

Department of Child and Adolescent Health and Development

Adolescent pregnancy – Unmet needs and undone deeds

A review of the literature and programmes

Issues in Adolescent Health and Development



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Abbreviations used

AC	Adolescent Centre
AFRO	WHO Regional Office for Africa
AIDS	acquired immune deficiency syndrome
AIM	African Index Medicus
AMES	Asociación Mexicana de Educación Sexual
ANC	antenatal care clinic
ARTH	Action Research and Training Health Programmes
ARV	antiretroviral
BEOC	basic essential obstetric care
BLO	Better Life Options Programme
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
CEDAW	Convention of the Elimination of All Forms of Discrimination Against Women
CEDPA	Centre for Development and Population Activities
CEE/CIS	Central and Eastern Europe and Commonwealth of Independent States
CEMD	Confidential Enquiries into Maternal Deaths
CEMICAMP	Centro de Pesquisas das Doenças Materno-infantis de Campinas
CI	confidence interval
CORA	Centro de Orientación para Adolescentes
DHS	Demographic and Health Surveys
EC	emergency contraceptives
EMRO	WHO Regional Office for the Eastern Mediterranean
EOC	emergency obstetric care
EURO	WHO Regional Office for Europe
FCI	Family Care International
FGC	female genital cutting
FHI	Family Health International
FIGO	International Federation of Gynaecologists and Obstetricians
GBD	global burden of disease
GBV	gender-based violence
GHC	Group Health Cooperative
GTZ	German Technical Cooperation
HIV	human immunodeficiency virus
HRC	high-risk clinic
IMEMR	Index Medicus for the Eastern Mediterranean Region
IMSEAR	Index Medicus for the South-East Asian Region
IPT	intermittent preventive treatment
ITN	insecticide-treated bed nets
IWHC	International Women's Health Coalition
LBW	low birth weight
MCC	Maternity Care Coordination Programme
MTCT	mother-to-child transmission
NGO	non-governmental organization
OB/GYN	obstetrics and gynaecology

OR	odds ratio
PAC	post-abortion care
PAHO	Pan American Health Organization
PATH	Programme for Appropriate Technology in Health
PPC	postpartum care
PREA	Educational Programme for Adolescent Mothers
RBM	roll back malaria
RCH	reproductive and child health
RMP	Resource mothers for Pregnant Teens Program
RNA	ribonucleic acid
RR	relative risk
RSDP	Rural Service Delivery Program
SEARO	WHO Regional Office for South-East Asia
SGA	small for gestational age
SIECUS	Sexuality, Information and Education Council of the United States
SP	sulfadoxine-pyrimethamine
STI	sexually transmitted infection
TB	tuberculosis
TBA	traditional birth attendant
TPPC	Teen Pregnancy and Parenting Clinic
UN	United Nations
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
UTMB	University of Texas Medical Branch
UWMC	University of Washington Medical Center
VAW	Violence Against Women
VVF	vesico-vaginal fistula
WCJF	Women's Centre of Jamaica Foundation
WHO	World Health Organization
WIC	(Special Supplemental Food Programme for) Women, Infants and Children
WPRO	WHO Regional Office for the Western Pacific
YWC	Young Women's Clinic

Executive summary

The World Health Organization (WHO) has been contributing to meeting the Millennium Development Goals (MDGs) by according priority attention to issues pertaining to the management of adolescent pregnancy. Three of the aims of the MDGs – empowerment of women, promotion of maternal health, and reduction of child mortality – embody WHO's key priorities and its policy framework for poverty reduction. The UN Special Session on Children has focused on some of the key issues affecting adolescents' rights, including early marriage, access to sexual and reproductive health services, and care for pregnant adolescents.

This review of the literature was conducted to identify (1) the major factors affecting the pregnancy outcome among adolescents, related to their physical immaturity and inappropriate or inadequate health-care-seeking behaviour, and (2) the socioeconomic and political barriers that influence their access to health-care services and information. The review also presents programmatic evidence of feasible measures that can be taken at the household, community and national levels to improve pregnancy outcomes among adolescents.

The incidence, socio-cultural aspects, and health consequences of adolescent pregnancy have been described in the literature from a global perspective. An estimated 14 million young women aged 15–19 years gave birth each year between 1995 and 2000, with 12.8 million births occurring to adolescents in the developing countries (188). The incidence of very early childbearing (i.e. before the age of 15 years) is not as common, but is substantial in several countries; 8–15% of girls in Bangladesh, Cameroon, Liberia, Malawi, Mali, Niger and Nigeria have had a child by the age of 15.

The review of the literature suggests that pregnancy in adolescents is not free of risks. There is a high prevalence of nutritional anaemia among adolescents in developing countries. The risk of low birth weight (LBW) and preterm delivery is particularly high among iron-deficient anaemic adolescents. The risk of LBW is significantly higher in young adolescents aged 10–14 years. The risk of dying from pregnancy-related causes is twice as high for women aged 15–19 years and five times higher for girls aged 10–14 years as for women aged 20–29 years. In endemic areas, malaria is one of the major causes of maternal mortality among adolescents. Perinatal and infant mortality rates are higher among adolescents, particularly <15 years of age, compared to 20–29-year-olds. Evidence also indicates that the bulk of adverse consequences of adolescent childbearing may be of a social and economic origin, rather than attributable to the effects of young age per se. The prevalence of overall poverty, poor health and nutrition, and lack of health care aggravate the health consequences of adolescent pregnancy. Therefore, the age below which the physical risks of adolescent pregnancy are considered to be significant varies depending on the general health condition of adolescents and their access to adequate antenatal and obstetric care.

There is some evidence that lack of or insufficient antenatal care is related to missed opportunities to identify obstetrical risks. Obstetrical and neonatal outcomes can be improved with comprehensive antenatal care which emphasizes the specific medical, nutritional, and social needs of adolescents, including having a skilled attendant during delivery. In some countries, adolescents appear over-represented in the group without a skilled attendant during delivery. Information on the proportion of adolescents giving birth at health-care facilities or whose deliveries are attended by a skilled birth attendant is extremely limited.

Adolescents as a cohort are more likely to be constrained (by social norms and policy barriers) than adults from access to and timely use of appropriate care. It is evident from the review of the literature that the health-care-seeking behaviour of pregnant adolescents is influenced by a large number of factors operating at the individual, family, school, community and societal levels. These factors are all potential leverage points for intervention, and information on their relative importance in different country settings is essential to determine intervention priorities. Delays in seeking care for maternal complications during pregnancy and obstetric emergencies result in high maternal and fetal morbidity and mortality.

Delay in seeking abortion leads to unsafe abortion, particularly among unmarried adolescents. Unsafe clandestine abortion continues to cause a heavy burden of morbidity and mortality among adolescents not only in settings where legal abortion is restricted, but also where services are available. The decision to seek abortion is especially difficult for adolescents if they lack social support and financial resources.

The decision-making process surrounding a pregnant adolescent's ability to seek care is complex, showing variations among countries and cultures. In many countries and regions, women's decision-making capacity is severely limited and their health and care during pregnancy rank low in family priorities. In most cultures in the developing world, the pregnant adolescent has even less autonomy and is totally dependent on her partner, mother-in-law or parents for approval and access to services. In some countries, social and cultural norms, discriminatory laws and local policies further thwart an adolescent's ability to access services.

The available evidence shows that the situation and needs of pregnant adolescents vary tremendously by age, marital status, whether the pregnancy was desired or not, social class, educational attainment, urban or rural residence, as well as regional and cultural contexts; interventions must therefore be flexible and responsive to these disparate characteristics. One programme model cannot satisfy all needs. Models have to be adapted to the available resources and contexts and must be socially and culturally appropriate. Addressing the adolescents' educational, social, economic, nutritional, psychological, as well as medical needs is more likely to result in better pregnancy outcomes for the mother and child, and also broadens the adolescents' life options. The needs of pregnant adolescents must be approached from a holistic standpoint, rather than a solely bio-medical perspective.

The review also highlights the urgent need for implementing national advocacy to promote and protect the rights of married and unmarried pregnant adolescents. At the same time, it is important to build a constituency of advocates at the community level, with a major focus on partners and parents as principal stakeholders for promoting the rights and well-being of pregnant adolescents.

What is required to increase the utilization of health-care services by pregnant adolescents is a greater understanding about those who are currently accessing the services and how they are accessing them, and about those for whom the services are currently failing.

