior high school	23.4	315	22.2	465
Certificate	23.3	41	23.3	87
Bachelors	24.8	60	25.1	102
Total	23.4	598	21.5	1,177

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

As will be shown later on, the vast majority of the first sexual encounters took place within marriage. Therefore in many ways the timing of the first sexual encounter is a reflection of the timing of the first marriage, as illustrated by the survivorship graphs shown below.

Table 5 further examines disentangle that relationship between timing to first intercourse and timing to first marriage and to examine if there is any evidence of premarital sexual intercourse being a growing trend or not. For each sex, and for each age group or cohort, Table 5 presents the percentage of respondents who have had sex at all by age 15, 20 and 25. Three types of first intercourse are examined, overall, within marriage and outside of marriage.

Diagram 2. Time to first sex, and time to first marriage by age group



Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Table 5 Percentage of respondents that have had sex (at ages 15,20 and 25) by sex, current age and marital status

	Males				Females			
	20-24	25-29	30-34	Total	20-24	25-29	30-34	Total
Age 15								
Overall first intercourse %	0.4	0.0	1	0.5	0.8	3	5	3
Married first intercourse %	0.0	0.0	0.3	0.1	0.2	2	5	3
Unmarried first intercourse %	0.4	0.0	0.8	0.4	0.0	1	0.0	0.3
Total N	472	389	385	1,246	530	573	657	1,760
Age 20								
Overall first intercourse %	11	7	16	12	22	31	37	30
Married first intercourse %	2	4	8	4	18	27	35	27
Unmarried first intercourse %	9	4	9	7	4	4	2	3
Total N	470	389	385	1,244	529	573	657	1,759
Age 25								
Overall first intercourse %		37	50	43		64	72	68
Married first intercourse %		24	35	30		58	68	63
Unmarried first intercourse %		12	15	14		6	4	5
Total N		389	385	774		573	657	1,230

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

The results indicate that with successive ages, the percentage of respondents that have ever had intercourse does increase. However this increase is mostly explained by an increase in marital first intercourse with older ages. In terms of first intercourse occurring outside of marriage there is no clear evidence of this increasing among the younger cohorts, although it should be noted that the cohorts examined here are all relatively young and do not cover a long historical period. Article by Rosero-Bixby (1991) also found no evidence of an increasing trend in premarital sex in Costa Rica.

Table 6 presents event history analysis of time to first sex. In interpreting the models below, especially for the marital sex model, it should be kept in mind that assuming that the timing of first marriage and of first sexual intercourse within marriage occurs very closely together, that the models is in many ways a model of timing to marriage.

The odds ratios for the age indicator show a curvilinear pattern to the timing of age at first sex, with an increase and then a decline in the likelihood of experiencing sex for the first time with age. The odds of first intercourse are over two times higher for females than for males. However the competing risk models indicate that this is primarily an effect of females having higher odds of experiencing sex within marriage, rather than outside of marriage. The odds of first intercourse outside of marriage are significantly lower for females.

In terms of the respondents age or cohort, we can see that compared to those aged 25-29, older respondents had higher odds of first intercourse within marriage, but younger respondents had higher odds of first intercourse outside of marriage.

The time-varying variable which indicates whether the respondent was studying or not is a significant predictor of first intercourse overall, and of first intercourse within marriage, but has no effect in predicting first intercourse outside of marriage.

For the marital sex model, there is some evidence that parental education is important. Compared to individuals who had mothers and fathers with very low or no education levels, those with more educated parents were less likely to have experienced first intercourse within marriage at any age. While the results for sex outside of marriage were in the opposite direction, they were not significant. Respondents who were Muslim had higher odds of first intercourse overall, and within marriage, but not for sex outside of marriage.

First intercourse: Relationship context

All respondents that had ever had sex were asked whether they were married to their sexual partner when they first had sex. Table 7 shows the percentage of respondents who were not married to their sexual partner the first time they had sex. Overall 16 per cent were not married at the time, but there were significant differences by sex, age and relationship status. For example about one third of males were not married to their sexual partner the first time they had sex, compared to under 10 per cent of women.

In terms of male and female differences, the logistic regression confirms the bivariate analysis which indicated that females were significantly less likely to have not been married at the time of the first sexual intercourse [i.e. they were more likely to have been married!].

For the second set of models which only includes those that have ever had sex the results for age indicate that compared to those aged 25-29, those aged 20-24 were significantly more likely to have not been married the first time they had sex, and those aged 30-34 were significantly *more* likely to have been married (except in the case of males). While this pattern could be a result of a cohort effect, with the younger generations being more likely in general to have sex even if they are not married, it may also be a reflection of the fact that we are only looking at people who have ever had sex, and younger people are less likely to be married than older people. So if these young people have had sex, it is more likely that it occurred outside of marriage.

The results for education level suggest that respondents who grew up in households with more educated parents were *more* likely to not have been married the first time they had sex.

While Muslims were less likely to have been unmarried at the time of first sex, this was only statistically significant at the 10% level in one of the models (model 4). This may be due to the close relationship between ethnicity and religion?

Table 6. Event history analysis of time to first sex (odds ratios)

	Total	Marital sex	Sex outside of marriage
Age	2.45***	2.82***	2.87***
Age squared	0.98***	0.98***	0.98***
Sex			
Male (ref)			
Female	2.28***	4.83***	0.40***
Age group			
20-24	0.92	0.73***	1.56**
25-29			
30-34	1.25***	1.36***	1.20
Studying			
No (ref)			
Yes	0.34***	0.21***	1.00
Mother's education			
Primary school or less / Unknown (ref)			
Junior high school	0.88	0.77*	1.12
Senior high school or above	0.88	0.71**	1.17
Father's education			
Primary school or less / Unknown (ref)			
Junior high school	0.88	0.74**	1.51*
Senior high school or above	0.70***	0.56***	1.07
Religion			
Non-Muslim (ref)			
Muslim	1.47***	1.83***	1.07
Ethnicity			
Javanese (ref)			
Betawi	1.14	1.1	1.81***
Sundanese	1.46***	1.55***	1.95***
Combination of Javanese, Betawi or Sundanese	1.17	1.09	2.09***
Other	1.08	0.89	2.25***
Number of observations	26,312	2,312	26,312
Number of respondents	2,912	2,912	2,912
Log likelihood =	-5641.76	-4725.29	-1481.59
Prob > chi2	<0.001	<0.001	<0.001

