

The sexual and reproductive health of younger adolescents

Research issues in developing countries



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Background paper for a consultation

WHO Library Cataloguing-in-Publication Data :

The sexual and reproductive health of younger adolescents: research issues in developing countries: background paper for a consultation. 1.Reproductive health services. 2.Sexual behavior. 3.Sexuality. 4.Sexually transmitted diseases - prevention and control. 5.Research. 6.Adolescent. 7.Developing countries. I.World Health Organization.

ISBN 978 92 4 150155 2

(NLM classification: WA 330)

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Printed by the WHO Document Production Services, Geneva, Switzerland

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Acknowledgements

This paper was written by Professor Ruth Dixon-Mueller, WHO consultant, as a background paper for an expert consultation on the topic that was held from 4 to 5 November 2010 at WHO headquarters, Geneva. The meeting report can be downloaded from <http://www.who.int/reproductivehealth/publications/adolescence/en/index.html>

The author wishes to thank the following reviewers for their insightful comments on an earlier draft of this paper: Robert Wm Blum, Mario Bronfman, Venkatraman Chandra-Mouli, Claudia Garcia-Moreno, Nicole Haberland, Shireen Jejeebhoy, Vasantha Kandiah, Ruth Levine, Miriam Temin, and Shyam Thapa.

Abbreviations and acronyms

ACASI	audio computer-assisted self-interviewing
CRC	Convention on the Rights of the Child
D&C	dilation and curettage
DHS	Demographic and Health Survey
DHEA	dehydroepiandrosterone
FGM	female genital mutilation
ICPD	International Conference on Population and Development
ICRW	International Centre for Research on Women
ILO	International Labour Organization
IPPF	International Planned Parenthood Federation
NGO	nongovernmental organization
PAHO	Pan American Health Organization
STI	sexually transmitted infection
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNGASS	United Nations General Assembly Special Session
WHO	World Health Organization

Summary

The Programme of Action adopted at the International Conference on Population and Development (ICPD) in Cairo in 1994 stimulated considerable interest among international agencies, governments, nongovernmental organizations, and donors in the formulation of policies and programmes to meet the needs of adolescents in developing countries and protect their rights. Among other recommendations, the Cairo agreement urged governments to provide adolescent girls and boys with the necessary sexual and reproductive health information and services to enable them to deal in a “positive and responsible way” with their sexuality.

The evidence base for what adolescents know about their sexual and reproductive health—together with evidence on the sexual and reproductive attitudes and behaviours of boys and girls living in diverse circumstances and on the risks they face—has grown substantially since Cairo. Most of this research has focused on 15–19-year-olds, however. Responding to a growing interest in programming for younger adolescents as well (defined here as 10–14-year-olds), this paper points to a number of gaps in what is known about this younger age group and identifies a range of research issues relevant to the design of effective interventions. Of particular interest are those countries in which substantial proportions of boys and/or girls initiate sexual relations at age 14 or younger (survey data are presented in the Appendix), whether such initiation is voluntary or forced and – for girls – whether or not it is the result of an arranged marriage.

Although early adolescence can be considered as a “stage” in the life-course, it is characterized by a series of interconnected processes that underlie the physical, social, and emotional changes of puberty. Six processes are highlighted here: (1) status transitions in early adolescence (e.g. dropping out of school, child marriage, working) as they relate to age-graded international and national standards of children’s and adolescents’ rights; (2) physiological processes of sexual, reproductive, and cognitive maturation; (3) the acquisition of sexual and reproductive information and of personal skills; (4) gender socialization and the influence of social norms on boys’ and girls’ attitudes and behaviours; (5) shifting combinations of opportunities, risks, and protective factors in communities, schools and family environments; and (6) initiation of early sexual activities and their consequences. Each of these processes affects the sexual and reproductive health of young male and female adolescents in positive or negative ways and their capacity to make safe, informed and voluntary decisions about their sexuality and other aspects of their lives.

Understanding the nature and extent of individual and group variations in these processes (particularly gender-based differences) and their causes, correlates and consequences is essential for designing effective programmatic responses to meeting the diverse sexual and reproductive health needs of younger adolescents and protecting their rights. A multicountry research strategy would identify the “best measures” of process and transition markers in different settings for girls and boys at this vulnerable stage in their lives; select a common sampling frame, research method, and thematic content from a number of possible approaches; and define a range of outcome measures that are most useful for guiding, monitoring and evaluating health-sector service provision and other initiatives such as legal protections and school-based comprehensive sexuality education.

1. Introduction

The lives of younger adolescents – defined here to encompass girls and boys from 10 to 14 years of age – are characterized by profound biological, cognitive, emotional and social changes associated with the passage through puberty. Age-related and gender-related risks and opportunities in families, communities and societies interact with individual developmental processes to create the conditions for both positive and negative health outcomes. These formative years offer an ideal window of opportunity for building the foundations of sexual and reproductive health and rights among young adolescents and for preparing them to make safe, informed and voluntary sexual and reproductive (and other) decisions in their lives.

The strategic value of investing in young adolescents has been emphasized in publications such as *Growing up global: the changing transitions to adulthood in developing countries* (Lloyd 2005); *Youth: choices and change: promoting healthy behaviors in adolescents* (Breinbauer and Maddaleno 2005); and *Investing when it counts: generating the evidence base for policies and programmes for very young adolescents* (Chong et al. 2006). Added benefits of investing in girls are stressed in reports such as *New lessons: the power of educating adolescent girls* (Lloyd 2009) and *Start with a girl: a new agenda for global health* (Temin and Levine 2009). Focusing on the needs and concerns of 10–14 year olds is not intended to discount the importance of reaching 15–19 year olds, however, which in any case has received greater attention among researchers and policy-makers. Rather, the intent is to emphasize the relevance to adolescents' sexual and reproductive health and rights of attitudes and behaviours adopted in these early years, and the need to intervene early with health-promoting and rights-promoting initiatives, particularly where significant numbers of boys and/

or girls initiate sexual intercourse when they are aged 15 years, 14 years or younger.

This paper reviews quantitative and qualitative evidence on adolescents' sexual and reproductive health from a number of developing countries and, where possible, highlights findings for boys and girls aged under 15 years in those studies where findings are disaggregated by age and sex (which is not always the case). The evidence is sporadic, however, and is by no means representative of all developing countries. The review is organized around six interwoven processes that mark girls' and boys' passage through adolescence, with an emphasis on the early years:

- status transitions among young adolescents in the context of age-graded standards of children's and adolescents' rights;
- processes of sexual, reproductive and cognitive maturation;
- the acquisition of sexual and reproductive knowledge and skills;
- gender socialization and the influence of sexual and other norms;
- the shifting terrain of opportunities, risks and protective factors;
- sexual and reproductive behaviours and their consequences.

The concluding section brings together a number of research topics and approaches identified throughout the paper that could form the basis of a coordinated multi-country research agenda for young adolescents' sexual and reproductive health and rights.

2. Status transitions and age-graded standards of children's and adolescents' rights

2.1 International standards and adolescents' rights to sexual and reproductive health information

The idea of what it means to be a "child" or "adolescent" has evolved historically and varies across cultures in significant ways (Caldwell et al. 1998). Overlaying these cultural variations are international standards that form a "template" of age-graded adolescents' rights and protections that national laws and policies are expected to comply with. Most of these standards consider boys and girls aged under 15 years (that is, including young adolescents) "children" by virtually any definition. Adolescents aged from 15 to 17 years are an intermediate category with respect to transitions such as schooling and employment, while 18 year olds are not considered children by any definition, even though they may not assume full legal rights and responsibilities until the age of 20 or 21 years.

The Convention on the Rights of the Child (CRC) defines all persons aged up to 18 years as children, however, "except where marriage or economic emancipation occurs earlier" (e.g. at 15 or 16 years). As such, they are granted special protections and entitlements such as the right to education, health care, information and personal development, and the freedom from certain adult responsibilities. All children have the right to complete at least a primary education, for example, which usually means staying in school until aged 14 or 15 years (although there are exceptions; see Appendix Table 1). Child labour, defined by the International Labour Organization (ILO) in the 1973 Minimum Age Convention as occurring at 14 years or younger, is prohibited except for light work, domestic labour, and work in a family enterprise. The betrothal of children younger than 15 years is also prohibited, and countries are urged (but not required) to set a minimum age for marriage of 18 years for both

sexes (Women's Human Rights Resources 2004; Lloyd 2005:474–477).

In most countries, adolescents aged under 15 years are classified by national laws and policies as minors who have not yet reached the age of majority or consent, which may be set at 16 or 18 years or even higher. Minors are typically considered too young to sign contracts, to drink alcohol or obtain a driver's licence, to buy cigarettes or view "adult" movies, to enter the paid labour force, to vote, to consent to sexual intercourse (especially with older partners), to marry, to serve in the armed forces, or to be held to the same standards of criminal responsibility as adults (Melchiorre 2004; Dixon-Mueller 2008; AVERT [formerly the AIDS Education and Research Trust] 2009). Minors are also subject to the authority of parents or guardians who are (assumed to be) legally and morally responsible for their supervision and support, and who may wield considerable authority over their schooling, labour, health care, living situations, social and sexual behaviour, marriage prospects and other aspects of their lives.

International agreements such as those adopted at the International Conference on Population and Development (ICPD) in 1994, the Fourth World Conference on Women in 1995 and the World Summit on Children in 2002 have extended the scope of the CRC by affirming the right of all adolescents to receive sexual and reproductive health information, education and services in accordance with their needs (International Planned Parenthood Federation [IPPF] 2000; The United Nations [UN] Committee on the Rights of the Child 2003a and b). Key phrases from these documents¹ emphasize that:

¹ ICPD 1994 Programme of Action paragraphs 7.45, 7.46, 7.47; Fourth World Conference on Women 1995 Platform for Action paragraphs 107, 108, 267, 281; United Nations General Assembly Special Session (UNGASS) 1999 (ICPD+5) paragraphs 35, 67, 68, 70, 73, 79; UNGASS 2002 World Summit for Children paragraphs 44, 47.

- the promotion of mutually respectful gender relations as well as appropriate information and health services is essential to enable adolescents to deal *in a positive and responsible way with their sexuality* (emphasis added);
- reliable information disseminated through public health campaigns, the media, and the educational system should be designed to ensure that young people acquire knowledge about their health, especially information on sexuality and reproduction;
- formal and non-formal education should encourage behaviour that protects adolescents from early and unwanted pregnancy, sexually transmitted infections (STIs) including HIV/AIDS, and sexual abuse, incest and violence;
- adolescents' access to information and services must not be restricted by legal, regulatory or social barriers or by the attitudes of health-care providers;
- programmes must safeguard adolescents' rights to privacy, confidentiality, respect and informed consent and to non-discrimination.

The language of these documents also refers to children's and adolescents' "evolving capacities" and to the "responsibilities, rights and duties of parents . . . to provide . . . appropriate direction and guidance" to their children in the exercise of their rights. This is disputed territory, of course, especially when parents want to "protect" their children from sex education or to prevent them from accessing certain health services without parental consent. The UN Committee on the Rights of the Child has declared that the best interests of the child are to prevail with respect to the role of both parents and the state. In addressing children's rights to protection from HIV/AIDS, for example, the committee declared that states must "refrain from censoring, withholding or intentionally misrepresenting health-related information,

including sexual education and information, and that, consistent with their obligations to ensure the right to life, survival and development of the child . . . States . . . *must ensure that children have the ability to acquire the knowledge and skills to protect themselves and others as they begin to express their sexuality*" (emphases added) (UN Committee on the Rights of the Child 2003a:Paragraph 13).

2.2 Status transitions in early adolescence and the importance of schooling

International statements of adolescents' rights such as these offer a framework within which to document the diverse realities of their lives (Bruce and Chong 2003; Khan and Mishra 2008:7–18). Much of what we know on a comparative basis comes from Demographic and Health Surveys (DHSs) conducted in over 60 developing countries. Although information about their sexual and reproductive knowledge and behaviour is not collected from 10–14 year olds living in the sampled households (as it is for 15–19 year olds), it is possible to identify the percentages of 10–14-year-old boys and girls who are currently attending school (see Appendix Table 1) and who are living with one or both parents or neither (not shown here), as well as the percentages of 15–19-year-old girls and boys who had intercourse before the age of 15 years, and of girls who married and gave birth by that age (Appendix Table 2). Some country reports also include data on whether 10–14-year-old boys and girls were working, and if so, whether they were paid in cash, kind or both, or unpaid. The living conditions of younger adolescents can also be inferred from other characteristics of the household and its members, such as parental education, household assets, access to radios, TV or newspapers, rural–urban residence, geographical location, and other factors, all of which permit a "mapping" of 10–14 year olds in these countries based on nationally representative household samples.

At the national level, DHS data show that up to 41% of 10–14-year-old girls and 35% of boys in the same age group in 26 sub-Saharan African countries were living with neither parent (although they may have been living with other relatives), with somewhat lower proportions in Latin America and the Caribbean and the lowest proportions in Asia (Chong et al. 2006:14–15). Employment data for children and young adolescents are unreliable, given the frequently informal, family-based and sporadic nature of their work. However, according to ILO definitions, an estimated 37% of 10–14-year-old boys and 30% of girls in this age group in sub-Saharan Africa are working, compared with 26% and 27%, respectively, in Asia and the Pacific and 17% and 5%, respectively, in Latin America and the Caribbean (Hagemann et al. 2006:31). (Some of these young workers are also enrolled in school.) These and other indicators such as girls' marriages before the age of 15 years (Appendix Table 2) reveal patterns of early status transitions for many children and young adolescents that stand in marked contrast to international human rights standards. They also attest to the enormous challenges in some countries of reaching 10–14 year olds with the sexual and reproductive health information and services to which they are entitled.

School enrolment is especially critical in this regard. Because primary schooling is to be both free and compulsory, attendance is an obligation as well as an entitlement. All children are to be enrolled beginning at the age of about 6 years and must continue through a minimum of 6 years of primary school to the age of 12 years, or – given late starts, missed years, repeated grades or a longer standard of primary school – to 14–15 years or more (Melchiorre 2004; UNESCO 2004).

The extent to which schooling is available as a formal platform for (at least hypothetically) fostering the cognitive development of young adolescents and their acquisition of knowledge and analytical skills is apparent in the attendance rates reported in Appendix Table 1 for countries with

recent DHS surveys.² In nine of the 56 countries for which data are available, over 90% of urban and rural girls and boys are currently attending school (Gabon, South Africa, Armenia and Jordan, and the five central Asian republics). In all other countries, attendance falls below this level for at least one category and usually all. The lowest attendance is reported for rural girls in Burkina Faso and the Niger (about 20%) and in Bolivia (Plurinational State of), the Central African Republic, Chad, Ethiopia, Mali and Pakistan (30–35%), and for rural boys in Burkina Faso, Bolivia and the Niger (30–35%). Not surprisingly, young urban adolescents are more likely to be in school than their rural counterparts in almost all countries. The pattern of sex differences is mixed. Girls in sub-Saharan Africa are about 80–100% as likely as boys to be attending school if they live in urban areas, and 50–100% as likely if they live in the countryside. In other regions, girls are typically near or even above parity with boys in urban areas (see especially Bangladesh, Nicaragua and the Philippines), a situation that intensifies in the rural areas of some countries and reverses in others. Particularly low ratios of rural girls to boys attending school at the ages of 11–15 years, which reflect traditional patterns of discrimination against girl children, are apparent throughout much of western and central Africa; in Ethiopia, Morocco and Turkey; in Nepal, India and Pakistan; and in Paraguay, of the countries included here.

Although overall school attendance at younger ages has been rising dramatically in some countries, especially among girls, attendance often drops off steadily between the ages of 10 and 14 years for both sexes. Keeping adolescents in school to the age of at least 15 years (and longer if possible) is

² DHS reports now tabulate school attendance for the age groups 6–10, 11–15 and 16–20 years, which makes comparisons with previous tabulations difficult. Tables showing the percentage of 10–14-year-old female students who are in primary and secondary school, the percentage of male and female students who have fallen two or more years behind the normative grade for their age, and the percentage of all out-of-school girls aged 10–14 years who have never attended school can be found in Lloyd 2009:21, 15, 30.

clearly a major policy and programme priority, with significant economic, social and health benefits, especially for girls (Lloyd 2009).

Girls' school attendance has been shown to be a significant protective factor against early sexual initiation, early marriage/cohabitation, and early childbearing in many countries. The relationship is not consistent across and within countries, however, and is affected by the socioeconomic selectivity of students where schooling is less than universal. It is also affected by parents' and elders' joint decisions about the relative value of girls' schooling and early marriage in some societies and by girls' own interests in staying in school as compared with dropping out and getting pregnant or married in others (Mensch et al. 2001; Lloyd 2005:200–203; Biddlecom et al. 2008; Grant and Hallman 2008; Lloyd and Mensch 2008; Marteleto et al. 2008). Moreover, studies suggest that pregnancy and early marriage are more likely to be consequences rather than causes of girls leaving school early (Lloyd 2009:27).

Male students in some studies are more likely than non-students of the same age to be sexually active (but also more likely to use condoms), although again these observations are not consistent across diverse populations. None of these findings (or lack thereof) denies the potential significance of formal schooling in strengthening the foundations of sexual and reproductive health, human rights and gender equality in young people's lives, however, and all of them serve as reminders that parallel efforts must be made to reach those who have dropped out of school or who never attended at all (Bankole et al. 2007).