1

Introduction

1.1 Background

Adolescent¹ pregnancy is commonplace in many countries. An estimated 14 million women aged 15–19 years gave birth each year in 1995–2000, with 12.8 million births occurring to adolescents in developing countries (188). More than half the women in sub-Saharan Africa and about one third in Latin America and the Caribbean give birth before the age of 20 (6). The regional average rate of births, per 1000 women aged 15–19 years, is 115 in Africa, 75 in Latin America and the Caribbean, and 39 in Asia, compared to the world average adolescent fertility rate of 54 births per 1000 women aged 15–19 years (188). Furthermore, this reality is not only limited to developing countries. In developed countries, adolescent fertility rates range from 4.6 in Japan to 30.1 in the United Kingdom of Great Britain and Northern Ireland and 48.7 in the United States of America (188).

Adolescent pregnancy and childbearing entail a high risk of maternal death for the adolescent, and the children of young mothers have higher levels of morbidity and mortality (188). These adolescents and their children may experience repercussions in the present, as well as far into the future. Pregnancy and childbearing may cut short an adolescent's education and threaten her economic prospects, employment opportunities and overall well-being. Adolescent mothers may pass on to their children a legacy of poor health, substandard education and subsistence living, creating a cycle of poverty that is hard to break (187).

Adolescent girls face considerable health risks during pregnancy and childbirth, accounting for 15% of the Global Burden of Disease (GBD) for maternal conditions and 13% of all maternal deaths (204). Adolescents aged 15–19 years are twice as likely to die in childbirth and those under 15 are five times more likely to die in childbirth as women in their twenties (185). Infant and child mortality is also higher among children born to adolescent mothers (189).

Adolescents suffer a significant and disproportionate share of deaths and disability from unsafe abortion practices (161). The number of abortions globally among adolescents ranges from 2.2 to 4 million annually (129). Because of legal and social restrictions on access to abortions in many parts of the world, adolescents often resort to unsafe procedures administered by unskilled providers (118). Recent estimates suggest that 14% of all unsafe abortions in developing countries are performed on adolescents aged 15–19 years. Of these unsafe abortions in developing countries, Africa accounts for 26% while Latin America and the Caribbean account for 15% (215). For some Latin American countries where abortion is not permitted, the figures are not known.

WHO's contribution to meeting the Millennium Development Goals (MDGs) has been giving priority attention to issues pertaining to the management of adolescent pregnancy. Three of the aims of the MDGs – the empowerment of women, the promotion of maternal health, and the reduction of child mortality – embody key WHO priorities and policies for poverty reduction.

As a result of the World Summit for Children (1990) and the UN Special Session on Children in May 2002, there has been a renewal and reaffirmation of the world's commitment to its children². The UN Special Session, in particular, focused on some of the key issues affecting adolescents' rights, including early marriage, access to sexual and reproductive health services, and care for pregnant adolescents.

¹ The World Health Organization defines adolescents as those aged 10 to 19 years.

² The United Nations defines "children" as up to the age of 18 years.

Pregnant adolescents vary greatly in their circumstances and behaviour, and consequently their health-care needs. Lack of information about pregnant adolescents' needs means that service providers are ill equipped to deal with them. Failure on the part of communities to acknowledge and address the issues related to and stemming from adolescent pregnancy further complicates the situation. There are major barriers that preclude adolescents' access to maternal health-care services. Failure to address these barriers and needs seriously threatens a healthy outcome for these young mothers and their newborns, further compromising the already unacceptably high maternal mortality ratio and pregnancy-related morbidities.

In the past few decades, the issue of adolescent childbearing has been increasingly perceived as a critical challenge facing modern society. In spite of growing programmatic and research interest in addressing the needs of pregnant women, the particular needs of pregnant adolescents have been poorly served and inadequately documented. The practice of attending to the needs of this group with specialized services has only recently begun, and primarily only in developed countries. In most developing countries, clinical services appropriate for pregnant adolescents do not exist in the public sector (156).

A major challenge to adequately meeting the educational, informational and clinical needs of adolescent women in developing nations is the eradication of existing social and cultural biases against adolescent women.

There are three generally identified delays in accessing and receiving care that contribute to maternal and infant mortality (174):

- 1st delay: *delay in deciding to seek care on the part of the individual, family or both*. Factors that shape the decision to seek care include actors involved in decision-making (individual, partner, family, community); this also includes knowledge about pregnancy, labour and signs of complications (perception of need), status of women, costs, and cultural factors.
- 2nd delay: *delay in reaching an adequate health-care facility*. Causes include an inability to access health facilities because of underdeveloped transportation infrastructure, nonexistent communications networks, prohibitive costs of transportation and other financial constraints.
- 3rd delay: *delay in receiving adequate care at an existing facility*. Causes include inefficient triage systems, inadequate caregiver skills, inadequate number of caregivers, and inadequate equipment and supplies.

Although these delays are largely systemic, and thus affect health care for most pregnant women in developing countries, their presence poses particular challenges for the care of pregnant adolescents because of their physical and psychological immaturity and limited autonomy. If appropriate action is not taken to eliminate these delays, advances in antenatal and obstetric care to curb maternal mortality ratios will have little effect on the corresponding ratios for pregnant adolescents.

This document summarizes the current state of knowledge of the biological, societal and geographic risks confronting pregnant adolescents and highlights the important differences between the needs, choices and situations of pregnant adolescents aged 10–19 years, compared to women aged 20 and above. The document also explores the difference in the risk situation and adverse pregnancy outcomes between married and unmarried adolescents. However, wide variations and sparse data limit the capacity to better understand the different sets of needs between pregnant adolescents and pregnant adults, and between older and younger adolescents.

1.2 Objectives

The objectives of this review are to:

1. present an overview of the incidence and socio-cultural background of adolescent pregnancies;

2. identify the major factors affecting the adverse outcomes of pregnancy among adolescents, related to physical immaturity and inappropriate or inadequate health-care-seeking behaviours;
3. explore the health-care-seeking behaviours of pregnant adolescents and the societal, political and economic barriers that influence their access to health-care services and information;
4. describe programmatic evidence of feasible measures that can be taken at the household, community and national levels to improve pregnancy outcomes among adolescents;
5. identify the implications of the evidence for programme, policy and research.

This document does not deal with prevention of pregnancy in adolescents, which is the subject of a separate WHO review.

1.3 Methodology and search strategies

The review covers the published and unpublished literature from 1990 to March 2003. The search strategy was developed with the help of a WHO librarian, without language restrictions in the search. However, most citations received and reviewed were in English; those in French, Spanish or Portuguese were included only if English-language abstracts were available.

The search included the following electronic databases:

- MEDLINE, POPLINE, SocioFile, CINAHL, ERIC, Contemporary Women's Issues, and PubMed. Search strategies were modified depending on the individual subject headings and searching structures of each electronic database.
- WHO regional on-line databases: African Index Medicus (AIM), BIREME/ADOLEC, Index Medicus for the Eastern Mediterranean Region (IMEMR), and Index Medicus for the South-East Asian Region (IMSEAR).
- A search of on-line, web-based documents using the "Google" search engine (<http://www.google.com>).
- Nongovernmental organization (NGO) websites of particular relevance: Advocates for Youth; the Alan Guttmacher Institute; Action Research and Training for Health Programme (ARTH); Centre for Development and Population Activities (CEDPA); Centre for Reproductive Rights; the Centre for Disease Control and Prevention (CDC); Family Health International (FHI); Family Care International (FCI); German Technical Cooperation (GTZ); Johns Hopkins University; MAMTA Health Institute for Mother and Child; Program for Appropriate Technologies in Health (PATH); Pathfinder International; Pathfinder; FOCUS on Young Adults; Reprolatino; Reproductive Health Outlook; Sexuality, Information and Education Council of the United States (SIECUS); United States Agency for International Development (USAID).
- International Organizations: Population Council; United Nations (UN); United Nations Population Fund (UNFPA); United Nations Children's Fund (UNICEF); the United Nations Educational, Scientific and Cultural Organization (UNESCO); Office of the United Nations High Commissioner for Refugees (UNHCR) and the World Health Organization (WHO).
- Manual searches of pertinent literature: African Journal of Reproductive Health, Family Planning Perspectives, International Family Planning Perspectives, Journal of Adolescent Health, Studies in Family Planning.
- Reference lists from reviewed articles were evaluated. Staff at the WHO library assisted in acquiring these materials. In the event that particular documents were not available through the WHO

library, the services of a commercial network specializing in article search and delivery (<http://www.infotrieve.com>) were employed.

- Informal consultations with international experts in the field, NGOs, and other international organizations known to be active in the field were conducted. Personal contacts in the field were asked about the existence of other pertinent studies and projects. Country focal points such as representatives and staff from WHO Regional Offices were contacted for additional relevant data (see Annex 1).