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Table 7. Percentage of respondents who were not married to their sexual partner the first time they had sex

	%	Total N in group
Sex		
Male	32	604
Female	8	1,184
Age group		
20-24	32	286
25-29	15	623
30-34	12	879
Current relationship status		
Married	9	1,579
Dating	87	103
Single-previously married	11	37
Single- never married	100	54
Total	16	1,788

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Table 8. Odds ratio of not being married at the time of the first sexual experience

	Total sample			Subsample had ever had sex		
	Total model 1	Male model 2	Female model 3	Total model 4	Male model 5	Female model 6
Sex						
Male (ref)						
Female	0.31***			0.12***		
Age group						
20-24	0.79	0.86	0.73	1.76***	1.72*	1.59
25-29 (ref)						
30-34	1.16	1.65**	0.67	0.74*	0.89	0.55**
Mother's education						
Primary school or less / Unknown (ref)						
Junior high school	1.17	1.26	1.06	1.4	1.31	1.48
Senior high school or above	1.22	1.05	1.56	1.89**	1.35	2.59**
Father's education						
Primary school or less / Unknown (ref)						
Junior high school	1.55**	1.61*	1.53	1.67**	1.58	1.88*
Senior high school or above	1.23	1.22	1.26	1.95***	2.01**	1.95*
Age at first sex						
				0.82***	0.78***	0.85***
Religion						
Non-Muslim (ref)						
Muslim	0.92	0.91	0.97	0.64*	0.68	0.60
Religiosity						
Not religious/not answered	1.26	1.24	1.19	1.25	1.37	0.99
Somewhat religious (ref)						
Religious/very religious	0.72*	0.76	0.63	0.8	1.01	0.57*
Ethnicity						
Javanese (ref)						
Betawi	1.60**	2.04***	1.01	1.29	1.65	0.89
Sundanese	1.76***	1.76**	1.82*	1.2	1.07	1.42
Combination of Javanese, Betawi or Sundanese	2.01***	2.56***	1.36	1.81**	2.87***	1.07
Other	2.21***	2.93***	1.50	2.28***	3.04***	1.54
Number of observations	2,941	1,220	1,721	1,769	596	1,173
Prob > chi2	p<0.001	p<0.001	0.119	p<0.001	p<0.001	p<0.001

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Further exploration: effect of age

Because of the importance link between age and sexual intercourse, some further exploratory analysis was undertaken, although only at a bivariate level. Diagram 3 shows the breakdown of sexual experience by sex and age group. Diagram 4, also breaks down the prevalence by education. For both males and females in Diagram 3, there does not appear to be any significant variation in the level of pre-marital sex by age group. Diagram 4 indicates that particularly for females, within each age group, those with higher levels of education are

significantly less likely to have had sex within marriage. Presumably because they are less likely to also be married. Among the remaining women there is some slight increase in the proportion who have had extra marital sex at the time of first sexual intercourse.

