Adolescents' knowledge of the fertile period, contraceptive use and childbearing

By Stephen Kisambira

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Despite its significance as a marker of transition to adulthood and a gateway to sexual awareness, menstruation and knowledge of the ovulatory cycle are marginalized issues in sexual and reproductive health. In many settings in Africa, it is taboo to speak about these issues, only culturally-designated family advisors can speak to the menarcheal girls. It is not uncommon for adults to express apprehension when a girl experiences menarche and to immediately ring-fence the menarcheal girl from interactions with boys, including siblings. The likely reaction and perception of the menarcheal girl is that what just happened to her is not only phenomenal but secretive and perhaps horrific. In many settings, girls who begin sexual activity at young ages do so without adequate knowledge of their bodies; they take longer to initiate contraceptive use and they are less likely to use contraception to avoid pregnancy (Guleria et al., 2017). Consequently, many adolescent pregnancies and births are unintended. This paper assesses the trends in the association between knowledge of the fertile period, contraceptive use and childbearing among adolescents in Africa, with comparisons to other regions.

The base population for calculating the indicators of sexual and reproductive health of young adolescents is often limited to females aged 15-19. This aggregation of chronological age of young females is not useful in assessing variations in their developmental characteristics, sexual and reproductive behaviour, puberty and its cultural significance, and legal age of majority. A disaggregation of adolescence into three age categories (ages 10-14, 15-17 and 18-19) has been proposed, based on the physiological readiness of the female body for childbearing, cognitive capacities, and social normative expectations and legal requirements governing the transition to adulthood (Dixon-Mueller, 2008). The needs and challenges of young females aged 14 and younger, and those aged 15-17 and 18-19 are markedly different and they vary according to the context. It is evident that a distinctive analysis of age differences in contraceptive use and fertility is needed.

There is evidence of considerable demand for contraception to postpone first pregnancy (Jejeebhoy et al., 2014; Sedgh et al., 2016). However, it is likely that the lower rates of contraceptive use at first sex in many settings are due to lack of information, restrictions to using contraception (Finer and Philbin, 2013), cultural stigma against premarital sex and the lack of formal sex education as early as primary school. Often, young girls do not use contraceptives because they are afraid that their parents would find out that they were having sex, which ties into the lack of sex education in the home. Many girls and young women are constrained to use modern contraceptive methods, leaving them to more likely rely on traditional methods.

The constraints that adolescent girls and women face, in accessing and using contraception to delay their first pregnancy, might be expected to spur some of them to apply the knowledge they have about their menstrual cycles. Awareness of the fertile period might aid them in navigating their sexuality and contraceptive needs, particularly if they are unable to access modern methods of contraception. It is also likely that the first pregnancy, especially if it is unintended, may trigger a young woman's curiosity and awareness of her body, and interest in using contraception. It is usually the second birth that is reported as unplanned by married adolescent women, and young women are more likely to use a method to postpone a second birth than to delay a first one (Remez et al., 2008).

In this paper, data are drawn from the Demographic and Health Surveys (DHS) to disaggregate adolescent girls into two age groups, that is, 15-17 years and 18-19 years, and assess the trends in the association between their knowledge of the fertile period, contraceptive use and childbearing in Africa, with comparisons to other regions. The DHS surveys collect data on, among other factors, a woman's date of interview, the date of her birth, the dates of birth of all her children as provided in the birth history and knowledge of when, during her monthly cycle, a woman has the greatest chance of becoming pregnant. The calculation of age-specific fertility rates (ASFR) for the disaggregated age groups (15-17 and 18-19 years) follows the standard calculation of ASFR which require as inputs the interview date, birth date of woman, birth dates of children, a numerator and denominator (Rutstein and Rojas, 2012). The data are analysed using bivariate analysis of the association between the ASFRs for age groups 15-17 and 18-19 and the proportion of young women of the same age with each of the selected characteristic associated with adolescent fertility.

Correct knowledge of fertile period

Trends show that in all African countries surveyed by the DHS programme since 1990, except Congo, less than one-half of girls in both age groups have correct knowledge of the fertile period (figure 1). An increase occurred in the percentage with correct knowledge of the fertile period in most countries while it decreased in others such as Congo, Cameroon and Cote d'Ivoire. Poor knowledge of the fertile period is not limited to girls alone but to boys as well. In figure 2, the markers below the diagonal line show data points where the proportion of young women with the correct knowledge of the fertile period is larger than the proportion of boys with the correct knowledge of the fertile period. The further below from the diagonal line, the greater the difference in the correct knowledge of the fertile period between the girls and boys. The data show girls that a larger percentage of girls than boys have correct knowledge of a woman's fertile period across countries and regions. It is perhaps not for the boys to know but, in most countries including in Asia and Latin America and the Caribbean, less than 2 in 10 boys in either age group have the correct knowledge of the fertile period. Yet, studies have found that although teenage girls tend to have first sex with male partners who are three or more years older, teenage boys are likely to have their first sexual encounter with girls who are less than a year younger or older (Whitehead, 1994; Lam et al., 2013). In most cases, teenagers without correct knowledge of the fertile period are having sexual encounters with each other. Also, larger proportions of female adolescents have ever had sex than those with correct knowledge of the fertile period in most countries across the regions (appendix figure A.1).

The low levels of correct knowledge of the fertile period reflect a conflation of contextual factors, cultural assumptions, customs, values and formal and informal social channels through which knowledge about menarche and the ovulatory cycle is filtered and obtained. It is verboten in many settings to speak about these matters. Often, adolescents figure out how to deal with their budding sexuality from among themselves. Also, it has been remarked that the comprehensibility of question dealing with the fertile period presented a special difficulty in Pakistan and, often, it had to be repeated in order to be understood. Considering such context where 2 in 3 women had received no education, it was therefore not surprising that 84 per cent of the women reported that they did not know when the fertile period occurs (National Institute of Population Studies, 1992).

Figure 1. Trends in percentage distribution of adolescent women with correct knowledge of the fertile period by age, region and country