Research could track the status trajectories of young male and female adolescents in different settings by single years of age as they leave school (if they ever attended at all); as they enter the paid or unpaid labour force (if they are not already

employed); as they leave home or lose one or both parents (if they have not already done so); as they migrate from one place to another singly or as part of a household; and, in countries of early marriage, as girls are betrothed or enter into a formal union. Transition profiles could be based on cross-sectional data or on prospective studies that follow young cohorts over time and permit researchers to sort out the sequence of events and their causes and consequences. Together with other developmental processes reviewed in this paper, status transitions such as these are likely to have significant implications for young people's sexual and reproductive health and the exercise of their rights.

3. Processes of sexual, reproductive and cognitive maturation

3.1 Hormonal changes and growth spurts

Stimulated in late childhood by a “cascade of endocrine changes” (Patton and Viner 2007:1,130), the processes of bodily growth and sexual and reproductive maturation associated with puberty are accompanied by a series of emotional, cognitive and behavioural transformations that mark the period of early adolescence (Kagan 1998; Campbell 2003; Breinbauer and Mattaleno 2005:262–4). Research on individual and group variations in the timing, sequencing, correlates and consequences of these maturational processes, and on how young adolescents experience them, can offer important insights into the foundations of sexual and reproductive health during these formative years.

The onset of puberty in girls begins about two years before menarche, with the gradual build-up of estrogens and progesterone released from the adrenal cortex (Bullough and Bullough, 1994:288–9; Kagan 1998:521–3; Patton and Viner 2007). There is also a slight rise in dehydroepiandrosterone (DHEA) from the adrenal cortex, which is responsible for the early growth spurt. At menarche and beyond, the ovaries take over the primary production of the female hormones, which are slightly libido depressing. In contrast, boys are subjected to surges of libido-enhancing testosterone from the adrenal cortex and the testes: during puberty, testosterone levels typically multiply 10 to 20 times for boys while doubling for girls. Mediated by the adrenal steroids such as DHEA and cortisol, variations in testosterone appear to have direct effects on male sexual arousal as well as on sexual and other risk-taking behaviours if their expression is not suppressed by externally imposed or internalized social controls.

In healthy populations, the growth spurts of girls begin at about 10–13 years and end at 16 years or

later; among boys they begin at 12–15 years and end at about 18 years or later. Peak bone mass is achieved by the early 20s (Patton and Viner 2007). The relationship between height and weight (body mass index) is correlated with the timing of first menstruation in girls, with overweight and obese girls experiencing menarche earlier, and underweight or “stunted” girls maturing later. In contrast, overweight boys are more likely to experience delayed maturation. Because height and weight gains (and, for girls, breast development) are visible signs of puberty, and because marked deviations from the norm are likely to attract (often unwelcome) attention from others – especially for early-maturing girls and late-maturing boys – they can affect adolescents’ self-image in powerful ways. In a nine-country study of adolescent health in the Caribbean, for example, almost one in every five boys and girls ages 10–12 years and 13–15 years said they worried that their bodies were “developing too fast”, while 3% at 10–12 years and 12% at 13–15 years worried that their bodies were not developing fast enough (differences between boys and girls were not statistically significant) (Halcón et al. 2003). The question remains as to how significant departures from developmental norms in early adolescence affect boys’ and girls’ sexual attitudes, behaviours and experiences (e.g. their vulnerability to harassment from others) as compared with those whose growth falls within the normal range for the group.

3.2 Menarche, semenarche and the stages of sexual maturation

The standard five-stage visual Tanner scale of sexual maturation classifies girls according to breast shape (B1–B5) and distribution of pubic hair (P1–P5), with stage 1 representing pre-pubertal appearance and stage 5 the achievement of adult size and form (Tanner 1962; Hall et al. 2007). The Tanner scale for boys tracks changes in testicular and penile

(genital) size and shape (G1–G5) and pubic hair (P1–P5). These scales can be self-administered by adolescents who compare their bodies with drawings illustrating each stage, which makes them a useful research tool for documenting variations in the timing of these physical changes and their correlation with other maturational events and conditions.

Among girls, the first signs of puberty may emerge as early as 8 or 9 years (stage 2 of breast budding) and terminate at 15 or 16 years (stage 5), with menarche typically occurring around stages 3 or 4 – that is, in the middle of the pubertal sequence. In a sample of Hong Kong schoolgirls, for example, breast budding occurred at a median age of 9.8 years, followed by the first appearance of light pubic hair (P2) at 11.6 years and menarche at 12.4 years (Huen et al. 1997). The downward trend in age at menarche to an average of 12–13 years in most developing countries has been well established: surveys show that urban, educated, middle-class girls in many countries are now starting their periods on average at 12.5 years or earlier – the same age as (or even younger than) their European and North American counterparts (Morabia and Constanza 1998; Thomas et al. 2001; Breinbauer and Maddaleno 2005:306–8; Lloyd 2005:194; Parent et al. 2003; Patton and Viner 2007:1130–1131). How girls' first menstruation – and menstruation in general – is treated by their families (and whether girls are prepared for it in advance) is a research topic of some interest with respect to whether it is viewed as a natural transition, a cause for celebration (as a passage to “womanhood”) or a condition to be concealed because it is shameful and “unclean”.

Because standard deviations within samples are typically 1.0–1.5 years around the mean of positively skewed distributions, the normal timing of first menses among healthy girls extends from about 11 years to 14–15 years. Means of 14 or 15 years are not unusual among rural girls or urban girls in low-income urban households,

however. (Median values are typically lower than means by half a year or so.) Studies that graph the cumulative percentages of girls who have experienced menarche by single years of age are helpful in identifying variations around the mean or median in maturational patterns across and within populations and, potentially, their association with subsequent behaviours (Awusabo-Asare et al. 2006; Guiella and Woog 2006; Munthali et al. 2006; Neema et al. 2006). In addition, the collection of evidence of protein or vitamin deficiencies or iron-deficiency anaemia would help to establish the relationship between nutrition and individual and group variations in the timing of menarche in diverse populations.

The first signs of pubertal change in boys occur at the beginning of the growth spurt in height and weight, when the testes and scrotum begin to change visibly (G2), followed 1–2 years later by lengthening and broadening of the penis. Male adolescents typically reach adult sexual development at about 16–17 years, although some late-maturing boys do not complete the process before the age of 20 years (Ezeome et al. 1997). In Gwembe, Zambia, urban Tonga boys averaged 11.2 years at the onset of testicular growth (G2) and 15.3 years at completion (G5), while rural boys, whose compromised nutritional status was reflected in shorter height and smaller muscle mass, averaged 12.4 years and 17.1 years, respectively (Campbell et al. 2005).

Boys' first experience of conscious ejaculation or nocturnal emission (semenarche) has received little attention in the literature, even though it is a significant psychological (if not social) event. In Mali, boys experienced semenarche at 16.8 years on average, compared with 15.2 years for menarche in girls (Gueye et al. 2001); in the Americas, typical averages of 13.4 years and 12.4 years are cited for these events (Breinbauer and Maddaleno 2005:262). Contrasts across countries can be pronounced: 37% of 12–14-year-old boys in Malawi had experienced

signs of puberty such as pubic hair growth, deepening of the voice or nocturnal emissions

(“wet dreams”), compared with 32% in Uganda, 30% in Ghana and only 17% in Burkina Faso (Bankole et al. 2007:28). Boys may engage in penetrative sex quite early in this sequence, however, long before their genitals have reached adult size. In rural Transkei, South Africa, for example, middle-school boys (of whom 90% were sexually active) reported first ejaculation at a mean age of 15.1 years but first intercourse at 13.4 years (Buga et al. 1996). Research on the relative timing of these events in other populations would be helpful, particularly when combined with estimates of the reduced risks among sexually immature HIV-positive males of transmitting infection in the absence of ejaculation.

For both sexes, early pubertal maturation appears to be associated with earlier relationship formation and sexual initiation, as observed in peer-oriented dating cultures where at least some sexual expression is permitted, although most sexual activity may be delayed to later adolescence. Among Hong Kong adolescents, for example, a positive association between the timing of menarche/semeneche and dating, “fondling” and coitus by the age of 18 years (coitus before 15 years was not documented) was statistically significant for both sexes after controlling for family characteristics, peer relations and social context (Lam et al 2002). In kinship-oriented intergenerational marriage cultures, parents and elders may select early-maturing girls for early marriage, both to “protect” their virginity and the honour of the family and because they are viewed as desirable prospective brides. The relationships between boys’ and girls’ chronological ages, developmental stages, and their own or others’ sexual and marital decision-making processes need to be more clearly specified in diverse settings.

3.3 Reproductive maturation

Girls’ sexual and reproductive maturation continues long past menarche. The full development of the

pelvis, breasts and uterus and the maturation and protective lubrication of the cervix and vagina occur mostly after menstruation begins, as a lagged effect of the build-up of estrogen over time. Precocious intercourse can cause abrasions that heighten girls’ risks of acquiring STIs/HIV from an infected partner (Duncan et al. 1990; Glynn et al. 2001), quite apart from the pain and emotional trauma it may cause, especially if it is forced. Female fecundity is suppressed in the first few years following menarche, as a result of irregular, long and frequently anovulatory menstrual cycles and an elevated chance of spontaneous abortion if conception does occur (Kagan 1998:521). The reproductive maturation of boys also continues after semenarche, a stage at which testicular and penile growth is by no means complete. Sperm counts may not reach their full adult levels for several years following the onset of ejaculation (Campbell 2003; Kagan 1998:522).

Comparative research could help to clarify the extent to which reproductive immaturity reduces the probabilities of conception among male and/or female adolescents who have regular unprotected sexual relations, especially for those aged under 15 years.

Girls who get pregnant at the age of 14 years or younger, and, to a lesser extent, at 15–17 years and 18–19 years, are at considerably heightened risk of complications such as pregnancy-induced hypertension, obstructed and prolonged labour, vaginal tearing, obstetric fistula, and postpartum haemorrhage, in addition to premature delivery, low infant birth weight, perinatal mortality and health problems in the newborn (Senderowitz 1996; Phipps and Sowers 2002; WHO 2004a; Lloyd 2005:518–22; Temin and Levine 2009). The relative risks of early pregnancy to both mothers and newborns are exacerbated for girls who are nutritionally deprived: a pregnancy can compromise the mother’s status even further and disrupt the normal growth patterns, while babies born to such mothers are even more likely

to be underweight and to die (Temin and Levine 2009:12–14). The absolute and relative risks of pregnancy at each age and developmental stage could be documented at different levels of antenatal and delivery coverage, for better estimates of the extent to which the disadvantages of precocious pregnancy can be ameliorated by nutritional supplements and by accessible high-quality obstetric care.

3.4 Brain growth and maturation

Adolescence is characterized by uneven progressions in the development of brain structures and mental processes that are associated with emotions, interpersonal relationships (empathy, social bonding), aggression, impulsive behaviours and the capacity for critical and logical thought (Campbell 2003; Patton and Viner 2007). The growth and functioning of the brain respond not only to hormonal factors but also to other genetic influences, nutritional states and educational, emotional and life experiences.

At 10–12 years, most boys and girls are in the “concrete operational” stage of their thinking and have the capacity to use specific types of information, such as arithmetic manipulations or rules for games. The prefrontal lobe, which deals with tasks such as impulse control, complex organization and abstract reasoning, is not yet fully formed (Breinbauer and Maddaleno 2005:262; Johnson et al. 2009). At about 12–14 years for well-nourished girls and 13–15 years for boys the neurological pathways for advanced conceptual thought and rational calculation are being established in interaction with environmental stimuli. “Sensation-seeking” drives intensify, peaking at about 15–16 years. Not until the ages of 14–16 years for girls and 15–17 years for boys is there is “a major opening to abstract thinking and full meta-cognitive functions”, however (Breinbauer and Maddaleno 2005:262). By the age of 18 years in most healthy individuals (but later among those who are nutritionally deprived or severely stressed), brain structures and cognitive processes are

becoming better articulated, hormonal systems are generally in balance, and risk-taking and sensation-seeking drives decline. The development of regions of the brain linked to mature judgment and impulse control continues for more than a decade after puberty, however, well into early adulthood (Breinbauer and Maddaleno 2005:262; Johnson et al. 2009; Patton and Viner 2007:1,133).

Research on brain maturation and cognitive development would benefit from longitudinal studies of male and female adolescents in diverse settings as they pass through puberty, with a special emphasis on the relationship between brain growth and maturation at specific chronological ages and pubertal stages and their associated behavioural manifestations. Studies assessing group differences in the curves of cognitive development across dissimilar socioeconomic, ethnic and geographic populations (assuming that standard measurement scales similar to the Tanner stages could be constructed) would also be helpful, as would independent assessments of both “cold cognition” (capacities exhibited in relatively calm problem-solving situations) and “hot cognition” (capacities exhibited in the “heat of the moment” under high stress, which could apply to sexual risk-taking) (Johnson et al. 2009:218). Factors associated with cognitive development, such as nutrition, a history of abuse or neglect during childhood, and formal schooling, could be identified, as well as associations between cognitive immaturity and the expression of impulsive and sensation-seeking behaviours that place some adolescent boys and girls at considerable risk to themselves and to others. The greater the disparity between the emergence of sexual interests and drives, on the one hand, and the elaboration of cognitive functions such as impulse control and critical thinking, on the other, the greater the risks are likely to be.

4. The acquisition of sexual and reproductive knowledge and skills

4.1 “Age appropriateness” and young adolescents’ search for information

The period of early adolescence is especially challenging for the provision of information and health services enabling boys and girls to “deal in a positive and responsible way with their sexuality”, as recommended in international agreements. Overlaying the enormous diversity of young adolescents’ lives based on socioeconomic, cultural and family and community characteristics are individual and group variations in the timing and sequencing of girls’ and boys’ sexual and reproductive maturation and cognitive capacities, particularly those relating to critical thought and impulse control. These variations are reflected in differences in young adolescents’ sexual curiosity and in their quest for information and experiences.

With few exceptions (Awusabo-Asare et al. 2006; Guiella and Woog 2006; Munthali et al. 2006; Neema et al. 2006; Bankole et al. 2007), not much is known about how and where 10–14 year olds obtain such information in developing countries. Patterns of information-seeking behaviours among young adolescent boys and girls (disaggregated by single years of age) need to be identified in diverse settings, along with information sources, the accuracy of what they are learning, and the gendered content of sexual messages. Studies reveal that boys typically look to quite different sources of information (and of stimulation) than girls do, for example, often relying on friends and on sexually explicit magazines, videos or Internet sites rather than on parents, teachers, and other legitimate (although not necessarily responsive or well-informed) sources (Rani et al. 2003; Hennink et al. 2005; Lloyd 2005). Nor is it clear what students at this age are learning in schools about their bodies and about sexuality and reproduction, apart from lessons in health and nutrition, bodily hygiene, and (perhaps) reproductive anatomy. At a minimum,

then, research is needed to ascertain what young adolescent girls and boys are learning, and from whom, and what information they may be receiving and passing along about various forms of sexual expression that they have heard about or in which they may be (or are about to be) engaged.

Considerable research has been conducted in DHSs and other surveys to document the sexual and reproductive health knowledge of male and female 15–19 year olds, including the accuracy or inaccuracy of their beliefs about pregnancy, STIs/HIV, condoms and other contraceptives; their awareness of where to obtain condoms and HIV testing and counselling; and their sources of information on these and other issues (e.g. Singh et al. 2005; Khan and Mishra 2008; UNESCO 2009:Volume I). These surveys are designed primarily to collect information about knowledge and practices related to pregnancy and STI/HIV prevention, however, and not about adolescents’ understanding of their sexuality or their sexual rights and responsibilities. Where comparisons are possible of the knowledge variables, age-graded progressions can be identified in measures of girls’ and boys’ general awareness of sexual and reproductive health issues and in the accuracy of their information about specific topics. Nevertheless, even among 15–19 year olds, surveys and focus groups often reveal an alarming lack of knowledge about such topics as whether a girl can become pregnant the first time she has sexual intercourse, how to use a condom correctly, whether there are other STIs aside from HIV, and how they are transmitted (Temin et al. 1999; Hennink et al. 2005; Mohammadi et al. 2006; Vuttanont et al. 2006).

Research on what younger (and older) male and female adolescents need (and want) to know and when they need to know it with respect to

the sequence of events in their lives and the sex–gender cultures of which they are a part would help to determine the appropriate timing (“age appropriateness”) and content of interventions in different communities. The challenge of identifying what is age appropriate even for a particular group of students in a single classroom is considerable, however, given that adolescents’ chronological ages and developmental stages are not synchronized, that the “normal” timing of events such as menarche or semenarche varies across individuals by four or five years, and that considerable age (and experience) mixing occurs, where there is uneven progression of students through the grades (in which boys are more likely to fall behind than girls; Lloyd 2009:25).

4.2 The effectiveness of sexuality education in schools

Research is needed not only on what young adolescents want and need to know, but also on how they react to the information that they do receive from in-school or out-of school programmes and other sources. Young people’s critical assessments of the quality and comprehensibility of what they are learning and of the practical relevance of such information to their lives (present or future) would be extremely helpful in advancing our understanding of their immediate concerns and the extent to which the content and messages of particular courses or sources correspond at least approximately with their “evolving capacities” to absorb them. Research is also needed on the advantages of offering some aspects of the curriculum in sex-segregated (and perhaps even age-segregated) classes or groups, to avoid the disruptions or anxieties of students of mixed classes and the inclusion of students at very different stages of their development and experiences in the same group.