Reference manager software® (<http://www.refman.com>) was employed as a bibliographic database management system to track the references identified in the search and to detect duplicates. Records identified from electronic searches were downloaded directly into the Reference manager when the appropriate filter was available (i.e. Medline, Sociofile, CINAHL). Records retrieved from the remaining electronic searches and other sources (e.g. hand searching and personal contacts) were entered manually.

All records identified by the electronic searches were assessed initially on the basis of title and abstract (when available). If the information provided by the title and abstract suggested that the article was probably relevant to the topic, a full text version of the article was obtained.

Keywords: *pregnancy; adolescents/adolescence; teenage/teenagers; prenatal care; antenatal care; emergency obstetric care; health care; health services; health service utilization; care seeking/health seeking; decision making; policy.*

1.4 Limitations of the available data

Most of the data is cohort dependent, involving either 10–19-year-olds or 15–19-year-olds. Very few have disaggregated data for 10–14-year-old adolescents. Information regarding the health-seeking behaviour of pregnant adolescents is scarce. Most studies discuss either pregnancy in general, with little content on pregnant adolescents; or they focus on adolescents' sexual and reproductive health in general, with little focus on pregnancy. There is some information available for married pregnant adolescents but not much is documented about unmarried pregnant adolescents, especially in countries where early childbearing occurs largely within the context of marriage.

Furthermore, pregnant adolescents are not a homogeneous group and their situation and needs vary widely by socioeconomic status, education, geographical location and setting. Thus, what is presented here is a general overview of the current situation and, as such, may obscure some of the micro-level disparities.

1.5 Contents of this review

The eight parts of this document can be described as follows:

Part 1 – provides the background information on the issues related to adolescent pregnancies. It also describes the search strategy and methodology and the limitations of the available data.

Part 2 – presents what is known about the incidence of adolescent pregnancy and childbearing (including very young adolescents aged 10 – 14 years) in developed and developing countries, either married or unmarried, and according to the level of educational attainment and area of residence (rural or urban). The purpose of this section is to attempt to determine the magnitude of the problem and to gain greater insight into the issues of adolescent pregnancy and childbearing.

Part 3 – presents the health, social and economic consequences of adolescent pregnancy and childbirth. The purpose of this section is to identify the health consequences arising during pregnancy, labour, delivery and the postpartum period by adolescents, which are related to their physical immaturity and/or lack of appropriate or timely health care, and subsequently compare this information with adult pregnant women. Abortion is also discussed as an outcome of adolescent pregnancy in this section.

Part 4 – describes the health-care-seeking behaviours of pregnant adolescents and their utilization of antenatal, obstetric and postpartum care, compared with adult pregnant women. It also describes the difference in health-care-seeking behaviour and utilization of services among married and unmarried pregnant adolescents.

Part 5 – reviews the determinants of health-care-seeking behaviour of pregnant adolescents and highlights the societal, political and economic barriers that influence the access to and utilization of health-care services by married and unmarried pregnant adolescents, compared with adult pregnant women.

Part 6 – describes programmatic evidence on interventions and programmes to improve the outcome of adolescent pregnancy by increasing access and utilization of maternal health services. This section also describes programmes that are linked to increased education and skills development and economic empowerment of pregnant and parenting adolescents.

Part 7 – presents conclusions and recommendations based on programmatic lessons learned and programme implication.

Part 8 – presents policy implications addressing issues that will improve the health and development of pregnant adolescents.

2

Overview of adolescent pregnancy and childbearing

2.1 Incidence of adolescent pregnancy and childbearing

Adolescent pregnancy occurs in all societies, with considerable variation in magnitude and consequences among different countries and regions. In each case, a variety of complex socioeconomic factors are involved. For example, in some societies girls are forced into early marriage and are expected to begin their families during adolescence. In such countries, adolescent childbearing is considered a social norm for marriage or as proof of fertility (216). An estimated 14 million women aged 15–19 years gave birth each year in the period 1995–2000, amounting to slightly more than 10% of all births worldwide, with 12.8 million births occurring to adolescents in developing countries (188).

In 1995–2000, the adolescent fertility rate was 54 births per 1000 women worldwide (Table 1) (208). In developed countries it was 29 births per 1000 women, while in developing countries it was as high as 133 births per 1000 women. On average, adolescent childbearing is most common in Africa (115 births per 1000 women) and least common in Europe (25 births per 1000 women), as shown in Table 1. The age-specific fertility rates for women aged 15–19 years for selected countries worldwide are presented in Figure 1.

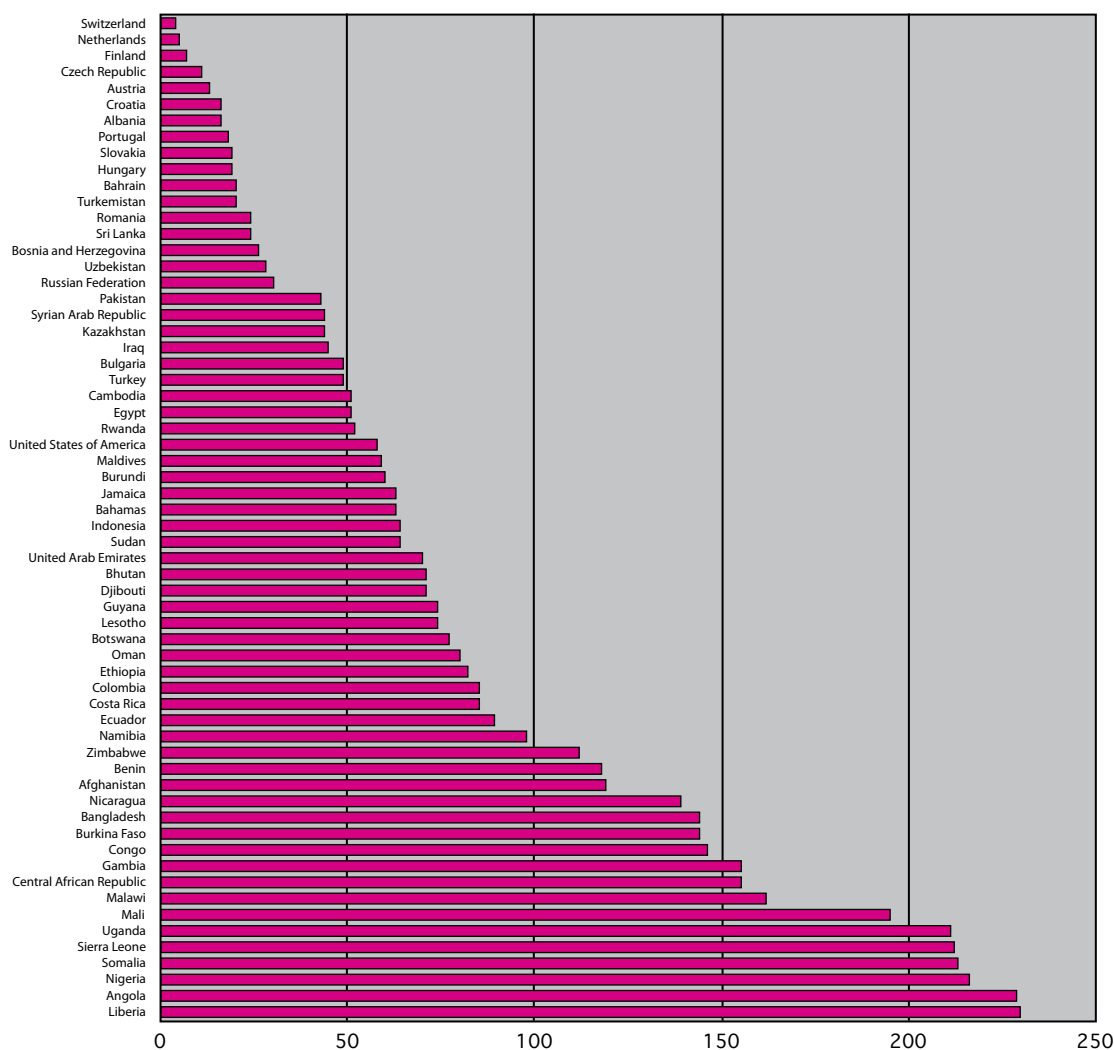
Areas and regions	Age-specific fertility (per 1000)
World	54
Africa	115
Latin America & the Caribbean	75
North America	51
Asia & Oceania	39
Europe	25

Source: United Nations 2002 (208)

2.2 Levels of adolescent childbearing in developing countries

Current levels of adolescent childbearing are moderate to high in most areas of the developing world, despite the widespread social changes that have occurred during the past two to three decades. The countries of sub-Saharan Africa have the highest level of adolescent childbearing. More than 50% of women in sub-Saharan Africa give birth before the age of 20. Country-specific statistics indicate, for example, that about one fifth of all births in Namibia and one half in Niger are to women under the age of 20 (161). Age-specific fertility rates in Africa are estimated to range from more than 200 births per 1000 women in Angola, the Democratic Republic of Congo, Liberia, Niger, Sierra Leone and Somalia

Figure 1. Age-specific fertility rates for women aged 15–19 years, by country, 1999–2000



Source: United Nations 2002 (208)

to less than 50 in the Libyan Arab Jamahiriya and Morocco (Figure 2) (208). In Latin America and the Caribbean, the rates typically range from 50 to 100 births per 1000 women, while in the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama the fertility rates for adolescents aged 15–19 years exceed 100 births (208). In South-East Asia, Bangladesh has the highest level of fertility among adolescents: 144 births per 1000 women (208). In other countries of the region such as Nepal and Indonesia, 50% and 30% of girls, respectively, begin childbearing aged 15–19 years (Pradhan et al. and Indonesia Demographic and Health Survey 1997, cited in 208).