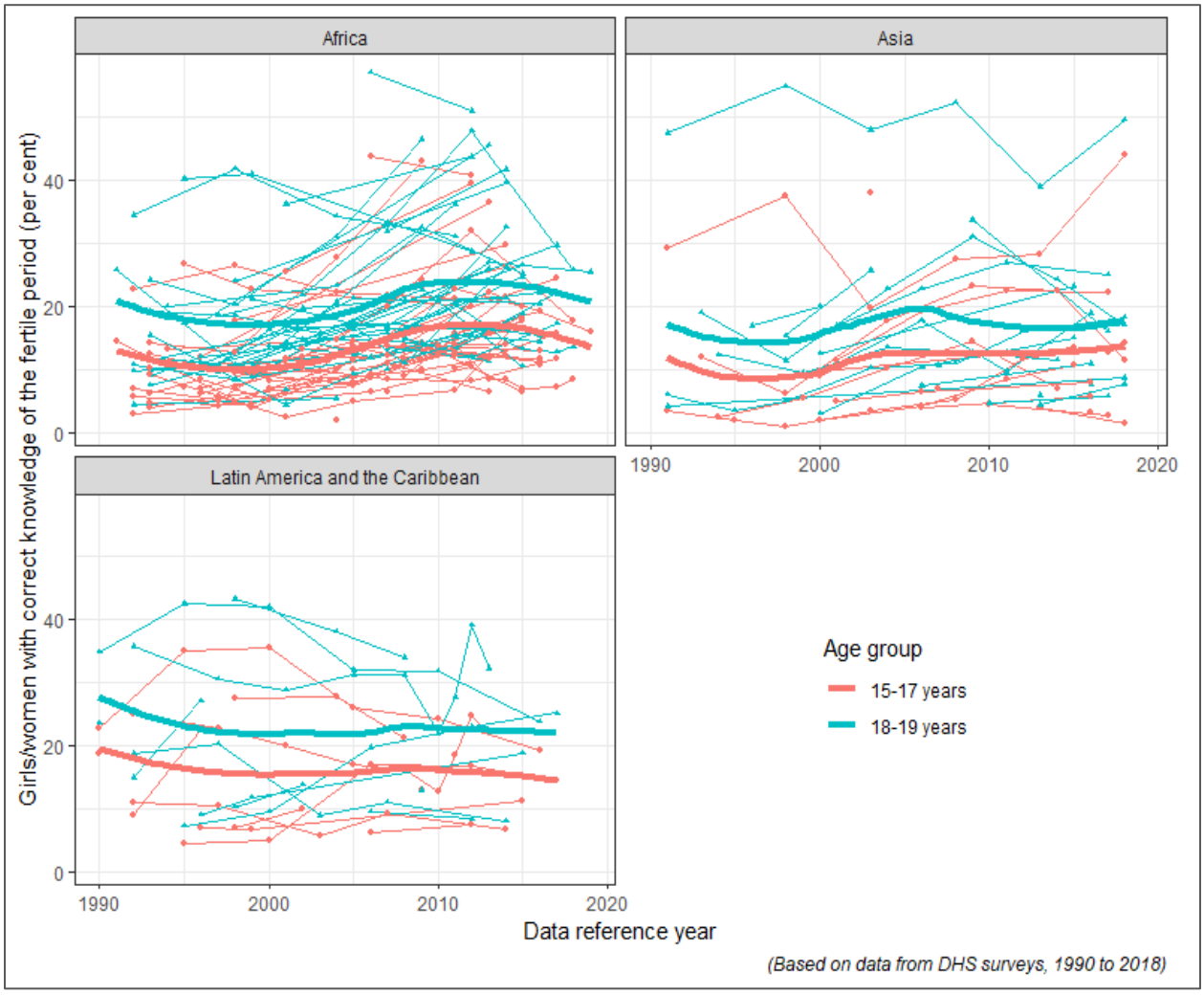
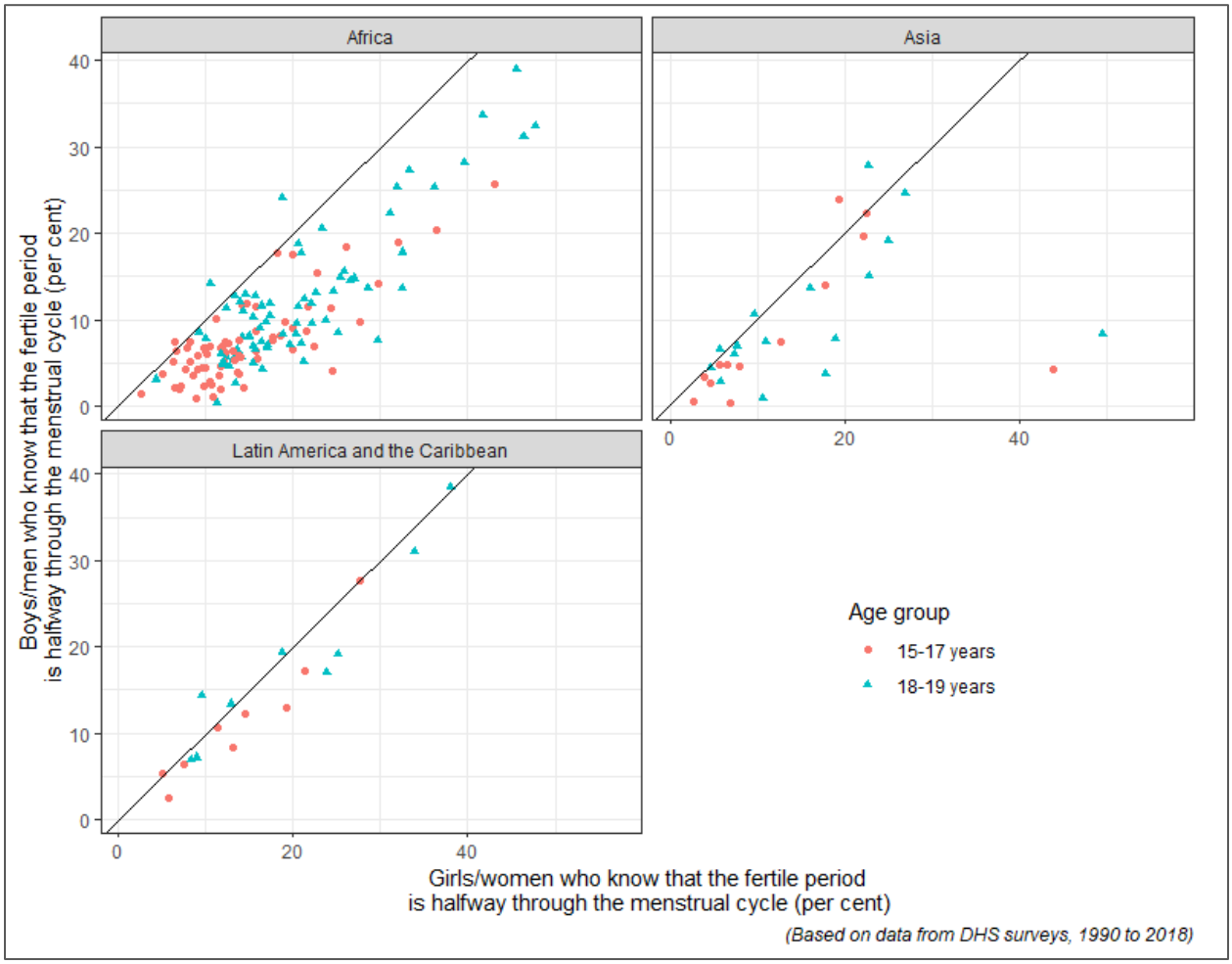


Figure 2. Percent distribution of adolescent men and women with correct knowledge of the fertile period, by age, region and country