Findings and “lessons learned” from formal evaluations of sexuality and family life education in diverse settings – which are almost entirely for students aged 15 years and older – are difficult to

summarize because they vary so much in their form, timing, duration, content, approach, audience and context (Speizer et al. 2003; Wang et al. 2005; Ross et al. 2006; Kirby et al. 2007; Kim and Free 2008; UNESCO 2009:Volume I). Moreover, experiments designed with the requirements of formal evaluation in mind – especially randomized control trials – are typically short term, some constituting only a few sessions, and most are targeted to older rather than younger adolescents and are focused on behavioural changes such as postponement of intercourse or the use of condoms. Nevertheless, positive outcomes have been identified in at least some protective behaviours in most programmes (in some cases more so for boys, in others for girls, often depending on what is being measured), most notably where programmes are interactive, adult led and curriculum based. Positive outcomes have also been identified from other youth-friendly approaches, such as the use of mass media, health-promotion sites on the Internet, social marketing programmes for condoms, and community events and entertainment to advertise key messages such as HIV prevention. It is not known, however, what would appeal most to younger as compared with older adolescents, or to girls as compared with boys.

Consistent with the process of child and adolescent development and with young people’s “evolving capacities” and needs, researchers and advocates have argued that school-based sex and relationships education should begin early in primary school as part of a social studies curriculum, and incorporate increasingly advanced messages about human rights, health and sexuality, and gender equality as well as techniques such as role playing, situational analyses, and critical applications appropriate to the adolescents’ ages and developmental stages (Irvin 2004; Sexuality Information and Education Council of the United States National Guidelines Task Force 2004; Rogow and Haberland 2005; Haberland and Rogow 2007; UNESCO 2009:Volume II). The UNESCO curriculum guidelines, for example, are designed for boys

and girls aged 5–8, 9–12, 13–15 and 16–18+ years. Six key concepts covered in all segments are relationships; values, attitudes and skills; culture, society, gender and human rights; human development (physiology, puberty, body image, privacy and bodily integrity); sexual behaviour; and sexual and reproductive health (particularly the prevention of pregnancy and STIs/HIV). An enriched curriculum for middle and older adolescents' sexuality education as integrated with gender and human rights has been produced by the International Sexuality and HIV Curriculum Working Group (Haberland and Rogow 2009).

Long-term and sustained investments such as these are difficult to evaluate with the usual methods, especially if they form part of a district-wide or province-wide or even national curriculum in which students not exposed to the curriculum cannot be separately assessed, or where there is considerable mobility among students. The experiences of countries that have attempted to institute comprehensive national sexuality education curricula (especially for 10–14 year olds), and the ways in which political opposition has been (or could be) overcome do need to be documented, however, and different models of programme design, content, and implementation (grade levels, frequency and duration, teacher training, etc.) evaluated where feasible, as to their effectiveness (Irvin 2000; Gerdtz 2002; United Nations Population Fund [UNFPA] 2004).

4.3 Life-skills training and adolescents' acquisition of critical thinking skills and individual agency

In her review of educational policies and programmes for adolescent girls, Lloyd (2009:85) contends that all 13–15 year olds should be acquiring "reading and writing fluency for lifelong learning, critical thinking skills, fluency in an internationally spoken language, computer skills, proficiency in math/science, health and reproductive health knowledge, financial literacy, skills for social and civic participation, and

knowledge about social systems and local and global issues". This is a tall order even for the best-performing educational systems. Nevertheless, it offers a standard against which to assess students' capacities to make informed and voluntary decisions in their lives, including their sexual, marital and reproductive lives.

The concept of adolescents' "evolving capacities" to make such decisions and to take personal responsibility for their actions is clearly relevant to their own sexual and reproductive health and rights, and to the health and rights of others. Deriving from processes of brain growth and maturation, increasingly complex decision-making capabilities incorporating new information and analytical skills are also acquired from interactions with families, communities, schools, vocational programmes, work settings and other environments. In other words, evolving capacities are both biologically and socially determined. And, as noted in the first section of this report, they are reflected in international standards and national laws underlying children's and adolescents' exercise of their social and legal rights and responsibilities.

Aside from skills relating to academic and vocational endeavours, life skills are generally classified into three basic, complementary and mutually reinforcing categories: (1) *cognitive skills*, including problem-solving, understanding consequences, decision-making, critical thinking, and self-evaluation; (2) *social or interpersonal skills*, including communication, negotiation/refusal skills, assertiveness, cooperation, and empathy; and (3) *emotional coping skills*, including the management of feelings, stress, and impulses (Mangrulkar et al. 2001). Skills such as these are essential in translating younger adolescents' sexual and reproductive health knowledge into practice.

Educational programmes that encourage life-skills promotion through interactive teaching methods and problem-solving exercises typically set specific goals depending on adolescents'

ages, developmental stages and sex, as well as on the environment of opportunities and risks to which they are exposed. A Pan American Health Organization (PAHO) report on the Americas, for example, sets a wide range of general and sex- and age-specific goals for pre-adolescents (defined as girls aged 9–12 years and boys aged 10–13 years) and early adolescents (girls aged 12–14 years and boys aged 13–15 years). For boys and girls in early adolescence, they include “the capacity to recognize and critically analyze social pressures to have early sex [or to smoke, drink, take drugs, or engage in other risky behaviours] as a rite of passage, as well as the skills to resist them” (Breinbauer and Maddaleno 2005:302–5, 328–331). Different levels and types of skills come into play in different settings, of course, such as a girl’s agency in refusing to have sexual intercourse with her boyfriend unless he uses a condom, or resisting pressures by her family to be married early and/or to a person not of her choosing, or a boy’s capacity to decide to continue his education when most of his friends are dropping out or when his parents want him to go to work.

Questions remain as to how, when, and where boys and girls acquire certain decision-making skills as they pass through their adolescence; what types of skills are most crucial for the situations in which they find themselves at different ages and stages of their development in changing environments of opportunity and risk; how skill levels can be measured or assessed; and the extent to which such skills – insofar as they are acquired at all – contribute to more favourable sexual and reproductive health outcomes.

Attempts to measure the impact of life-skills education (which sometimes consists of just a single course but other times involves elaborate multifaceted projects) have been fraught with difficulty (Agha 2002; Alford et al. 2005; Ross et al. 2006; Yankah and Aggleton 2008). In part this is due to the many forms and contexts in which such programmes are offered and to variations in the

socioeconomic status, age and sex of participants and the duration of their exposure. Difficulties are also due to the selection of particular indicators of “success”. A review of the impact of 25 life-skills programmes in sub-Saharan Africa, Asia and Latin America on HIV prevention among adolescents concludes (not untypically) that “programs worked best to positively influence knowledge, attitudes, intentions, skills, and abilities [but] rarely produced consistent effects on sexual behavior” (Yankah and Aggleton 2008). Follow-up inquiries could help programmers understand how adolescents themselves interpret findings such as these, and attempts could be made to measure skills acquisition directly (for example, feelings of self-confidence that one could refuse unwanted sex or insist on a partner’s condom use or resist peer pressures) rather than relying so heavily on narrowly defined and short-term behavioural outcomes.

5. Gender socialization and the influence of sexual and other norms

5.1 Gender socialization as a developmental process

Children are socialized into male and female behaviours and sexual identities from infancy, primarily through processes of imitation and reward and punishment within the family unit (Shtarkshall et al. 2007). Gender roles take on new meanings at puberty, however, when girls and boys become highly conscious of their changing bodies, their gendered identities, and the ways in which others perceive and react to them (Breinbauer and Maddaleno 2005:268–276). Coping with new feelings of romantic attraction and/or sexual arousal, young adolescents are expected to learn a complex set of gendered social rules about how they should look, think and behave and what forms of social and physical intimacy are encouraged, tolerated or forbidden – and with whom. Much is at stake: social acceptance and even admiration on the one hand; mockery, rejection or abuse on the other.

The expanding horizons of young adolescents are filled with explicit and implicit messages about sex and gender – some clear and consistent, some ambiguous or conflicting. Access to magazines, movies, TV, world music, and the Internet opens doors to an increasingly globalized and sexualized youth culture that permeates what may already be a confusing milieu of expectations and ideologies (Caldwell 1998; Lloyd 2005:49–52). In Indonesia, for example, conflicting forces of traditional Indonesian values, westernization, and (more recently) fundamentalist Islam compete for the allegiance of young people who are faced with an “idealized morality”, on the one hand, and with the absence of school-based sex education and “contact on a daily basis with the stimulus of sexually explicit material” on the other (Utomo and McDonald 2009). As adolescents mature and develop a clearer sense of their goals and values, they will selectively

incorporate some of these messages and reject others. The internalized messages become part of their personal identities and of their attitudes, beliefs and behaviours.

5.2 The cultural content of gender roles

What do young adolescents in diverse geographical and socioeconomic settings learn about gender roles and about the gendered opportunities and constraints that they face in their lives? Research has identified significant variations across cultures in the ways in which concepts of masculinity and femininity are socially constructed, or “scripted”, and in the hierarchically structured gender systems in which they are embedded (Gilmore 1990; Szasz 1998; Barker 2005; Breinbauer and Maddaleno 2005:268–276). Ideologies of male power and privilege prevail almost everywhere, however, and are frequently shared by girls and women, the differences being primarily a matter of degree and of justification in particular circumstances. Among a sample of unaffiliated, apprenticed and in-school young people aged 12–24 years (not disaggregated by age) in Ghana, for example, 73% of both sexes agreed that a husband may justifiably beat his wife under some circumstances, while 56% of males and 60% of females believed that a man may justifiably beat his girlfriend (Glover et al. 2003). A World Health Organization (WHO) multicountry study found widespread acceptance among women of justifications for wife beating under at least some circumstances (WHO 2005), including married and cohabiting 15–19-year-old girls (Temin and Levine 2009:33).

Gender ideologies such as these have clear relevance to what boys and girls are learning about what is permissible or even desirable for males and females to do sexually and in other aspects of their lives. In the former black township of KwaZulu-Natal

in South Africa, for example, young people in focus groups suggested that “a girl’s respectability is gained by her being sexually available to her partner” (but not to anyone else, in which case she is considered promiscuous), whereas “most boys agreed that sexual conquests and repeated sexually transmitted infections (STIs) were *vital elements of a strong masculine image* . . . and of a boy’s multipartnering success” (emphasis added) (Varga 2003). Socialization into ideologies and practices of male dominance and entitlement to girls’ and women’s bodies (and sometimes to the bodies of weaker males as well) may reveal itself very early. In Jamaica, more than half of 11–14-year-old seventh-grade boys and almost one-third of the girls agreed that “if a boy spends a lot of money on a girl, she should have sex with him” (Eggleston et al. 1999). Nevertheless, the fact that a minority of boys and a majority of girls did not agree suggests that such attitudes are malleable and that at least some young adolescents are receptive to other points of view.

Sexuality and relationships education curricula in the schools as well as out-of-school health-promotion, life-skills and capacity-building programmes provide opportunities for young people to question the content of prevailing male and female gender scripts and adopt new ways of thinking and behaving (Irvin 2004; Breinbauer and Maddaleno 2005; Haberland and Rogow 2007; Rogow and Haberland 2005; UNESCO 2009:Volume II). The guidelines and activities of *It’s All One Curriculum* are especially designed for this purpose (Haberland and Rogow 2009). Interventions may be *gender neutral* in treating boys and girls the same with respect to content and methods; *gender sensitive* in attempting to meet the different existing needs and interests of boys and girls; or *gender transformative* in their goal of empowering girls to know and assert their rights, and conscientizing boys to respect the equal rights of women without coercion or violence and to clarify and fulfil their responsibilities (Girard 2003; Barker et al. 2007; Girls’ Power Initiative).

Research could help to identify the main features of gendered beliefs and behaviours among girls and boys in different populations, their sources, and their flexibility, including tolerance of sexual and gender diversity; the ages and stages at which adolescents are most receptive to questioning gender roles and considering alternative views; and the effectiveness of initiatives aimed at transforming their attitudes and behaviours.

5.3 Gender norms and sexual cultures in early adolescence

Gender roles are acted out in the context of specific sexual cultures. A prohibitive sexual culture disapproves strongly of all sexual relations outside of marriage, for example, whereas a restrictive or conservative culture might tolerate premarital intercourse with an intended spouse but not with other partners. A *moderate* sexual culture would tolerate non-marital sexual relations with a regular partner – a steady girlfriend or boyfriend, perhaps – and with more than one partner; a *permissive* one would also tolerate multiple casual relationships, even to the point of exchanging sexual intercourse for money or gifts and having sexual intercourse with strangers. These are among the sex–gender rules that young adolescents are expected to learn from their parents, peers and other sources. Degrees of tolerance differ for males and females within these rule sets, of course (and for persons with alternative gender identities or sexual orientations), and intersect with age, class, race, ethnicity and other personal and social characteristics to determine what is permitted and what is not.

Research on the timing and characteristics of non-marital relationship formation (e.g. casual or steady dating) and of heterosexual initiation (first intercourse) among male and female adolescents reveals an array of gendered behavioural patterns across and within developing countries (Alan Guttmacher Institute 1998; Bongaarts and Cohen 1998; Dixon-Mueller 2008; Singh et al. 2000; Brown et al. 2001; Lloyd 2005:194–208). Although most

studies are of 15–19 year olds, data from DHSs and other sources permit some descriptions of the situation of younger adolescents – often drawn from 15–19 year olds reporting on their own behaviour before they turned 15 years.

Gendered *patterns of sexual initiation* (which are not mutually exclusive and may coexist within countries and even within communities) include the following:

- single standards of behaviour in prohibitive sexual cultures in which neither boys nor girls have non-marital sex before the age of 15 years, although some sex differences in sexual initiation may appear in later adolescence (e.g. Armenia, Azerbaijan, Ethiopia, Indonesia and the Philippines; see comparisons of married females and females who have had intercourse by the ages of 15 and 18 years, in Appendix Table 2);
- single standards of behaviour in somewhat permissive sexual cultures that tolerate (or are at least forced to accept) early non-marital sex for both girls and boys (e.g. 13–15-year-old students in the United Republic of Tanzania and northern and central Ghana, as shown in Appendix Table 3);
- double standards in which boys are considerably more likely than girls to have non-marital sex at the age of 14 years or younger, the differences between them ranging from slight to substantial (e.g. in the Latin American and Caribbean countries in Appendix Table 2, excluding girls who are already married or cohabiting, and most student surveys in Appendix Table 3).

One also finds:

- gendered double standards of desirable age differences between partners, in which the average age gap ranges from 2 to 3 years or less in peer-oriented dating cultures, to 8 to 10 years or more where adult men seek out young girls as sexual partners or where the marriage market is organized around older (sometimes

polygamous) men marrying young brides (Glynn et al. 2001; Luke 2003; Clark 2004; Khan and Mishra 2008:72);

- cultures of sexual violence as reflected in high levels of unwanted or coerced sex and abuse reported by girls and women in some countries, both at the occurrence of first non-marital or marital intercourse (sexual initiation before 15 years is most likely to be coerced, e.g. 43% in the United Republic of Tanzania, 41% in Peru, 36% in Bangladesh and 20% in Thailand) (WHO 2005:11–15; see also Ajuwon et al. 2001; Jejeebhoy and Bott 2003; Erulkar 2004; Koenig et al. 2004; Jejeebhoy et al. 2005);
- subcultures in which boys are victims as well as perpetrators of sexual coercion and abuse, particularly those living on the streets or in conflict situations, who are raped by other boys or men and who may in turn coerce others, including their female partners (Ramakrishna et al. 2003; Rajani and Kudrati 1996; Population Council 2004a; Jewkes et al. 2006).

The sex–gender rules are also played out in boys' and girls' *partners and motives for sexual initiation*. Apart from the forced or unwanted sexual initiation of young girls in arranged marriages or non-marital situations,

- girls are more likely than boys to say they were motivated to have sex by love, a desire to “deepen the relationship”, a sense of obligation to the boy, or (in some settings) by promises of gifts or money (mostly from older boys or men), whereas boys more often mention curiosity, physical gratification, or “friends are doing it” as their primary motive (Matasha et al. 1998; Eggleston et al. 1999; Luke 2003; Kaufman and Stavrou 2004);
- a girl's first partner is more likely to be a boyfriend or someone she hopes to marry, whereas boys' first partners are more often friends, acquaintances, or (in some settings)

prostitutes (Brown et al. 2001:6–20; Juárez and Martín 2006);

- girls are more likely than boys to report pressures from parents and peers to abstain from sex and to mention moral concerns and/or fear of pregnancy or STIs as motivations for postponing sexual initiation, while boys are often encouraged by peers or male relatives (including fathers) to have sex to prove their “manhood” (Eggleston et al. 1999; Rani et al. 2003);
- sexually active boys typically have intercourse more frequently than sexually active unmarried girls do, and are more likely to have more than one partner (e.g. see Appendix Table 3) (Brown et al. 2001; Khan and Mishra 2008:55).

Sex–gender rules affect not only what male and female adolescents do, however, but also what they *say they do*, when researchers ask them. A considerable literature suggests that girls are inclined to conceal and boys to exaggerate certain activities, but not always consistently. One would expect that the stronger the gender-based double standard of sexual behaviour is, the greater the gender bias is likely to be in adolescents’ self-reports, thus making cross-cultural differences appear larger than they are.

Evidence on the *consequences of sexual initiation* in early adolescence and on girls’ and boys’ experiences with coercion points to a chain of probabilistic events and conditions such as subsequent episodes of non-consensual sex (as victims or perpetrators), multiple partnerships, non-use of condoms or other contraceptives, STIs/HIV, unintended pregnancy, damaged self-esteem, and other negative physical, social and emotional outcomes (Zabin and Kiragu 1998; Population Council 2004b; Jejeebhoy et al. 2005; Pettifor et al. 2009). The separate effects of age at sexual initiation and the use of sexual violence and coercion on the lives of young adolescents need to be distinguished, however, and the short- and

long-term consequences of each examined in diverse settings. In addition, all of these interrelated preconditions and outcomes can be considered in the context of the social environments of opportunities, risks and protective factors that define the lives of young adolescents and shape their capacity to make safe, informed and voluntary decisions.

