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Correlates and Consequences of Delayed Marriage in Malaysia

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Abstract: *This paper aims to examine the correlates of age at first marriage and the consequences of late marriage. Data for this paper were drawn from the 2014 Malaysian Population and Family Survey. Simple cross-tabulation and multiple classification analysis were used for the analysis. Age at marriage of women varied across socio-economic groups. Among the ethnic groups, the Other Bumiputera entered marriage earliest, followed by the Malays, Indians and Chinese. Age at marriage was positively associated with urbanisation, educational level, and women's autonomy in marriage. The assumption of modern norms and ideas, and escalating cost of marriage are important determinants of marriage postponement. Late marriage has a direct impact on demographic outcomes, resulting in ultra-low fertility for some groups of the population. Marriage postponement has positive socio-economic outcomes for individuals. However, postponing marriage beyond the prime reproductive age may result in some reproductive health problems.*

Keywords: Delayed marriage; Age at marriage; Ethnicity; Malaysian Population and Family Survey; Women.
JEL Classification: I210, J120, J100

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1. Introduction

Early and universal marriage in Asia began to taper off in the 1970s (Esteve et al., 2020; Jones, 2017; Raj et al., 2009; Raley et al., 2015; Singh and Samara, 1996). Getting married was considered a natural transition to adulthood, linked closely with childbearing and other family responsibilities. Men and women married at a young age due to various reasons such as the desire to procreate, parental arrangement (often prioritizing avoidance of premarital conceptions), and social and economic motivations. In modern societies, there is less pressure for young people to get married, because of the changing norms of family responsibilities, that place less emphasis on procreation, and cohabitation has also become more acceptable.

Young people spend longer time pursuing education, and their exposure to and adoption of modern norms and ideas has a significant impact on the marriage institution (Mahotra and Tsui, 1996). With rising education and female labour force participation, more women have become financially independent. These changes have resulted in a rise in age at marriage and non-marriage (Esteve et al., 2020; Raley et al., 2015; Raymo, 2003; Retherford et al., 2001; Yu and Xie, 2015). In many Southeast Asian countries, the singulate mean age at marriage (SMAM) for both men and women had exceeded 25 years and 23 years respectively by 1990 and were higher in the metropolitan centres (Jones and Ramdas, 2004). The SMAM for women is now above 28 years in Singapore, and over 26 years in Malaysia and Brunei. Globally, the tertiary enrolment ratio for females in upper-middle-income countries had gone up from 8.4% in 1980 to 57% in 2017, and female employment in the services sector more than doubled to about 60%. The urbanisation level in these countries had increased from 35.7% to 65.5% over the same period (World Bank, 2021).

The fact that higher education serves to delay marriage is well established (Carmichael, 2011; Ji and Yeung, 2014; Jones and Gubhaju, 2009; Raymo, 2003; Rindfuss et al., 1996; Sabbah-Karkaby and Stier, 2017; Tian, 2013; Wayachut, 1993; Yu and Xie, 2015). According to Becker's (1981) treatise on the family, women with high levels of education have better employment opportunities than less-educated women, resulting in greater economic independence, which relegates their desire and needs to marry. Because students are not supposed to get married and have children, the increasing enrolment in higher education had prevented teenagers from

entering marriage (Lindstrom and Paz, 2001). Higher-educated women tend to have more lucrative jobs than less-educated women, and hence a higher opportunity cost for them to stop working after marriage to look after children. It is also possible that existing labour market policies/practices make it difficult for women to return to work after childbirth. Better-educated women are exposed to alternative role models to those of wife and mother, prompting them to remain single (Gyimah, 2009; Raymo, 2003; Raymo and Iwasawa, 2005; Scourfield and Evans, 2015).

Cultural and religious practices also have a strong bearing on nuptiality, as shown by the wide variations in the timing of marriage among the different ethnic and religious groups in cosmopolitan countries (Raley et al., 2015; Tey, 2007; Wayachut, 1993). These studies found that Muslims tended to enter marriage earlier than non-Muslims. Traditionally, men are expected to provide for the maintenance of the family, and hence it is common for them to postpone marriage until they are financially adequate and stable. In many societies, the norm is for a man to have at least the same education level as the wife. In studying the marriage patterns in Southeast and East Asia, Jones (2005) found that men tend to marry a woman younger and less educated than they are, but the opposite is true for women, and that less-educated men dare not marry a woman better-educated and earning more than themselves. As women have surpassed men in higher education, it is becoming increasingly difficult for less-educated men and higher-educated women to find a compatible life partner.

However, a recent study in China found that rising education did not affect the marriage chances of urban women, because modernisation has reduced the traditional practice of urban women marrying up, although it decreases the marriage chances of rural women marrying, due to the persistence of cultural practices of women marrying men with at least the same educational level as themselves (Piotrowski et al., 2016).

The rising age at marriage and increasing non-marriage affect the demographic processes and outcomes, reproductive health, and the wellbeing of individuals and families. Marriage postponement is a major proximate determinant of fertility which resulted in the continuing decline of fertility in many low fertility countries (Bongaarts, 2015; Majumder and Ram, 2015; Tey et al., 2012). A woman's age at marriage has broader socio-economic and reproductive health implications over her life course (Gupta and Mahy, 2003; Gyimah, 2009; Kritz and Gurak, 1989). An increasing

number of women are marrying beyond their prime reproductive age, resulting in infertility, pregnancy complications, and giving birth to babies with Down syndrome, autism, and other abnormalities in children (Balasch and Gratacós, 2012; Chari et al., 2017; Dhamija and Roychowdhury, 2020; Harwood-Lejeune, 2001; Hultman et al., 2011; Reichenberg et al., 2006). Delayed marriage is often accompanied by increased cohabitation and premarital and unprotected sex.

Early-married women tended to drop out of school, with a negative effect on their career and earnings (Dhamija and Roychowdhury, 2020; Gyimah, 2009; Mim, 2017), and they are also more likely to experience marital instability and domestic violence (Takyi, 2001; Tilson and Larsen, 2000). Sekhri and Debnath (2014) found that women's low educational attainment due to early age marriage can adversely impact the educational outcomes of their children.

There are also adverse health consequences of early marriage, including unintended pregnancy, preterm delivery, delivery of low birth weight babies, and foetal mortality (Santhya, 2011). Sandhu and Geethalakshmi (2017) found that most of the mothers who married at an early age experienced complications during delivery, including a higher incidence of caesarean section. In general, these negative consequences are less likely to happen among late-married women.

This paper analyses the correlates of age at marriage of Malaysian women and discusses the consequences of marriage postponement. Past Malaysian studies on this topic used the SMAM, an indirect measure computed from population census data, as the dependent variable. In this paper, the actual age at marriage obtained from the 2014 Malaysian Population and Family Survey (MPFS), was used for the analysis. The timing of marriage is examined by birth cohorts (measured by current age), ethnicity, place of residence, educational level, and marriage arrangement. While the focus was on age at marriage, the article also highlights child/teen marriages and examines the perception of the ideal age at marriage to shed some light on the likely marriage scenario in the near future. The second part of the paper discusses the consequences of marriage postponement on the demographic outcomes, reproductive health, women empowerment, labour market, and family support in old age. To our knowledge, no Malaysian study has examined the consequences of delayed marriage.

2. Rising Age at Marriage and Non-marriage

Between 1970 and 2010, the SMAM had gone up from 22 years to 25.7 years for females, and from 25.5 years to 28.0 years for males. It is interesting to note that the mean age at marriage for males had declined slightly from 28.6 years in 2000, after increasing by about one year during each of the preceding decades (Table 1).