Diagram 3. Sexual experience, by age and sex

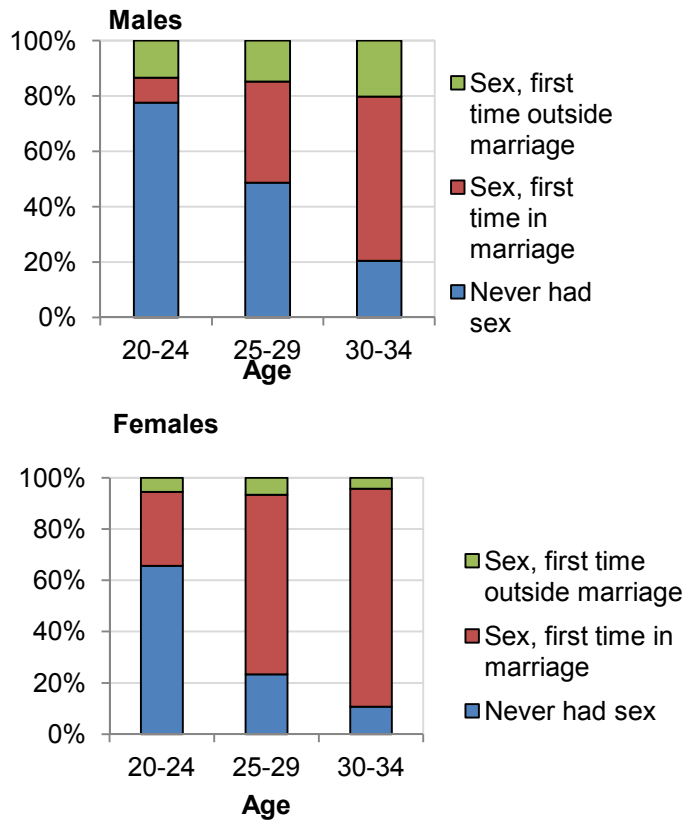
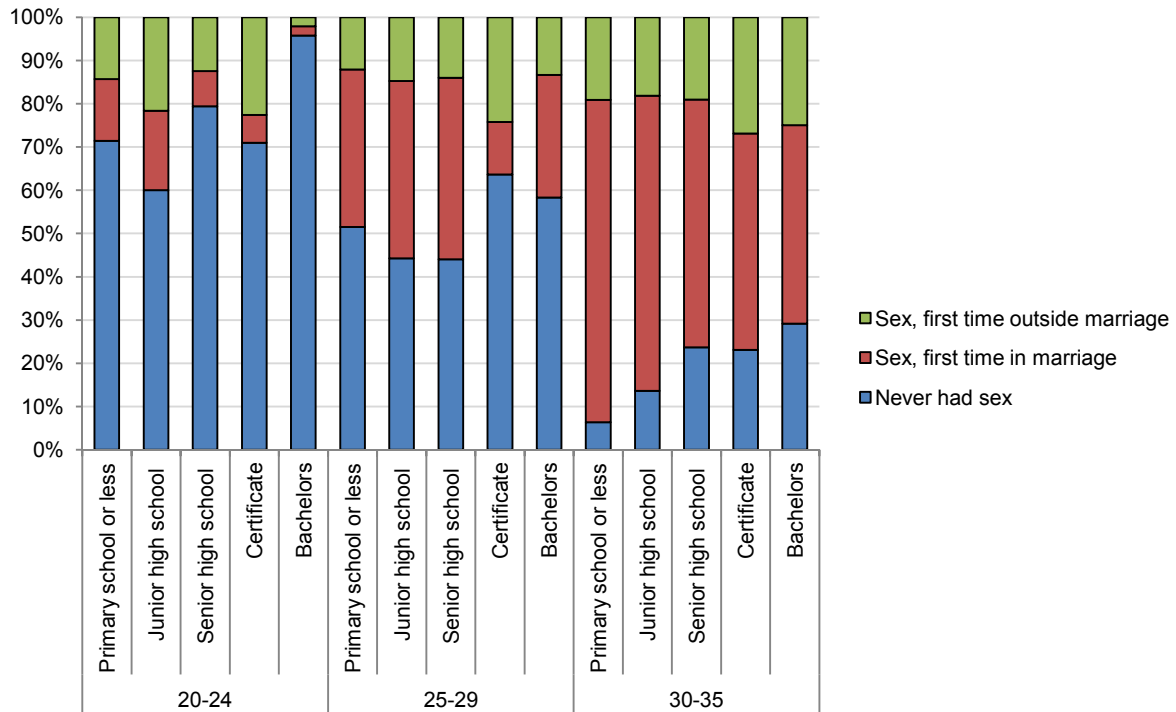
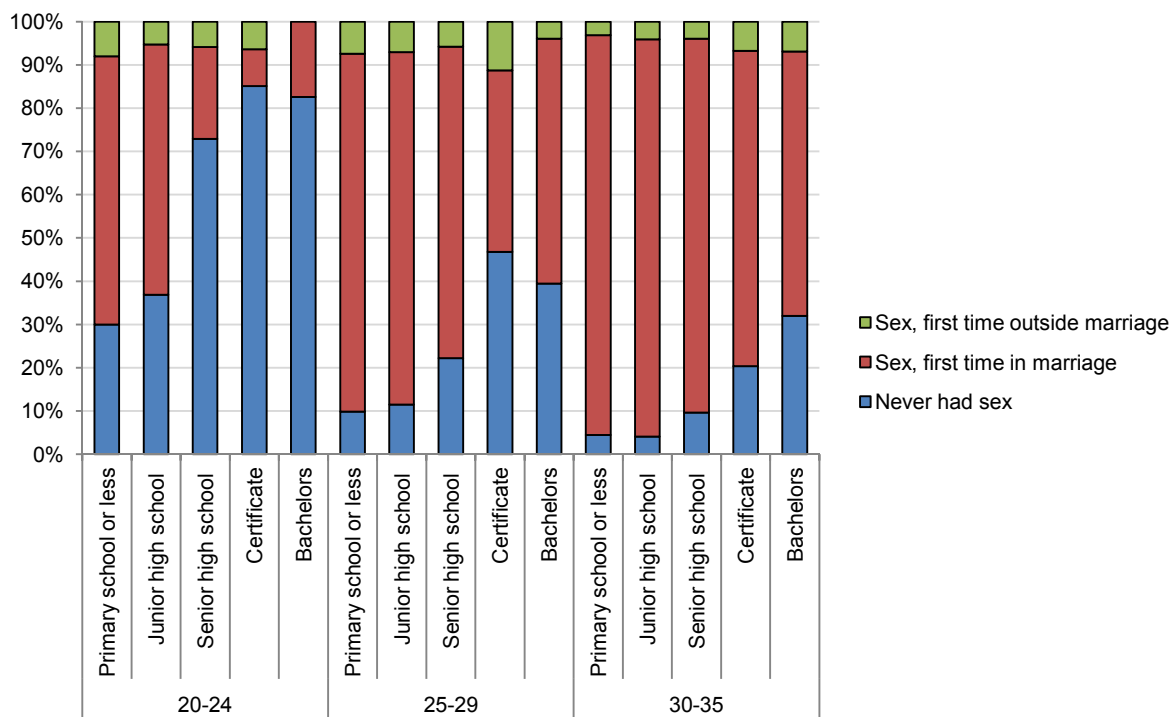


Diagram 4. Sexual experience, by highest education, sex and age

Males



Females



First intercourse: Contraception use

During their first intercourse, 9 out of 10 respondents did not use any form of contraception or protection. The most important determinant of whether or not contraception was used during the first intercourse was the relationship status to the sexual partner, as shown in Table 9 and graphically in Diagram 5 [same information in table and diagrams].

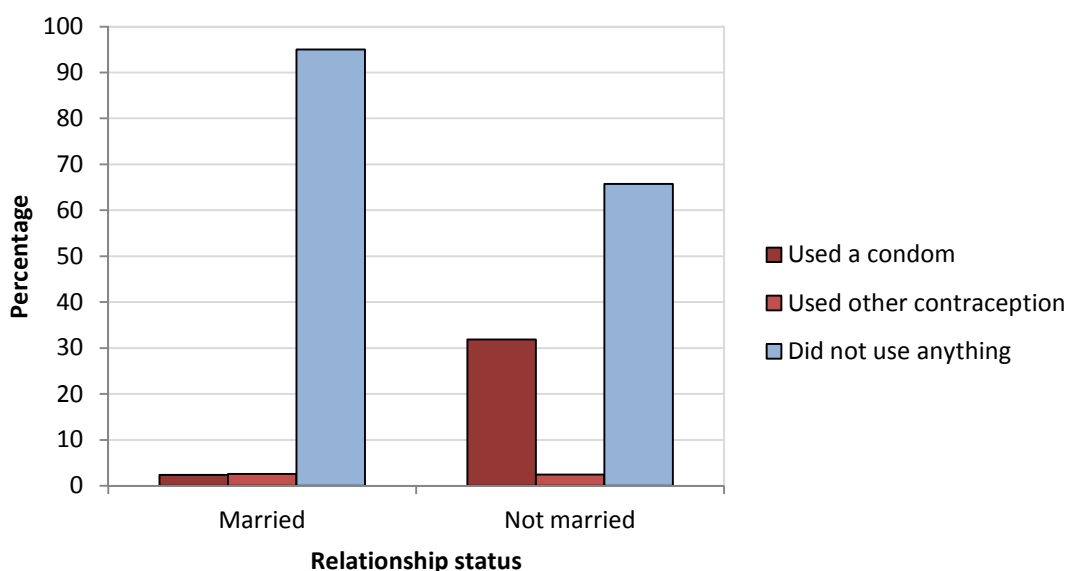
For example, while 95 per cent of respondents who were married to their partner at the time of the first sexual intercourse did not use any form of protection, this was true of only two thirds of those who first had sex outside of marriage.