6. The shifting terrain of opportunities, risks and protective factors

6.1 Sources of individual resilience

Girls and boys passing through the developmental stages and transitional events of adolescence are confronted with a blend (or jumble) of opportunities, risks and protective factors in their social environments, and of vulnerability and resilience within themselves (Chong et al. 2006). Resilience is a function of a constellation of personality traits, coping skills and support systems (“developmental assets”) that enable young people to prevent, minimize or overcome the damaging effects of stress and adversity in their lives (Blum et al. 2001; Breinbauer and Maddaleno 2005:175). “Internal assets” derive from cognitive development (reasoning abilities, impulse control, etc.) and the acquisition of knowledge, life skills and self-efficacy described earlier. “External assets” derive from environmental sites and situations as reflected in adolescents’ perceptions of being valued and supported by family members, friends, schools and other community institutions. In the United States, students with the highest number of developmental assets were the most likely to have positive habits and least likely to engage in problem behaviours such as alcohol consumption, illicit drug use, threats and violence, and early, coercive and/or unprotected sex (Breinbauer and Maddaleno 2005:175).

Student health surveys, such as those conducted by PAHO and WHO, offer a comparative overview of adolescents’ perceptions of their general health and well-being, their feelings of protection or vulnerability, and their risk behaviours (Halcón

et al. 2003; WHO 2007).¹ WHO surveys of 13–15 year olds conducted in 43 developing countries ask about physical health and hygiene, mental health vulnerabilities (feeling lonely, suicidal), social vulnerabilities (having no close friends, missing school without permission, feeling that most fellow students are rarely or never helpful, reporting that parents or guardians rarely or never “really know” what they are doing during their free time); and risk behaviours (alcohol, smoking and drug use; being physically attacked, in fights, seriously injured, bullied; and – in the subsample of countries shown in Appendix Table 3 – early sexual initiation, condom use and multiple partnerships).

The PAHO nine-country Caribbean survey asks physical health, nutrition, exercise and body-image questions as well as mental health questions dealing with happiness, suicidal thoughts, rage (thinking about hurting/killing someone), experiences of violence, and physical and sexual abuse. Around 15% of both male and female students said they had been physically abused (mostly by adults in their home) and 10% sexually abused, for example, with only slight differences between those aged 10–12 years, 13–15 years and 16–18 years. Students were also asked about sexual initiation (48% of sexually active girls and 32% of boys said it was forced or somewhat forced, the highest proportions being among

¹ The results of such surveys are unrepresentative where significant proportions of young adolescents are not attending school, especially where comparisons are made across age groups such as 10–12, 13–15 and 16–18 years. In the nine-country Caribbean study conducted by PAHO, for example, the results for 10–12 year olds are said to be representative because almost all boys and girls this age are in school. At the age of 13–15 years (the end of primary school), many have dropped out, and at 16–18 years school attendance is highly selective. The WHO surveys of 13–15-year-old students shown in Appendix Table 3 are also problematic where large numbers of boys and girls that age are not attending school (e.g. Senegal and Ghana, see Appendix Table 1), with dropouts or non-attendance more likely in rural areas and lower-income households and among boys or girls, depending on the setting (Lloyd 2005).

10–12 year olds), numbers of sex partners, worries about pregnancy and AIDS, condom use at last sexual intercourse, and knowledge of where to get contraception if needed. Adolescent health surveys in other countries address these and other issues, depending in part on the age groups surveyed (e.g. see Valverde Cerros et al. 2001 for Costa Rica). Analysis of the multicountry WHO and PAHO surveys using a common statistical methodology could help to identify the gendered nature of – and degree of association between – girls’ and boys’ physical and mental health and risk behaviours, including sexual initiation and partnerships. For surveys with a broader age range, measures of adolescents’ vulnerabilities and resilience could be classified by sex and single years of age, or by narrow age groups such as 10–12 years, 13–15 years, and 16–18 years, to see whether resilience increases with males’ and females’ ages and cognitive maturation. Longitudinal studies could track the changing balance of vulnerabilities and resilience among boys and girls from the age of 12 years through to 15 years, say, and from 15 years through to 18 years, and its association with the initiation and sequencing of sexual behaviours and their consequences.

6.2 Risk and protective factors in families, peer groups, schools and communities

The protections extended to children and adolescents by the CRC include, ideally, living in a supportive family environment. From this perspective, DHS data from 35 sub-Saharan African and Latin American and Caribbean countries showing that 11–41% of 10–14-year-old girls and 9–35% of boys in the same age range were living in households in which neither parent was present (medians across countries were 23% and 20%, respectively) would place these young people at risk (Bruce and Chong 2003). But children and adolescents may be at risk in their families as well, as is the case with the arranged marriages of young girls, female genital mutilation (FGM), exploitative child labour, the physical and/or sexual abuse of

children by family members, and other practices that affect their sexual and reproductive health and rights in fundamental ways.

Protective factors identified in families include open and respectful communication among family members; positive and gender-equitable guidance and support for children’s and teenagers’ personal, educational and vocational goals and values; healthy lifestyles (good nutrition, exercise, adequate health care, sports and recreation, etc.); and parenting styles that are simultaneously demanding (clear rules and expectations) and responsive (understanding and empathetic), among other attributes. Risk factors include heavy drinking, smoking, drug use or other illegal activities within the household; emotional and/or physical violence and/or sexual abuse; adults or siblings with a history of unintended pregnancies, STIs and HIV; and parenting styles expressed in unyielding authoritarian controls over the young or in indifference and neglect. (A surprising one-third to one-half of 13–15-year-old boys and girls across countries in the WHO school health surveys claimed that their parents or guardians “rarely or never knew how they spent their free time; WHO 2007.)

Having friends is also identified as a protective factor, although young adolescents’ intense peer orientation may not always have a positive outcome. Research on adolescents’ friendship networks typically focuses on their size, social composition and connectedness (e.g. number of “close friends”) and on respondents’ perceptions of their friends’ and peers’ attitudes, beliefs and behaviours. Given that friendships are highly selective from both the attraction and rejection points of view, it is not surprising to find high correlations between adolescents’ reports of their own and their friends’ behaviours – a situation of positive reinforcement. Teenagers almost always say that their friends are engaging in more risky behaviours than they are, however, which suggests that the truth may lie somewhere in between (Bankole et al. 2007). Although having no close

friends could be considered a considerable risk factor, whether having many friends is protective or not depends very much on their attitudes, values, social identities, what activities they engage in, and whether girls and boys are accepted for who they are rather than being pressured to participate in harmful or “sensation-seeking” activities, including drinking and sexual intercourse, that they might otherwise avoid.

Schools, too, are protective of young adolescents’ health and welfare if they are safe places that supply girls and boys with friends and mentors and engender a love for learning and new ideas. But they can also be unsafe places that provoke humiliation, alienation and fear. Discriminatory attitudes and practices (the “hidden curriculum of gender”) selectively affect boys and girls as well as members of different socioeconomic groups, as measured by students’ treatment by teachers, their progress through grade levels, their academic and vocational course options and opportunities for extracurricular activities such as sports, and their expectations for the future (Lloyd 2005:113–117). Bullying is rampant in many school settings. In the WHO student health surveys, between one-quarter and two-thirds of male and female students (with only slight sex differences) said they had been bullied at least once during the past 30 days in all but one country (Tajikistan), and substantial proportions said that most students were “rarely or never kind or helpful” (WHO 2007). Unfortunately, boys and girls were not asked if they engaged in bullying their classmates, a behaviour that is consistent with some young adolescents’ quickness to anger, lack of impulse control, desire to impress others, and underdeveloped sense of tolerance, empathy and understanding.

A number of studies have also highlighted persistent patterns of sexual harassment, manipulation and coercion of both male and (more commonly) female students by teachers, as well as by other students (Mirsky 2003:16–25; Global AIDS Link 2007:6). In Mwanza, the United Republic

of Tanzania, for example, 9% of sexually active primary school girls aged 12 years and over and 3% of sexually active boys reported having being forced by a teacher to have sexual intercourse, while 36% of sexually active girls and 14% of boys said they had been forced by their peers to have sexual intercourse (Matasha et al. 1998). Research is needed not only to identify the range of risk and protective factors in the schools but also to test the effectiveness of initiatives designed to improve curricula and the quality of teaching; eliminate gender-based and other forms of bias and discrimination; assign students to adult mentors whom they can trust; incorporate effective life-skills and comprehensive sexuality education; and end the practice of (and tolerance for) harassment and coercion, so that the schools become safe and reliable learning environments (Mgalla et al. 1998; Mensch et al. 2001; Mirsky 2003).

Similar analyses can be applied to neighbourhoods and communities, including workplaces and streets or markets and malls where young people congregate. Protective factors for young adolescents’ health and development in general, and their sexual and reproductive health and rights in particular, include the availability and quality of schools, religious groups, youth programmes, recreational and sports activities, and vocational and work prospects; opportunities for youth participation in community organizations; social and legal protections from abuse, violence and rape; and the availability and quality of sexual and reproductive health information and confidential services (Chong et al. 2006). Community risk factors include the absence of any or all of these amenities, in addition to obviously adverse conditions such as high unemployment, social marginality, severe poverty, hunger, political instability, the presence of gangs, crime, civil conflict or war, high rates of migration, sex trafficking, drug trafficking and other elements. Certain high-risk occupations for girls and boys who are no longer in school are especially likely to increase their vulnerability to sexual exploitation and other forms of violence and abuse.

Protective factors and processes have been found to operate selectively and at different levels to reduce the effects of risk and vulnerability on different aspects of adolescents' lives (Blum et al. 2001). Research is needed to identify the major sources of risk and protection for young adolescents in different settings, the particular ways in which these are gendered, and their effects on sexual and reproductive attitudes and behaviours. Research would also be useful that documents the process by which girls and boys acquire greater personal resilience in dealing with critical problems in their lives as they mature, and how this is related to their chronological age and developmental stages.

Ideally, interventions to promote healthy sexual and reproductive (and other) behaviours in adolescents would address a broad array of individual and societal factors simultaneously, given that they all play a role (DiClemente et al. 2009). But this is difficult to do, and even more difficult to evaluate. Multipurpose and multilevel projects initiated in conservative communities of upper Egypt, Ethiopia, Burkina Faso and India (among other settings), for example, have been designed to build the "development assets" of young adolescent girls and to work with family and community members to keep girls in school, postpone marriage, provide safe spaces for them to meet, improve family planning and STI/HIV-prevention knowledge and practice among married girls, and offer health-promotion, literacy and livelihood skills, among other initiatives (Wilder et al. 2005; Brady et al. 2007; Interagency Working Group on the role of community involvement in adolescent sexual and reproductive health 2007; Erulkar and Muthengi 2009).

These and other intensive, small-scale and heavily funded demonstration programmes can offer impressive results. The challenge is to sort out the relative influence of different activities and different levels of decision-making (including parental involvement) on specific outcomes and

to decide whether what works in one setting may be expected to work in another. Can individual elements be successfully adapted to adolescent policies and programmes at district or national levels, such as offering social or economic incentives for girls (and boys) to stay in school at least until they are aged 15 years; incentives to parents to keep them in school and to delay the marriage of their daughters; and school-based or community-based initiatives to strengthen the resilience and life skills of young adolescents, while also providing concrete reproductive and sexual health information and services?

7. Sexual transitions and risky practices in early adolescence

7.1 What counts as “sex” in young adolescents’ lives?

There is little doubt that younger female and (to a somewhat lesser extent) male adolescents are highly vulnerable to violations of their rights to bodily integrity. Among the many reasons for this are the attractiveness of their developing sexual bodies, their willingness to trust others, their sexual curiosity and their sometimes limited capacities to critically analyse potentially harmful situations, foresee consequences and take a course of protective action.

Researchers who hope to obtain sexual histories from adolescents must cope with complicated issues of meaning, definition, interpretation and concealment. What counts as “sex”? Is a 14-year-old girl who was forced to engage in fellatio with an uncle when she was 10 years old likely to report this as sexual activity? Is a young adolescent boy who was penetrated by older boys (or anally penetrated others) but now has a girlfriend likely to mark his sexual initiation as one that began with anal sex? Nor are young adolescents always “victims”: stronger, early maturing or more aggressive boys may coerce other boys or girls, while gangs of boys (and sometimes girls) may jointly terrorize their weaker peers into submitting to forced sexual acts.

Young adolescents may also be engaging in voluntary expressions of their sexual impulses and curiosity that they do not necessarily define as “having sex”, sometimes as early as 10–12 years of age (Eggleston et al. 1999; Juárez and Martín 2006). “Sex play” with peers is not likely to be considered real “sex”; it may be casual, without affect, and without personal consequence. Boys in some settings may visit a sex worker for their “real” sexual initiation rather than waiting until they have a girlfriend, but this may not “count”; girls may become involved with older boys or seek (and

be sought by) men who will buy them gifts or pay their school fees, or be married off to a man they do not know. Behavioural variations and ambiguities surrounding their meaning and interpretation by young adolescents themselves raise the possibility that the usual research tools may be quite inadequate to the task. It would be interesting, for example, to ask older adolescents to reflect on their earlier experiences from the vantage point of their (now) advanced “maturity” – to consider whether they felt physically, emotionally or socially prepared, how much choice they exercised, and whether they might have done things differently if they knew then what they know now.

The event of first heterosexual vaginal intercourse is often taken as a marker of becoming “sexually active”, even though it may have been preceded by other forms of sexual activity and, if non-marital, followed by a series of non-sexual relationships or only sporadic sexual encounters (Singh et al. 2000; Juárez and Martín 2006). A number of studies document the timing of initiation of heterosexual relationships among adolescents, such as having “crushes” (which may begin in early adolescence), engaging in “courtship” behaviour (flirting), having a regular boyfriend or girlfriend (dating), going steady, and becoming engaged, as well as the initiation and progression of physical intimacies such as holding hands, kissing and hugging, intimate fondling or caressing (“heavy petting”), and vaginal intercourse (Ruan and Lau 1997; Lam et al. 2002; Awusabo-Asare et al. 2006; Guiella and Woog 2006; Munthali et al. 2006; Bankole et al. 2007; Hindin and Hindin 2009; Upadhyay et al. 2006; Zabin et al. 2009). (These neat sequences do not capture those cases where early sexual initiation is not preceded by lesser forms of intimacy or does not happen in a recognized relationship at all.) Fewer studies ask about other

penetrative activities¹; whether such experiences were voluntary or not; what significance male and female adolescents attach to different forms of penetrative and non-penetrative sexual activities; and what they might or might not do with different partners. The lack of information is not surprising, given the controversial (and often taboo) nature of such activities, especially with respect to younger adolescents. Nevertheless, accurate information is needed for design and implementation of effective educational and health initiatives.

Sample research instruments from WHO include surveys, in-depth interviews, and focus group topics intended for young people who have reached puberty but are not yet married or living with their sexual partners. They ask about sources of information on puberty, sex and reproduction; knowledge of sexual and reproductive health issues; dating relationships and types of sexual partnerships; experiences of heterosexual and homosexual intimacies (e.g. touching partners' genitals, orgasm) and sexual intercourse; knowledge and use of condoms and contraception; and sexual outcomes such as STIs, pregnancy and abortion (Cleland et al. 2004). PAHO has questionnaires intended for male adolescents (Lundgren 2000). Neither source contains a clear line of inquiry about insertive and receptive oral or anal intercourse in male–male or male–female sexual encounters, however, even though the PAHO report suggests that adolescents in Latin America and the Caribbean may practise heterosexual anal sex to avoid pregnancy and/or preserve the girl's virginity.²

Interviewing adolescents about sexual topics poses many challenges, especially when they are aged

under 15 years and may not fully understand the questions (Helitzer et al. 1994; Ruan and Lau 1997; Eggleston et al. 2000; Chong et al. 2006; Bankole et al. 2007). Parents, teachers and community or state representatives may strongly oppose such inquiries, and ethical standards in most cases require permission from parents or guardians as well as from young people themselves. To avoid questioning young adolescents directly, older teenagers can be asked retrospectively about their early sexual experiences, or younger boys and girls can be asked individually or in focus groups about their perceptions of their peers' or best friends' behaviours rather than their own knowledge or experiences. Different modes of interviewing, the use of self-administered questionnaires (pencil-and-paper or computer [audio computer-assisted self-interviewing, ACASI]), and other approaches have been tested on older adolescents (ACASI is probably less feasible for younger adolescents), with mixed results depending on the setting and the behaviour being addressed (Plummer et al. 2004; Mensch et al. 2003, 2009). Despite these problems and the likely bias of many self-reports, the information obtained can throw light on how young adolescents express their sexuality and on the risks they incur for themselves and others.

7.2 Variations across countries in the timing of first vaginal intercourse

Trends toward later female marriage in most of the developing world have reduced the sexual initiation of girls before the age of 15 years in most countries (and, to a lesser extent, before 18 years) and increased the likelihood that it will occur outside of marriage (Brown et al. 2001:6–20; Lloyd 2005:417–427; Mensch et al. 2006; Wellings et al. 2006). Nevertheless, girls' sexual debut at 14 years or younger remains quite common in a number of developing countries (and in some developed countries as well, such as the United States of America; see Albert et al. 2003). One-fifth or more of women aged 20–24 years said they first had intercourse, marital or non-marital, before the age of 15 years in 13 of 32 sub-Saharan

¹ In Mwanza, United Republic of Tanzania, approximately 50% of both male and female primary school students aged 12 years and over who had "ever had sex" said their first act was vaginal sex; 10% anal sex; and 40% oral sex (Matasha et al. 1998:575).