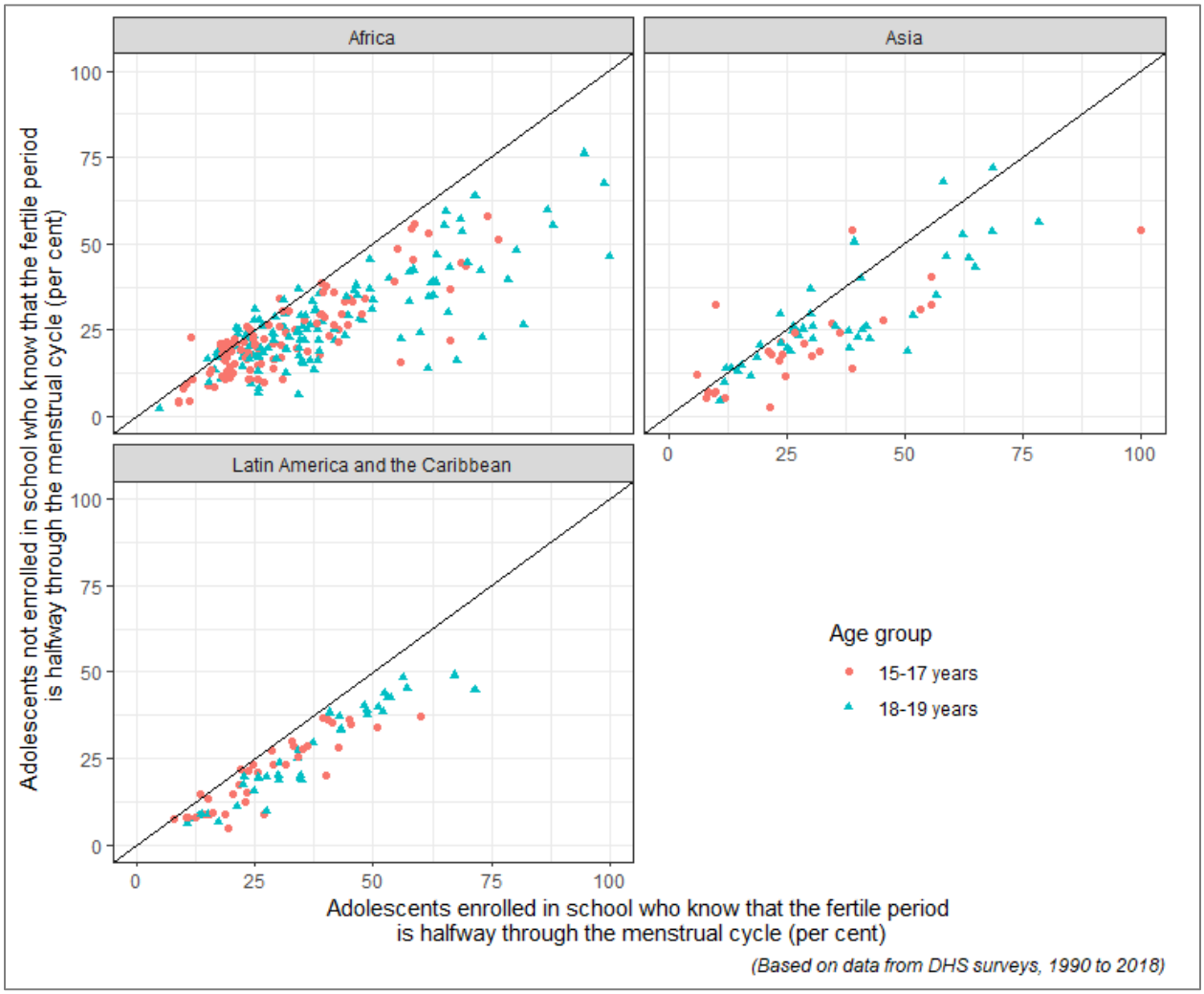


School enrolment and knowledge of the ovulatory cycle

A proxy for correct knowledge about the ovulatory cycle is the successful use of periodic abstinence as a method of contraception because it depends, to some extent, on a woman's knowledge of the fertile period. Also, the propensity to use other methods of contraception is likely to be higher among women with correct knowledge of the ovulatory cycle. Previous research shows that users of periodic abstinence (predominantly the simple calendar variant) tended to be more educated and urban than users of other methods, underscoring the effect of education on knowledge of the biology of reproduction (United Nations, Department for Economic and Social Information and Policy Analysis, 1995; Bledsoe et al., 1999). The patterns of the relationship between school enrolment status among adolescent women and the correct knowledge of the fertile period as being halfway through the menstrual cycle are shown in figure 3. Each dot in figure 3 represents a data point from a survey. Each country surveyed by the DHS is represented by multiple data points. The markers below the diagonal line show data points where the proportion of young women with the correct knowledge of the fertile period is larger among those enrolled in school than among those not enrolled in school at the time of the survey. The further below from the diagonal line, the greater the difference in the correct knowledge of the fertile period between the two groups of adolescent women.

The data suggest that enrolment in school is almost invariably more associated with having correct knowledge of a woman's fertile period across countries and regions than if a girl is not enrolled in school.

Figure 3. Percent distribution of adolescent women with correct knowledge of the fertile period, according to school enrolment status, by age, region and country

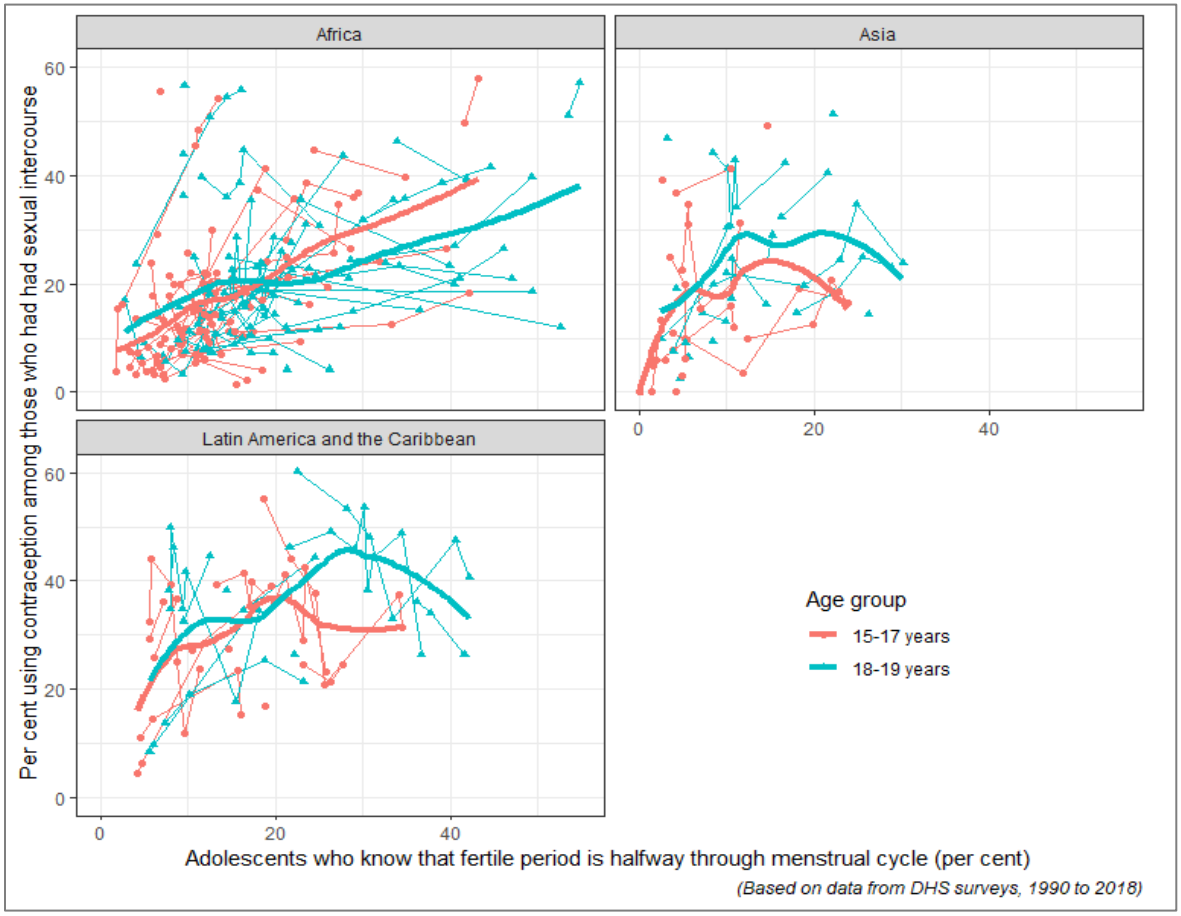


Contraceptive use among sexually initiated adolescents

The data on knowledge about the fertile period suggest supplementary effects to using contraception (Nyarko, 2015), consistent with the reported use of the rhythm method among all women interviewed in the most recent DHS surveys. Among all women aged 15-19, users of the rhythm method who correctly identified a woman's fertile period ranged from 5 per cent in Pakistan to 91 per cent in Kazakhstan; the range among non-users of rhythm method was from 3 per cent in Mozambique to 63 per cent in Ukraine (DHS Program STATcompiler, 2018).