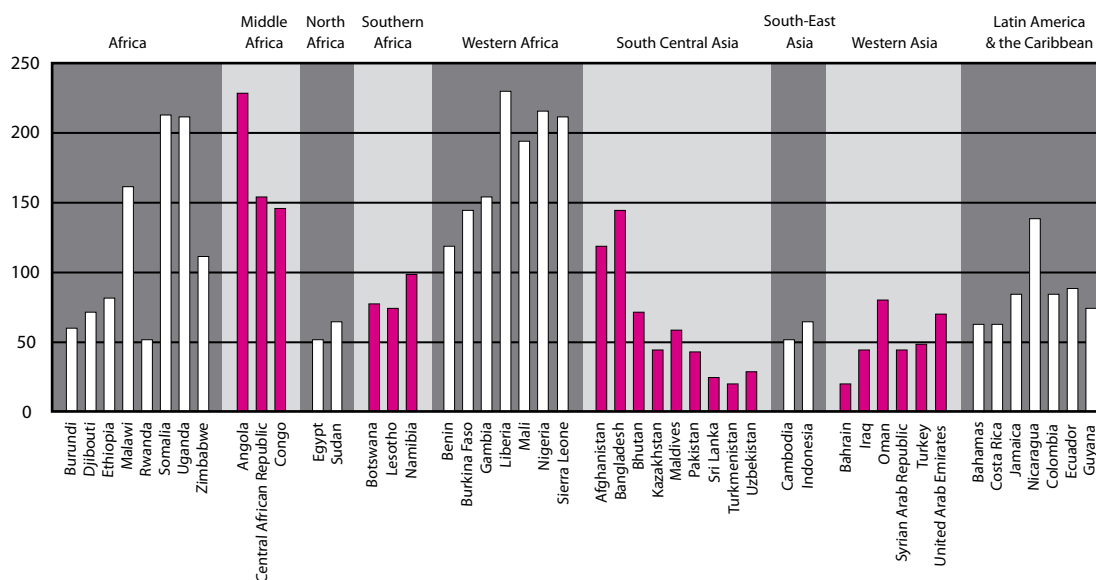
Figure 2 presents age-specific fertility rates for women aged 15–19 years in selected developing countries. These countries may not necessarily be the most representative of the region, but are selected on the basis of the availability of most recent data, i.e. from the year 1999 or later.

2.3 Levels of adolescent childbearing in developed countries

Current levels of adolescent childbearing range from a very low of 4 births per 1000 adolescents aged 15–19 per year in Japan, to a high of 56.2 in Armenia and 58 in the United States per year (162). Within this broad range, however, there are some distinct clusters. Rates of 50 or more are found in the United

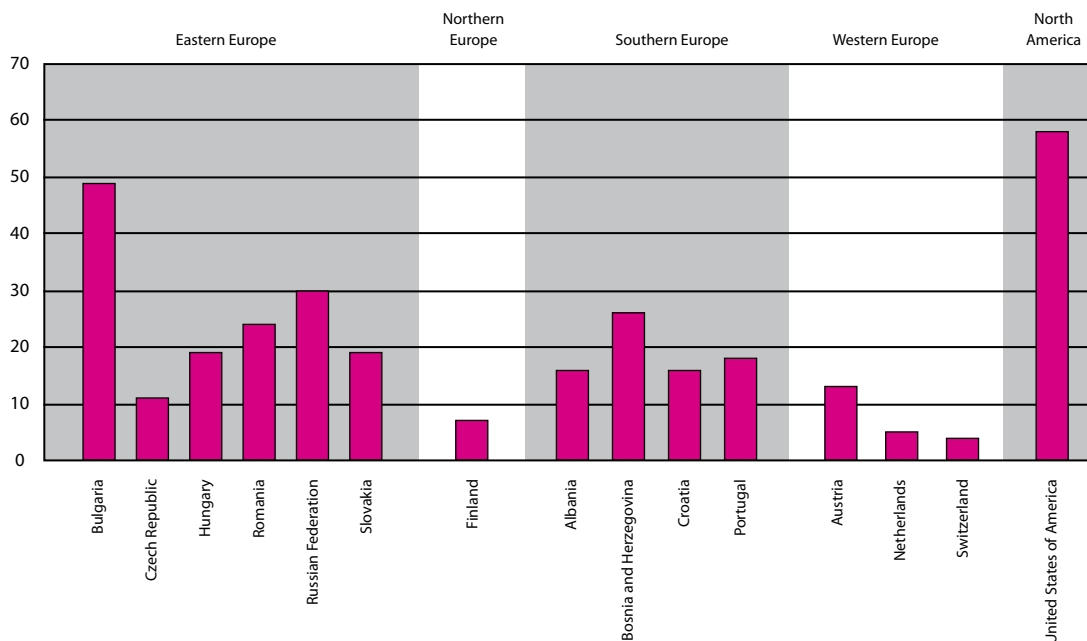
States and some eastern European countries (e.g. Armenia, Georgia, Moldova and Ukraine). The corresponding rates for other eastern European countries such as Belarus, Bosnia and Herzegovina, Bulgaria, Lithuania, Macedonia and the Russian Federation are slightly lower (30–50 births per 1000 adolescents per year). Figure 3 presents age-specific fertility rates for women aged 15–19 years in selected developed countries, based on data from the year 1999 or later.

Figure 2. Age-specific fertility rates among women aged 15–19 years in selected developing countries, 1999–2000



Source: United Nations 2002 (208)

Figure 3. Age-specific fertility rates among women aged 15–19 years in selected developed countries, 1999–2000



Source: United Nations 2002 (208)

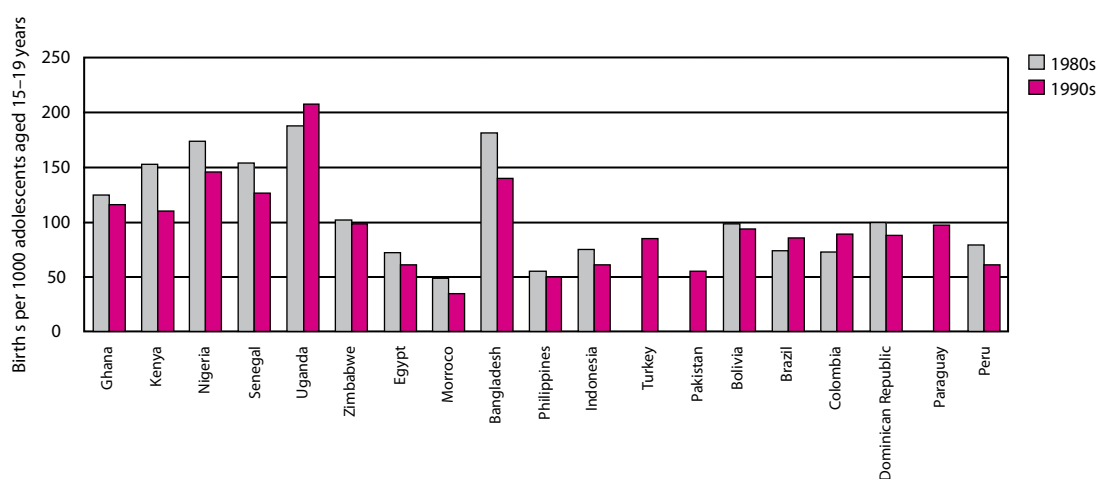
2.4 Pregnancy and childbearing among very young adolescents

Incidence of very early childbearing (i.e. giving birth by the age of 15), while not as common, is substantial in several countries. Singh reported that 8–15% of adolescent girls have had a child by the age of 15 in Bangladesh, Cameroon, Liberia, Malawi, Mali, Niger and Nigeria (161). More recent data show different levels of adolescents already pregnant or as mothers by the age of 15, e.g. 4% in Mali, 16% in Bangladesh, 17% in Liberia (Dixon-Mueller, personal communication). In the Eastern Mediterranean Region, for example in Bahrain, 18–20% of mothers got pregnant between the ages of 11 and 15 years; in Oman, 16–18% of women had their first pregnancy at under 15 years of age (201). In Kuwait, 40.5% of all women giving birth in the hospital were less than 16 years old (Al-Sherhan et al., 1997, cited in 211). The average age at first pregnancy in Saudi Arabia is estimated to be 16 years (211). In the United Kingdom, the number of pregnancies in girls less than 16 years of age was estimated to be 9.4 per 1000 girls aged 13–15 in 1996 (23). Inferences from the number of adolescents who suffer from vesico-vaginal fistula also support the fact that pregnancy in adolescents under 10–14 years of age is not insignificant. There is, however, evidence that the birth rate among 18–19-year-old adolescents is much higher than among younger adolescents (aged 15–17 years), partly because the older adolescents were more likely to be married, cohabiting, or sexually active if unmarried (162).