² In the 2002 National Survey of Family Growth in the United States, 54% of 15–19-year-old females and 55% of boys had ever had oral sex and 10% had ever had anal sex. These activities tended to follow rather than precede first coitus, i.e. were additions rather than substitutions (Lindberg et al. 2008).

African countries with DHS data and in Bangladesh (Appendix Table 2). Equivalent levels among males are seen in only three sub-Saharan African countries but all eight countries in Latin America and the Caribbean. Below the age of 15 years, patterns of exceptionally early initiation are found in some populations. A country-wide survey of girls in grades 5–7 in the United Republic of Tanzania found that one-quarter of those aged 13 years and younger were sexually active and one-half of those aged 14 and 15 years, with early initiation more common among urban than rural girls (Mgalla et al. 1998). In Benin City, Nigeria, young people in focus groups said that girls commonly started having intercourse at 11–13 years compared with 14–15 years for boys (Temin et al. 1999). In a Caribbean survey, about 40% of all male students aged 10–18 years and 9% of females said they were 12 years or younger when they first had sexual intercourse (Halcón et al. 2003). DHS and other data can be used to identify the socioeconomic groups and geographical areas in which early initiation is most common, but it would also be useful to explore how individual differences in maturational timing, risk and resilience factors, and other processes influence these outcomes.

Sexual initiation rises quite rapidly during middle adolescence in most countries. By the age of 18 years, 40–80% of females had become sexually active, not always within marriage, in 27 of 32 sub-Saharan African countries, in Bangladesh, India and Nepal and Yemen, and in all 10 Latin American and Caribbean countries in Appendix Table 2. The rapid uptake is also apparent for males, with some notable exceptions in restrictive cultures such as Ethiopia, Indonesia and Mauritania. Studies that plot the incidence of sexual initiation by single years of age from 10–19 years illustrate the contrasting slopes of these trajectories very clearly (Awusabo-Asare et al. 2006; Guiella and Woog 2006; Munthali et al. 2006; Neema et al. 2006). In Uganda, for example, 4% of 10-year-old boys in a national survey said they had already had sexual intercourse, rising to 10% among 12 year olds, 22% among

14 year olds, and over 70% among 18 year olds (figures for girls were slightly lower) (Neema et al. 2006). The sharp increase from 14 to 18 years attests to the vital need to ensure that young adolescents are sufficiently prepared to make these transitions in an informed, safe and voluntary manner.

Although boys' early sexual initiation almost never occurs within marriage, virtually all 20–24-year-old women in a number of sub-Saharan African countries (e.g. Chad, Ethiopia, Mauritania, the Niger, Senegal) and throughout the North African and Asian region who said they had intercourse before the age of 15 years had been married off by that age (compare FI and FM in Appendix Table 2). A close correspondence between girls' precocious sex and marriage by the age of 15 years can also be seen in the Dominican Republic, Honduras and Nicaragua, although early sexual initiation and pregnancy in this region tend to "cause" early cohabitation (or, more rarely, marriage) rather than the other way around. In contrast, the gap between female intercourse and marriage before 15 years is quite wide in sub-Saharan countries such as the Congo (Brazzaville), Cote d'Ivoire, Gabon and Mozambique, as well as in Haiti and Colombia, and widens even further by the age of 18 years. Findings such as these raise important research questions relating to the motivations and capacities of adolescent girls in non-marital compared with marital or cohabiting relationships – and of their male partners – to protect themselves from unintended pregnancy and STIs/HIV.

7.3 Risk assessment and pregnancy/STI prevention at first and most recent sexual intercourse

The younger boys and girls are at the time of their interview or at sexual initiation, the less likely they are to say that they or their partners have used protection (Blanc and Way 1998; Awusabo-Asare et al. 2006; Guiella and Woog 2006; Munthali et al. 2006; Neema et al. 2006). In a nationally representative sample of 12–14 year olds in Ghana, for example, 0% of sexually active boys and 6% of

girls currently aged 12–14 years used a condom at first sexual intercourse, compared with 15% and 24% of those aged 15–19 years; at most recent sexual intercourse, one-fifth of younger boys and girls and one-third of the older cohort used protection (Karim et al. 2003). In KwaZulu-Natal, South Africa, 14% of girls who first had sexual intercourse at 14 years or younger used a method of pregnancy prevention at first sexual intercourse and 10% a method of STI/HIV prevention; use rose by single years of age to 48% and 46%, respectively, for girls who first had sexual intercourse when they were aged 19 years (Manzini 2001). Condom use at most recent sexual intercourse among 13–15-year-old boys in the WHO student health surveys ranges from 21% in northwest Namibia to 88% in Uruguay (Appendix Table 3). DHS tabulations of sexually active unmarried 15–19 year olds in 12 sub-Saharan African countries show 4–50% of boys using a condom at first sexual intercourse and 16–61% at most recent sexual intercourse, compared with 1–28% at first sexual intercourse and 7–50% at most recent sexual intercourse among girls.

The many societal, situational and individual factors underlying these patterns are not easy to distinguish, nor is it always clear whether condoms are used for STI or pregnancy prevention or both (Khan and Nishra 2008:61). Research on the decision-making processes involved is needed to illuminate the relative contributions of normative patterns, information, access, cognitive and negotiation skills, and situational factors for male and female adolescents in different types of partnerships (both marital and non-marital). For example:

- how do girls and boys assess their likelihood of acquiring or transmitting a STI/HIV, or of having or causing a pregnancy, both in general and with a specific partner or a specific sexual act? (Rwenge 2000; Liu et al. 2006; Anderson et al. 2007; Sauvain-Dugerdil et al. 2009);
- how do they calculate the costs to themselves or to the relationship of using – or insisting that their partner uses – a method of STI or pregnancy prevention? Is it viewed as a sign of maturity and responsibility or as a violation of trust, an indicator of promiscuity, a “bad deal” if sex is exchanged for money or gifts, not worth the trouble, or as unnecessary (e.g. if the girl is married)?
- do girls and boys who are (or are about to become) sexually active know where to obtain condoms and other contraceptives and how much they cost? Do they feel confident about their ability to obtain them if needed?
- what are their attitudes about the desirability and efficacy of different methods, such as beliefs that condoms do not protect against STIs, or dislike or discomfort in using them, or anxieties about side-effects of contraceptive injections or the pill (e.g. see Otoide et al. 2001 on female adolescents’ preferences for abortion over contraception in Benin City, Nigeria)?
- how do boys and girls think that pregnancy or STIs would affect their own lives or the lives of their partner (e.g. see Eggleston et al. 1999 on the perceptions of 11–14-year-old Jamaican boys and girls), if they think about such things at all?

These questions go to the heart of young people’s age- and stage-graded “evolving capacities” to consider the consequences of their actions to themselves and others and to exercise their sexual responsibilities as well as their rights. How do individual variations in cognitive maturation affect young people’s capacity to engage in such assessments? Research is also needed to better understand why even those adolescents who do know what they should do to avoid pregnancy or STIs/HIV do not necessarily do it (Gage 1998; Lloyd 2005:212–3; Obermeyer 2005; Marston and King 2006), a knowledge-behaviour gap that is likely to result in harmful sexual and reproductive outcomes.

8. Managing the consequences of early unsafe sex

8.1 Treatment-seeking behaviours and STIs/HIV

Among sexually active primary school girls aged 12 years and over in Mwanza, the United Republic of Tanzania, more than one in four had ever had an STI (Matasha et al. 1998). Epidemiological evidence is very limited on the prevalence of various STIs and HIV in adolescent populations in the developing world, however, and virtually non-existent for boys and girls aged under 15 years (Dehne and Riedner 2005:113–116). Much of what is known comes from clinic-based samples of young women in sub-Saharan Africa: among 14–22-year-old women (not disaggregated by age) receiving antenatal care in Bangui, the Central African Republic, for example, 34% had at least one STI (gonorrhoea, chlamydia, trichomonas, syphilis, bacterial vaginosis or candida) and 12% were also HIV positive (Blankhart et al. 1999).

Survey evidence based on self-reports (e.g. Brown et al. 2001:21–22; Khan and Mishra 2008:85) will be biased to the extent that teenagers (especially younger ones) are unaware of the existence of STIs apart from HIV, attribute their symptoms to other causes, experience only mild symptoms or none at all (more common among girls), or conceal information from researchers (Mensch et al. 2009). One could speculate that the younger the adolescent is when she or he becomes infected, the less likely it is that an STI will be recognized, diagnosed and appropriately treated, resulting in sequelae such as tubal blockage (in boys as well as girls), pelvic inflammatory disease, ectopic pregnancy, cervical cancer, infertility or perinatal morbidity and mortality. As is the case for adults (Jejeebhoy et al. 2003), innovative and multiple methods are needed to elicit information on how adolescents in different circumstances interpret STIs and what they do about them.

Although younger adolescents are less likely to be infected with STIs/HIV than their older counterparts, because of their lower average levels of sexual activity (aside from those who were born HIV positive), some groups are at high risk. These include girls and boys living on the streets or in situations of armed conflict, young migrants and refugees, sexually trafficked youngsters, and those who are “left behind” due to poverty or social or geographical isolation (United Nations Children’s Fund [UNICEF] et al. 2002:11–23; Bruce and Chong 2003; Dehne and Riedner 2005:13; Dixon-Mueller 2009; Global AIDS Link 2007;). In countries or communities where HIV/AIDS has become generalized, especially among 15–24-year-olds (Joint United Nations Programme on HIV/AIDS [UNAIDS] 2008:annex), younger female adolescents with older male partners are also at heightened risk. In a household survey in Kisumu, Kenya (where about half of males and females had initiated sex before the age of 15 years), 4% of 15–19-year-old boys and 27% of girls in the same age group tested HIV positive; in Ndola, Zambia (where about one-third had sexual intercourse before 15 years), 3% of boys and 21% of girls were positive (Glynn et al. 2001:555).

Young married girls may also be at higher risk than their sexually active unmarried counterparts, even though they (and their parents) believe they are safe (McIntyre 2006:29). The extent to which early arranged marriages exacerbate girls’ risks is an important research issue, quite apart from the violation of girls’ health and rights that forced marriage entails (International Centre for Research on Women [ICRW] 2005; IPPF 2006; McIntyre 2006). Young married girls in Kisumu, Kenya, and Ndola, Zambia, were more vulnerable because their husbands – being much older on average and with longer sexual histories than the partners of unmarried girls – had higher HIV infection rates,

and because married girls are exposed to more frequent and more unprotected intercourse (Clark 2004; McIntyre 2006:15; Khan and Mishra 2008:28, 36), although studies in other settings have found different results (e.g. Adair 2008).

Investigations of older adolescents' understanding of STI/HIV symptoms and of their treatment-seeking behaviour reveal a variety of false beliefs and ineffective or harmful practices (Dehne and Riedner 2005:18–24). Secondary-school students aged 15–20 years interviewed in focus groups in Benin City, Nigeria, for example, mentioned a variety of STIs with local names and symptoms such as painful urination, milky discharge, swollen organs, boils, itching and rashes (Temin et al. 1999). Most said that they would most likely confide in a friend, if anyone, and seek treatment from traditional healers, patent medicine vendors, home remedies ("herbs and roots; Krest Bitter Lemon soda; kola; combinations of salt, potash, gin, lime and pepper fruit") or self-medicate with antibiotics rather than go to doctors or hospitals where staff would gossip about them and they might be ridiculed, asked too many questions and given unwanted advice.

Research across a variety of settings with standard methodologies could identify:

- adolescents' knowledge of STIs aside from HIV, and of their sources and possible symptoms;
- the person in whom adolescents are most likely to confide if they suspect something might be wrong (e.g. friends, family members, sexual partner, pharmacists, herbalists, doctors or nurses), what advice they receive from each source, and what they used;
- the major obstacles to seeking and receiving appropriate testing and care (e.g. lack of access to health care in general or STI services in particular, financial costs, worries of disclosure of sexual activity, shame or embarrassment, denial that infections are serious or sexually related, reluctance to have a physical exam, etc.);
- the conditions under which adolescents (married or not) are most likely to inform (or to be counselled to inform) their partners about their infections status, to encourage their partners to be tested, to follow the recommended regimen of treatment and to practise safer sex.

8.2 Unintended pregnancies and unsafe abortion

The proportions of 20–24-year-old women reporting their first birth at the age of 14 years or younger have been declining – quite rapidly in some countries – due primarily to the drop in very early arranged marriages (Westoff 2003; Lloyd 2005:516–19; Dixon-Mueller 2008). Yet, one woman in 10 had a child before the age of 15 years in Bangladesh, Chad, Guinea, Mali, Mozambique and the Niger, countries in which early arranged marriages are still common (as many as one-quarter to one-third of young women had been married before their 15th birthday) (Appendix Table 2). The pace of childbearing picks up rapidly in middle adolescence in many countries: by 18 years, approximately one-fifth to one-half of women in sub-Saharan Africa and in Bangladesh, India, Nepal, Yemen and most Latin American and Caribbean countries shown in Table 2 had become mothers, and higher proportions had ever been pregnant. In a household survey conducted in KwaZulu-Natal, South Africa, 30% of sexually active unmarried 14–15-year-old girls had ever been pregnant and half of these had given birth, the other half presumably being terminated. Among unmarried 16–19 year olds; 48% had ever been pregnant and nine-tenths had given birth; almost three-quarters of all pregnancies were unplanned (Manzini 2001).

The planning status of recent births to women ages 15–19 years (and older) can be obtained from DHS data, although not for births at the age of 14 years or younger. For current 15–19 year olds, the proportions of births whose conception was "wanted then" range from lows of 22% in Swaziland, 34% in Namibia, and about 40% in

Ghana, Colombia and Bolivia to over 80% in Guinea, Mali and Chad and 91% in the Niger, the latter representing early-marriage countries. These figures relate to liveborn children, however, which means that the proportions of pregnancies that were unintended is underreported where there is a high likelihood of abortion, miscarriage or stillbirth. Evidence is needed on the planning status and outcome of each pregnancy according to the girl's age and relationship status at the time the pregnancy occurred. Studies that ask female and male respondents if they have ever been pregnant or caused a pregnancy (or had an STI) without obtaining this information are difficult to interpret (e.g. see Murray et al. 2006), as are reviews of studies based on non-comparable age groups, questions and methodologies (Brown et al. 2001:24–28).

Key questions for younger (and older) adolescents about how decisions are made when a pregnancy is suspected or diagnosed and who makes them include:

- the circumstances under which the pregnancy occurred (nature of marital or non-marital relationship, whether a condom or contraception was used and if not, why not);
- how girls respond to possible signs of pregnancy such as a first and second missed period; their positive, negative or ambivalent reactions; and in whom they confide;
- who is involved in decisions about whether the pregnancy is to be continued or terminated;
- what factors are considered in this decision (e.g. the girl's age and current status, her partner's age and status, the wishes of the girl and of her parents and partner (if notified));
- the ability and willingness of the male partner to accept responsibility (see Varga 2002);
- community norms relating to the acceptability of non-marital childbearing and of abortion, among other factors; husband's or in-laws pressures to have a child, and so on.

If the girl (or her parents or partner) decides that the pregnancy should be terminated, research questions include their sources of information on where and how to do this and the cost; their knowledge of the legal status of abortion; the number and type of methods tried and by whom (e.g. midwife, friend or neighbour, quack) and whether these were successful or not; their access to and use of skilled providers; and the nature and severity of abortion complications, if any, and if, how, and where these were treated. In Mexico City, for example, 12–19-year-old girls (not disaggregated by age) in a public hospital sample who were pregnant or had recently had an abortion described the reactions of their sexual partners and of their mothers, some of whom insisted on abortion and some of whom were strongly opposed (Ehrenfeld 1999). Abortion decisions were multistaged: some girls decided to terminate but could not afford it or had no one to support them; others tried various (mostly unsuccessful and sometimes dangerous) methods such as injections, high doses of quinine, aspirin with lemon juice, and other remedies; still others terminated successfully with illegal and expensive dilation and curettage (D&C) procedures performed by qualified physicians, or with the insertion of catheters or other objects into the uterus, where complications were common.

Questions related to continuing the pregnancy (which may happen by default if abortion attempts are not successful) would explore decision-making surrounding the timing and frequency of antenatal visits and the choice of birth attendant (if any) and place of delivery; whether skilled providers and equipped birthing facilities were available and why they were (or were not) used; the nature of complications of the pregnancy or delivery according to the girl's chronological and gynaecological age, and their treatment; the survival and health of the newborn; the extent of social and economic support expected and forthcoming from parents, sexual partners, and others; and positive and negative life changes to

the young adolescent mother, among other factors, with special attention to the different needs, concerns and outcomes of married, cohabiting and unmarried girls (McIntyre 2006).

8.3 The role of health services

According to UN agreements and recommendations, adolescents have a right to receive accurate sexual and reproductive health information and confidential services without discrimination (UN Committee on the Rights of the Child 2003a and b)]. Although reference is made in some documents to parental rights and obligations and the evolving capacities of the child, it has been argued that any adolescent who seeks information or services relating to the protection of his or her sexual or reproductive health when he or she is, or is about to be, sexually active, should be considered mature enough (sufficiently “evolved”) to receive it (Cook and Dickens 2000). South Africa’s national public-sector adolescent-friendly clinic initiative proposes that all services – including elective abortion – should be available to adolescents aged under 14 years, without parental consent (Dickson-Tetteh et al. 2001:166). A responsive national adolescent health policy would remove age and marital status barriers to service provision, train providers in how to work effectively with male and female adolescents, and ensure that comprehensive sexual and reproductive health services are available, accessible, affordable, and “adolescent friendly” (see descriptions, checklists, assessments, statements of adolescents’ rights, and other components in Dehne and Riedner 2005; McCauley and Salter 1995; McIntyre 2003; WHO 2004b; Temin and Levine 2009).