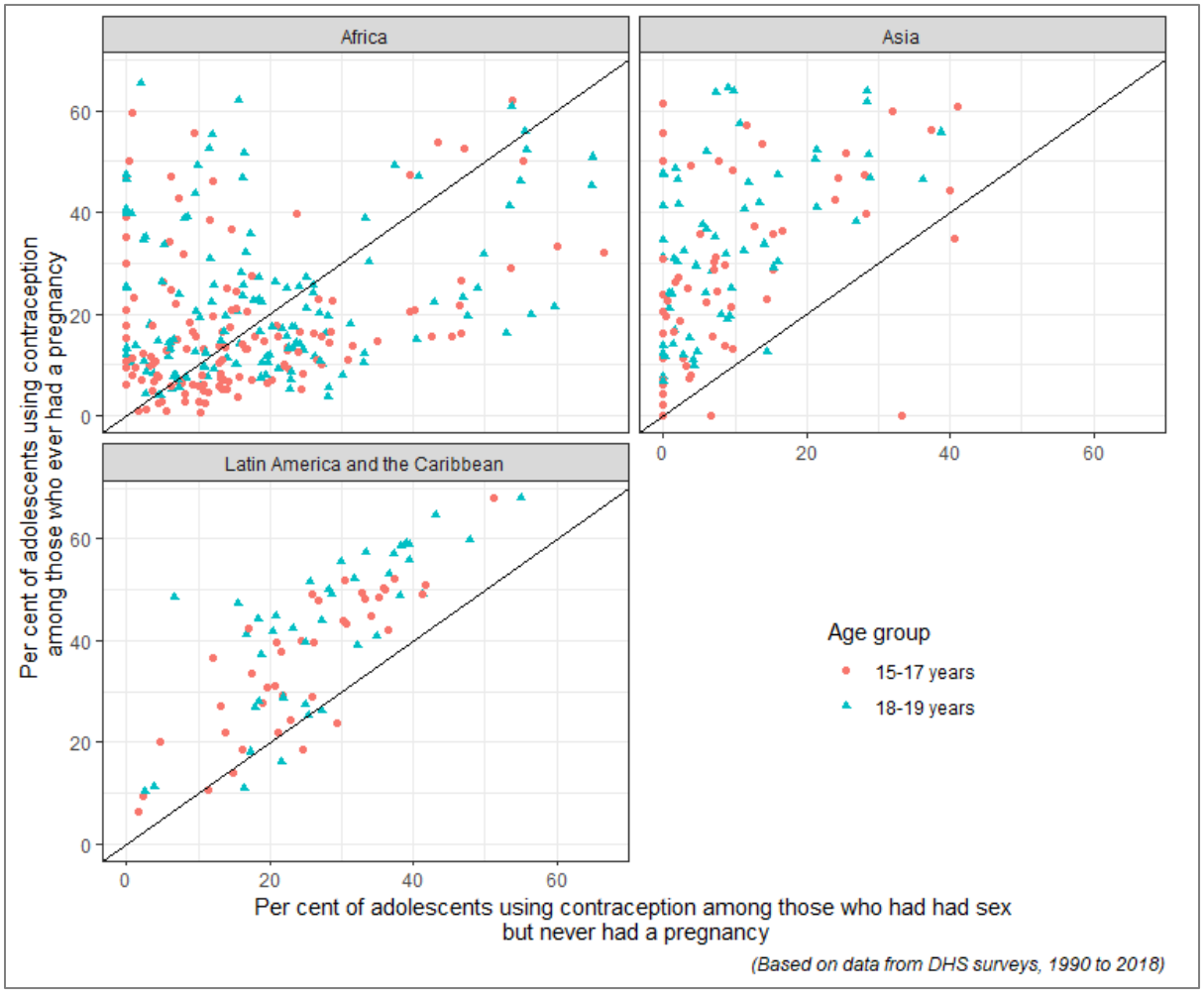
The patterns of the relationship between contraceptive use among adolescent women who have ever had sexual intercourse and correct knowledge of the fertile period are shown in figure 4. The data indicate that increasing trends in the percentage of women who had accurate knowledge about the fertile period are associated with increasing trends in the use of contraception among sexually initiated adolescents, particularly among those aged 15-17 years.

Figure 4. Knowledge of fertile period and contraceptive use among those who have had sex, by region and country



Data on the use of contraception and knowledge of the fertile period are captured at the time of the survey, making it difficult to assess the sequence of the relationships between knowledge of the fertile period, contraceptive use, pregnancy and childbearing. The high levels of contraceptive use among sexually initiated adolescents in countries with larger proportions of adolescent women who had accurate knowledge about the fertile period (figure 4) suggest that the levels of pregnancy and childbearing would be lower in those countries. Contraceptive use is compared between adolescents who have ever had sex but never had a pregnancy and those who ever had a pregnancy or childbirth to assess the pattern of relationship between contraception use and pregnancy or childbearing (figure 5). Each dot in figure 5 represents a data point from a survey. Each country surveyed by the DHS is represented by multiple data points. The markers below the diagonal line show data points where contraceptive use is higher among sexually initiated women who never had a pregnancy compared to contraceptive use among those who ever had a pregnancy or childbirth. The further below from the diagonal line, the greater the difference in contraceptive prevalence between the two groups of adolescent women.

Figure 5. Contraceptive use among adolescent women who have had sex but never had a pregnancy and those who ever had a pregnancy or childbirth, by region and country



In Africa, about half of the data points (131 out of 268) are distributed above the diagonal line in figure 5, suggesting that the two groups of adolescents have an almost equal propensity to use contraception. However, contraceptive use is higher (73 data points) among adolescents aged 15-17 who have ever had sexual intercourse but never had a pregnancy than among those who have had a pregnancy (61 data points). Among adolescents aged 18-19, contraceptive use is higher among those have ever had a pregnancy (70 data points) compared to those who ever had sexual intercourse but have never had a pregnancy or childbirth (64 data points). In Africa, more young women aged 15-17 than those aged 18-19 seem to use contraceptive to avoid a first pregnancy while more young women aged 18-19 seem to use contraceptives to avoid another pregnancy than among those aged 15-17 years.

In most countries of Asia and Latin America and the Caribbean contraceptive use is higher among adolescents who ever had a pregnancy or childbirth than among those who had ever had sexual intercourse but never had a pregnancy. The higher levels of contraceptive use among sexually initiated adolescents who never had a pregnancy than among adolescents who ever had a pregnancy or childbirth is consistent with the finding in a previous study that adolescents whose friends gave birth had decreased adolescent sexual

activity, pregnancy and childbearing (Kapinos and Yakusheva, 2016). Sexually initiated adolescents who never had a pregnancy appear to vicariously learn from experiences of their peer friends, which are by no means positive, resulting in increased uptake of contraception, delayed childbearing and higher educational attainment. Other research, which followed a sample of adolescents—who were in grades 7 through 12 (approximately 12 to 15 years old)—into young adulthood (Balbo and Barban, 2014), found that a friend's childbearing increased an individual's risk of becoming a parent in the short-term, reached a peak approximately two years later and then decreased.

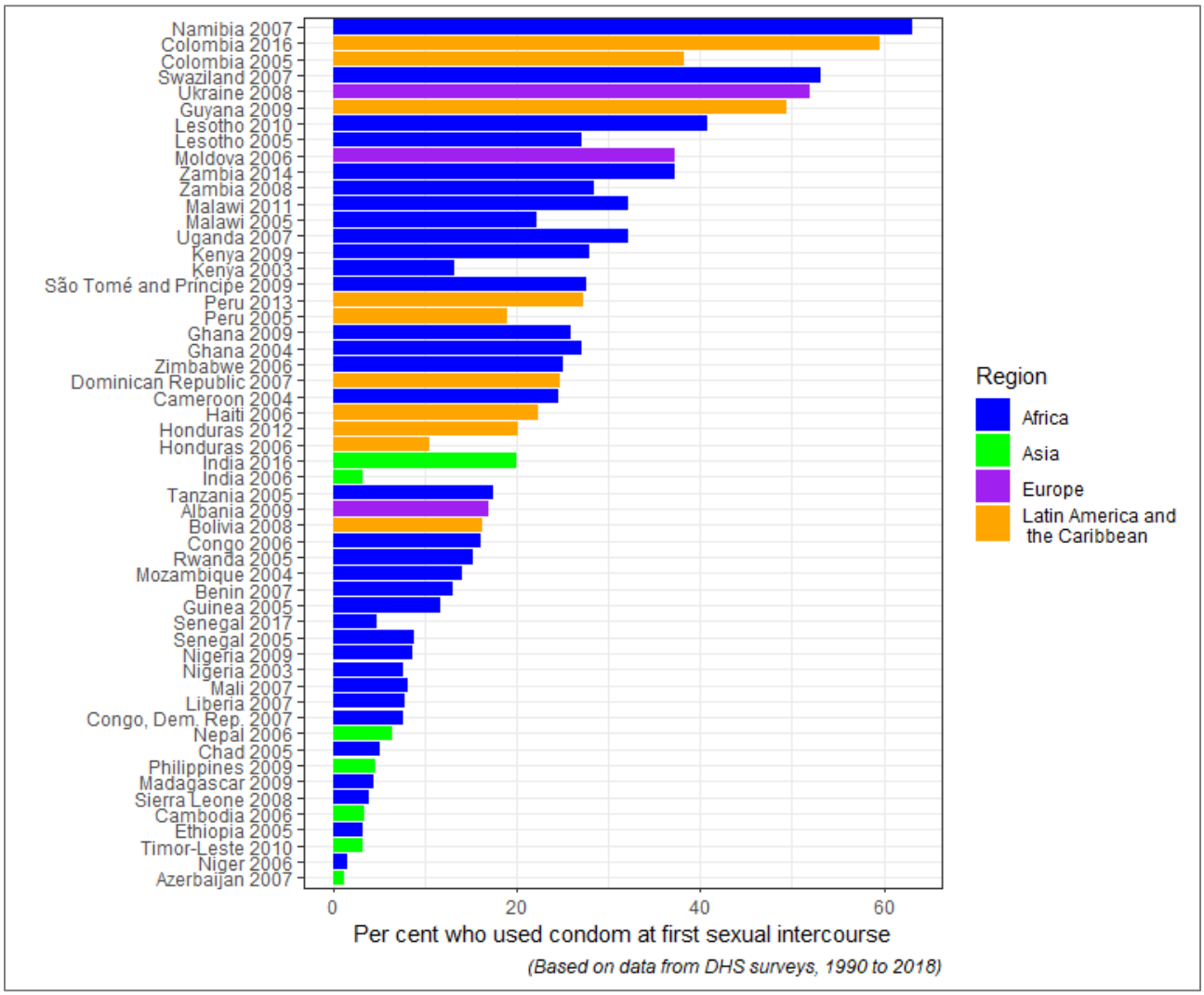
Use of contraception at first sexual intercourse