Table 1: SMAM, 1970-2010

Gender	Year	Ethnicity			Malaysia
		Malay/Other Bumiputera	Chinese	Indian	
Female	1970	21.0	24.2	21.7	22.0
	1980	23.2	25.1	24.2	23.5
	1991	24.6	26.3	25.5	24.8
	2000	24.8	27.0	25.0	25.1
	2010	25.7	27.0	26.1	25.7
Male	1970	24.7	27.4	25.0	25.5
	1980	26.7	28.2	26.8	26.6
	1991	27.5	29.8	28.3	27.8
	2000	27.9	30.6	28.8	28.6
	2010	27.9	28.7	28.2	28.0

Sources: Tey (2007). Figures for 2010 computed from 2% sample data of the 2010 population census.

Among the ethnic groups in Malaysia, the Chinese had always entered marriage later than the Malays/Other Bumiputera and Indians. However, the ethnic differences in age at marriage had narrowed over the years, due to the more rapid rise in the age at marriage by about 4.7 years for the Malays/Other Bumiputera and 4.4 years for the Indians, compared to a more gradual rise of 2.8 years for the Chinese over the forty years.

Universal marriage was the norm in the early years following independence in 1957, but singlehood has been on the rise for all ethnic groups. In 1970, 98% of Malay and Indian women were married at age 35-39, but this decreased to 92% for the Malays and 88% for the Indians in 2010. The proportion remaining single at age 35-39 also decreased considerably for the Chinese women from 94% to 84%. A study by Tey (2007) showed that only a

small proportion of these women would end up marrying.

Between 1970 and 2000, teenage marriage declined sharply for all the three main ethnic groups, from 22% to 3.2% for the Malays, and from 6% to 1.8% for the Chinese. The unexpected rise in teenage marriage between 2000 and 2010 has caught the attention of policymakers and the public. Due to the rise in tertiary education, the proportion of Malay and Indian women aged 20-24 who had ever been married fell by over 50%, while that of the Chinese fell more modestly from 39% to 29.7% (Table 2).

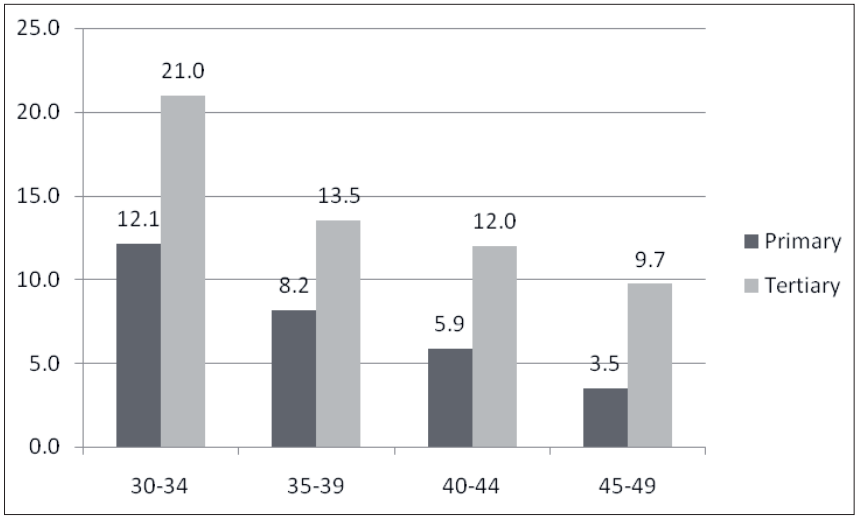
Table 2: Percentage of Ever-married Women, by Age Group and Ethnicity, 1970–2010

Year and Ethnicity	**Age group**				
	15-19	20-24	25-29	30-34	35-39
1970					
Malay	22.1	66.2	90.7	96.8	98.1
Chinese	6.0	39.0	78.7	89.5	94.0
Indian	16.1	63.0	87.8	95.2	98.2
1980					
Malay	9.3	50.6	82.1	91.5	96.1
Chinese	4.7	33.9	72.4	86.3	92.4
Indian	8.8	45.7	75.8	91.3	92.6
1991					
Malay	5.7	38.7	76.7	89.8	93.9
Chinese	2.9	23.8	64.6	83.1	88.8
Indian	5.8	38.2	69.9	85.4	90.0
2000					
Malay	3.2	35.6	77.5	90.4	93.6
Chinese	1.8	16.6	55.3	82.4	89.6
Indian	3.7	29.8	68.8	86.4	90.2
2010					
Malay	4.8	29.0	65.2	86.0	91.8
Chinese	4.8	29.7	51.8	74.4	84.2
Indians	5.0	30.2	57.9	81.0	88.1

Sources: Population censuses, various years.

Higher-educated women were more likely than less-educated women to remain single. More than 10% of the tertiary-educated women in their forties were still single, and this is likely to increase further, given that one in five women aged 30-34 were still single (Figure 1).

Figure 1: Share of Women Never Married, by Age and Educational Level, 2010 (%)



Source: Computed using the 2% sample data of the 2010 population census.

3. Data Sources and Methodology

The primary data source for this paper was drawn from the 2014 MPFS conducted by the National Population and Family Development Board (NPFDB), Malaysia. The sample frame for this survey was maintained and updated by the Department of Statistics, Malaysia, based on the listing of enumeration blocks (EBs) for the 2010 population and housing census. A two-stage stratified sampling design was used to select the sample. The EBs were selected at the first stage and living quarters (LQs) were selected in the second stage. A total of 2,889 EBs and 23,112 LQs were selected for the survey. Trained interviewers visited respondents' houses to conduct face-to-face interviews between 1 September 2014 and 31 January 2015. A more detailed description of the methodology of the survey is given in the survey report (NPFDB, 2016).

The nationally representative survey comprised five target groups of respondents, namely i) ever-married women aged 15-59 years (MF51), ii) a sub-sample of the husbands of the ever-married women (MF52), iii) young people aged 13-24 years (MF53), iv) older persons aged 60 and over (MF54), and v) unmarried persons aged 25-49 years (MF55). The survey collected data on socio-demographic characteristics, marriage and childbirth, childcare, family relationships and details, and other data on social and reproductive health. The main analysis for this article used data from the 7,644 ever-married women. The analysis on ideal age at marriage was based on data from 5,304 young respondents aged 13-24.

Data from the population censuses were used to compute the SMAM and the proportion ever married. The SMAM is an indirect measure calculated from the proportion of the population aged 15-54 (by five-year age group) who had never been married. The retrospective nature of the SMAM means values are influenced by age and marital status-specific mortality and migration (United Nations, 2013). The detailed analysis used the direct measure on the age at marriage as reported by the survey respondents. This direct measure may provide a lower bound of the age at marriage, as it was calculated for those who had already married. For instance, a never-married woman aged 25 at the time of the survey may end up marrying at age 30. Owing to the different age at marriage across the sub-groups, the present analysis selected respondents who were aged 30 and over and married before age 30 to minimise the problem of censoring and truncation.

4. Results

4.1 Correlates of age at first marriage

Table 3 shows wide variations in age at marriage for women aged 30 and above and who were married before age 30. Overall, the mean age at first marriage among the ever-married women aged 30-59 years was 22.1 years. More than half of them got married by age 22 years. The trend towards delayed marriage was reflected by a rise in age at marriage from 21.3 years among those aged 50-59 to 23 years among those aged 30-34, with a corresponding decrease in the proportion marrying before age 20 from 35.7% to 19.4% (Table 3).