Research is needed to establish the extent to which younger (and older) male and female adolescents know about, have access to, use, and are satisfied with (or are refused, scolded, discouraged, threatened, or sent home by) providers in public health posts, private clinics, community-based nongovernmental organizations (NGOs),

pharmacies and family planning facilities for services such as:

- information and counselling on general health issues such as nutrition, exercise, body weight, substance abuse, and depression or anxiety and on sexual and reproductive health issues, including sexual preferences, gender identities, and sexual pleasure;
- counselling and appropriate treatment or referral (medical, legal, social) for girls and boys who have been raped, or physically or sexually abused, or are victims of other forms of violence, coercion, or harmful practices such as forced marriage or FGM;
- contraceptive information and counselling, and provision of methods including oral contraceptives, injections, male and female condoms, and emergency contraception;
- pregnancy testing and counselling, provision of (or referral to) antenatal, delivery and postpartum care, with special attention to the needs of younger girls and those pregnant for the first time (WHO 2004a);
- pre- and post-abortion counselling and provision of or referrals for safe abortion (Pathfinder International 2008);
- information on the prevention of STIs/HIV, including dual-protection strategies; STI diagnosis and treatment or syndromic management; pre- and post-test HIV counselling and referrals (where necessary) for testing, treatment, and partner notification (WHO 2004b; Dehne and Riedner 2005).

Research is needed on both the supply and demand factors relating to sexual and reproductive health care for adolescents and the interactions among them. Comparative research could throw light on the processes by which male and female adolescents at different ages and developmental-cognitive stages make decisions about how to deal with STIs/HIV and unanticipated pregnancies and

how they are affected by them (e.g. who bears the greatest costs). It could also identify ways in which adolescents' capacities not only to prevent but also to manage such outcomes safely and effectively can be supported by making sure that they have access to comprehensive information and services when they need them.

9. Research issues: themes, approaches and applications

A well-designed social science research project within a comparative framework would build the evidence base needed for health and educational initiatives that respond to the needs of younger adolescents in diverse settings and prepare them to make positive, informed and responsible decisions about their sexuality and other aspects of their lives.

A number of research topics have been identified in the preceding thematic sections. Given the paucity of information on most of these topics, the agenda for research remains wide open. The selection of themes, methods and adolescent populations depends on the priorities of governments and NGOs, the current mandates of international agencies, the interests and skills of in-country social science researchers, and donor funding decisions, among other factors. This section lays out some strategic choices to be made in deciding on a comparative research agenda for this age group.

9.1 Measuring developmental processes and transitions in early adolescence: trends, variations, causes, correlates and consequences

Early adolescence (ages 10–14 years) is not simply a convenient category for demographic analysis. It is a highly formative stage of life in the progression from childhood to adulthood shaped by a complex series of interrelated physiological, emotional, and social processes surrounding the often bumpy passage through puberty. How young male and female adolescents experience these processes and how the characteristics of their social environments affect their sexual and reproductive health and rights have clear relevance for the design and assessment of programmes and policies to promote adolescents' health and well-being.

This review has been organized around six developmental processes and transitions in young

adolescents' lives: (1) status transitions, such as changes in geographical and familial living arrangements, school enrolment, and employment; (2) physiological changes reflected in the processes of sexual and reproductive maturation and cognitive development; (3) the acquisition of knowledge and skills, particularly regarding sexual and reproductive health and rights; (4) socialization into gender norms and into the gendered rules of specific sexual cultures; (5) shifting combinations of opportunities, risks and protective factors in adolescents' social environments; and (6) transitions to sexual activity and its consequences. Within each of these themes, research is needed to:

- *identify the "best measures" of process and transition markers and conditions among young male and female adolescents, such as nutritional status, hormonal levels, stages of sexual and reproductive maturation, indicators of cognitive development and skills, personal goals and values, gender attitudes, risk perceptions, access to sexual and reproductive health services, and sexual knowledge and experiences; and of environmental characteristics, such as opportunities and risk and protective factors in their families, schools, and communities;*
- *document age-graded individual and group variations in each of these processes, transitions and conditions as measured "objectively" and as viewed and interpreted subjectively by adolescents themselves; and document and interpret changes over time;*
- *analyse the interrelationships among these developmental processes and transitions with respect to their timing and sequencing in individuals and groups; and locate potentially problematic aspects of the asynchronous timing of sexual and cognitive maturation among young*

male and female adolescents and of ages and developmental stages;

- *identify the major causes, correlates and consequences of variations in the nature and timing of young adolescents' developmental processes and transitions* in different settings, with a particular focus on the attributes, determinants, correlates and consequences of the early initiation of sexual activity; *and identify their policy and programmatic implications* for the design, monitoring and evaluation of educational, vocational, health and social services for young adolescents living in diverse circumstances.

9.2 Sampling frames and data-collection methods

Following the examples of other multicountry surveys that permit direct comparisons of specific classifications of persons across and within countries, it would be useful to create a standardized set of questions, sampling criteria and data-collection methods for younger adolescents that could be utilized in a variety of settings, with separate add-on modules as needed for locally relevant practices such as child marriage or FGM. It is critically important to ensure that direct comparisons can be made across populations for a series of core indicators classified by sex and by single years of age, among other attributes. Sampling and data-collection decisions include the following:

- *select precise age groups to be studied* such as male and female 12–14 year olds (classified by single years of age), 13–15 year olds (in recognition of later average age of male puberty), single years 12 and 14 or 13 and 15, plus selected younger and older ages as appropriate to the research purposes;
- *decide on a longitudinal or cross-sectional research design* – the former would follow a cohort of, say, 12 year olds for a period of 2 or 3 years, with periodic re-interviews, thus tracking the precise sequence of developmental

stages and transitions and of changes in young people's perceptions; the latter would analyse correlations cross-sectionally based on one point in time, and make inferences about causality;

- *determine the feasibility of interviewing 12–14 year olds* about sexual and other personal matters (see the Guttmacher Institute's four-country sub-Saharan Africa study of 12–14 year olds and 15–19 year olds summarized in Bankole et al. 2007) and of obtaining direct measures of their current levels of sexual and cognitive maturation, *as compared with interviewing 15 year olds* with retrospective questions about the "ages and stages" of their development, as well as assessing their current knowledge, behaviours and cognitive capacities;
- *choose a sampling frame* such as a nationally representative survey of households (e.g. the Guttmacher surveys (Bankole et al. 2007) which can build on existing sampling frames for national surveys such as the DHS or other inquiries, where available; or a representative survey of households in two or three rural and urban areas (e.g. see WHO 2005); or a school-based sample (see WHO 2007), the representativeness of which is proportionate to the enrolment rates of 12–14 year olds), making sure in all cases that sampling frames are equivalent across countries and that samples reflect young adolescents' geographical, socioeconomic and cultural diversity (Bruce and Chong 2003);
- *select a combination of quantitative and qualitative methods* of data collection, such as standardized questionnaires, structured interviews with adolescents and with key informants, focus group discussions, direct observation (e.g. of school settings, health clinics, youth clubs), and other approaches (see the research "guide and tool kit" for investigating young adolescents by Chong et al. 2006) that permit comparisons across populations and

settings, building in mechanisms for learning from adolescents themselves about their viewpoints and ideas for change;

- *decide on the criteria to be used to select countries* for a multicountry project, such as high levels of male and/or female sexual initiation at the age of 14 years or younger (including but not limited to child marriage) as ascertained in the DHS and other surveys; the priorities of funders; the capabilities and interests of in-country research institutions, and requests from governments or NGOs to undertake such surveys for policy and programme planning, among other possibilities.

9.3 The uses of research: policy and programme relevance

Many of the decisions outlined above will depend on the purposes for which the research is intended. Although research could be focused on particular subpopulations such as young adolescents living in especially high-risk situations, or on the evaluations of selected small-scale or community-based projects, the recommendations in this section relate primarily to research undertaken at national or state/provincial levels that will:

- *provide basic information about the sexual and reproductive health of younger adolescents* and about other aspects of their lives to governments or NGOs, in order to assess needs, set policy and programme priorities and guide the design of interventions in the educational, health and social/legal sectors to expand the access of young male and female adolescents to essential information, skills and support services for living healthy and productive lives;
- *inform the design, monitoring and evaluation of sexuality education and related human rights and gender education curricula* in the schools (e.g. Haberland and Rogow 2009; UNESCO 2009), paying special attention to the question of what “age-appropriate” interventions are likely to be most effective in diverse settings and to the ways in which young adolescents’ “evolving capacities” affect their ability to absorb, reflect

on, or put into practice the messages they are receiving.

Particular areas of concern are those dealing with the nature, timing, causes and consequences of precocious sexual intercourse in different social environments and the extent to which broad-based interventions could help to (1) lower the probabilities of early initiation in populations where such behaviours are common among boys and/or girls (both premarital and marital); (2) reduce the high levels of sexual coercion and gender-based violence associated with early sexual initiation in many settings; (3) ensure that young adolescent girls and boys who do choose to be sexually active are prepared with the information, services and supplies they need to protect themselves and their partners from STIs/HIV and precocious pregnancy; and (4) ensure that information, services and support are available to younger as well as older adolescents, without discrimination, so that they can safely manage possible negative consequences of their sexual behaviour and make fully informed, voluntary and responsible choices in the future.

References

- Adair T (2008). HIV status and age at first marriage among women in Cameroon. *Journal of Biosocial Science*, 40(5):743–760.
- Agha S (2002). A quasi-experimental study to assess the impact of four adolescent sexual health interventions in Sub-Saharan Africa. *International Family Planning Perspectives*, 28(2):67–70 and 113–118.
- Ajuwon AJ et al. (2001). Experience of sexual coercion among adolescents in Ibadan, Nigeria. *African Journal of Reproductive Health*, 5(3):120–131.
- Alan Guttmacher Institute (1998). *Into a new world: young women's sexual and reproductive lives*. New York, Alan Guttmacher Institute.
- Albert B, Brown S, Flanagan CM (2003). *14 and younger: the sexual behavior of young adolescents*. Washington DC, National Campaign to Prevent Teen Pregnancy.
- Alford S, Cheetham N, Hauser D (2005). *Science and success in developing countries: holistic programs that work to prevent teen pregnancy, HIV and sexually transmitted infections*. Washington DC, Advocates for Youth.
- Anderson KG, Beutel AM, Maughan-Brown B (2007). HIV risk perceptions and first sexual intercourse among youth in Cape Town, South Africa. *International Family Planning Perspectives*, 33(3):98–105.
- AVERT (formerly AIDS Education and Research Trust) (2009). *Worldwide ages of consent [to sex]* (<http://www.avert.org/age-of-consent.htm>, accessed 15 February 2011).
- Awusabo-Asare K et al. (2006). *Adolescent sexual and reproductive health in Ghana: results from the 2004 national survey of adolescents*. New York, Guttmacher (Occasional Report no. 22).
- Bankole A et al (2007). Sexual behavior, knowledge and information sources of very young adolescents in four Sub-Saharan African countries. *African Journal of Reproductive Health*, 11(3):28–43.
- Barker GT (2005). *Dying to be men: youth, masculinity and social exclusion*. New York and London, Routledge.
- Barker GT, Ricardo C, Nascimento M (2007). *Engaging men and boys in changing gender-based inequity in health: evidence from programme interventions*. Geneva, World Health Organization.
- Biddlecom A et al. (2008). Associations between premarital sex and leaving school in four Sub-Saharan African countries. *Studies in Family Planning*, 39(4):337–350.
- Blanc AK, Way AA (1998). Sexual behavior and contraceptive knowledge and use among adolescents in developing countries. *Studies in Family Planning*, 29(2):106–116.
- Blankhart D et al. (1999). Sexually transmitted infections in young pregnant women in Bangui, Central African Republic. *International Journal of STD and AIDS*, 10(9):609–614.
- Blum RW, McNeely C, Nonnemaker J (2001). Vulnerability, risk, and protection. In: Baruch F, Nightingale EO, Iannotta JG, eds. *Adolescent risk and vulnerability: concepts and measurement*. Washington DC, National Academy Press, pp. 50–72.
- Bongaarts J, Cohen B, eds. (1998). Adolescent reproductive behavior in the developing world. *Studies in Family Planning*, 29(2):99–105.
- Brady M et al. (2007). *Providing new opportunities to adolescent girls in socially conservative settings: the Ishraq program in rural Upper Egypt*. New York, Population Council (<http://www.popcouncil.org/pdfs/IshraqFullReport.pdf>, accessed 15 February 2011).
- Breinbauer C, Maddaleno M (2005). *Youth: choices and change: promoting healthy behaviors in adolescents*. Washington DC, Pan American Health Organization (Scientific and Technical Publication no. 594).
- Brown AD et al. (2001). *Sexual relations among young people in developing countries: evidence from WHO case studies*. Geneva, World Health Organization (WHO/RHR/01.8).

- Bruce J, Chong E (2003). *The diverse universe of adolescents, and the girls and boys left behind: a note on research, program and policy priorities. Background paper to the report Public choices, private decisions: sexual and reproductive health and the millennium development goals*. New York, Millennium Project. (http://www.unmillenniumproject.org/document/Bruce_and_Chong-final.pdf).
- Buga GA, Amoko DH, Ncayiyani DJ (1996). Sexual behaviour, contraceptive practice and reproductive health among school adolescents in rural Transkei. *South African Medical Journal*, 86(May):523–527.
- Bullough VL, Bullough B, eds. (1994). *Human sexuality: an encyclopedia*. New York, Garland.
- Caldwell JC et al. (1998). The construction of adolescence in a changing world: implications for sexuality, reproduction, and marriage. *Studies in Family Planning*, 29(2):137–153.
- Campbell B (2003). Pubertal maturation, adrenarche, and the onset of reproduction in human males. In: Wachter KW, Bulatao RA, eds. *Offspring: the biodemography of fertility and family behavior*. Washington, DC, National Academy Press, pages 260–288.
- Campbell B, Gillett-Netting R, Meloy M (2005). Timing of reproductive maturation in rural vs. urban Tonga boys, Zambia. *Annals of Human Biology*, 32(2):213–227.
- Chong E, Hallman K, Brady M (2006). *Investing when it counts: generating the evidence base for policies and programmes for very young adolescents. guide and tool kit*. New York, Population Council, in conjunction with UNFPA, UNICEF and UNAIDS (<http://www.popcouncil.org/pdfs/InvestingWhenItCounts.pdf>, accessed 15 February 2011).
- Clark S (2004). Early marriage and HIV risks in Sub-Saharan Africa. *Studies in Family Planning*, 35(3):149–160.
- Cleland J, Ingham R, Stone N (2004). *Asking young people about sexual and reproductive behaviours: illustrative core instruments*. Geneva, World Health Organization (http://www.who.int/reproductivehealth/topics/adolescence/sample_core_instruments.pdf, accessed 15 February 2011).
- Cook R, Dickens B (2000). Recognizing adolescents' 'evolving capacities' to exercise choice in reproductive healthcare. *International Journal of Gynecology and Obstetrics*, 70(1):13–21.
- Dehne KL, Riedner G (2005). *Sexually transmitted infections among adolescents: the need for adequate health services*. Geneva, World Health Organization.
- Dickson-Tetteh K, Pettitfor A, Moleko W (2001). Working with public sector clinics to provide adolescent-friendly services in South Africa. *Reproductive Health Matters*, 9(17):160–169.
- DiClemente RJ, Santelli JS, Crosby RA (editors). 2009. *Adolescent health: understanding and preventing risk behaviors*. San Francisco, CA, Wiley.
- Dixon-Mueller R (2008). How young is 'too young'? Comparative perspectives on adolescent sexual, marital, and reproductive transitions. *Studies in Family Planning*, 39(4):247–262.
- Dixon-Mueller R (2009). Starting young: sexual initiation and HIV prevention in early adolescence. *AIDS and Behavior*, 13(1):100–110.
- Duncan EM et al. (1990). First coitus before menarche and risk of sexually transmitted disease. *Lancet* 335:338–340.
- Eggleston E, Jackson J, Hardee K (1999). Sexual attitudes and behavior among young adolescents in Jamaica. *International Family Planning Perspectives*, 25(2):78–84, 91.
- Eggleston E, Leitch J, Jackson J (2000). Consistency of self-reports of sexual activity among young adolescents in Jamaica. *International Family Planning Perspectives*, 26(2):79–83.
- Ehrenfield N (1999). Female adolescents at the crossroads: sexuality, contraception and abortion in Mexico. In: Mundigo AI, Indriso C, eds. *Abortion in the developing world*. London, Zed Books.
- Erulkar AS (2004). The experience of sexual coercion among young people in Kenya. *International Family Planning Perspectives*, 30(4):182–189.
- Erulkar AS, Muthengi E (2009). Evaluation of Berhane Hawan: a program to delay child marriage in rural Ethiopia. *International Perspectives on Sexual and Reproductive Health*, 35(1):6–13.
- Ezeome ER et al. (1997). Normal pattern of pubertal changes in Nigerian boys. *West African Journal of Medicine*, 16:6–11.
- Gage AJ (1998). Sexual activity and contraceptive use: the components of the decision-making process. *Studies in Family Planning*, 29(2):154–166.