Table 9. Percentage of respondents that used contraception at the time of first sexual intercourse, by relationship status at the time (column percentages)

	Married	Not married	Total
Used a condom	2	32	7
Used other contraception	3	2	3
Did not use anything	95	66	90
Total %	100	100	100
Total N	1496	289	1785

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Diagram 5. Percentage of respondents that used contraception at the time of first sexual intercourse, by relationship status at the time



Source: The 2010 Greater Jakarta Transition to Adulthood Survey

For this variable a multivariate model was also applied, but after controlling for relationship status no other predictor was significant.

First intercourse: knowledge about contraception and safe sex

The responses to the questions above about whether or not the respondents felt they had enough knowledge about contraception, and about safe sex at the time of the first intercourse are shown by education in Table 10 and graphically in Diagram 6 [same information in table and diagrams].

Some strong education differentials in perceived level of knowledge are evident.

Table 10. Level of knowledge about contraception and about safe sex, at the time of first sex, by current highest education

	Primary school or less	Junior high school	Senior high school	Certificate	Bachelors	Total
Knowledge about contraception	%	%	%	%	%	%
Yes	19	18	27	47	50	27
Not enough	36	47	54	42	42	47
Had no knowledge at all	45	35	19	11	8	26
Knowledge about safe sex	%	%	%	%	%	%
Yes	17	21	39	57	57	34
Not enough	35	42	45	35	35	41
Had no knowledge at all	48	38	16	8	8	25
Total %	100	100	100	100.01	100	100
Total N	327	380	783	128	166	1784

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Two sets of logistic regressions were also run for these variables. For each variable the dependent variable was defined as 1=Enough perceived knowledge about topic at the time of first intercourse, 0 =Not enough knowledge or no knowledge at all.

Not surprisingly the results presented in Table 11 indicate that the determinants of having enough perceived knowledge about contraception were very similar to the determinants of having enough perceived knowledge about safe sex. The main predictors of having enough knowledge about each topic at the time of first intercourse was the respondent's current level of highest education, as seen also in the bivariate analysis, and also their age at first intercourse. Respondents were more likely to judge their perceived knowledge at the time of first intercourse to have been higher, the older they were at the time of first intercourse.

Interestingly, there is also some evidence that compared to somewhat religious individuals, those who were more religious had more knowledge about contraception and safe sex. This effect of religiosity was only significant for females.

Diagram 6. Level of knowledge at time of first intercourse, by current education level