Table 3: Distribution of Age at First Marriage and Mean Age at First Marriage Among Ever-Married Women, 2014 (%)

Variables	Age at Marriage					Mean
	<20	20-22	23-25	26+	Total	
Ethnicity						
Malay	25.9	28.5	26.4	19.2	100.0	22.1
Other Bumiputera	47.2	22.8	14.7	15.4	100.0	20.4
Chinese	11.6	25.4	27.7	35.2	100.0	23.8
Indian and others	25.2	25.4	24.6	24.8	100.0	22.4
Place of residence						
Metropolitan	20.5	26.3	28.6	24.6	100.0	22.7
Other urban areas	24.9	27.8	24.5	22.9	100.0	22.3
Rural	36.7	27.5	20.0	15.7	100.0	21.2
Region						
North	24.8	28.3	25.9	21.0	100.0	22.2
Central	15.8	23.4	32.5	28.3	100.0	23.3
South	21.9	29.5	27.8	20.8	100.0	22.4
East	33.6	29.1	20.4	16.9	100.0	21.4
Sabah/Labuan	40.9	23.9	16.5	18.7	100.0	21.0
Sarawak	41.6	24.9	16.5	17.0	100.0	20.9
Education level						
No schooling	61.2	15.5	12.6	10.8	100.0	19.1
Primary	52.1	24.3	13.3	10.4	100.0	20.0
Lower secondary	37.6	28.0	19.2	15.2	100.0	21.2
Upper secondary	14.8	33.5	29.5	22.2	100.0	22.9
Tertiary	3.1	13.9	38.9	44.1	100.0	25.0
Marriage arrangement						
Arranged	40.5	25.2	18.6	15.7	100.0	20.9
Introduced	21.1	25.6	24.9	28.4	100.0	22.9
Own choice	22.9	27.9	27.1	22.1	100.0	22.4
Age group						
30-34	19.4	22.8	29.6	28.2	100.0	23.0
35-39	24.6	28.2	25.4	21.8	100.0	22.3
40-44	23.0	32.1	24.8	20.1	100.0	22.3
45-49	26.9	28.0	24.1	21.0	100.0	22.1
50-59	35.7	25.4	21.9	17.0	100.0	21.3
Total	27.4	27.0	24.7	20.9	100.0	22.1

Source: Computed from MF51 of 2014 MPFS.

The age at marriage ranged from 20.4 years among the Other Bumiputera to 23.8 years among the Chinese. The proportion of women who were married before age 20 ranged from 11.6% among the Chinese to 47.4% among the Other Bumiputera. Rural women entered marriage at a younger age than those from the urban and metropolitan areas. Only 20.5% of metropolitan women married before age 20, compared to 36.7% among rural women. Women in Sabah/Labuan and Sarawak married earliest while those from the Central region latest. Age at marriage ranged from 19.1 years among those with no schooling to 25.0 years among the tertiary-educated. Over 60.0% of women with no schooling were married before age 20, compared to 3.1% among the tertiary-educated women, among whom more than 40% married after age 25.

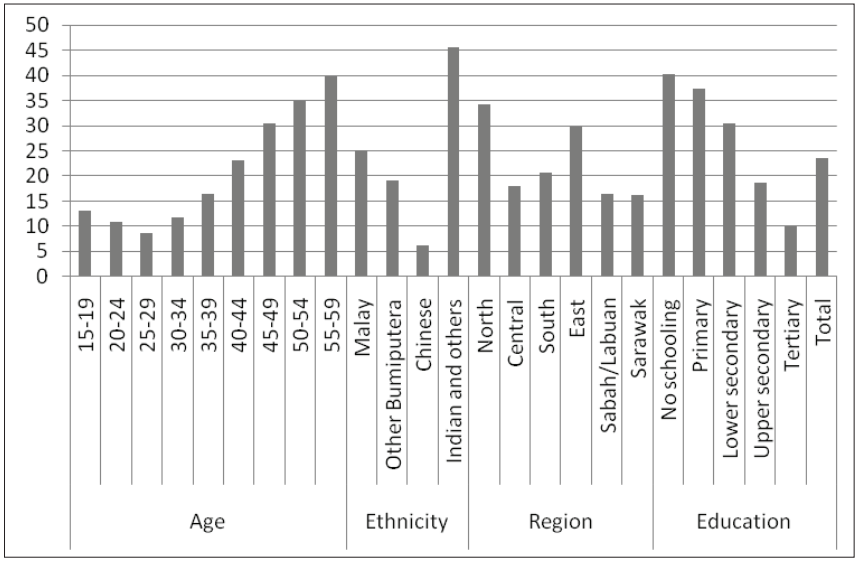
Women who chose their spouse married later than those whose marriage was arranged. This suggests that delayed marriage is associated with women's autonomy. Women whose marriage was arranged were twice as likely as those who chose their spouse to marry before age 20. Figure 2 shows that about one-quarter of the marriages were arranged by parents. Arranged marriage has been decreasing over time, as younger women were less likely than older women to have an arranged marriage. Arranged marriage was most common among the Indians (45.5%) and least among the Chinese (6.2%). It was more common in Peninsular Malaysia (especially in northern and eastern regions) than in Sabah and Sarawak. Arranged marriage was inversely related to educational level – ranging from about 10% among tertiary-educated women to 40% among those with no schooling.

As the independent variables are inter-related with confounding effects on the age at marriage, multiple classification analysis (MCA), a variant of multiple regression analysis, was used to determine the independent effects of these variables on age at marriage. The unadjusted figures in Table 4 show the mean age at marriage for each category of the independent variables, before adjusting for the effects of other variables. The figures differed slightly from Table 3, as the mean values were computed for all married women and not restricted to those aged above 30 and married before age 30.

The eta values indicate the bivariate correlation ratios between the independent variables and the dependent variable, while the beta values indicate the relative importance of each variable in the multivariate context. These figures show that education is the most significant predictor of age at marriage, and place of residence had a negligible effect. The model,

comprising five independent variables, explained 17.7% of the variance in age at marriage.

Figure 2: Arranged Marriage by Age, Ethnicity, Region, and Education (%)



Source: Computed from MF51 of 2014 MPFS.

The difference in age at marriage was most pronounced across educational levels. Women with tertiary education married 4.6 years later than the primary-educated women. Controlling for other variables in the model widens the gap to 5.2 years between the two educational categories. Controlling for other variables has little effect on the ethnic differential in age at marriage, except that age at marriage among the Other Bumiputera would have increased by one year. Adjusting for other variables would have increased the mean age at marriage in Sabah and Sarawak by about one year. The unadjusted mean shows that urban women married at least one year later than rural women. However, after controlling for other variables in the model, the urban-rural differential disappears. The differential in age at marriage according to marriage arrangement remained very significant, even after adjusting for other variables.