For young adolescents who have initiated sexual activity, a key determinant of fertility is the use of contraception at first sexual intercourse and subsequently. Many girls and young women do not have access to the information and services they need to realize their sexual and reproductive health and rights (Chandra-mouli et al., 2017). They may have additional challenges to accessing services compared with women in older age groups due to financial or provider-bias barriers, concerns around confidentiality, or they may feel social pressure to produce a baby soon after marriage (Chandra-mouli and Lane, Catherine, Wong, 2015; Gottschalk and Ortayli, 2014). It is estimated that around half of pregnancies among women aged 15-19 in developing regions are unintended and more than half of these end in abortion, often under unsafe conditions (Darroch et al., 2016). In settings where sexual violence is common (Erulkar, 2004; Koenig et al., 2004; Maharaj and Munthree, 2007; Moore et al., 2007; Dixon-Mueller, 2011), as reflected in the reported levels of unwanted or coerced sex and abuse by girls and women, sexual initiation is most likely to occur early and to be coerced. Girls who were coerced at first sex intercourse are more likely to report having a sexually transmitted infection and having an unintended pregnancy than those who had not been coerced at first sex intercourse (Maharaj and Munthree, 2007).

Previous research showed that many adolescent girls do not use contraception at first intercourse or subsequently (Manning et al., 2000; Koenig et al., 2004; Godeau et al., 2008; Magnusson et al., 2012; Finer and Philbin, 2013; Guleria et al., 2017). Recent data from the more developed countries show national variations and age differences in the non-use of contraception at first sexual intercourse. In a 2011-2012 Scandinavian study of women aged 18-26, the non-use of contraception at first sexual intercourse was reported by 9.6 of the women in Denmark, 14 per cent in Norway and 17 per cent in Sweden (Guleria et al., 2017). In the Unites States, 21 per cent of the women aged 15-19 used a contraceptive method at first sexual intercourse in 2011-2013 (Abma and Martinez, 2017). In the Scandinavian study, women who had first sexual intercourse at an early age of 13-14 years had a higher risk of non-use than those who had first sexual intercourse between 15 and 16 years and 17-18 years of age. In the United States, 23 per cent of the young girls aged 17 years and below did not use contraception at first sex in 2011-2013, which was significantly lower than that of teenagers aged 18–19 (7 per cent).

However, the scant or non-existent data precludes the monitoring of sexual activity, contraceptive use and adolescent fertility. In the United States, the decline in the adolescent birth rate by 57 per cent, between 1991 and 2013 (Abma and Martinez, 2017), suggests that the parallel increase in the use of contraception at first sexual intercourse among adolescent women played a role in the decline of adolescent fertility. In 2013, 79 per cent of adolescent women used contraception at first sexual intercourse, up from 67 per cent in 1988 (Abma and Sonenstein, 2001). Also, data from the United States show that among those who used contraception at first intercourse, adolescent men were more likely to use contraception at the most recent sexual intercourse and adolescent women were much less likely to have a birth during the teenage years than those who did not use contraception at first sexual intercourse (Abma and Sonenstein, 2001).

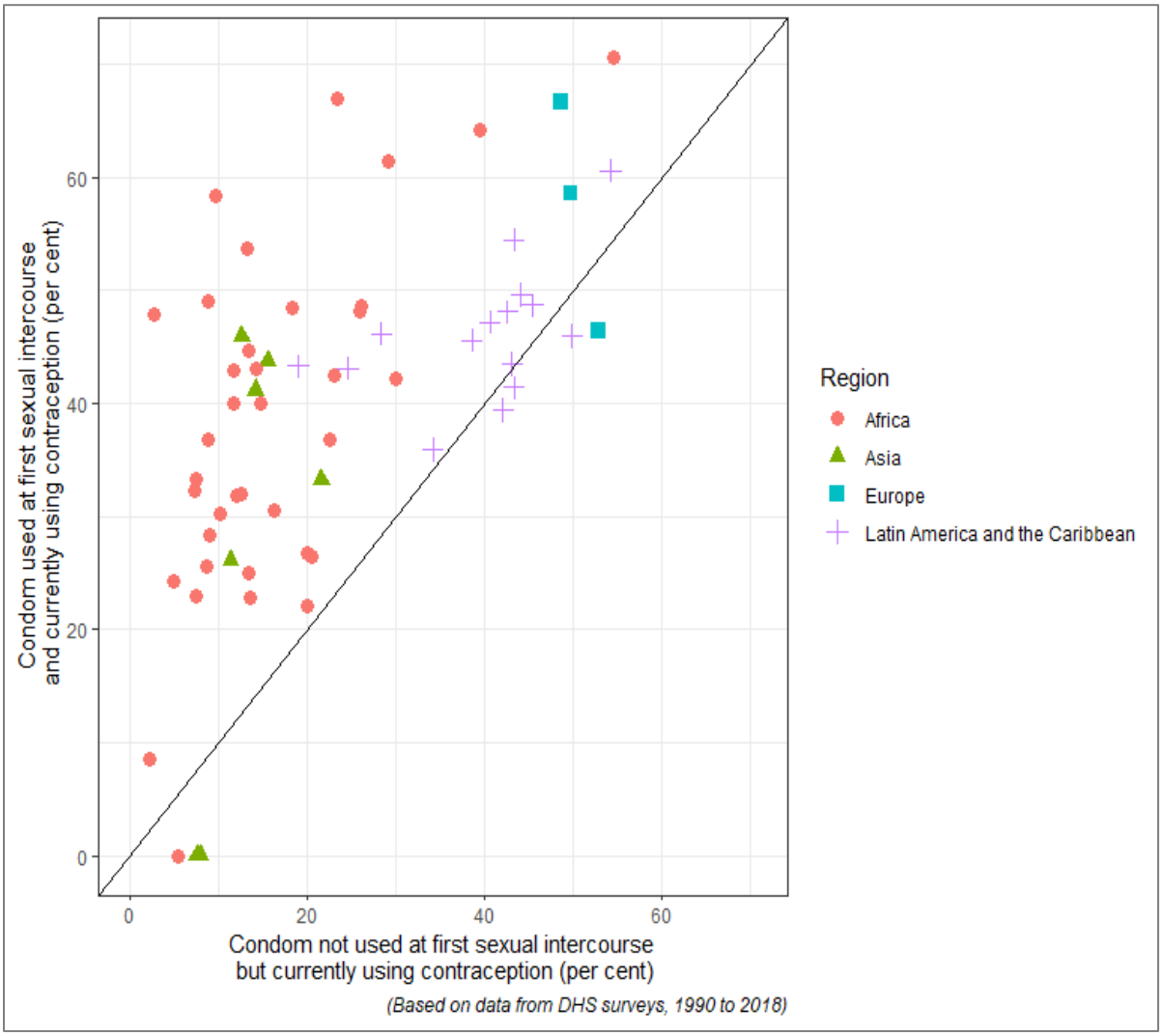
Figure 6. Percentage of adolescent women aged 15-19 that used a condom at first sexual intercourse, selected countries



Data from the Demographic and Health Surveys on the use of condoms at first sexual intercourse are available for selected countries.[1] Figure 6 shows the percentage of adolescent women who reported using a condom during the first time that they had sexual intercourse. In countries where the data are available from at least two surveys, trends show increases in the percentage of adolescent women who used a condom at first sexual intercourse, except in Ghana and Senegal.