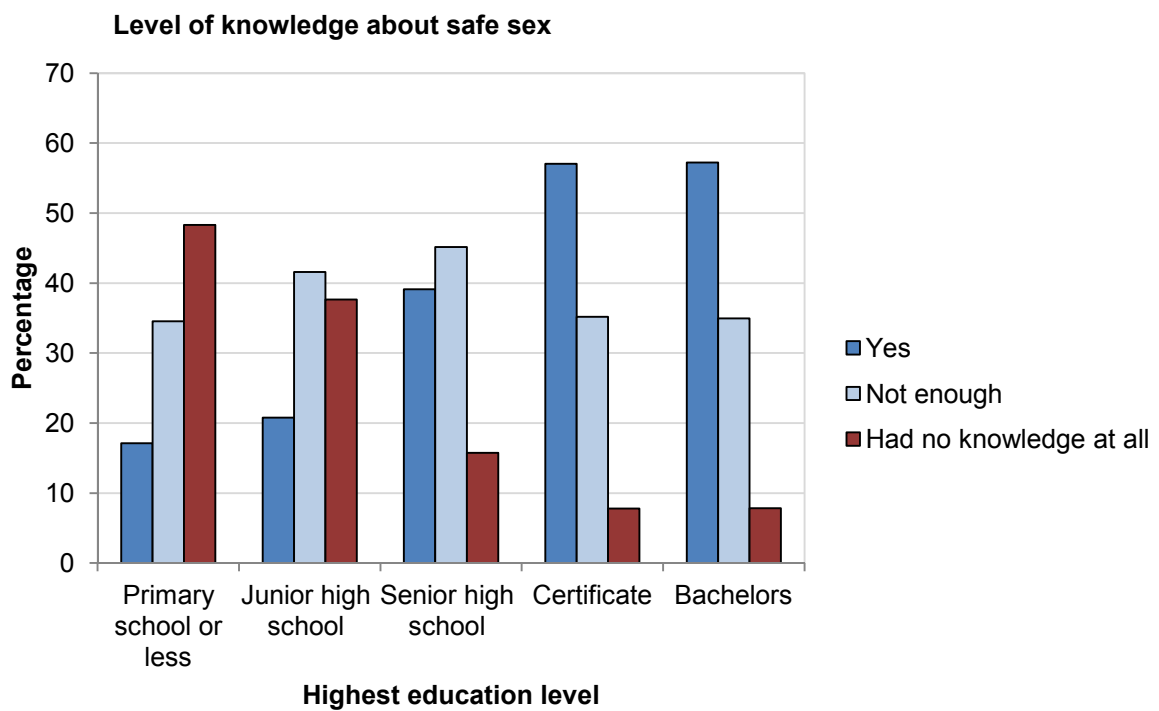
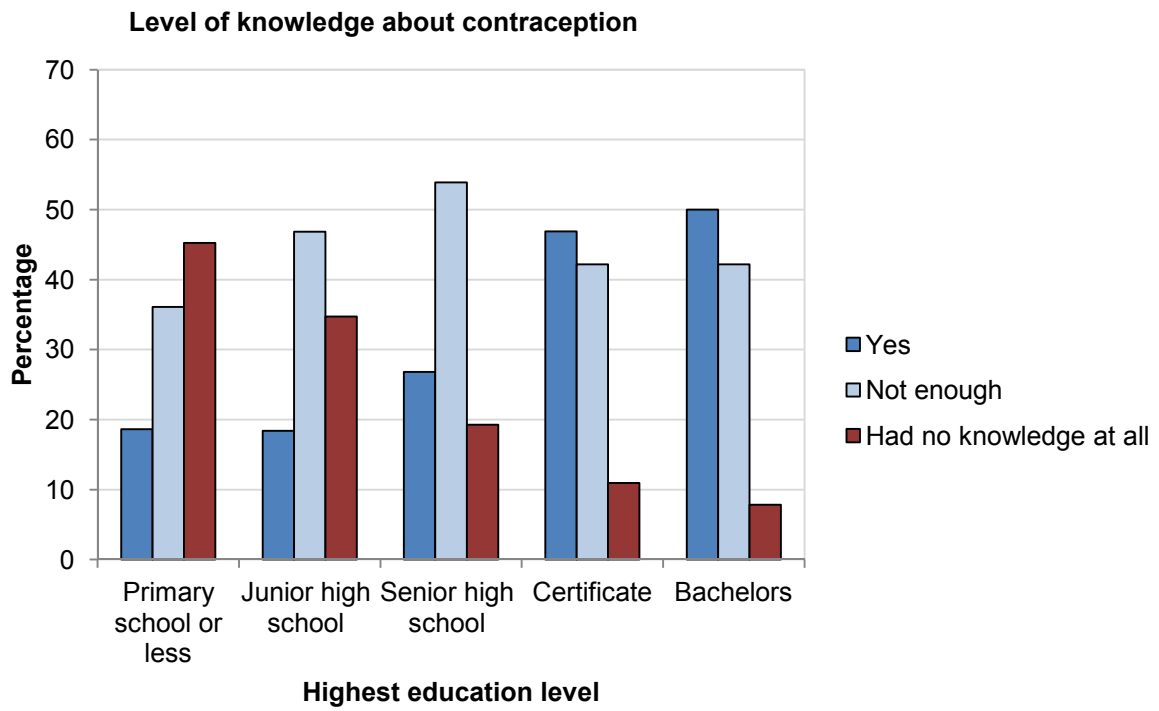


Table 11. Logistic regression of having enough knowledge about contraception and safe sex at the time of first intercourse (Odds ratios).

	Knowledge about contraception			Knowledge about safe sex		
	Total	Males	Females	Total	Males	Females
Sex						
Male (ref)						
Female	0.97			0.81*		
Age group						
20-24	1.10	1.19	1.05	1.37*	0.76	1.83***
25-29 (ref)						
30-34	1.03	1.23	0.95	1.11	1.04	1.16
Highest education						
Primary school or less	0.72*	0.40**	0.87	0.39***	0.24***	0.47***
Junior high school	0.67**	0.49**	0.79	0.46***	0.39***	0.52***
Senior high school (ref)						
Certificate	2.36***	3.45***	2.08***	2.05***	2.38**	2.01***
Bachelors	2.32***	1.92**	2.63***	1.75***	1.69*	1.70**
Age at first intercourse	1.06***	1.08**	1.06***	1.08***	1.06*	1.10***
Relationship status at first intercourse						
Married (ref)						
Dating	0.87	1.09	0.62*	0.89	1.04	0.68
Religion						
Non-Muslim (ref)						
Muslim	0.93	1.21	0.78	0.85	0.84	0.88
Religiosity						
Not religious/not answered	0.91	0.81	0.98	0.79	0.68	0.88
Somewhat religious (ref)						
Religious/very religious	1.36**	1.29	1.35*	1.51***	1.44	1.54***
Number of observations	1,767	595	1,172	1,766	595	1,171
Prob>chi2	p<0.001	p<0.002	p<0.003	p<0.001	p<0.002	p<0.003

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Sex before marriage and pre-marital conceptions

Of all respondents, 1386 respondents had children and had been married either once or never. Of these 1,382 had enough information on the date of marriage to allow calculation of the timing of conception of children in relation to the date of marriage. The date of conception was defined as the date of birth minus 9 months, and then three main sequences were defined.

The distribution of conceptions in relation to the date of marriage is shown in Diagram 7 below. The diagram only shows the distribution for conceptions which occurred between 1 year before marriage and 2 years after marriage, however this covers the vast majority of all conceptions (89%) among this subsample.

The diagram shows that while the majority of births were conceived after marriage, with a particularly strong peak the month of marriage and 1 month after marriage, a small but non-trivial proportion were also conceived sometime before marriage. The timing of most of these premarital conceptions was relatively close to the time of marriage, so the majority of cases the children would have been born within marriage.

In further analysis, we compared premarital conceptions patterns from the 2010 Greater Jakarta transition to Adulthood Survey with six Indonesian Demographic and Health Surveys carried out over the two decades from 1987 to 2007. All these surveys show similar results regarding the proportion of conceptions occurring before marriage (Diagram 8). The relative high proportions pregnant at marriage indicate that the nuptials may be a direct result of the pregnancy.

Diagram 9 investigates peoples responses to question 28 regarding whether or not they had sex before marriage, by the timing of the conception of their first child in relation to their date of marriage. While the proportion of respondents who stated that they had had sex before marriage was considerably higher among those who has a premarital conception as compared to those who had a marital conception, nevertheless the majority of those with premarital conceptions said that they had not had sex before marriage.