- Gerdtz C (2002). *Universal sexuality education in Mongolia: educating today to protect tomorrow*. New York, The Population Council.
- Gilmore D (1990). *Manhood in the making: cultural concepts of masculinity*. New Haven, Yale University Press (Quality/Calidad/Qualité no. 12).
- Girard F (2003). "My father didn't think this way": *Nigerian boys contemplate gender equality*. New York, The Population Council (Quality/Calidad/Qualité no. 4).
- Girls' Power Initiative, Nigeria (<http://www.gpinigeria.org>, accessed 15 February 2011).
- Global AIDS Link (2007). *Girls and HIV: a new epidemic in the women of tomorrow?* Washington DC, Global Health Council (http://www.ungei.org/resources/files/globalhealthcouncil_Aidslink101.pdf, accessed 15 February 2011).
- Glynn JR et al. (2001). Why do young women have a much higher prevalence of HIV than young men? A study in Kisumu, Kenya and Ndola, Zambia. *AIDS*, 15(Suppl. 4):S51–S60.
- Glover EK et al. (2003). Sexual health experiences of adolescents in three Ghanaian towns. *International Family Planning Perspectives*, 29(1):32–40.
- Grant MJ, Hallman KK (2008). Pregnancy-related school dropout and prior school performance in KwaZulu-Natal. *Studies in Family Planning*, 39(4):369–382.
- Gueye M, Castle S, Konaté MK (2001). Timing of first intercourse among Malian adolescents: implications for contraceptive use. *International Family Planning Perspectives*, 27(2):56–62 and 70.
- Guiella G, Woog V (2006). *Santé sexuelle et de la reproduction des adolescents au Burkina Faso: Resultats de l'Enquete Nationale sur les Adolescents du Burkina Faso 2004*. New York, Guttmacher (Occasional Report no. 21).
- Guttmacher Institute (2007). Proteger la salud sexual y reproductiva de la juventud guatemalteca. El Resumen, Serie 2007, no. 1 (http://www.guttmacher.org/pubs/2007/11/28/IB_Guatemala_2007.pdf, accessed 21 February 2011).
- Haberland N, Rogow D (2007). *Sexuality and HIV education: time for a paradigm shift. Promoting healthy, safe, and productive transitions to adulthood*. New York, Population Council (Brief no. 22) (http://www.popcouncil.org/pdfs/TABriefs/PGY_Brief22_SexEducation.pdf
- Haberland N, Rogow D, eds. (2009). *It's all one curriculum: guidelines and activities for a unified approach to sexuality, gender, HIV, and human rights education*. New York, Population Council (2 volumes) (http://www.popcouncil.org/publications/books/2010_ItsAllOne.asp, accessed 15 February 2011).
- Hagemann F et al. (2006). *Global child labour trends 2000 to 2004*. Geneva, International Labour Office (<http://www.ilo.org/ipeinfo/product/download.do?type=document&id=2299>).
- Halcón L et al. (2003). Adolescent health in the Caribbean: a regional portrait. *Adolescent Health*, 93(11):1851–1857.
- Hall JG et al. (2007) *Handbook of physical measurements*, 2nd ed. Oxford, Oxford University Press.
- Hediger ML et al. (1997). Young maternal age and preterm labor. *Annals of Epidemiology*, 7(6):400–406.
- Helitzer AD, Makhambra M, Wanel AM (1994). Obtaining sensitive information [from adolescents]: the need for more than focus groups. *Reproductive Health Matters*, 3:75–82.
- Hennink M, Rana IN, Iqbal R (2005). *Knowledge of personal and sexual development amongst young people in Pakistan*. Paper delivered at the IUSSPXXV International Population Conference, Tours, France, July 18–23 (<http://iussp2005.princeton.edu/download.aspx?submissionId=51402>, accessed 15 February 2011).
- Hindin J, Hindin MJ (2009). Premarital romantic partnerships: attitudes and sexual experiences of youth in Delhi, India. *International Perspectives on Sexual and Reproductive Health*, 35(2):97–104.
- Huen KF et al. (1997). Secular trend in the sexual maturation of southern Chinese girls. *Acta Paediatrica*, 86:1121–1124.

- Interagency Working Group on the role of community involvement in adolescent sexual and reproductive health (2007). *Community pathways to improved adolescent sexual and reproductive health: a conceptual framework and suggested outcome indicators*. Washington DC, IAWG(http://www.pathfind.org/site/DocServer/IAWG_CI_Working_Paper_FINAL_WEB_6_17_08_key.pdf?docID=12161, accessed 15 February 2011).
- International Center for Research on Women (ICRW) (2005). *Too young to wed: education and action toward ending child marriage*. Washington, DC, International Center for Research on Women.
- International Planned Parenthood Federation (IPPF) (2000). *The UN Convention on the Rights of a Child and sexual and reproductive health and rights: a young person's guide*. London, International Planned Parenthood Federation.
- International Planned Parenthood Federation (IPPF), UNFPA and Global Coalition on Women and AIDS (2006). *Ending child marriage: a guide for global policy action*. London, International Planned Parenthood Federation.
- Irvin A (2000). *Taking steps of courage: teaching adolescents about sexuality and gender in Nigeria and Cameroun*. New York, International Women's Health Coalition.
- Irvin A (2004). *Positively informed: lesson plans and guidance for sexuality educators and advocates*. New York, International Women's Health Coalition.
- Jejeebhoy SJ, Bott S (2003). *Non-consensual sexual experiences of young people: a review of evidence from developing countries*. New Delhi, The Population Council.
- Jejeebhoy SJ, Koenig M, Elias C (2003). *Investigating reproductive tract infections and other gynaecological disorders: a multidisciplinary research approach*. Cambridge, Cambridge University Press.
- Jejeebhoy SJ, Shah I, Thapa S (2005). *Sex without consent: young people in developing countries*. London: Zed Books.
- Jewkes R, Dunkle K, Moss MP (2006). Rape perpetration by young, rural South African men: prevalence, patterns and risk factors. *Social Science and Medicine*. 63:2949–2961.
- Johnson SB, Blum RW, Giedd JN (2009). Adolescent maturity and the brain: the promise and pitfalls of neuroscience research in adolescent health policy. *Journal of Adolescent Health*, 45:216–221.
- Juárez F, Martín TC (2006). Partnership dynamics and sexual health risks among male adolescents in the favelas of Recife, Brazil. *International Family Planning Perspectives*, 32(4):62–70.
- Kagan J, ed. (1998). *Gale encyclopedia of childhood and adolescence*. Detroit, Gale Research.
- Karim AM et al. (2003). Reproductive health risk and protective factors among unmarried youth in Ghana. *International Family Planning Perspectives*, 29(1):14–24.
- Kaufman CE, Stavrou SE (2004). "Bus fare, please"; the economics of sex and gifts among young people in urban South Africa. *Health and Sexuality*, 6(5):377–391.
- Khan S, Mishra V (2008). *Youth reproductive and sexual health*. Calverton MD, Macro International Inc. (DHS Comparative Reports 19).
- Kim CR, Free C (2008). Recent evaluations of the peer-led approach in adolescent sexual health education: a systematic review. *International Family Planning Perspectives*, 34(2):89–96.
- Kirby D, Laris BA, Rolleri L (2007). Sex and HIV education programs: their impact on sexual behaviors of young people throughout the world. *Journal of Adolescent Health*, 40(3):206–217.
- Koenig MA et al. (2004). Coerced first intercourse and reproductive health among adolescent women in Rakai, Uganda. *International Family Planning Perspectives*, 30(4):156–163.
- Lam TH et al. (2002). Timing of pubertal maturation and heterosexual behavior among Hong Kong adolescents. *Archives of Sexual Behavior*, 31(4):359–366.
- Lindberg LD, Jones R, Santelli JS (2008). Noncoital sexual activities among adolescents. *Journal of Adolescent Health*, 43(3):231–238.
- Liu A et al. (2006). Sexual initiation, substance use, and sexual behavior and knowledge among vocational students in Northern Thailand. *International Family Planning Perspectives*, 32(3):126–135.

- Lloyd CB, ed. (2005). *Growing up global: the changing transitions to adulthood in developing countries*. Washington DC: The National Academy Press.
- Lloyd CB (2009). *New lessons: the power of educating adolescent girls. A Girls Count report on adolescent girls*. New York, Population Council.
- Lloyd CB, Mensch BS (2008). Marriage and child-birth as factors in dropping out of school: an analysis of DHS data from Sub-Saharan Africa. *Population Studies*, 62(1):1–13.
- Luke N (2003). Age and economic asymmetries in the sexual relationships of adolescent girls in Sub-Saharan Africa. *Studies in Family Planning*, 34(2):67–86.
- Lundgren R (2000). *Research protocols to study sexual and reproductive health of male adolescents and young adults in Latin America*. Washington DC, Pan American Health Organization.
- Mangrulkar L, Whitman CV, Posner M (2001). *Life skills approach to child and adolescent healthy human development*. Washington, DC, Pan American Health Organization.
- Manzini N (2001). Sexual initiation and childbearing among adolescent girls in KwaZulu Natal, South Africa. *Reproductive Health Matters*, 9(17):44–52.
- Marston CA, King E (2006). Factors that shape young people's sexual behaviour: a systematic review. *Lancet*, 368:1581–1586.
- Matasha E et al. (1998). Sexual and reproductive health among primary and secondary school pupils in Mwanza, Tanzania: need for intervention. *AIDS Care*, 10(5):571–582.
- Marteletto L, Lam D, Ranchhod V (2008). Sexual behavior, pregnancy, and schooling among young people in urban South Africa. *Studies in Family Planning*, 39(4):351–368.
- McAuley AP, Salter C (1995). *Meeting the needs of young adults*. Baltimore, MD, Population Information Program, The Johns Hopkins School of Public Health. (Population Reports, Series J. No. 41).
- McIntyre P (2003). *Adolescent-friendly health services: an agenda for change*. Geneva, World Health Organization.
- McIntyre P (2006). *Married adolescents: no place of safety*. Geneva, World Health Organization.
- Melchiorre A (2004). *At what age are school children employed, married and taken to court?*, 2nd ed. Copenhagen, The Right to Education Project. (<http://www.right-to-education.org/node/279>, accessed 15 February 2011).
- Mensch BS, Grant MJ, Blanc AK (2006). The changing context of sexual initiation in sub-Saharan Africa. *Population and Development Review*, 32(4):699–727.
- Mensch BS, Hewett P, Erulkar A (2003). The reporting of sensitive behavior among adolescents: a methodological experiment in Kenya. *Demography*, 40(2):1–22.
- Mensch BS et al (2001). Premarital sex, schoolgirl pregnancy, and school quality in rural Kenya. *Studies in Family Planning*, 32(4):285–301.
- Mensch BS et al (2009). Sexual behavior and STI/HIV status among adolescents in rural Malawi: an evaluation of the effect of interview mode on reporting. *Studies in Family Planning*, 39(4):321–334.
- Mgalla Z, Schapink D, Ties Boerma J (1998). Protecting school girls against sexual exploitation: a guardian programme in Mwanza, Tanzania. *Reproductive Health Matters*, 6(12):19–30.
- Mirsky J (2003). *Beyond victims and villains: addressing sexual violence in the educational sector*. London, Panos.
- Mohammadi MR et al. (2006). Reproductive knowledge, attitudes and behavior among adolescent males in Tehran, Iran. *International Family Planning Perspectives*, 32(1):35–44.
- Morabia A, Costanza MC (1998). International variability in ages at menarche, livebirth, and menopause. WHO collaborative study of neoplasia and steroid contraceptives. *American Journal of Epidemiology*, 150(5):546.
- Munthali A et al. (2006). *Adolescent sexual and reproductive health in malawi: results from the 2004 national survey of adolescents*. New York, Guttmacher (Occasional Report no. 24).
- Murray N et al. (2006). Factors related to induced abortion among young women in Edo State, Nigeria. *Studies in Family Planning*, 37(4):251–268.
- Neema S et al. (2006). *Adolescent adolescents*. New York, Guttmacher (Occasional Report no. 24).

- Obermeyer CM (2005). Reframing research on sexual behavior and HIV. *Studies in Family Planning*, 36(1):1–12.
- Otoide VO, Oronsaye F, Okonofua FE (2001). Why Nigerian adolescents seek abortion rather than contraception: evidence from focus-group discussions. *International Family Planning Perspectives*, 27(2):77–81.
- Parent A-S et al. (2003). The timing of normal puberty and the age limits of sexual precocity: variations around the world, secular trends, and changes after migration. *Endocrine Reviews*, 24(5):668–693.
- Pathfinder International (2008). *Saving young lives: Pathfinder International's youth-friendly postabortion care project in eight sub-Saharan African Countries*. Watertown, MA, Pathfinder International (http://www.pathfind.org/site/DocServer/YFPAC_final.pdf?docID=12601, accessed 15 February 2011).
- Patton GC, Viner R (2007). Adolescent health 1: pubertal transitions in health. *Lancet*, 369:1130–1139.
- Pettifor A et al. (2009). Early coital debut and associated HIV risk factors among young women and men in South Africa. *International Perspectives on Sexual and Reproductive Health*, 35(2):74–82.
- Phipps MG, Sowers MF (2002). Defining early adolescent childbearing. *American Journal of Public Health*, 92(1):125–128.
- Plummer ML et al. (2004). A bit more truthful: the validity of adolescent sexual behaviour data collected in rural northern Tanzania using five methods. *Sexually Transmitted Infections*, 80(Suppl. 2):ii49–ii56.
- Population Council (2004a). *Sexual coercion: young men's experiences as victims and perpetrators* (<http://www.popcouncil.org/pdfs/popsyn/PopulationSynthesis2.pdf>, accessed 15 February 2011).
- Population Council (2004b). *The adverse health and social outcomes of sexual coercion: experiences of young women in developing countries* (<http://www.popcouncil.org/pdfs/popsyn/PopulationSynthesis3.pdf>, accessed 15 February 2011).
- Rajani R, Kudrati M (1996). The varieties of sexual experience of the street children of Mwanza, Tanzania. In: Zeidenstein S, Moore K, eds. *Learning about sexuality: a practical beginning*. New York, The Population Council, pp. 301–323.
- Ramakrishna J, Karott M, Murthy RS (2003). Experiences of sexual coercion among street boys in Bangalore, India. In: Bott S et al., eds. *Towards adulthood: exploring the sexual and reproductive health of adolescents in Asia*. Geneva, World Health Organization.
- Rani M, Figueroa ME, Ainsle R (2003). The psychosocial context of young adult sexual behavior in Nicaragua: looking through the gender lens. *International Family Planning Perspectives*, 29(4):174–181.
- Rogow D, Haberland N (2005). Sexuality and relationships education: toward a social studies approach. *Sex Education*, 5(4):333–344.
- Ross DA, Dick B, Ferguson J (2006). *Preventing HIV/AIDS in young people: a systematic review of the evidence from developing countries, UN-AIDS Inter-agency Task Team on Young People*. Geneva, World Health Organization.
- Ruan F-F, Lau MP (1997). China (Zhonghua Renmin Gonghe Guo): B. Adolescent sexuality. In: Francoeur RT, ed. *The international encyclopedia of sexuality*. New York, Continuum (<http://www2.hu-berlin.de/sexology/IES/index.html>, accessed 21 February 2011).
- Rwenge M (2000). Sexual risk behaviors among young people in Bamenda, Cameroon. *International Family Planning Perspectives*, 26(3):118–123 and 130.
- Sauvain-Dugerdil C et al. (2009). The start of the sexual transition in Mali: risks and opportunities. *Studies in Family Planning*, 39(4):263–280.
- Senderowitz J (1996). *Adolescent health: reassessing the passage to adulthood*. Washington DC, World Bank (Report no. 272).
- Shtarkshall RA, Santelli JS, Hirsch JS (2007). Sex education and sexual socialization: roles for educators and parents. *Perspectives on Sexual and Reproductive Health*, 39(2):116–119.
- Sexuality Information and Education Council of the United States, National Guidelines Task Force (2004). *Guidelines for comprehensive sexuality education, kindergarten through 12th grade*, 3rd ed. New York, Sexuality Information and Education Council of the United States.