2.5 Recent trends in childbearing among adolescents

A few developing countries have achieved some success in lowering their levels of adolescent childbearing (161). In particular, significant declines have been found in some countries in sub-Saharan Africa. The largest changes are reported in Kenya (from 153 births per 1000 adolescents in 1980 to 110 in 1990) and Senegal (from 154 to 127 in the same period). Adolescent childbearing has fallen by 25–50% in North Africa and the Middle East. Declines were also found in Latin America and the Caribbean with a 37% drop in the Dominican Republic. However, there has been a slight increase in Brazil and no change was observed in Bolivia (6). Figure 4 shows the trends in age-specific fertility rates among girls aged 15–19 years for selected developing countries. Data for Pakistan, Paraguay and Turkey are not available for the 1980s.

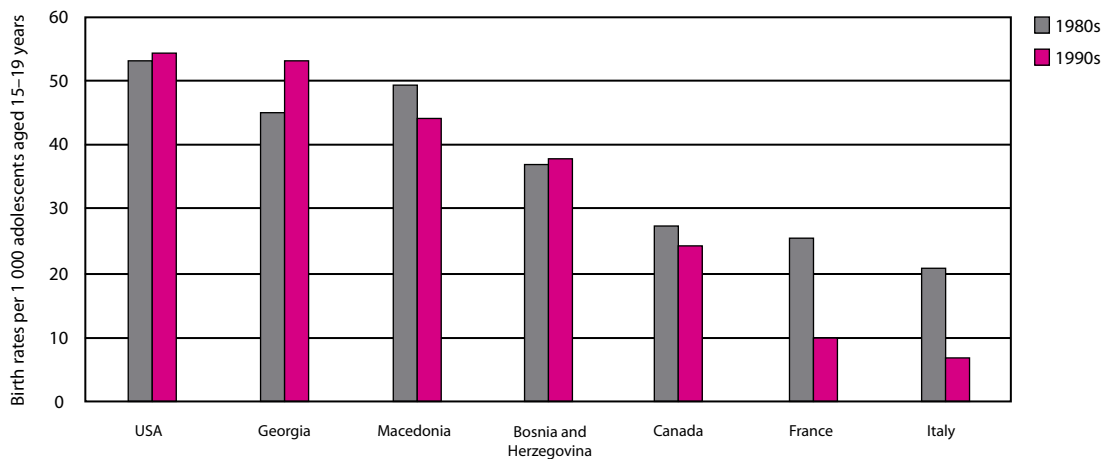
Figure 4. Recent trends in age-specific fertility rates among girls aged 15–19 years for selected developing countries



Source: Alan Guttmacher Institute 1998 (6)

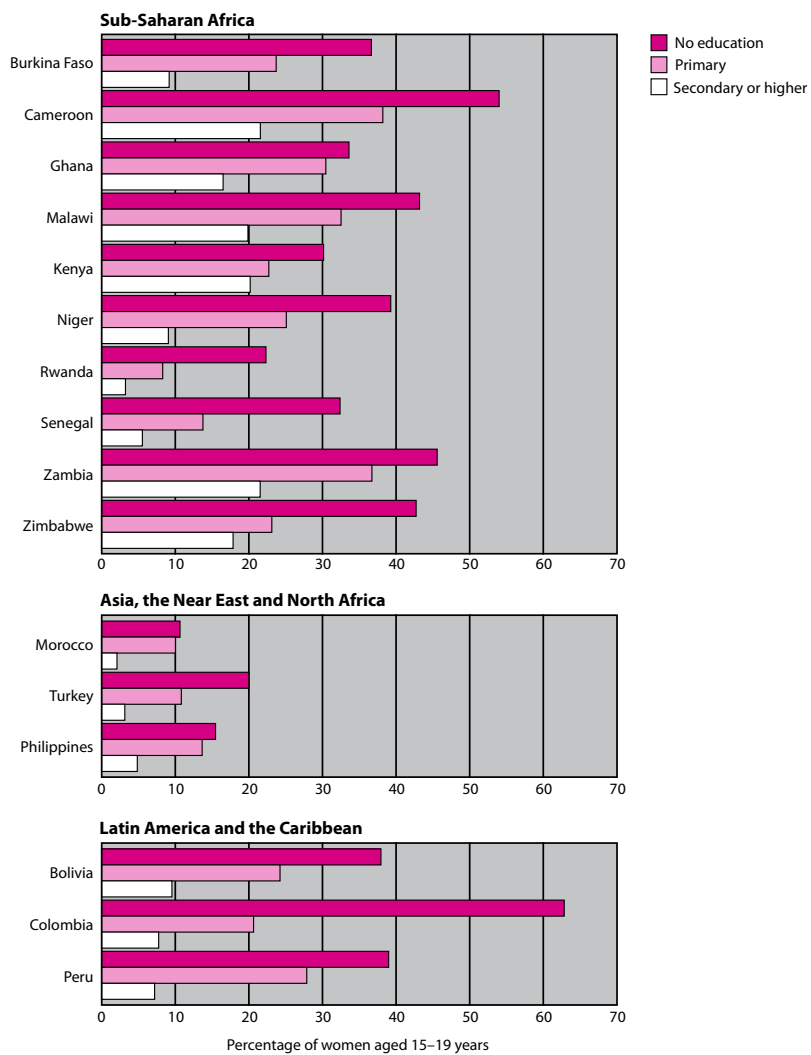
There is generally a declining trend in adolescent childbearing in most industrialized countries (162). In addition to the documented decrease in a number of western European countries, some countries in eastern Europe and the former Soviet Union have also witnessed declines in their rates, as shown in Figure 5.

Figure 5. Recent trends in adolescent childbearing in selected developed countries



Source: Singh 2000 (162)

Figure 6. Adolescent childbearing, by level of education



Source: US Census Bureau (1996) (189)

Education and urbanization have had a particularly influential effect on rates of adolescent pregnancy and childbearing (and Figure 7). Part of the decline has been attributed to increasing enrolment in educational institutions (138), increased motivation on the part of young girls to achieve higher education/training and greater importance given to personal goals other than motherhood and family formation for young women (162). In the United States, one report suggested that adolescents with less than 12 years of schooling were about six times more likely to give birth by the age of 18, compared with those with more schooling (6).

With few exceptions, the percentage of those who have children is less among urban adolescents than rural adolescents (Figures 7a and 7b). About 24% of rural women in the developing world begin childbearing in their adolescence, compared to 16% of urban women. Both proportions were higher in sub-Saharan Africa (30% of rural and 21% of urban adolescents) than in other major regions of the world (189).

2.6 Early marriage and childbearing

Childbearing among adolescents in developing countries involves mostly women who are married or in some other formal union (164). Early marriage and childbearing are encouraged in some societies (6).

While the average age at first marriage is rising among younger cohorts in most countries, it is still under 19 years in less developed parts of the world (6). Demographic and Health Surveys (DHS) show that the proportion of young women aged 18 who are married varies considerably from country to country (164). About half of adolescent girls in many countries of sub-Saharan Africa are either married or have entered a formal union by the age of 18, with 20–40% of those in Latin America and the Caribbean entering a union. In North Africa and the Middle East, the proportion is 30% or less (6). Across Asia, the likelihood of early marriage is quite variable; 73% of adolescent girls in Bangladesh are married by the age of 18 (90% of all married women), as are 40% of all women aged 15–19 in India (7). A high proportion of these married adolescents are believed to commence childbearing (e.g. 58% in India), but a substantial number of pregnancies go unreported due to the high rate of deliveries at home and not in institutions.

Age at marriage explains differences in adolescent fertility. Figure 8 shows the relationship between age at marriage (or union) and adolescent childbearing in selected developing countries.