Diagram 7. Distribution of conceptions in relation to date of marriage (1 year before – 2 years after marriage)

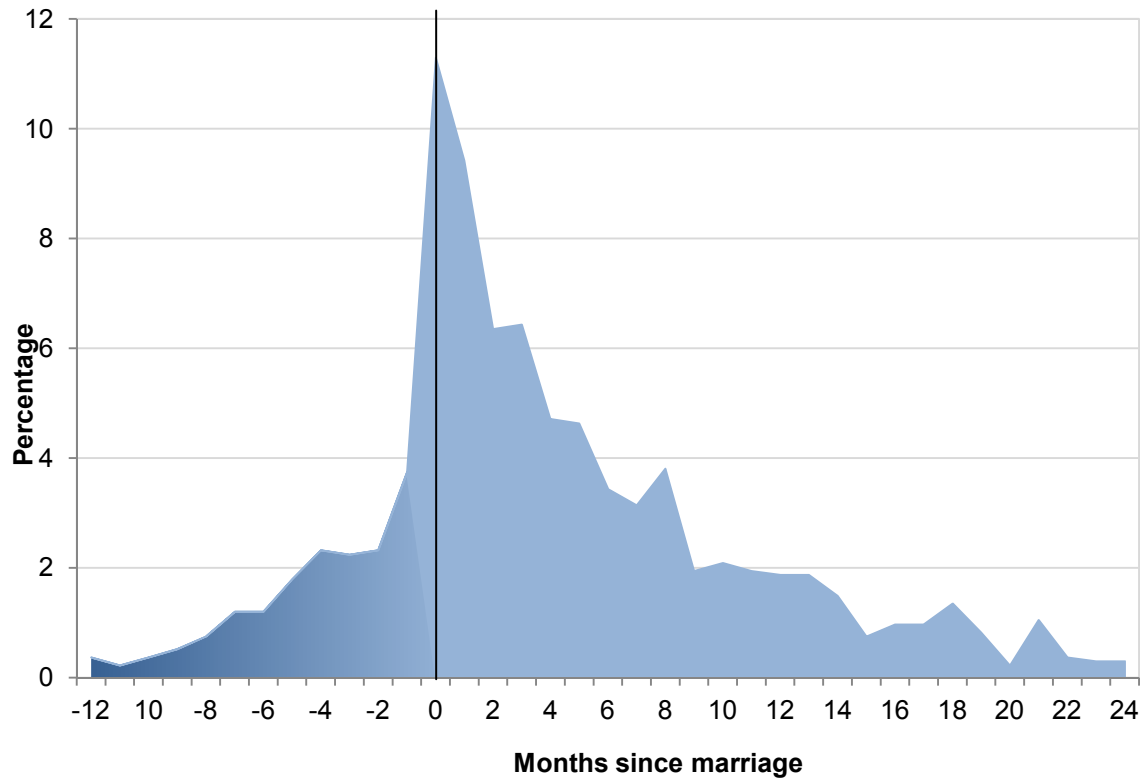
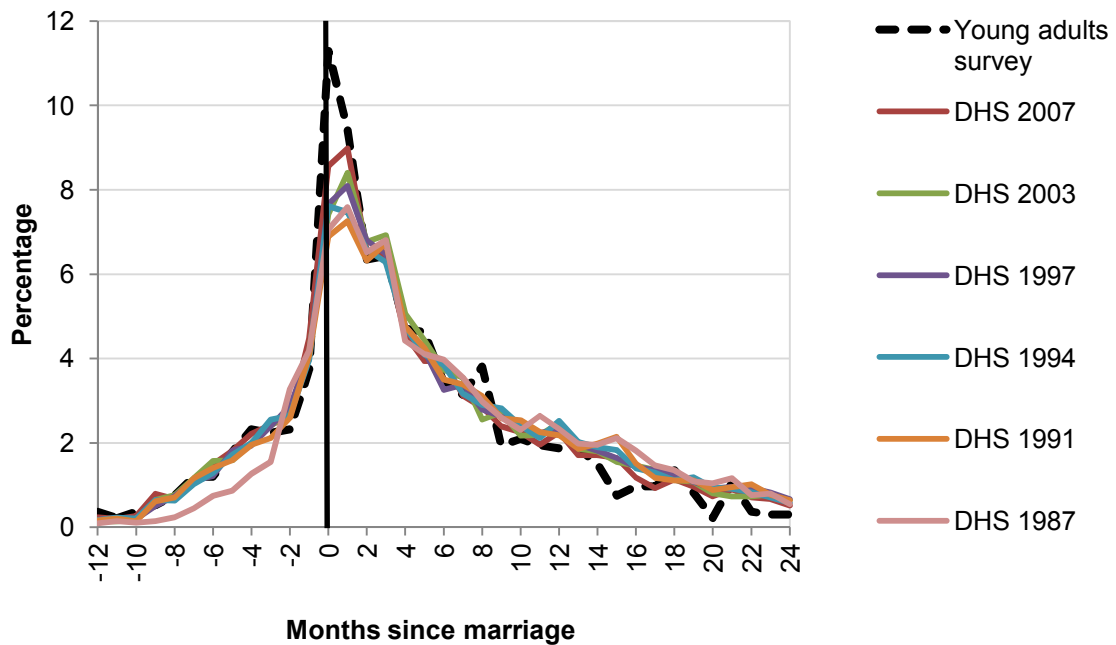
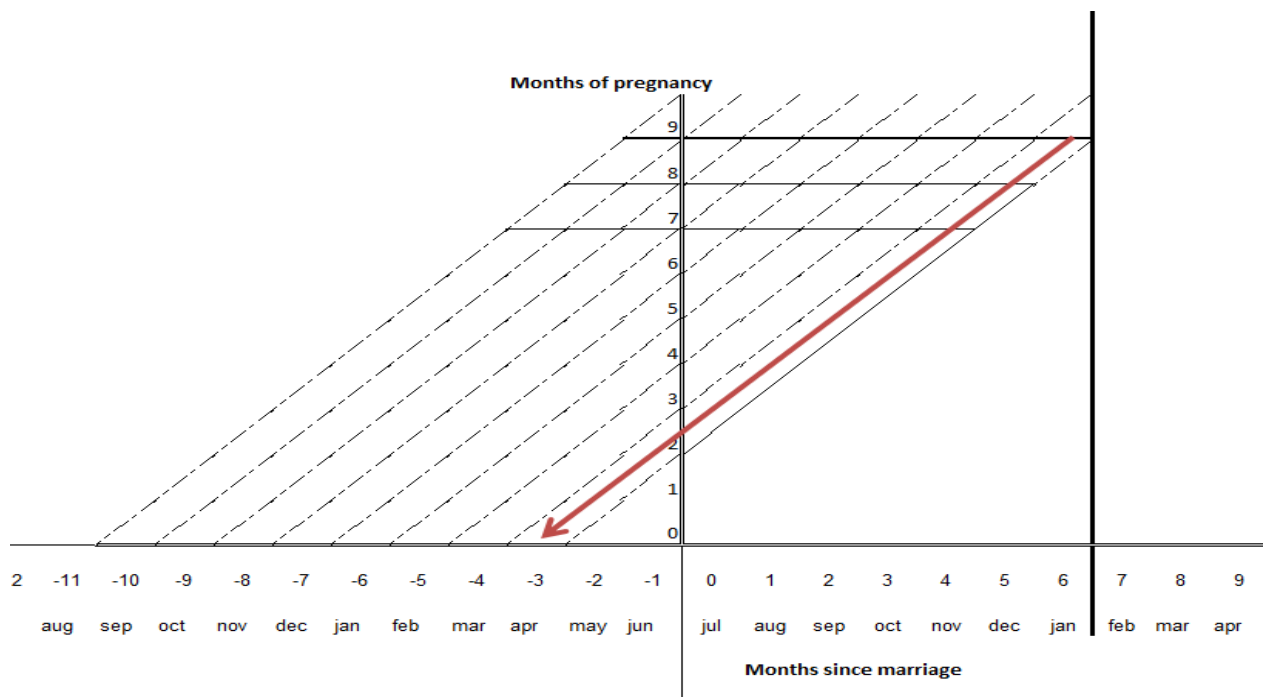
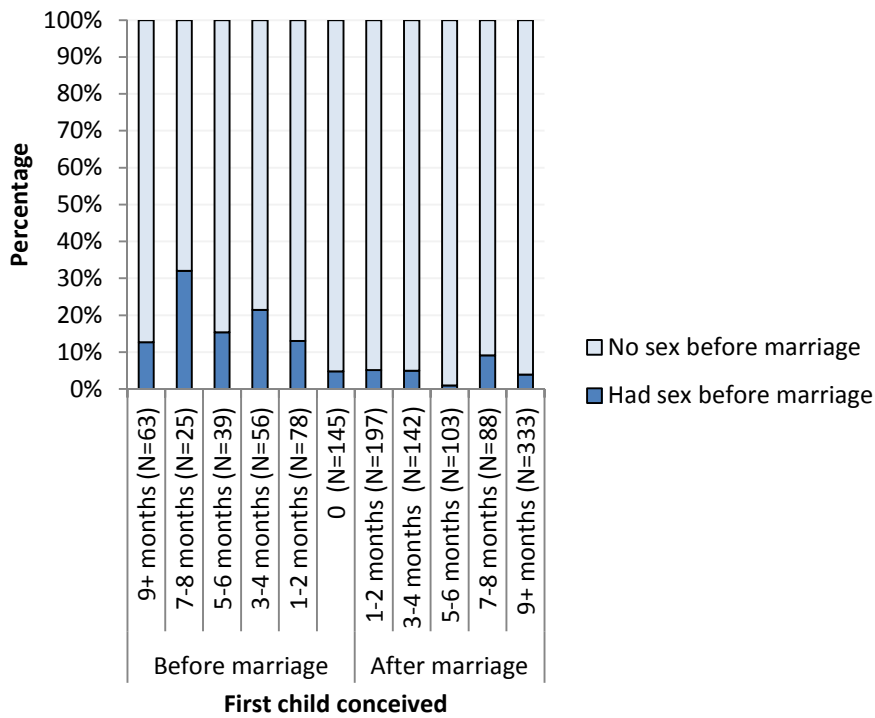