[1] The Demographic and Health Surveys (DHS) and the AIDS Indicator Survey (AIS) have been collecting data HIV/AIDS knowledge, attitudes and behaviours since 1988. Indicators include knowledge of HIV prevention methods, experiences with higher-risk sex and condom use at first sex. The data used in this report are drawn from standard DHS surveys.

Figure 7. Current use of contraceptives among adolescent women aged 15-19 who either used or did not use a condom at first sexual intercourse, selected countries

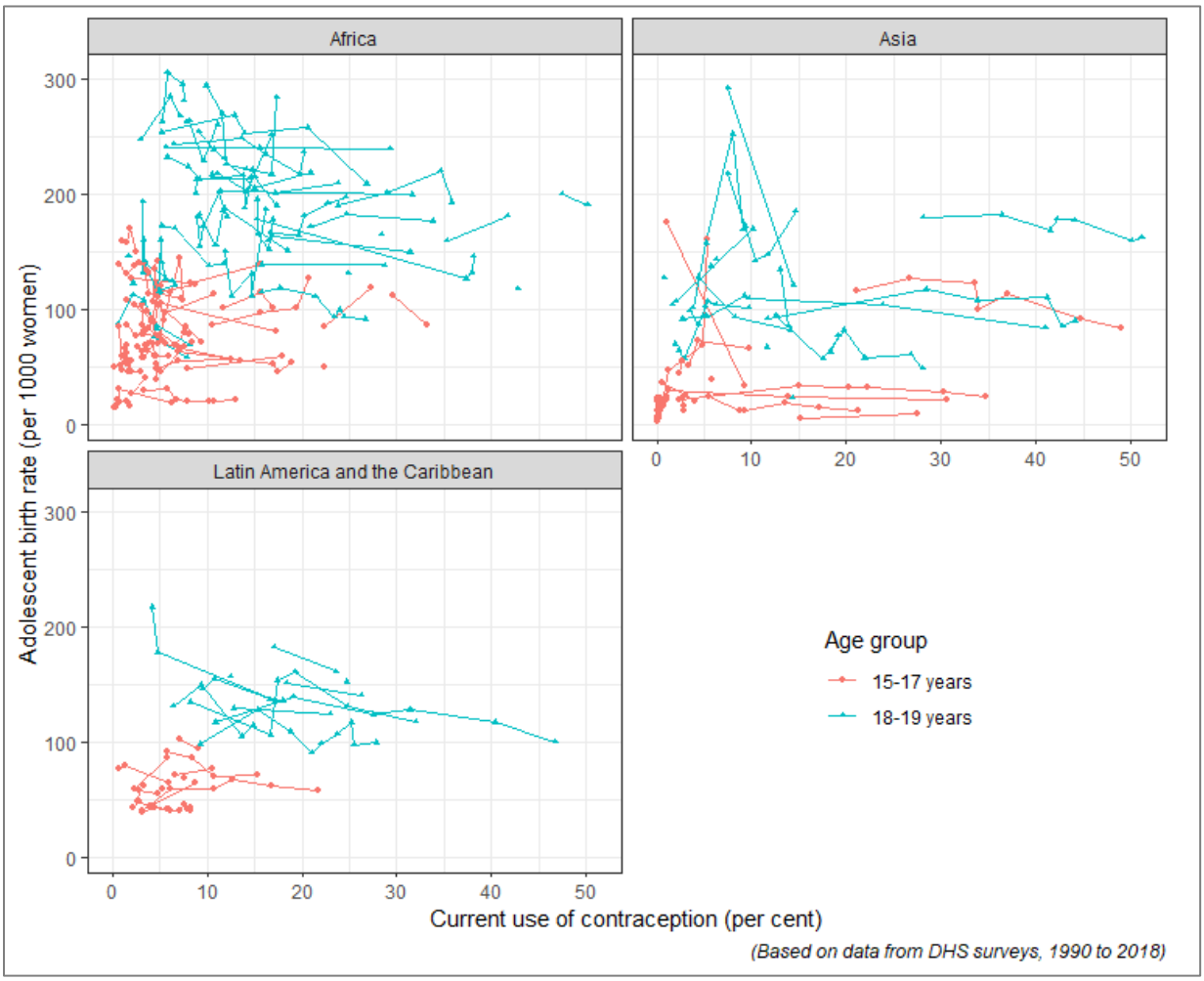


The variation in condom use at first sexual intercourse reflects, among other factors, the existence and success of media campaigns designed to encourage the youth to protect themselves from sexually transmitted infections and human immunodeficiency virus (HIV). Adolescents are more likely to subsequently use contraception if they used a condom (or other contraceptive method) at first sexual intercourse than if they did not, and to prevent unwanted pregnancies. The current use of contraception is compared among adolescent women who used or did not use a condom at first sexual intercourse in figure 7, using data drawn from the standard Demographic and Health Surveys. In all African countries except Niger, the current use of contraceptives is higher among adolescent women who used a condom at first sexual intercourse than among those who did not. Also, contraceptive use among adolescent women is higher among countries with larger proportions who used a condom at first sexual intercourse (not shown).

Contraceptive use and adolescent birth rate

The pattern of association between contraceptive use and the adolescent birth rate is shown in figure 8 for selected countries surveyed by the DHS program. Each line on the chart represents trends for a country. Contraceptive prevalence in the most recent survey was less than 30 per cent in most countries; and even lower (less than 10 per cent) among those aged 15-17 years. Increases in contraceptive use were associated with declines in the adolescent birth rate among adolescent women aged 18-19 in all regions. In Africa, the pattern among those aged 15-17 is not clear, in part because of the laggard increase in contraceptive use among adolescents in this age group. In Asia, increases in contraceptive use was not associated with decreases in the ABR among adolescents aged 15-17, in part because the adolescent birth rates were below 50 per 1,000 women in most countries in the region. Beyond the data collected by the DHS program, the data that allow the analysis of contraceptive use and adolescent fertility are limited or unavailable.

Figure 8. Adolescent birth rate according to current use of contraception, by region and country



Discussion

Most adolescent childbearing in Africa and in other developing regions is unintended. Births and pregnancies that are reported by the mothers as "unintended" or "unwanted" suggest that adolescent fertility (and total fertility) would be lower, controlling for other factors, if adolescent females were provided with information and access to sexual and reproductive health services to avoid getting pregnant. Estimates of the levels and trends of the unwantedness of births and pregnancies that are reported by the mothers as "unintended" or "unwanted" show that unwantedness of the current pregnancy or last-born child (at conception) was higher in Africa and Latin America than in Asia (appendix figure A.2). In most of the countries, unwantedness of the current pregnancy or last-born child was higher among the 15-17-year-old adolescents than among the 18-19-year-old. In Africa, there was an increase in the unwantedness of the current pregnancy or last-born child among both adolescents aged 15-17 and 18-19 in Benin, Cameroon, Chad, Ghana, Guinea, Liberia, Malawi, Namibia, Nigeria, Rwanda, Uganda, Tanzania and Zambia.

Education attainment is a key driver of declines in adolescent fertility but to a certain threshold in some settings (United Nations, Department of Economic and Social Affairs, n/d), perhaps because of variations in the quality of education and the curriculum content related to the knowledge and information on reproductive health and services, including the knowledge on options and risks in their sexual actions. Considering that young women face many constraints in accessing and using contraception to delay their first pregnancy, correct awareness of the fertile period might aid adolescent women in navigating their sexuality and contraceptive needs. Providing them with knowledge about their bodies, menarche and the ovulation cycle would be a good start. Certainly, a major education effort would have to be implemented, particularly in settings where most women have received no education and knowledge about the ovulatory cycle is obtained through informal social channels.