Table 4: MCA of Age at Marriage by Selected Variables, Controlling for Age, 2014

Variables		n	Unadjusted	Adjusted	Eta	Beta
Ethnicity	Malay	4,876	22.7	22.6	0.204	0.141
	Other Bumiputera	1,053	20.9	21.9		
	Chinese	843	24.7	24.3		
	Indian and others	565	23.1	23.4		
Place of residence	Metropolitan	3,371	23.3	22.7	0.132	0.014
	Other urban areas	1,262	23.0	22.9		
	Rural	2,704	22.0	22.7		
Region	North	1,561	22.9	22.9	0.174	0.064
	Central	1,381	23.9	23.2		
	South	1,711	23.1	22.8		
	East	1,179	22.1	22.2		
	Sabah/Labuan	689	21.6	22.7		
	Sarawak	816	21.5	22.5		
Education level	Primary	1,328	20.6	20.2	0.312	0.365
	Lower secondary	1,439	21.6	21.4		
	Upper secondary	3,347	23.2	23.4		
	Tertiary	1,223	25.2	25.4		
Marriage Arrangement	Arranged	1,679	21.8	22.2	0.137	0.104
	Introduced	629	24.4	24.2		
	Own choice	5,029	22.8	22.7		

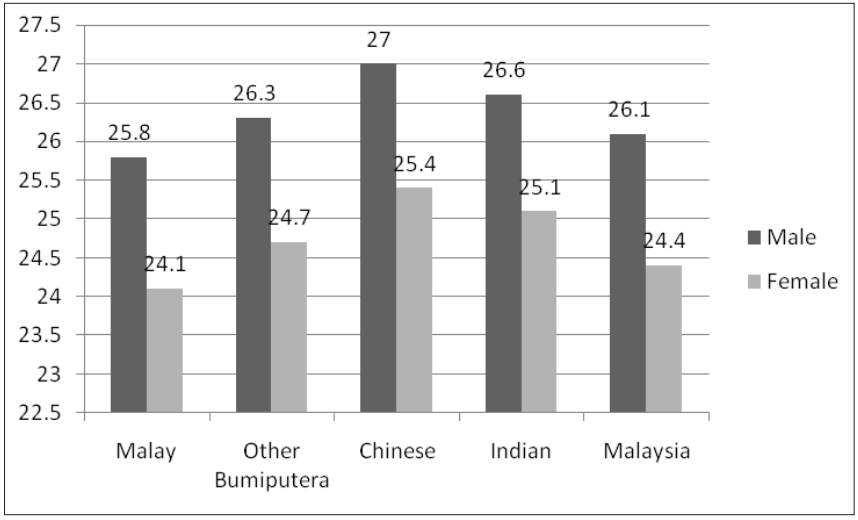
Note: $R^2 = 17.7\%$.
Source: Computed from MF51 of 2014 MPFS.

4.2 Ideal age for marriage

The perception among young people of the ideal age to get married may indicate the likely timing of their marriage in the future. Overall, the perceived ideal age at marriage was 26.1 years for the men and 24.4 years for the women. Compared to the mean age at marriage of 23 years among women age 30-34 (see Table 3), one can expect the rising trend to continue.

The reported mean ideal age to get married was lowest among the Malays (25.8 years for men and 24.1 years for women) and highest among the Chinese (27 years for men and 25.4 years for women) (Figure 3).

Figure 3: Ideal Age at Marriage Among Youths Aged 13-24, by Ethnicity



Note: Based on the question "In your opinion, what is the ideal age for a man/woman to get married?"
Source: Computed from MF53 of 2014 MPFS.

4.3 Reasons for marriage postponement or not marrying

Based on the responses from the unmarried men and women aged 25-49 interviewed in the MPFS-5, it is found that financial difficulties were the primary reasons for not marrying, and this was more prominent among the men. More than half of the unmarried men and about a quarter of unmarried women cited financial constraints as the main reason for not getting married (NPFDB, 2016). Traditionally, men are the family's primary breadwinners and hence are under greater pressure to attain financial sufficiency before getting married.

An analysis of the 2014 survey data shows that over 60% of unmarried people cannot afford the wedding expenses. For example, a single secondary-educated man, aged 34, was expected to incur a wedding cost of RM20,000, but could only save about RM3,000 at the time of the survey.

Inability to find a suitable partner is the primary reason for women to remain single. This reflects higher expectations among single women in their search for a marriage partner, which could be driven by their educational

attainment and economic independence that calls for greater equality in marital relationships. Be that as it may, over 80% of unmarried men and women desired to get married (NPFDB, 2016).

5. Consequences of Marriage Postponement

The rising age at marriage along with socio-economic changes has significant implications on the family, society, and the nation. Changes in the marriage patterns have direct consequences on reproductive health, childbearing and population growth, the family institution and the social fabric, care of older people, and women's education and empowerment.

5.1 Impacts on reproductive health, childbearing, and population growth

The rising age at marriage and non-marriage has a direct effect on childbearing, as out-of-wedlock childbirth is a taboo, although it may be on the rise. Because childbearing occurs almost exclusively within marriage, delayed marriage would have shortened the reproductive life span of a woman. Marriage postponement and contraceptive use are the two most significant proximate determinants of fertility in many countries, including Malaysia (Bongaarts, 2015; Laelago et al., 2019; Majumder and Ram, 2015; Tey et al., 2012). Table 5 shows that the inverse relationship between the mean number of children ever born (CEB) and age at marriage, across region, place of residence, ethnicity, and education level. Women who married before reaching age 18 had twice as many children as those who married after age 23.

As the socio-demographic factors and age at marriage are inter-related, with confounding effects on fertility, the net effect of age at marriage on fertility was assessed using MCA (Table 6). The socio-demographic variables were entered in Model 1. Age at marriage was added in Model 2 to assess its impact on the other variables in influencing the number of CEB.

In Model 1, the eta value shows that at the bivariate level, education was the most significant predictor of mean CEB, followed by marriage arrangement and ethnicity. In the multivariate analysis, age at marriage was by far the most significant predictor of fertility, followed by ethnicity and region, while education, place of residence, and marriage arrangement became insignificant.

Table 5: Mean CEB, by Age at First Marriage, for Ever-Married Women, 2014

Variables	Age at first marriage			
	<18	18-20	21-23	24+
MALAYSIA	3.8	3.2	2.7	2.0
Region				
Peninsular Malaysia	4.0	3.4	2.7	2.0
Sabah	4.2	3.0	2.8	1.9
Sarawak	3.1	2.6	2.5	1.9
Place of residence				
Urban	3.7	3.0	2.6	1.9
Rural	3.9	3.4	2.8	2.1
Ethnic group				
Malay	4.1	3.5	2.8	2.1
Chinese	2.8	2.7	2.4	1.7
Indian	3.1	2.7	2.2	1.7
Sabah Bumiputera	4.2	3.1	2.8	2.1
Sarawak Bumiputera	3.1	2.5	2.3	1.8
Education level				
No schooling	4.5	3.8	3.4	2.6
Primary	4.2	3.9	3.3	2.3
Secondary	3.3	3.0	2.7	2.0
Tertiary	2.4	2.2	2.3	1.8

Source: Computed from MF51 of 2014 MPFS.

The most striking finding from MCA is that controlling for age at marriage in Model 2, education became the least significant predictor – women from all educational levels would have the same number of children. Hence, the wide educational differentials in fertility were because better-educated women married much later than the less-educated women, and that marriage timing had a dominant effect on fertility. Controlling for age at marriage had little or no effect on ethnic, urban-rural, regional, and marriage arrangement differentials on CEB.