Diagram 8. Time from conception to marriage, 2010 GJTAS and IDHS (Women aged 20-34)



Sources: 2010 Greater Jakarta Transition to Adulthood Survey and 1987, 1991, 1994, 1997, 2003, 2007 Indonesian Demographic and Health Survey (IDHS)

Diagram 9. Response to “Whether had sex before current marriage” by date of first child’s conception in relation to marriage



According to this classification the distribution of the timing of conception in relation to marriage, for those that were never married or that had only been married once is shown in Table 12. It is estimated that 10 percent of respondents in the subsample had had a premarital conception, which was resulted in a marital birth.

The relationship between age at conception, for women only, and the distribution of the relationship context of conception is shown in Table 13. There is a clear age pattern where by an older age at conception is related to a higher percentage of marital conceptions, and a younger age is related to a higher percentage of premarital conceptions.

A logistic regression was run to model premarital conception (Table 14). The dependent variable was equal to 1 if the respondent had a premarital conception but a marital birth, and equal to 0 if they had a marital conception *and* birth. The lack of importance of education, either respondents own or parental education, is in line with results from other studies. For example in studying the determinants of premarital conceptions versus marital conceptions in Great Britain, Russell (1994:487) concluded that “low socioeconomic status, regardless of the measure, was not related specifically to premarital conception, but to conception early in the life course.”