In developed countries, fewer adolescents enter into marriage before the age of 18, which means that pregnancy and childbearing in this age group is occurring mostly outside of marriage or other formal union. Some 10–15% of adolescents marry before the age of 18 in France, the United Kingdom and the United States, but only 3–4% in Germany and Poland (6). However, the Innocenti Report suggests that 86% of births to adolescents in Japan were to married adolescents, whereas the corresponding rates are 60% in Poland, 39% in Germany, 15% in France, 10% in the United Kingdom and 2% in the United States (188).

Figure 7a. Adolescent childbearing, by rural/urban residence

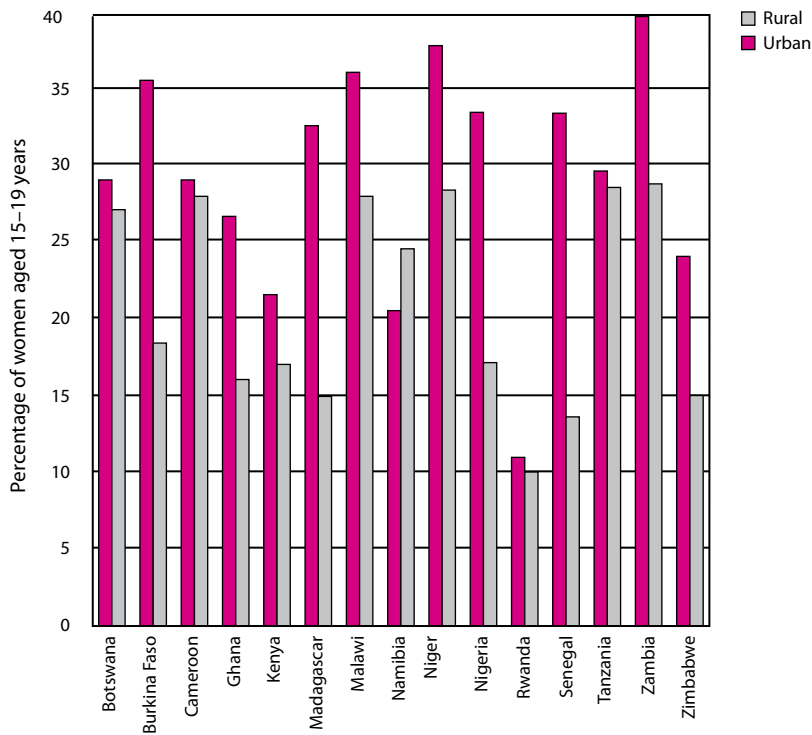
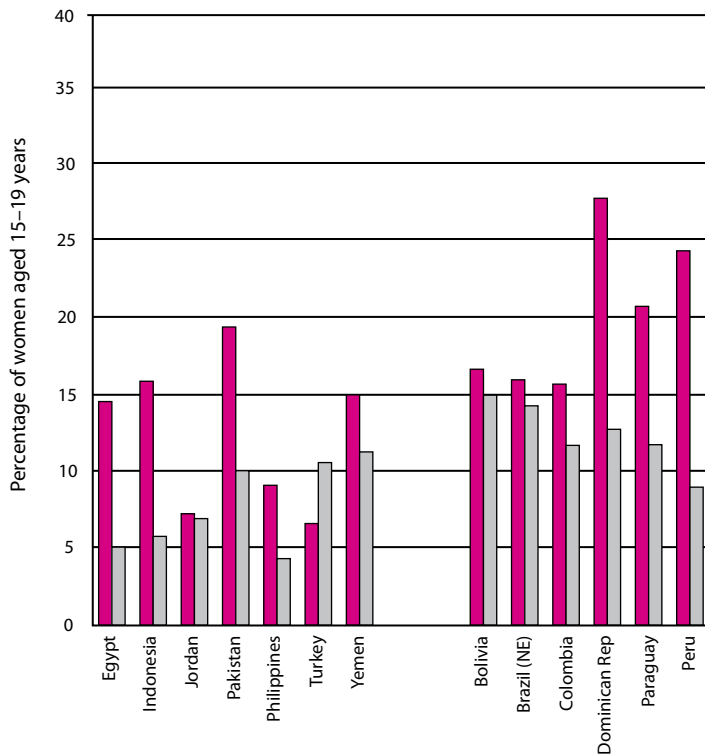
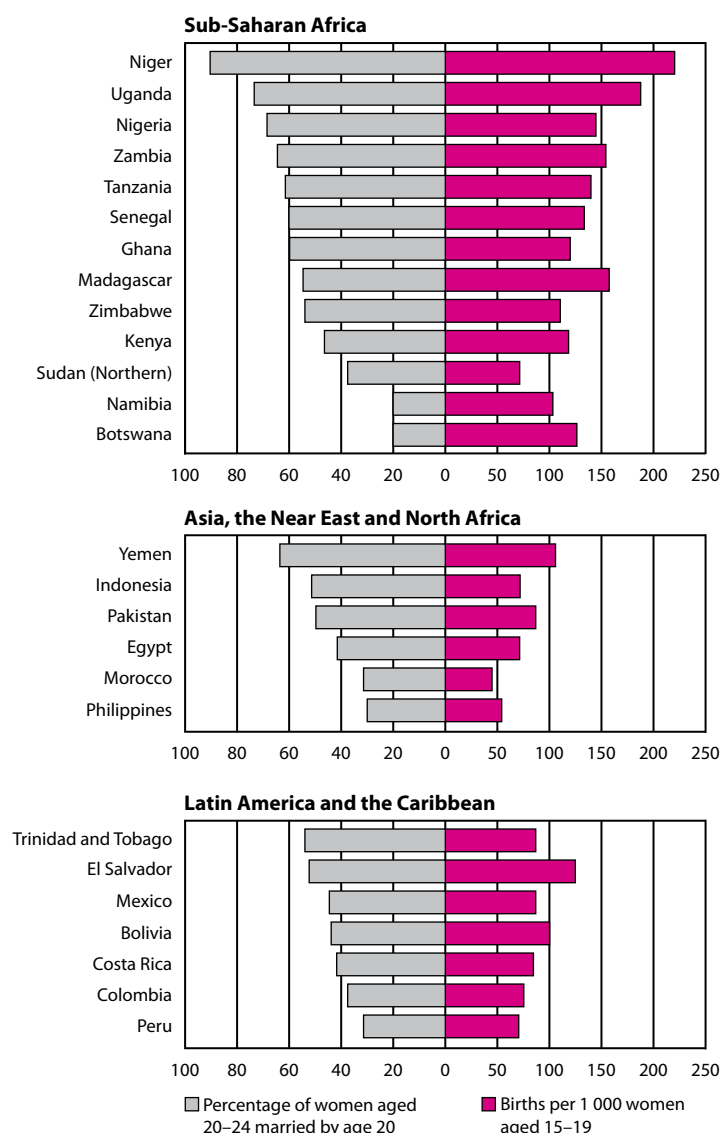


Figure 7b. Adolescent childbearing, by rural/urban residence



Source: US Census Bureau (1996) (189)

Figure 8. Early marriage and adolescent childbearing in selected developing countries



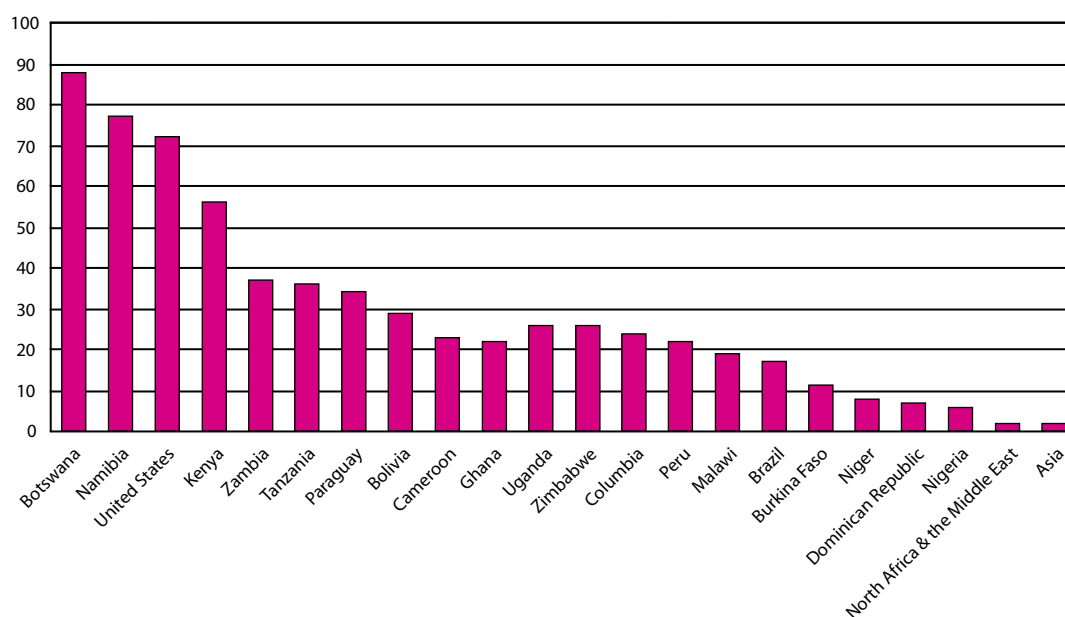
Source: US Census Bureau (1996) (189)

2.7 Childbearing among unmarried adolescents

While most of the childbearing among adolescents is within a marriage or other formal union, a substantial proportion is not, and this number varies greatly across societies (6). Childbearing among unmarried adolescents is relatively more common in Latin America and the Caribbean, sub-Saharan Africa, and the developed countries than in Asia, North Africa and the Middle East (Figure 9).