Table 6: MCA of Mean CEB by Selected Variables, 2014

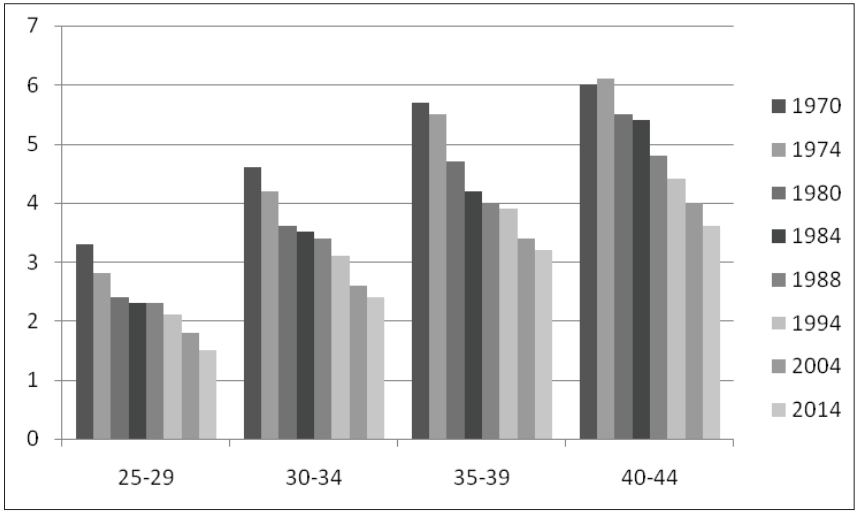
Variables		n	Unadjusted	Model 1			Model 2	
				Adjusted	Eta	Beta	Adjusted	Beta
Ethnicity	Malay	4,877	3.41	3.41	0.139	0.154	3.38	0.112
	Other Bumiputera	1,053	3.20	3.31			3.21	
	Chinese	843	2.62	2.51			2.76	
	Indian and others	565	2.70	2.67			2.78	
Place of residence	Metropolitan	3,372	2.96	3.17	0.128	0.032	3.17	0.030
	Other urban areas	1,262	3.29	3.24			3.27	
	Rural	2,704	3.55	3.32			3.31	
Region	North	1,561	3.18	3.05	0.116	0.103	3.07	0.103
	Central	1,381	2.86	3.11			3.18	
	South	1,712	3.17	3.13			3.14	
	East	1,179	3.92	3.75			3.68	
	Sabah/ Labuan	689	3.35	3.43			3.43	
	Sarawak	816	3.03	3.14			3.07	
Education level	Primary	1,328	4.26	3.64	0.305	0.133	3.26	0.007
	Lower secondary	1,439	3.67	3.46			3.25	
	Upper secondary	3,348	3.00	3.15			3.22	
	Tertiary	1,223	2.25	2.77			3.25	
Marriage arrangement	Arranged	1,679	4.03	3.47	0.206	0.073	3.40	0.045
	Introduced	629	2.89	2.89			3.07	
	Own choice	5,030	3.01	3.20			3.20	
Age at marriage	Below 20	1,826	4.23		0.349**	n/a	4.09	0.328
	20-22	1,937	3.52				3.54	
	23-25	1,803	2.94				3.07	
	26 and over	1,766	2.21				2.19	

Note: **Model 2 only.

Source: Computed from MF51 of 2014 MPFS.

Data from the population censuses and multiple waves of MPFS show that between 1970 and 2014, the mean number of CEB had declined by half for each age group (Figure 4). The rise in age at marriage has contributed to the continuing fertility decline from about 6 children per woman in the 1970s to just 1.8 in 2019. With a total fertility rate of 1.1 and 1.3 respectively in 2019, the Chinese and Indian communities in Malaysia are among the world's populations having the lowest-low fertility, while that of the Bumiputera, though much higher, is also approaching replacement level. The continuing decline in fertility has given rise to population ageing, labour shortage, and dependence on foreign workers.

Figure 4: Mean Number of CEB by Age Group, 1970-2014



Sources: Reports from past population censuses and MPFS.

On a world scale, the recent rise in infertility can be attributed to marriage postponement, as the likelihood of infertility increases dramatically with age (Rosenthal et al., 2002). Studies have also found detrimental effects of late childbirth on maternal and child health. An analysis of the MPFS-5 data found that the proportion of women who did not have a child after 5-9 years of marriage increased from 2.9% among those who married before age 20 to 18.8% among those who married after age 28 (table not shown). This finding corroborates that of Rosenthal et al. (2002).

Data from the unmarried sample of the 2014 MPFS show that about one in five unmarried men and women aged 25-49 had ever engaged in sexual intercourse and of these only 58.5% had used a contraceptive method. Those aged 30-34 were more likely to engage in sexual intercourse compared to those aged 40 and over (28.1% compared to 16.9%). Unprotected sex may lead to the risk of out-of-wedlock and unplanned pregnancy, baby abandonment, unsafe abortion, and sexually transmitted infections (STIs), including human immunodeficiency virus (HIV), with dire consequences.

5.2 Impacts on the family institution and the social fabric

Socio-economic development, modernisation, and rising age at marriage and non-marriage have given rise to changes in family structure and fertility preferences. In an urbanised and competitive society with ample job opportunities for skilled workers, the higher-educated women would prioritise career over family formation. Delayed marriage has led to late childbearing and consequently smaller family sizes. The average household size in the country has decreased from 5.2 persons in 1980 to 4.0 in 2014. One-third of the households are comprised of 3 to 4 persons.

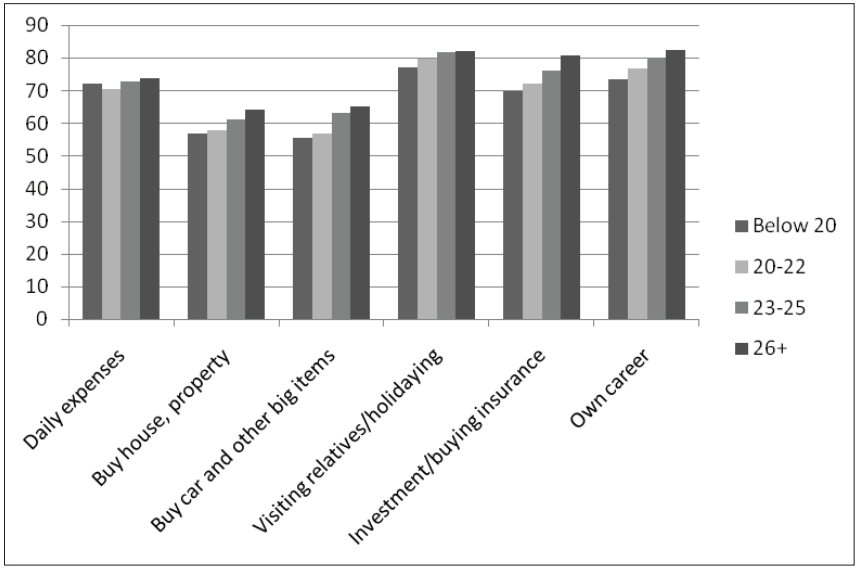
The nuclear family is the predominant family arrangement, making up more than half of the households in the country. The proportion of nuclear family households increased by 6 percentage points from 1991 to 2014, with a corresponding decrease in extended families. During the 23 years, the proportion of single-member households had also increased from 7.6% to 8.5%. The shrinking family size and childlessness, especially among the unmarried, will erode the family support for the older people in the future.

Late childbearing means that some parents upon retirement still need to support their school-going children. Data from MPFS-5 show that about 11% of ever-married women aged 40 and over had children aged below 7 years. This means that many men (who on average are about four years older than their wives) would still have to support their school-going children upon retirement. Unpublished data from the 2014 MPFS showed that about one in ten persons aged 60 and above were still giving financial assistance to their children. This figure is expected to escalate in the future. The social protection scheme in Malaysia is inadequate to provide for the financial needs of older people (Holzmann, 2014).

5.3 Impacts on women's empowerment

Malaysia has made commendable progress in improving the status of women, as reflected in rising female education and employment. More women than men are enrolled in institutions of higher learning, partly due to marriage postponement. Women's empowerment has engendered changes in attitudes towards traditional gender roles and family values, including marriage and childbearing. Women were involved in decision-making on most household matters. Figure 5 shows that more than 70% of women were involved in household decision-making on daily expenditure, investment, holidaying and own careers unilaterally or jointly with husband. Later age at marriage was associated with greater decision-making power within the household, including decisions on buying of properties and major household items such as cars.