Table 12. Distribution of the relationship context of conception

	N	%
Premarital conception -> premarital birth	63	5
Premarital conception -> marital birth	134	10
Marital conception & birth	1,164	84
Birth same year or one year after marriage, but not possible to define further	21	2
Total	1,382	100

Source: The 2010 Greater Jakarta Jakarta Transition to Adulthood Survey

Table 13. Distribution of the relationship context of conception, by age at conception for women

	<17	18-19	20-23	24+	Total
	%	%	%	%	%
Premarital conception -> premarital birth	9.7	7.3	3.9	3.8	5.1
Premarital conception -> marital birth	18.1	13.5	7.1	7.1	9.4
Marital conception & birth	65.3	77.7	87.5	88.0	83.7
Birth same year or one year after marriage, but not possible to define further	6.9	1.6	1.5	1.1	1.8
Total %	100	100	100	100	100
Total N	72	193	337	267	869

Source: The 2010 Greater Jakarta Jakarta Transition to Adulthood Survey

Table 14. Logistic regression of having had premarital conception (vs. marital conception).

	Males		Females	
	Own education	Parental education	Own education	Parental education
Sex				
Male (ref)				
Female				
Age different between spouses				
Husband up to 4 years older than wife (ref)				
Husband 5+ years older than wife	0.7	0.68	0.67	0.68
Highest education				
Primary school or less	0.48		0.43**	
Junior high school	0.8		0.83	
Senior high school (ref)				
Certificate	1.45		1.32	
Bachelors	1.96		0.46	
Age at conception				
<17	0.88	0.94	2.34**	2.19*
18-19 (ref)				
20-23	0.31*	0.36*	0.41***	0.43**
24+	0.16***	0.20***	0.23***	0.21***
Religion				
Non-Muslim (ref)				
Religiosity				
Not religious/not answered	1.4	1.55	0.94	0.88
Somewhat religious (ref)				
Religious/very religious	1.52	1.55	0.94	0.88
Perceived level of knowledge about contraception at the first intercourse				
Enough	1.02	1.11	0.98	0.96
Not enough (ref)				
None at all	0.8	0.8	0.78	0.73
Mother's education				
Primary school or less / Unknown (ref)				
Junior high school		1.13		0.74
Senior high school or above		1.33		1.14
Father's education				
Primary school or less / Unknown (ref)				
Junior high school		1.63		0.67
Senior high school or above		1.35		2.51**
Number of observations	313	712	313	712
Prob>chi2	0.336	p<0.001	0.004	p<0.001

Source: The 2010 Greater Jakarta Transition to Adulthood Survey

Conclusion

The analysis showed that mean age at first intercourse was 22.1 (23.4 for males and 21.5 for females). As expected mean age at first intercourse was lower for those who were not married at the time of first intercourse and the vast majority of first sexual experiences occurred within marriage (84%). However men were more likely to have not been married at the time of first intercourse compared to women, at 32 percent and 8 percent respectively.

The analysis showed that there is no clear evidence that levels of premarital sex have increased among the younger cohorts. At the time of first intercourse, 9 out of 10 respondents did not use a condom or any form of contraception. However there were large differences in contraceptive use at first intercourse by the relationship status to the sexual partner. Among respondents who were not married to their partner, 35 percent used either a condom or some other contraception. The majority of respondents felt that they did not have enough knowledge about contraception, or about safe sex at the time of first intercourse. However, perceived level of knowledge varied strongly by education level.

Findings that more than one third of those who are still single would use either a condom or other family planning methods can suggest that if knowledge, stigmatization and accessibility are not problematic, there might be more likelihood that condom use can be increased among this group. Though perceived knowledge on contraception and safe sex at the time of first intercourse is strongly link with education level and the majority of respondents did not have enough knowledge on these issues, progressive reproductive health education that includes safe sex messages need to be included in the national curriculum. Content analysis of the Indonesian national curriculum and school textbooks in primary and secondary schools revealed that though reproductive health education is scarcely provided in school textbooks of Science, Biology, Sport and Healthy Living Education, Social Sciences and Islamic Religion, the majority of textbooks do not include safe sex messages. Key words in the national curriculum on reproductive health education only include: human growth and development; sexual hygiene; resisting sexual harassment; personality development, free sex, reproductive system and reproduction, healthy living style, good and bad behavior, avoiding bad behavior, homosexuality and adultery, marriage institution and family, age at marriage, commercial sex workers and HIV (Utomo and McDonald et.al., 2010). The social aspects of reproductive health education are filled with very conservative normative and religious values and limited information and emphasis on safe sex messages.

Analysis investigation on whether first sex is strongly related to marriage, revealed that 13 percent of currently married men indicated that they had sex before marriage, but in contrast, only 5 percent of currently married women said that they had had sex before marriage. There is strong evidence that respondents did not provide accurate answers to the question of whether or not they had premarital sex with their current spouse. Even among those who had a premarital conception, the majority of respondents indicated that they did not have sex before marriage. The results showed that around 10 percent of births to those married less than 2 times were identified as being premarital conceptions, but marital births. The main determinant of having a premarital conception for both males and females was age at

conception. For those who had a marital conception (i.e. conception after marriage) the determinants of timing to conception are not clear cut. However there is evidence that conception occurs at a faster pace for those who married at later ages.

Willingness to revealed premarital sexual intercourse in survey seems to be more favorable among males than females, though there is strong evident that 10 percent of births have been premarital conceptions. Further investigation would need to be conducted to analysed whether the responses is socially constructed, meaning as females in the Indonesian setting have been brought up to be submissive, to demonstrate having good manners, securing virginity, accepting one's faith and thus more likely to reserved premarital sexual behaviour to oneself and never admitted it to others. Another important aspect is that virginity for woman is still highly preferred in marriage, thus it would be more problematic for women to revealed her premarital sexual experiences compared to males. In the later premarital sexual experiences may be a form of demonstrating masculinity and can boost male's ego. The commercialized industries have strategically captured this cultural values and made vaginal surgery to regain virginity more accessible in big cities.

The question of how to make respondents willingly and truthfully revealed their premarital sexual behavior in survey remains. Literature reviews reported that national surveys for example the Indonesian Demographic Health Surveys (IDHS) and the 2003 and 2007 IYARHS (Indonesian Young Adults Reproductive Health Survey) provided lower incidence of premarital sexual intercourse compared to provincial representative surveys and other opportunistic surveys. To note the later also used a combined methods of survey, in-depth interviews and case studies to generate incidence of premarital sex.

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