A substantial proportion of unmarried adolescents gave birth in most countries of sub-Saharan Africa. The proportion is low (6–10%) in Burkina Faso, Mali, Niger and Nigeria, but exceeds 50% in Kenya and is up to 75% in Botswana and 87% in Namibia (161). In Latin America, the proportion of first births that occur before the first union is in the range of 12–34% (161). There has been a progressive increase in premarital childbearing in some countries of sub-Saharan Africa and small increases are seen in Latin America and the Caribbean region (161). In North Africa, the Middle East and Asia, only 2% of adolescents have their first birth before marriage (5). Non-marital childbearing is also a growing trend in developed countries. For example, in France, Germany, the United Kingdom and the United States, more than half of adolescents who give birth are unmarried (6).

Figure 9. Childbearing among unmarried adolescents



Source: Singh 1998 (161), based on Demographic and Health Surveys

2.8 Unplanned or unwanted childbearing among adolescents

The proportion of adolescent mothers whose pregnancies are either unplanned or unwanted varies widely within and between regions. Both married and unmarried adolescents experience unplanned and unwanted pregnancies and births, even in countries where early marriage and childbearing are the norm. A recent review shows that never-married adolescent mothers are much more likely than married adolescent mothers to report that their recent births were unplanned (161).

In Latin America and the Caribbean, 25–50% of adolescent mothers aged 15–19 years reported that their pregnancies were unplanned. In North Africa and the Middle East, the proportion is in the range of 15–30%. Some 10–16% of adolescent births in India, Indonesia and Pakistan are unplanned, compared to 20–45% in the rest of Asia. The variation is even greater in sub-Saharan Africa – from a relatively low 11–13% in Niger and Nigeria to a high 50% or more in Botswana, Ghana, Kenya, Namibia and Zimbabwe (6). Figure 10 shows the percentage of unwanted or unplanned births among adolescents in selected developing countries by marital status. The data for unmarried adolescents in Egypt, Morocco, Bangladesh, India, Indonesia, Pakistan and Turkey are not available.

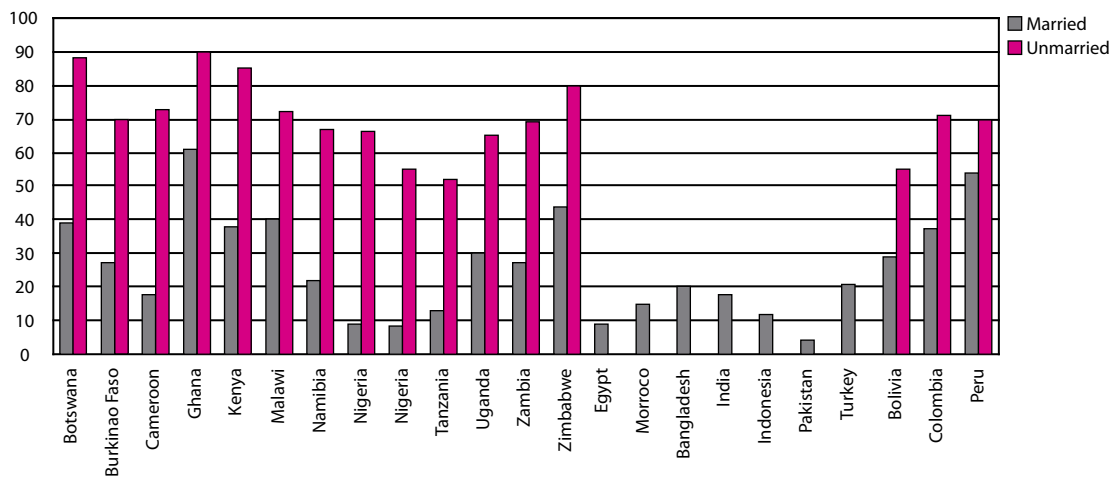
Unplanned births among adolescents are common in developed countries, especially in the United States, where 73% of 15–19-year-olds giving birth reported that the pregnancies were unplanned (5).

2.9 Experience of coerced sexual initiation in adolescents

A number of studies from a variety of countries show that sexual initiation during adolescence was coerced or forced (Figure 11). Although a significant proportion of males experience forced sexual initiation (5–32%), 19–48% of females reported experiencing forced sexual initiation.

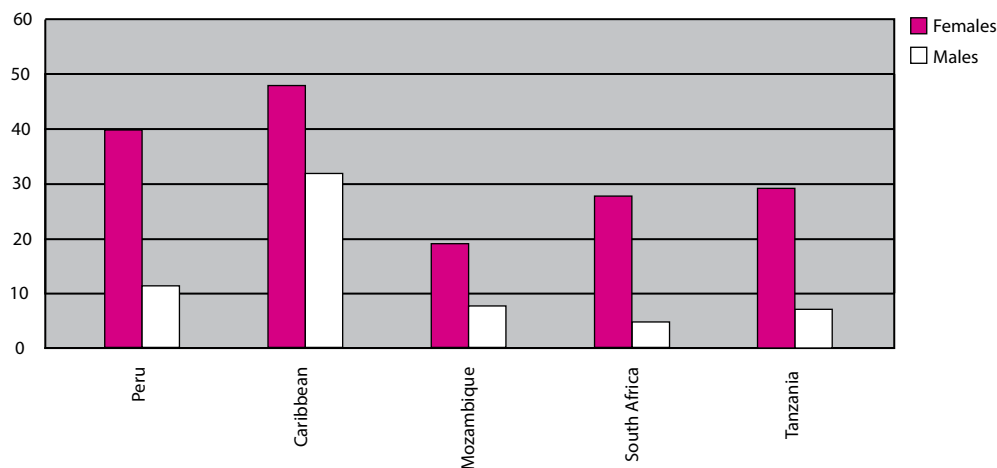
Results from focus groups in South Africa and Kenya revealed that both boys and girls considered that forced sexual initiation (for girls) was a norm in relationships (71).

Figure 10. Percentage of unwanted or unplanned births to adolescents aged 15–19 years according to marital status



Source: Singh 1998 (161), based on Demographic and Health Surveys

Figure 11. Percentage of adolescents reporting forced sexual initiation aged 10–19 years



2.10 Sexual coercion and increased risk of pregnancy in adolescents

A history of forced sexual initiation has been found to be associated with sexual health risk behaviour, e.g. an increase in the number of sexual partners in adulthood (for males and females) (168). In addition, forced sexual initiation or sexual assault has been found to increase the risk of pregnancy in early adolescence. For example, a study in South Africa found that adolescents who were pregnant under the age of 19 were over 2 times more likely to have a history of forced sexual initiation and were beaten by their boyfriend more often than non-pregnant adolescents. Some 30% of pregnant adolescents reported forced sexual initiation, the majority (two thirds) by their boyfriend. Male partners of pregnant adolescents were older and less likely to be in school (82).

Similar findings were found in North America; a study of pregnant mothers in Alaska estimated that 39–66% of all births to under-16 – year-olds were the result of rape (62). A further study on teenage

pregnancy from North America found that over one third of pregnant teenagers were coerced into sex or raped; compared to non-abused peers, those experiencing sexual coercion were two times more likely to become pregnant (86).

A lower percentage of boys marry in adolescence, as they tend to be several years older than the young women they marry; for example, a study in Nepal found that husbands of adolescent girls were on average 6 years older. Young men who married adolescent girls appear to have more control over their wives in decision-making; in the Nepalese study, husbands were more likely to be the sole decision-maker about conception and pregnancy when compared to marriages with older women (49% vs. 6%, $p < 0.005$) (159).