Figure 5: Women's Involvement in Household Decision-Making, by Age at Marriage



Source: Computed from MF51 of 2014 MPFS.

Table 7 shows that women who entered marriage at a young age were much less likely to attain upper secondary and tertiary education compared to those who married later. Women are expected to drop out of school, once they are married, more so if they have children. An analysis of 2014 MPFS data shows that the proportion of working women holding the most prestigious occupations such as managers, professionals and researchers was much higher among those who married at age 26 or over (21.9%) compared to those married at age 20-22 (6.6%) (table not shown).

Table 7: Distribution of Education Level According to Age at First Marriage for Ever-Married Women, 2014

Education level	Age at first marriage				Total
	Below 20	20-22	23-25	26 and over	
No schooling	10.2	2.6	2.3	2.4	4.6
Primary	37.6	17.7	10.6	9.8	19.8
Lower secondary	28.3	21.4	16.1	15.0	20.6
Upper secondary	22.3	51.1	49.2	43.6	41.2
Tertiary	1.6	7.1	21.8	29.2	13.8
	100.0	100.0	100.0	100.0	100.0

Source: Computed from MF51 of 2014 MPFS.

6. Discussion

Concomitant with socio-economic development, there has been a trend towards late and less marriage in Malaysia. The more gradual rise in the SMAM for females in recent years and a reversal for males between 2000 and 2010 may signal the end of a trend towards marriage postponement. The discontinuation of the rising age at marriage will result in the deceleration, and even a halt or reversal in fertility decline, barring significant changes in other proximate determinants of fertility. A better understanding of the determinants of age at marriage and the consequence of delayed marriage is important for the formulation, implementation, and monitoring of population and family development policies and programmes.

Past studies on nuptiality in Malaysia focussed on the ethnic/religious, urban-rural, and educational differentials in age at marriage, and marital dissolution (Arshat et al., 1988; Jones, 1980, 1981, 2020; Tan and Jones, 1990; Tey, 2007; Tey, 2009, 2011). This study included an analysis of women's autonomy in choosing their life partners, and ideal age at marriage among the youth to add to the literature on nuptiality in Malaysia, a multi-ethnic developing country. Findings from this study may be relevant to other countries with a similar socio-economic setting.

This study found that educational attainment has a significant influence on marriage timing, and this finding is consistent with those from past studies (Raymo and Iwasawa, 2005; Sabbah-Karkaby and Stier, 2017). The effect of rising education on the reduction of child marriage is to be expected due to role incompatibility. The association between education and marriage formation may vary over time and by country. In several developed countries, the better-educated women are more likely to enter marriage than their less-educated peers, although they may be marrying later (Goldstein and Kenney, 2001; Heard, 2011; Ono, 2003; Schoen and Cheng, 2006; Schwartz and Mare, 2005; Sweeney, 2002). However, as of 2010, the evidence shows that better-educated Malaysian women aged 30 and over were much more likely to remain single than less-educated women. Women have overtaken men in higher education, and the gap is widening. This gender gap in education may cause a rise in age at marriage and non-marriage as women who keep to the traditional practice of "marrying up" would have more difficulty in finding a compatible partner. Past international studies found that the modernising forces had reduced the practice of marrying up (Kalmijn, 2013; Piotrowski et al., 2016). However, such forces are still not strong enough to increase the chances of marriage among better-educated Malaysian women relative to those who are less educated. The finding that women who chose their spouse were more likely to marry late is consistent with Zang's (2005) finding that waning parental control is associated with delayed marriage.

Women who marry late have a shorter remaining period of possible reproduction than those who marry early, and this has a direct influence on ultimate fertility, particularly in the countries where most of the childbearing occurs within marriage. The shrinking family size and increased childlessness will accelerate population ageing and aggravate labour shortage. It will also complicate family support in old age, because of an

increasing number of ageing singles who have no children to turn to when they are old.

The analysis in this paper has shown the strong impact of timing of marriage on the number of CEB. Malaysia, as well as other low-fertility countries, may need to adopt policy measures and programmes to boost marriage as one of the strategies to raise fertility and prevent it from falling to problematic low levels.

Increasing age at marriage without a corresponding increase in access to reproductive health services for the unmarried means that more and more young women are exposed to the risk of out-of-wedlock/unplanned pregnancies, unsafe abortion, and STIs, including HIV (Baumgartner et al., 2010; Downing and Bellis, 2009; Glynn et al., 2010; Tey et al., 2019; Whatley et al., 1989). The Malaysian family planning programme does not provide contraceptive services to the unmarried, and this may have caused a rise in unplanned pregnancies and unsafe abortion among an increasing number of unmarried but sexually active young people.

The findings on the benefits of delayed marriage corroborate those of past studies (Dhamija and Roychowdhury, 2020; Gyimah, 2009; Mim, 2017). Marriage postponement is associated with higher educational attainment of women. Highly-educated women were found to have better childrearing practices (Chari et al., 2017; Sekhri and Debnath, 2014). Postponing marriage to pursue higher education allows a woman to accumulate her human capital. Late-married women were more likely than early-married women to be engaged in the more prestigious occupations, in line with government intentions to enhance the role of women in the workplace.

7. Limitations

This study has several limitations. The direct measure of mean age at marriage under-estimates the actual age at marriage due to the problems of censoring and truncation. Restricting the analysis to women aged 30 and over and marrying before age 30 prevents an analysis of the recent changes in the age at marriage among young women. Using secondary data, this analysis is constrained by the lack of data on several factors that are relevant to age at marriage. The lack of data prevented an analysis on the effect of women's premarital work, and family background on marriage rate and timing. On the one hand, women's work may result in delayed marriage, as

they prioritise the pursuit of a career over family formation, and do not need to enter marriage for financial reasons. On the other hand, working women may have more opportunities to meet their potential life partners due to a wider network of acquaintances to choose from. The lack of information also precludes an analysis of the linkages between age at marriage and marital stability, domestic violence, and pregnancy outcomes which have been found in past studies mentioned above.

8. Conclusion

The rising age at marriage and socio-economic development have occurred concurrently over the past few decades in many developing countries, including Malaysia. The increasing autonomy of young people in mate selection is another significant factor in marriage delay. However, there are significant socio-economic differentials in the rate and timing of marriage. The rising age at marriage has both positive and negative implications for individuals. Late marriage generally has positive socio-economic consequences for individuals. The decrease in child marriage means that more women will be completing secondary and tertiary education, and studies have shown that it is associated with improved marital stability. However, postponing marriage beyond the prime reproductive age may cause some reproductive health problems such as increased infertility and pregnancy complications. Marriage postponement is a major proximate determinant of fertility, that has resulted in the continuing decline in fertility to an ultra-low level for some groups in the country, notably the Chinese and Indian communities.

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References

Arshat, H., Tan, B. A., Tey, N. P., & Subbiah, M. (1988). *Marriage and family formation in Peninsular Malaysia: Analytic report on the 1984/85 Malaysian Population and Family Survey*. Kuala Lumpur, Malaysia: National Population and Family Development Board.

Balasch, J., & Gratacós, E. (2012). Delayed childbearing: Effects on fertility and the outcome of pregnancy. *Current Opinion in Obstetrics and Gynecology*, *24*(3), 187–193. https://doi.org/10.1159/000323142

Baumgartner, S. E., Valkenburg, P. M., & Peter, J. (2010). Assessing causality in the relationship between adolescents' risky sexual online behavior and their perceptions of this behavior. *Journal of Youth and Adolescence*, *39*, 1226–1239. https://doi.org/10.1007/s10964-010-9512-y

Becker, G. (1981). *A Treatise on the Family*. Cambridge, United States: Harvard University Press.