The data suggest that most adolescent women begin using contraception after a pregnancy outcome. It is usually the second birth that is reported as unplanned by married adolescent women, and young women are more likely to use a method to postpone a second birth than to delay a first one (Remez et al., 2008). Also, it is likely that the curiosity and awareness of their bodies, and knowledge of the ovulatory cycle are piqued after becoming pregnant. The data presented in this paper are consistent with findings that even in settings where the desire to become pregnant with the first child is high, contraceptive use rises markedly after the first birth (Hampshire et al., 2012). The high use of contraception among adolescents who ever had a pregnancy or childbirth, compared to those who never had, might reflect the high contraceptive failure and discontinuation rates that are particularly high among adolescents, and a tendency to switch methods (Blanc et al., 2009; Bradley et al., 2009, 2011; Sexton et al., 2014). While researchers and policymakers often emphasize the need to prevent the first pregnancy among adolescents, the data suggest that preventing the second pregnancy might be equally or more important than previously thought.

Helping the young women to navigate their sexuality and delay or avoid pregnancy will require innovative approaches to provide reproductive and health services attuned to their needs, including the need for privacy and discretion, and counselling that is tailored to the unique needs of young people. The increased penetration of the mobile phone in the developing countries, and to even younger generations, is providing agencies, countries and health experts with a new direct channel of communication to improve family planning and health programmes (USAID Bureau for Africa, 2012; Babalola et al., 2017a; Ippoliti and L'Engle, 2017; Babalola et al., 2017b). Although mobile phones have become an indispensable communication tool all over the world, the cost of owning a mobile phone might exclude poorer young women from receiving family planning information. In 2015, the International Telecommunications Union (ITU) reported that a significant digital divide persisted between men and women in many countries, largely because of the structural inequalities in many societies. In 2019, there was a significant gender gap in mobile internet use in low- and middle-income countries. Women were 26 per cent less likely than men to use

mobile internet services (GSM Association, 2019). Also, there were widespread digital divides, associated with the affordability of the information and communication technologies (ICT), between individuals with more or less income, and between those with higher or lower educational attainment, particularly associated with the skills and capabilities required for Internet use. For many people, including young women in low- and middle-income countries, cost and illiteracy remain the greatest barrier to owning and using a mobile phone (GSM Association, 2019).

Targeted interventions toward adolescent social groups, that expose adolescents to the reality of adolescent motherhood, may be an effective way of increasing the uptake of contraception, delaying childbearing and improving schooling. In Africa, HIV/AIDS mass communication campaigns directed toward behavioural change appear to have begun registering among the adolescent population as exposure to family planning message via mobile phone is increasing. Many such campaigns included adolescents in their targeted audience (Noar et al., 2009), although with mixed results at reaching younger women (Bajoga et al., 2015; Jacobs, 2016).

The research on cross-national comparison of adolescent fertility suggests varied factors associated with the levels and trends in the adolescent birth rate. However, how countries, societies and parents manage the prolonged transition of adolescents to adulthood, including the sexual transition, is critical to reducing early childbearing. Managing the sexual transition depends, in large part, on the political and cultural differences that inform the public policies either to discourage sexual activity or to deem teenage sexuality as developmentally appropriate (Schalet, 2000; Carpenter, 2005), and therefore promote programmes that inform adolescents about changes in their bodies, sexual awareness, contraceptive use and other measures in the event of conception.

The common thread in reducing adolescent childbearing is to provide young women with access to the information, services and support that they need to navigate their sexuality and avoid pregnancy. Most teenage births occur within marriage. Many teenage mothers have older partners and many births are unwanted. Reducing teenage pregnancy and childbearing will require policies and strategies to address these and other drivers of adolescent fertility. While many countries have national policies and curricula that support comprehensive sex education in schools (Woog and Kågesten, 2017), the quality of such education is unknown in many of them.

Action and programmes are needed to address child marriage. Child marriage remains a strong factor underlying adolescent fertility because most adolescent childbearing occurs within marriage. Most first births occur within marriage (appendix figure A.3) and bridal pregnancies or first births that occur within marriage following a premarital conception are common. Pregnancies that precede marriage and result in a birth within marriage are more common in Africa than in other regions (appendix figure A.4).

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APPENDIX FIGURES

Figure A.1. Distribution of the percentage of adolescent women with correct knowledge of the fertile period and those who have ever had sex, by region and country, 1990-2018

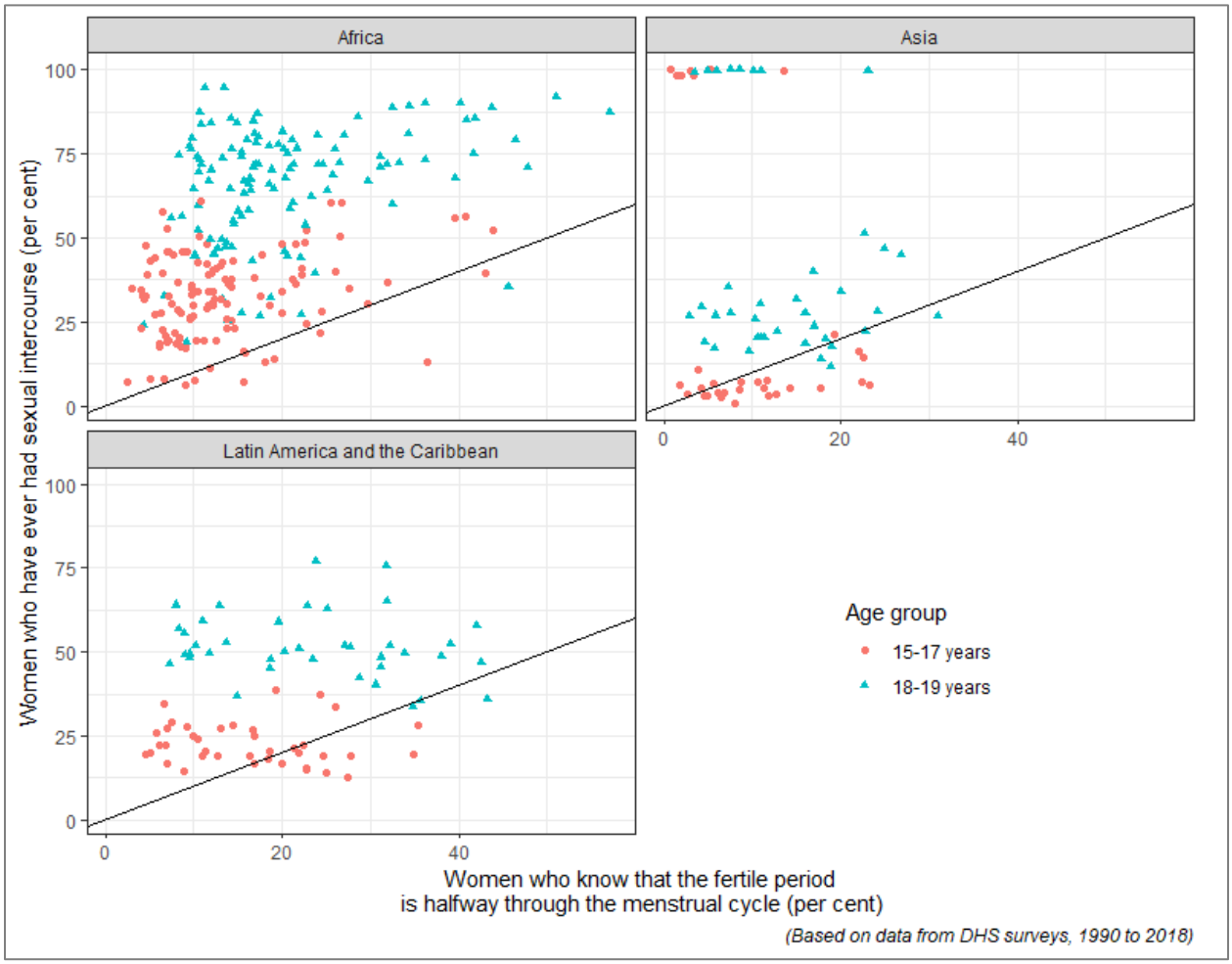

Figure A.2 The levels and trends of the wantedness of current pregnancy at time of survey or the last child born in the last three years before the survey, 1990-2018