- Singh S, Bankole A, Woog V (2005). Evaluating the need for sex education in developing countries: sexual behaviour, knowledge of preventing sexually transmitted infections/HIV and unplanned pregnancy. *Sex Education*, 5(4):307–331.
- Singh S et al. (2000). Gender differences in the timing of first intercourse: data from 14 countries. *International Family Planning Perspectives*, 26(1):21–28 and 43.
- Speizer IL, Magnani RJ, Colvin CE (2003). The effectiveness of adolescent reproductive health interventions in developing countries: a review of the evidence. *Journal of Adolescent Health*, 33:324–348.
- Szasz I (1998). Masculine identity and the meanings of sexuality: a review of research in Mexico. *Reproductive Health Matters*, 6(12):97–104.
- Tanner JM (1962). *Growth at adolescence*, 2nd ed. Oxford, Blackwell Scientific Publications (http://www.childgrowthfoundation.org/psm_tanner_stages.htm, accessed 15 February 2011).
- Temin M, Levine R (2009). *Start with a girl: a new agenda for global health*. Washington DC, Center for Global Development (<http://www.cgdev.org/content/publications/detail/1422899/>, accessed 15 February 2011).
- Temin M et al. (1999). Perceptions of sexual behavior and knowledge about sexually transmitted diseases among adolescents in Benin City, Nigeria. *International Family Planning Perspectives*, 25(4):186–190 and 195.
- Thomas F et al. (2001). International variability of ages at menarche and menopause: patterns and main determinants. *Human Biology*, 73(2):271–290.
- UNAIDS (2008) *2008 Report on the global AIDS epidemic*. Geneva, UNAIDS.
- United Nations Committee on the Rights of the Child (2003a). *HIV/AIDS and the rights of the child. General comment No. 3, CRC/GC/2003/1*. (<http://www.aidsportal.org/store/636.pdf>, accessed 15 February 2011).
- United Nations Committee on the Rights of the Child (2003b). *Adolescent health and development in the context of the Convention on the Rights of the Child. General comment No. 4, CRC/GC/2003/4* (http://www.childrensrights.ie/files/CRC-GC4_AdolescentHealth03.pdf, accessed 15 February 2011)
- United Nations Children's Fund, UNAIDS and World Health Organization (2002). *Young people and HIV/AIDS: opportunity in crisis*. New York, UNICEF.
- United Nations Educational, Scientific and Cultural Organization (UNESCO) no date. *Education systems*. (<http://stats.uis.unesco.org/unesco/TableViewer/tableView.aspx?ReportId+163>, accessed 21 February 2011) United Nations Educational, Scientific and Cultural Organization (UNESCO) (2009). *International technical guidance on sexuality education: an evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO (2 volumes). (<http://unesdoc.unesco.org/images/0018/001832/183281e.pdf>, accessed 15 February 2011).
- United Nations Population Fund (UNFPA) (2004). *Education is empowerment: promoting goals in population, reproductive health and gender, report of a technical consultation on UNFPA's role in education, 8–10 Dec 2003*. New York, UNFPA.
- Upadhyay UD, Hindin MJ, Gultiano S (2006). Before first sex: gender differences in emotional relationships and physical behaviors among adolescents in the Philippines. *International Family Planning Perspectives*, 32(3):110–119.
- Utomo ID, McDonald P (2009). Adolescent reproductive behavior in Indonesia: contested values and policy inaction. *Studies in Family Planning*, 40(2):133–146.
- Varga CA (2002). Pregnancy termination among South African adolescents. *Studies in Family Planning*, 33(4):283–298.
- Varga CA (2003). How gender roles influence sexual and reproductive health among South African adolescents. *Studies in Family Planning*, 34(3):160–172.
- Valverde Cerros OA et al. (2001). *Adolescencia: proteccion y riesgo en Costa Rica, Encuesta Nacional*. San José, Programa Atencion Integral a la Adolescencia, Caja Costarricense de Seguro Social.
- Vuttanont UT et al. (2006). Smart boys and sweet girls – sex education needs in Thai teenagers: a mixed-method study. *Lancet*, 368:2068–2080.
- Wang B et al. (2005). The potential of comprehensive sex education in China: findings from suburban Shanghai. *International Family Planning Perspectives*, 31(2):63–72.

- Wellings K et al. (2006). Sexual behavior in context: a global perspective. *Lancet*, 368(9 and 518):1 and 706–728.
- Westoff CF (2003). *Trends in marriage and early child-bearing in developing countries*. Calverton MD, ORC Macro (DHS Comparative Reports No. 5).
- Wilder J, Masilamani R, Daniel EE (2005). *Promoting change in the reproductive behavior of youth: Pathfinder International's PRACHAR Project, Bihar, India*. Watertown MA, Pathfinder International (http://www.pathfind.org/site/DocServer/India-Prachar_Project.pdf).
- Women's Human Rights Resources (WHRR) (2004). What is the accepted age of marriage in international conventions? (<http://www.law-lib.utoronto.ca/Diana/age.htm>, accessed 15 February 2011).
- World Health Organization (2004a). *Adolescent pregnancy: issues in adolescent health and development*. Geneva, World Health Organization.
- World Health Organization (2004b). *Protecting young people from HIV and AIDS: the role of health services*. Geneva, World Health Organization.
- World Health Organization (2005). *WHO multi-country study on women's health and domestic violence against women, summary report*. Geneva, World Health Organization.
- World Health Organization (2007). *Global school-based student health survey. Fact sheets* (<http://www.who.int/entity/chp/gshs/en/>, accessed 15 February 2011).
- World Health Organization, 2008, *Making pregnancy safer: reducing maternal mortality by improving care for pregnant adolescents*. Geneva, World Health Organization.
- Yankah E, Aggleton P (2008). Effects and effectiveness of life skills education for HIV prevention in young people. *AIDS Education and Prevention*, 20(6):465–485.
- Zabin LS, Kiragu K (1998). Health consequences of adolescent sexuality and fertility behavior in Sub-Saharan Africa. *Studies in Family Planning*, 29(2):210–232.
- Zabin LS et al. (2009). Levels of change in adolescent sexual behavior in three Asian cities. *Studies in Family Planning*, 40(1):1–12.

Appendix

Table 1
Ages of compulsory schooling and attendance rates of female and male 11–15-year-olds.

Demographic and Health Surveys: rank ordered within regions by percentages of urban girls aged 11–15 years attending school.

Region and country	Year	School compulsory to age x	11–15 year olds attending school %					
			Urban			Rural		
			F	M	F/M	F	M	F/M
Western and middle Africa								
Gabon	2000	15	92	95	97	94	96	98
The Congo (Brazzaville)	2005	15	91	90	101	84	90	93
Cameroon	2004	11	88	91	97	71	83	86
Ghana	2003	15	84	90	93	74	74	100
Nigeria	2003	14	80	83	96	64	74	86
Mauritania	2000/01	14	74	82	90	48	62	77
Guinea	2005	12	74	84	88	37	51	72
Togo	1998	15	70	92	76	59	77	77
Benin	2006	11	67	80	84	53	67	79
Senegal	2005	12	65	68	96	40	48	83
The Central African Republic	1994/95	15	65	79	82	30	60	50
Burkina Faso	2003	15	62	71	87	18	25	72
Chad	2004	11	60	74	81	31	51	61
Mali	2006	15	57	71	80	31	42	74
The Niger	2006	12	56	65	86	20	35	57
Eastern and southern Africa								
South Africa	1998	15	93	95	98	94	96	98
Lesotho	2004	–	93	93	100	92	82	112
Namibia	2000	16	93	96	97	91	84	108
Eritrea	2002	14	89	95	94	62	77	80
Zimbabwe	1999	12	88	96	92	87	88	99
Malawi	2004	13	88	88	100	84	84	100
Uganda	2000/01	12	83	87	95	88	90	98
Zambia	2001/02	13	83	84	99	68	75	91
Mozambique	2003	12	83	88	94	64	73	88
Kenya	2003	13	82	92	89	89	90	99
The United Republic of Tanzania	2004	13	80	84	95	78	80	98
Madagascar	2003/04	14	80	84	85	66	66	100
Rwanda	2005	12	78	84	93	82	79	104
Ethiopia	2000	–	74	85	87	28	41	68

Region and country	Year	School compulsory to age x	11–15 year olds attending school %					
			Urban			Rural		
			F	M	F/M	F	M	F/M
Northern Africa and western Asia								
Armenia	2000	14	98	97	101	96	94	102
Jordan	1997	15	95	94	101	92	95	97
Egypt	2000	14	89	87	102	71	84	85
Morocco	2003/04	14	86	87	99	46	64	72
Turkey	1998	14	67	79	85	38	64	59
Central Asian republics								
Kazakhstan	1999	17	100	100	100	99	98	101
Turkmenistan	2000	15	98	98	100	98	98	100
Azerbaijan	2006	16	97	98	99	94	98	96
Kyrgyzstan	1997	15	96	96	100	96	95	101
Uzbekistan	1995	18	96	95	101	96	96	100
South-central and south-eastern Asia								
Philippines	2003	12	93	89	104	89	82	108
Indonesia	2007	15	91	90	101	84	82	102
Viet Nam	2002	14	89	92	97	84	89	94
Nepal	2001	–	83	86	96	59	81	73
India	1998/99	14	80	82	98	57	75	76
Cambodia	2000	–	76	87	87	69	83	83
Bangladesh	2004	10	65	63	103	70	67	104
Pakistan	1990/91	9	64	74	86	30	61	49
Central America and Caribbean								
The Dominican Republic	2007	13	94	93	102	83	76	109
Nicaragua	2001	12	88	83	106	66	59	112
Guatemala	1998/99	15	73	80	91	60	69	87
Honduras	2005	11	60	62	97	43	41	105
South America								
Peru	2000	16	95	96	99	83	89	93
Brazil	1996	14	93	93	100	84	84	100
Colombia	2005	14	93	91	102	83	76	109
Paraguay	1990	14	85	87	98	58	74	78
Bolivia (Plurinational State of)	2003	13	70	71	99	35	35	100

Sources: Ending age of compulsory education from UNESCO no date: Table 1. These ages differ in some countries from the legal minimum age for school leaving (regardless of years of schooling completed) reported in Melchiorre 2004: Summary. DHS data from Macro International Inc., 2009, STATcompiler, at <http://www.measuredhs.com>, accessed 17 February 2011.

Table 2

Percentages of male and female 20–24 year olds who had intercourse (MI, FI) and of females who were married (FM) and gave birth (FB) by the ages of 15 and 18 years.

Demographic and Health Surveys: rank ordered within regions by percentage of females who had intercourse before the age of 15 years.

Region and country	Year	Under 15 years (%)				Under 18 years (%)			
		MI	FI	FM	FB	MI	FI	FM	FB
Western and middle Africa									
Chad	2004	9	36	35	12	38	75	72	48
The Niger	2006	5	34	36	9	23	73	75	51
The Central African Republic	1995	16	28	20	6	65	80	57	38
Mali	2006	4	26	24	10	27	73	65	45
Guinea	2005	16	25	20	9	54	70	63	44
Gabon	2000	36	24	11	7	85	78	34	35
The Congo (Brazzaville)	2005	29	24	6	4	74	81	31	29
Cote d'Ivoire	1999	18	24	9	8	54	75	33	35
Cameroon	2004	11	22	16	8	50	68	47	33
Mauritania	2001	3	22	21	8	9	38	37	21
Nigeria	2003	5	21	19	7	22	49	43	28
The Democratic Republic of the Congo	2007	17	18	8	4	55	62	39	23
Liberia	2007	8	16	11	6	54	80	38	33
Benin	2006	13	12	8	4	47	54	34	23
Senegal	2005	–	10	10	4	–	37	39	22
Ghana	2003	4	8	6	1	26	43	28	15
Burkina Faso	2003	2	7	5	2	32	62	52	27
Eastern and southern Africa									
Mozambique	2003	–	28	18	10	–	79	56	42
Ethiopia	2005	2	22	24	5	14	49	49	28
Uganda	2006	–	20	12	6	–	64	46	35
Eritrea	2002	–	19	20	5	–	47	47	25
Malawi	2004	9	16	11	5	48	57	49	34
Zambia	2007	16	15	8	4	51	60	42	34
The United Republic of Tanzania	2004	5	14	6	3	43	62	41	29
Madagascar	2003/04	10	14	8	4	53	59	39	31
Kenya	2003	26	13	4	3	61	48	25	23
South Africa	1998	–	7	1	2	–	53	8	20
Swaziland	2006/07	5	6	1	2	37	46	5	28
Namibia	2006/07	17	6	2	2	58	44	8	17
Lesotho	2004	6	6	2	1	49	38	23	15
Zimbabwe	2005/06	–	6	–	2	–	37	–	21
Rwanda	2005	11	3	1	1	26	29	13	8

Region and country	Year	Under 15 years (%)				Under 18 years (%)			
		MI	FI	FM	FB	MI	FI	FM	FB
Northern Africa and western Asia									
Yemen	1997	–	[14]	14	4	–	[48]	48	25
Turkey	1998	5	[4]	4	1	32	[23]	23	11
Egypt	2005	–	[2]	2	1	–	[17]	17	10
Morocco	2003/04	–	[2]	2	1	–	[16]	16	8
Jordan	2007	–	[1]	1	0	–	[10]	10	4
Armenia	2005	3	0	0	0	30	9	10	3
Central Asian republics									
Kazakhstan	1999	4	2	0	0	40	25	14	6
Azerbaijan	2006	1	1	1	0	22	12	12	4
Kyrgyzstan	1997	–	0	0	0	–	22	21	4
Uzbekistan	1996	–	0	0	0	–	16	15	3
Turkmenistan	2000	–	0	0	0	–	9	9	2
South-central and south-eastern Asia									
Bangladesh	2007	–	[32]	32	8	–	[69]	69	46
India	2005/06	–	[12]	13	3	–	[43]	44	22
Nepal	2006	–	10	10	2	–	50	51	23
Pakistan	2006/07	–	[7]	7	1	–	[24]	24	10
Indonesia	2007	0	4	4	1	10	21	24	10
Philippines	2003	2	2	2	0	18	15	14	7
Cambodia	2005	–	1	2	0	–	19	23	9
Viet Nam	2002	–	[1]	1	0	–	[11]	11	4
Central America and Caribbean									
The Dominican Republic	2007	27	16	14	3	72	51	40	25
Haiti	2005/06	44	14	6	2	76	53	30	15
Nicaragua ^a	2001	35	14	13	4	80	49	43	28
Honduras	2005	26	12	11	3	–	45	39	26
Guatemala ^b	2002 ^c	28	12	–	–	63	42	–	–
South America									
Colombia	2005	–	12	4	2	–	54	23	20
Brazil	1996	33	10	4	2	75	42	24	16
Bolivia (Plurinational State of)	2003	21	7	4	2	62	41	26	19
Paraguay	1990	–	5	3	1	–	39	24	16
Peru	2000	19	7	3	2	60	34	19	14

^a Male intercourse figures for Nicaragua are for 1998 DHS.

^b Data for Guatemala 2002 are from Guttmacher Institute 2007: cuadro 1.

^c Not DHS.

Sources: Macro International Inc., MEASURE 2009, STATcompiler, at <http://www.measuredhs.com>, accessed 17 February 2011. Numbers in brackets are estimates based on proportions married where proportions ever having intercourse are not reported.

Table 3

Percentages of male and female 13–15-year-old students who have had sexual intercourse, had more than one partner, and used condom at last sex.

WHO National Student Health Surveys: rank ordered within regions by percentage of females who have ever had intercourse.

Region and country	Year	Ever had intercourse (%)		Two or more partners ^a (%)		Used a condom at last sexual intercourse ^b (%)	
		Males	Females	Males	Females	Males	Females
Western Africa							
Ghana ^c	2007	25	25	23	19	61	60
North		31	30	31	30	75	–
Central		29	29	25	23	–	–
South		16	17	17	10	–	–
Senegal	2005	34	8	21	4	51	–
Eastern and southern Africa							
Zambia	2005	45	29	26	23	–	–
Kenya	2003	45	23	–	–	40	44
Central region		54	27	–	–	30	36
Lake region		46	26	–	–	–	–
Pastoral region		35	15	–	–	48	–
Namibia	2004	38	19	20	9	57	52
Northeast		46	27	32	14	–	–
Northwest		51	25	21	10	21	10
Central		35	18	18	8	–	–
South		24	20	15	6	–	–
Seychelles	2007	28	16	25	9	–	–
Uganda	2003	29	14	16	6	60	–
Rural		35	14	18	7	–	–
Urban		25	14	14	6	–	–
Zimbabwe	2003						
Manicaland		28	10	22	9	–	–
Bulawayo		22	5	14	3	–	–
Harare City		18	4	10	2	–	–
Botswana	2005	27	10	16	6	52	–
Swaziland	2003	20	7	12	3	41	47
Djibouti ^d	2007	18	4	22	7	–	–
The United Republic of Tanzania	2006						
Dar Es Salaam		15	4	11	3	–	–

Region and country	Year	Ever had intercourse (%)		Two or more partners ^a (%)		Used a condom at last sexual intercourse ^b (%)	
		Males	Females	Males	Females	Males	Females
South and south-eastern Asia							
Thailand	2008	7	6	10	2	–	–
Indonesia	2007	0.5	0.2	0.7	0.2	–	–
Java		0.2	0.1	0.5	0.1	–	–
Sumatra		1.3	0.4	1.1	0.4	–	–
Caribbean							
Cayman Islands	2007	35	26	28	25	–	–
Trinidad and Tobago	2007	31	18	24	10	61	56
Saint Lucia	2007	38	17	33	9	48	–
Grenada	2008	43	15	35	11	57	–
Saint Vincent and Grenadines	2007	52	13	43	9	59	–
South America							
Argentina	2007	35	19	26	9	82	75
Uruguay	2006	36	16	24	6	88	82
Montevideo		31	13	20	5	87	–
Rest of country		40	18	28	6	89	83
Colombia	2007						
Bogotá		30	15	22	6	58	–
Guyana	2004	37	11	28	4	62	–
Chile	2005						
Region V		20	11	12	3	50	–
Region I		16	11	8	2	–	–
Region VIII		19	8	9	3	42	–
Metro region		23	10	11	2	51	–
Ecuador	2007						
Zamora		34	10	23	6	–	–
Quito		23	8	15	4	48	–
Guayaquil		26	7	18	6	53	–
The Bolivarian Republic of Venezuela	2003						
Barinas State		37	5	21	2	53	–
Lara State		30	4	17	1	60	–

^a Percentages with more than one partner refer to all students, not only the sexually active.

^b Percentages who used condoms at most recent sexual intercourse, of those who have had intercourse. Many countries report condom use totals that are not disaggregated by gender.

^c Percentages who have had intercourse in past year; partnerships are lifetime partners.

^d These figures are clearly erroneous, given that more male and female students report two or more lifetime partners than report ever having had intercourse.

Note: The health surveys of the following countries did not include questions about sexual intercourse but contain information about other health risks and protective factors: China (Beijing), Egypt, India, Jordan, Lebanon, Libya, Macedonia, Mauritius, Morocco, Myanmar, Oman, Philippines, Sri Lanka, Tajikistan, Tunisia, the United Arab Emirates, Yemen.

Source: WHO 2007.

For more information, please contact:

Department of Reproductive Health and Research
World Health Organization
Avenue Appia 20, CH-1211 Geneva 27, Switzerland
Fax: +41 22 791 4171
E-mail: reproductivehealth@who.int
www.who.int/reproductivehealth

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ISBN 978 92 4 150155 2