Bongaarts, J. (2015). Modeling the fertility impact of the proximate determinants: Time for a tune-up. *Demographic Research*, *33*(19), 535–560. https://doi.org/10.4054/DemRes.2015.33.19

Carmichael, S. (2011). Marriage and power: Age at first marriage and spousal age gap in lesser developed countries. *The History of the Family*, *16*(4), 416-436. https://doi.org/10.1016/j.hisfam.2011.08.002

Chari, A. V., Heath, R., Maertens, A., & Fatima, F. (2017). The causal effect of maternal age at marriage on child wellbeing: Evidence from India. *Journal of Development Economics*, *127*, 42–55. https://doi.org/10.1016/j.jdeveco.2017.02.002

Dhamija, G., & Roychowdhury, P. (2020). Age at marriage and women's labour market outcomes in India. *Journal of International Development*, *32*(3), 342–374. https://doi.org/10.1002/jid.3456

Downing, J., & Bellis, M. A. (2009). Early pubertal onset and its relationship with sexual risk taking, substance use and anti-social behaviour: A preliminary cross-sectional study. *BMC Public Health*, *9*(446), 1-11. https://doi.org/10.1186/1471-2458-9-446

Esteve, A., Kashyap, R., Roman, J. G., Cheng, Y.-H. A., Fukuda, S., Nie, W., & Lee, H.-o. (2020). Demographic change and increasing late singlehood in East Asia, 2010–2050. *Demographic Research*, *43*(46), 1367–1398. https://doi.org/10.4054/DemRes.2020.43.46

Glynn, J. R., Kayuni, N., Floyd, S., Banda, E., Francis-Chizororo, M., Tanton, C., . . . French, N. (2010). Age at menarche, schooling, and sexual debut in northern Malawi. *PLoS ONE*, *5*(12), e15334. https://doi.org/10.1371/journal.pone.0015334

Goldstein, J. R., & Kenney, C. T. (2001). Marriage delayed or marriage forgone? New cohort forecasts of first marriage for U.S. women. *American Sociological Review*, *66*(4), 506-519. https://doi.org/10.2307/3088920

Gupta, N., & Mahy, M. (2003). Adolescent childbearing in Sub-Saharan Africa: Can increased schooling alone raise ages at first birth? *Demographic Research*, *8*(4), 93-106. https://doi.org/10.4054/DemRes.2003.8.4

Gyimah, S. O. (2009). Cohort differences in women's educational attainment and the transition to first marriage in Ghana. *Population Research and Policy Review*, *28*(4), 455-471. https://doi.org/10.1007/s11113-008-9107-4

Harwood-Lejeune, A. (2001). Rising age at marriage and fertility in southern and eastern Africa. *European Journal of Population*, *17*, 261–280. https://doi.org/10.1023/A:1011845127339

Heard, G. (2011). Socioeconomic marriage differentials in Australia and New Zealand. *Population and Development Review*, *37*(1), 125-160. https://doi.org/10.1111/j.1728-4457.2011.00392.x

Holzmann, R. (2014). *Old-Age Financial Protection in Malaysia - Challenges and Options*. Kuala Lumpur, Malaysia: Social Security Research Centre, University of Malaya.

Hultman, C. M., Sandin, S., Levine, S. Z., Lichtenstein, P., & Reichenberg, A. (2011). Advancing paternal age and risk of autism: New evidence from a population-based study and a meta-analysis of epidemiological studies. *Molecular Psychiatry*, *16*, 1203–1212. https://doi.org/10.1038/mp.2010.121

Ji, Y., & Yeung, W.-J. J. (2014). Heterogeneity in contemporary Chinese marriage. *Journal of Family Issues*, *35*(12), 1662-1682. https://doi.org/10.1177/0192513X14538030

Jones, G. W. (1980). Trends in marriage and divorce in Peninsular Malaysia. *Population Studies*, *34*(2), 279-292. https://doi.org/10.1080/00324728.1980.10410390

Jones, G. W. (1981). Malay marriage and divorce in Peninsular Malaysia: Three decades of change. *Population and Development Review*, *7*(2), 255-278. https://doi.org/10.2307/1972623

Jones, G. W. (2005). The "flight from marriage" in South-east and East Asia. *Journal of Comparative Family Studies*, *36*(1), 93-119. https://doi.org/10.3138/jcfs.36.1.93

Jones, G. W. (2017). Changing marriage patterns in Asia. In Z. Zhao & A. C. Hayes (Eds.), *Routledge Handbook of Asian Demography* (pp. 351–369). London, England: Routledge. https://doi.org/https://doi.org/10.4324/9781315148458

Jones, G. W. (2020). Family and marriage in Malaysia. In N. P. Tey, S. L. Lai, & N. A. Ismail (Eds.), *Demographic Transition and Socio-economic Development in Malaysia* (pp. 75-92). Kuala Lumpur, Malaysia: University of Malaya Press.

Jones, G. W., & Gubhaju, B. (2009). Factors influencing changes in mean age at first marriage and proportions never marrying in the low-fertility countries of East and Southeast Asia. *Asian Population Studies*, *5*(3), 237-265. https://doi.org/10.1080/17441730903351487

Jones, G. W., & Ramdas, K. (2004). *(Un)tying the Knot: Ideal and Reality in Asian Marriage*. Singapore: NUS Press.

Kalmijn, M. (2013). The educational gradient in marriage: A comparison of 25 European countries. *Demography*, *50*(4), 1499-1520. https://doi.org/10.1007/s13524-013-0229-x

Kritz, M. M., & Gurak, D. T. (1989). Women's status, education and family formation in sub-Saharan Africa. *International Family Planning Perspectives*, *15*(3), 100-105. https://doi.org/10.2307/2133198

Laelago, T., Habtu, Y., & Yohannes, S. (2019). Proximate determinants of fertility in Ethiopia; An application of revised Bongaarts model. *Reproductive Health*, *16*(13). https://doi.org/10.1186/s12978-019-0677-x

Lindstrom, D. P., & Paz, C. B. (2001). Alternative theories of the relationship of schooling and work to family formation: Evidence from Mexico. *Social Biology*, *48*(3–4), 278–297. https://doi.org/10.1080/19485565.2001.9989039

Mahotra, A., & Tsui, A. O. (1996). Marriage timing in Sri Lanka: The role of modern norms and ideas. *Journal of Marriage and Family*, *58*(2), 476-490. https://doi.org/10.2307/353511

Majumder, N., & Ram, F. (2015). Explaining the role of proximate determinants on fertility decline among poor and non-poor in Asian countries. *PLoS ONE*, *10*(2), e0115441. https://doi.org/10.1371/journal.pone.0115441

Mim, S. A. (2017). Effects of child marriage on girls' education and empowerment. *Journal of Education and Learning*, *11*(1), 9-16. https://doi.org/10.11591/edulearn.v11i1.5130

NPFDB. (2016). *Report on Key Findings of the Fifth Malaysian Population and Family Survey (MPFS-5), 2014*. Kuala Lumpur, Malaysia: NPFDB.