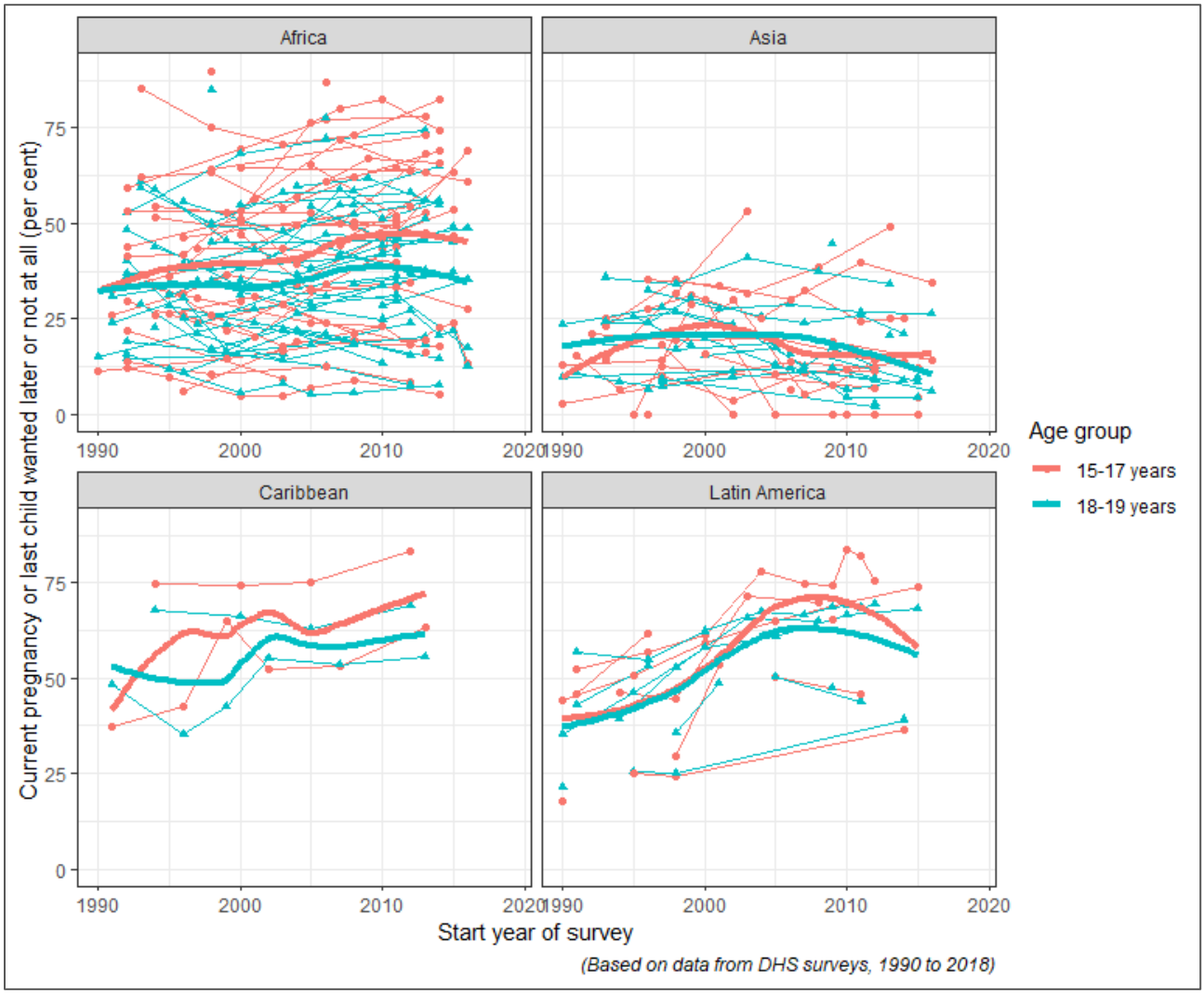

Figure A.3. Levels and trends of the percentage of ever-married girls and women whose first birth occurred within marriage,* by region and country

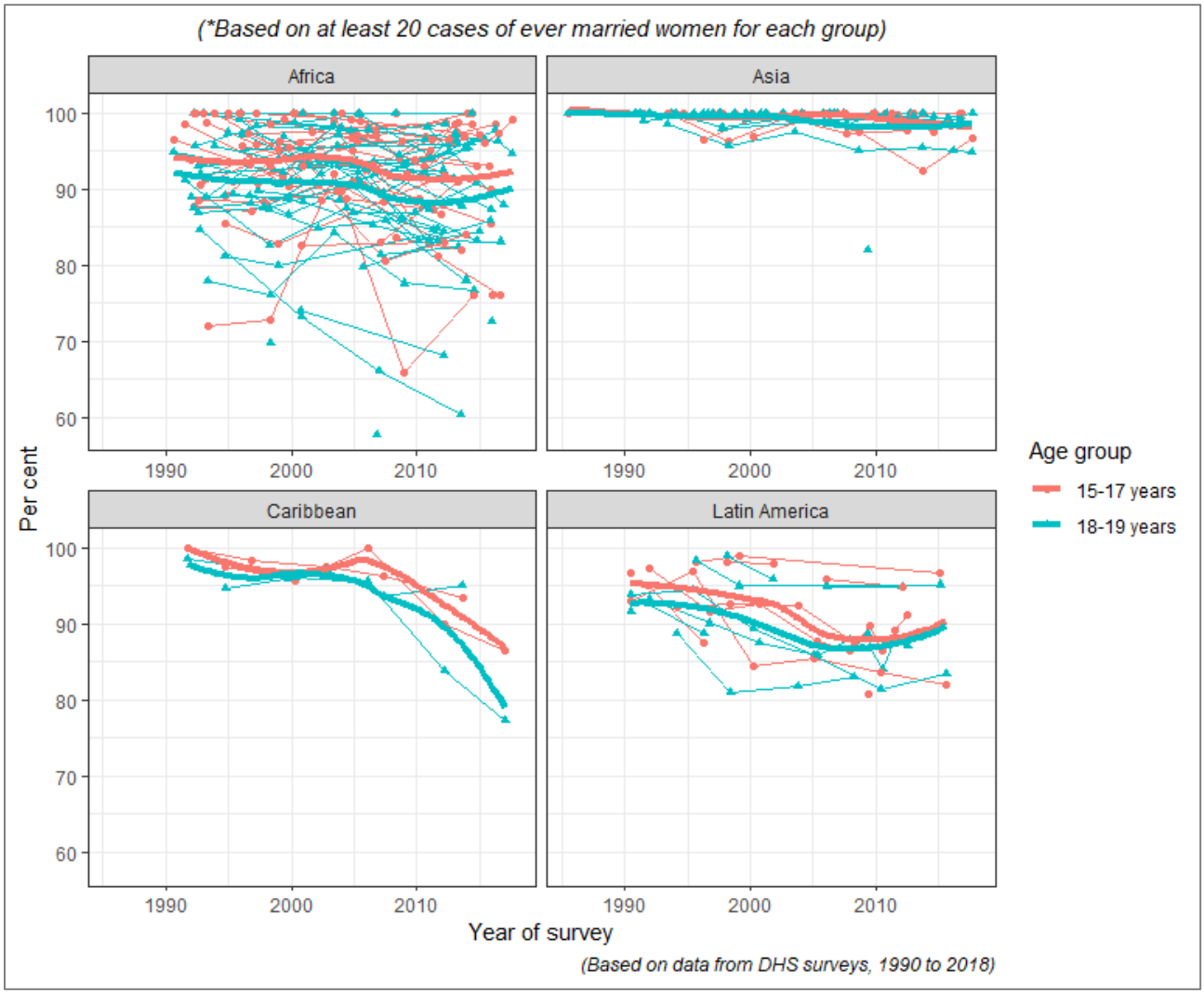

Figure A.4. Percentage of ever-married adolescents* whose first birth occurred within 8 months from the date of start of first marriage, most recent survey in 2010-2018