Ono, H. (2003). Women's economic standing, marriage timing, and cross-national contexts of gender. *Journal of Marriage and Family*, *65*(2), 275-286. https://doi.org/10.1111/j.1741-3737.2003.00275.x

Piotrowski, M., Tong, Y., Zhang, Y., & Chao, L. (2016). The transition to first marriage in China, 1966–2008: An examination of gender differences in education and hukou status. *European Journal of Population*, *32*, 129–154. https://doi.org/10.1007/s10680-015-9364-y

Raj, A., Saggurti, N., Balaiah, D., & Silverman, J. G. (2009). Prevalence of child marriage and its effect on fertility and fertility-control outcomes of young women in India: A cross-sectional, observational study. *The Lancet*, *373*(9678), 1883–1889. https://doi.org/10.1016/S0140-6736(09)60246-4

Raley, R. K., Sweeney, M. M., & Wondra, D. (2015). The growing racial and ethnic divide in U.S. marriage patterns. *Future of Children*, *25*(2), 89–109. https://doi.org/10.1353/foc.2015.0014

Raymo, J. M. (2003). Educational attainment and the transition to first marriage among Japanese women. *Demography*, *40*(1), 83-103. https://doi.org/10.1353/dem.2003.0008

Raymo, J. M., & Iwasawa, M. (2005). Marriage market mismatches in Japan: An alternative view of the relationship between women's education and marriage. *American Sociological Review*, *70*(5), 801-822. https://doi.org/10.1177/000312240507000504

Reichenberg, A., Gross, R., Weiser, M., Bresnahan, M., Silverman, J., Harlap, S., Rabinowitz, J., Shulman, C., Malaspina, D., Lubin, G., Knobler, H. Y., Davidson, M., & Susser, E. (2006). Advancing paternal age and autism. *Archives of General Psychiatry*, *63*(9), 1026-1032. https://doi.org/10.1001/archpsyc.63.9.1026

Retherford, R. D., Ogawa, N., & Matsukura, R. (2001). Late marriage and less marriage in Japan. *Population and Development Review*, *27*(1), 65-102. https://doi.org/10.1111/j.1728-4457.2001.00065.x

Rindfuss, R. R., Morgan, S. P., & Offutt, K. (1996). Education and the changing age pattern of American fertility: 1963-1989. *Demography*, *33*(3), 277-290. https://doi.org/10.2307/2061761

Rosenthal, M. S., Rosenthal MS, M. S., Khatamee, M. D., & Masood, A. (2002). *The Fertility Sourcebook* (3rd edition ed.). London, England: McGraw-Hill.

Sabbah-Karkaby, M., & Stier, H. (2017). Links between education and age at marriage among Palestinian women in Israel: Changes over time. *Studies in Family Planning*, *48*(1), 23-38. https://doi.org/10.1111/sifp.12015

Sandhu, N. K., & Geethalakshmi, R. G. (2017). Determinants and impact of early marriage on mother and her newborn in an urban area of Davangere: A cross-sectional study. *International Journal Of Community Medicine And Public Health*, *4*(4), 1278-1283. https://doi.org/10.18203/2394-6040.ijcmph20171362

Santhya, K. G. (2011). Early marriage and sexual and reproductive health vulnerabilities of young women: A synthesis of recent evidence from developing countries. *Current Opinion in Obstetrics and Gynecology*, *23*(5), 334–339. https://doi.org/10.1097/gco.0b013e32834a93d2

Schoen, R., & Cheng, Y.-h. A. (2006). Partner choice and the differential retreat from marriage. *Journal of Marriage and Family*, *68*(1), 1-10. https://doi.org/10.1111/j.1741-3737.2006.00229.x

Schwartz, C. R., & Mare, R. D. (2005). Trends in educational assortative marriage from 1940 to 2003. *Demography*, *42*(4), 621-646. https://doi.org/10.1353/dem.2005.0036

Scourfield, J., & Evans, R. (2015). Why might men be more at risk of suicide after a relationship breakdown? Sociological insights. *American Journal of Men's Health*, *9*(5), 380-384. https://doi.org/10.1177/1557988314546395

Sekhri, S., & Debnath, S. (2014). Intergenerational consequences of early age marriages of girls: Effect on children's human capital. *The Journal of Development Studies*, *50*(12), 1670–1686. https://doi.org/10.1080/00220388.2014.936397

Singh, S., & Samara, R. (1996). Early marriage among women in developing countries. *International Family Planning Perspectives*, *22*(4), 148-157+175. https://doi.org/10.2307/2950812

Sweeney, M. M. (2002). Two decades of family change: The shifting economic foundations of marriage. *American Sociological Review*, *67*(1), 132-147. https://doi.org/10.2307/3088937

Takyi, B. K. (2001). Marital instability in an African society: Exploring the factors that influence divorce processes in Ghana. *Sociological Focus*, *34*(1), 77-96. https://doi.org/10.1080/00380237.2001.10571184

Tan, P. C., & Jones, G. W. (1990). Changing patterns of marriage and household formation in Peninsular Malaysia. Sojourn: *Journal of Social Issues in Southeast Asia*, *5*(2), 163-193. https://doi.org/10.1355/sj5-2a

Tey, N. P. (2007). Trends in delayed and non-marriage in Peninsular Malaysia. *Asian Population Studies*, *3*(3), 243-261. https://doi.org/10.1080/17441730701746391

Tey, N. P. (2009). The changing marriage patterns among women in Peninsular Malaysia since 1970. In J. Ariffin (Ed.), *Women in Development – Two Decades of Change*. Kuala Lumpur, Malaysia: MPH Publisher.

Tey, N. P. (2011). Understanding marriage and divorce trends in Peninsular Malaysia. In G. W. Jones, T. H. Hull, & M. Mohamad (Eds.), *Changing Marriage Patterns in Southeast Asia: Economic and Socio-Cultural Dimensions* (pp. 137-155). London, England: Routledge.

Tey, N. P., Lai, S. L., & Ng, S. T. (2019). Age at menarche and sexual debut among young Filipino women. *Journal of Biosocial Science*, *51*(1), 77–94. https://doi.org/10.1017/S0021932017000682

Tey, N. P., Ng, S. T., & Yew, S. Y. (2012). Proximate determinants of fertility in Peninsular Malaysia. *Asia-Pacific Journal of Public Health*, *24*(3), 495-505. https://doi.org/10.1177/1010539511401374

Tian, F. F. (2013). Transition to first marriage in reform-era urban China: The persistent effect of education in a period of rapid social change. *Population Research and Policy Review*, *32*, 529–552. https://doi.org/10.1007/s11113-013-9272-y

Tilson, D., & Larsen, U. (2000). Divorce in Ethiopia: The impact of early marriage and childlessness. *Journal of Biosocial Science*, *32*(3), 355-372. https://doi.org/10.1017/s0021932000003552

United Nations, Department of Economic and Social Affairs,, Population Division. (2013). *World Fertility Report 2012*. New York, United States: United Nations.

Wayachut, J. (1993). Trends and differentials in female age at first marriage in Thailand over half a century. *Sojourn: Journal of Social Issues in Southeast Asia*, *8*(2), 293-314.

Whatley, J., Thin, N., Reynolds, B., & Blackwell, A. (1989). Problems of adolescents sexuality. *Journal of the Royal Society of Medicine*, *82*(12), 732-734. https://doi.org/10.1177/014107688908201210

World Bank. (2021). *World Development Indicators*. https://datacatalog.worldbank.org/dataset/world-development-indicators

Yu, J., & Xie, Y. (2015). Changes in the determinants of marriage entry in post-reform urban China. *Demography*, *52*, 1869–1892. https://doi.org/10.1007/s13524-015-0432-z

Zang, X. (2005). Gender and ethnic variation in love marriage in urban Malaysia. *International Journal of Sociology of the Family*, *31*(2), 91-107.