SUMMARY

An estimated 14 million women aged 15–19 years gave birth each year between 1995 and 2000, amounting to slightly more than 10% of all births worldwide; 12.8 million births occurred to adolescents in developing countries. Sub-Saharan African countries have the highest level of adolescent childbearing, more than 50% of women giving birth before the age of 20. In South-East Asia, Bangladesh has the highest level of adolescent fertility: 144 births per 1000 women. In Nepal and Indonesia, 50% and 30% of girls, respectively, begin childbearing aged 15–19 years. In developed countries, current levels of adolescent childbearing range from a very low of 4 births per 1000 adolescents aged 15–19 years per year in Japan to a high of 56.2 in Armenia and 58 in the United States. The incidence of very early childbearing (i.e. by the age of 15), while not as common, is substantial in several countries, e.g. 8–15% of girls have had a child by the age of 15 in Bangladesh, Cameroon, Liberia, Malawi, Mali, Niger and Nigeria. There is, however, evidence that the birth rate among 18–19-year-olds is much higher than among younger adolescents (aged 15–17 years), partly because older adolescents are more likely to be married or cohabiting, or sexually active if unmarried. Education and urbanization in particular have an effect on rates of adolescent pregnancy and childbearing. With few exceptions, the percentage of adolescents who have children is less in urban than in rural areas. About 24% of rural women in the developing world begin childbearing in their adolescence, compared to 16% of urban women. Childbearing among adolescents, particularly in developing countries, often involves women who are married or in some other formal union, but substantial numbers are not and this varies greatly across societies.

3

Consequences of pregnancy and childbearing among adolescents

The meaning assigned to adolescent pregnancy varies among different cultures, as do the corresponding implications and consequences. Adolescent pregnancy is a complex issue influenced by many factors including individual, family and community characteristics. Its consequences affect the health, social and economic well-being of the adolescents, their children and society at large. The distinction between correlation and causality is sometimes difficult to determine, but this distinction is important since much of the interest in adolescent pregnancy and childbearing is based on the assumption that policy interventions may be effective in reducing or eliminating adverse consequences. It is therefore important to see whether detrimental effects associated with early childbearing are consequences of young age *per se*, or of some other factors characteristic of this cohort. However, because of the methodological variations, it is difficult to fully compare information derived from different studies.

3.1 Health consequences

Some health risks associated with pregnancy and childbearing are more pronounced among adolescents than among older women (212), due to the adolescents' physiological and psychological immaturity, lack of adequate antenatal care and safe delivery (34). Health problems experienced by adolescent mothers are confounded by parity, because parity 1 and low age often occur simultaneously. See Annex 2: health consequences of pregnancy among adolescents.

3.1.1 Pregnancy-induced hypertension

Hypertension, which occurs mainly among women having their first child, is believed to be the most prevalent pregnancy complication that afflicts adolescent mothers (UN, 1989 cited in 216). Some studies have shown an increased risk of hypertensive disorders among pregnant adolescents (25,91,98,99,151), although a few studies have found no difference (44,83,95,107). In addition, no difference in the risk of pregnancy-induced hypertension between adolescents and older women has been reported in other studies representing larger populations (38,107). A recent WHO systematic review of the literature also concludes that the incidence of hypertensive disease in adolescent pregnancies is no higher than the incidence in adult women of the same parity, with no indication of a difference between countries (212).

3.1.2 Anaemia

Severe anaemia is one of the important causes of maternal mortality (adolescents included) and there is a scarcity of data on the severity of anaemia and adolescent mortality, particularly in developing countries (26). Adolescents suffer from anaemia more frequently than older women as it is sometimes associated with menarche (216). The risk of anaemia is greater for girls during pregnancy (83,90) because an adolescents' developing body has to compete for nourishment with the fetus, causing rapidly depleting iron and nutrient reserves.

It has also been documented that approximately half of pregnant women throughout the world are anaemic (NRC 1997, cited in 216), particularly in developing countries where it is considered a significant health problem (191). A meta-analysis using data from developed and developing countries finds a high prevalence of anaemia among pregnant adolescents in developing countries. The study found no statistically significant increase among pregnant adolescents in developed countries (153). However, one

large population-based study (105) and a study from the United Republic of Tanzania (19) did not find any increased risk of anaemia among adolescents.

Anaemia in pregnancy is often caused by nutritional deficiencies, especially of iron and folic acid, and in developing countries by infectious diseases, predominantly malaria and intestinal parasites (212). Few studies have reported the nutritional status of pregnant adolescents. In a study in Nepal on risks and outcomes of adolescent pregnancy, 48% of girls suffered from anaemia (157). Another study on pregnant adolescents among selected tribal populations in India found that all of them were suffering from moderate to severe anaemia and one third had vitamin A deficiency (158). A similar nutritional status was observed in adult pregnant women of the same population, indicating that their nutritional needs had not been met during their adolescence.

Compounding this situation are existing social and cultural patterns that favour males in the distribution of food, leading to increased malnourishment and consequently anaemia among girls (81). Anaemia can be treated adequately during antenatal care, if this is available for the pregnant adolescent. However, as pregnant adolescents often receive inadequate antenatal care, their anaemia during labour and the postpartum period may be worse than in older women (212).

The risk of LBW and preterm delivery increases among iron-deficient anaemic adolescents (151,155). In southern Malawi, a study found that malaria treatment and iron/folic acid supplementation during pregnancy resulted in a mean rise of 1.1 gm/dl of haemoglobin. The prevalence of severe anaemia also fell among adolescents (27).

A double-blind, placebo-controlled study in Peru showed that pre-pregnant girls who had taken a daily iron supplement had significantly higher haemoglobin levels than those in the placebo group and an intermittent group who received the supplement on only two days a week. After 17 weeks of the study, the proportion of anaemia in the daily group was lower than in the placebo and intermittent group. It was concluded that iron supplementation delivered through the school and targeted to at-risk adolescents is an effective way to prevent anaemia and iron deficiency (61).

3.1.3 Obstructed and prolonged labour

Immaturity of the pelvic bones and of the birth canal may be a significant factor in obstetric risk in young adolescents. Evidence suggests that because of the relative immaturity of their physiological development, adolescents are more likely than older women to experience complications during delivery (197). Higher incidence of caesarean section (94), operative vaginal delivery (both vacuum and forceps extraction) (11), and obstetric fistulas (85) in adolescents, compared with that of older women, suggest an increased risk of prolonged and obstructed labour in adolescents. However, a review of the literature concludes that generally in developed countries, labour in adolescents is not more complicated than in older women and the incidence of interventions is low (212). In developing countries, especially in some poorer regions, there are indications that in very young adolescents (<16 years) the pelvic bones and the birth canal may still be in the process of growth, resulting in complications of cephalo-pelvic disproportion and obstructed labour (212).

3.1.4 Vesico-vaginal fistulae

These are a largely neglected complication of delivery, although they can have severe physical and social consequences (183). Prolonged, obstructed labour can result in vesico-vaginal (VVF) and recto-vaginal fistulae (216). The condition affects approximately two million women in developing countries, predominantly in Africa and the Indian subcontinent (183); most of these women are adolescents and some are very young adolescents (aged 10–14 years). Obstetric fistulae are the single greatest problem of maternal morbidity for all women in West Africa (195).

Early marriage, malnutrition and poor access to emergency obstetric care can lead to obstetric fistulae (52,183). Statistics obtained from a series of 500 consecutive patients with VVF, treated at one fistula hospital in northern Nigeria, show that 73% of patients were under the age of 20, and 35% were under the age of 15. The study also found that 61% of patients developed fistulae during their first pregnancies, with 96% of these pregnancies ending in stillbirths; 94% of these fistulae were due to obstetric causes and an additional 5% resulted from traditional genital 'cutting' practices (female circumcision). Although

these statistics come from only one country, they are consistent with the data collected throughout much of the African continent. An epidemiological study of VVF in Ethiopia found that most cases resulted from obstructed labour, mostly in the first pregnancy of women under 25 years of age (85). Another study of newly-admitted obstetric fistula patients in Addis Ababa Fistula Hospital reported that 84% of patients developed fistulae before the age of 20 (average age at delivery 17.8 years); 44% of these patients had delivered at home after an average of 3.8 days of labour (116).

3.1.5 Infections

Where health services are deficient, women are exposed to the risk of postpartum infection, especially if labour and delivery are complicated. In particular, adolescents are at a higher risk of infections because they are more prone to the complications of obstructed labour (216). Often, infection is compounded by endemic diseases such as malaria and tuberculosis as in sub-Saharan Africa, or by co-existing conditions such as anaemia (197). In places where delivery is performed under unhygienic conditions, the risk of contracting tetanus and other bacterial infections is higher (216). Although this potentially applies to all women, adolescents may be at a higher risk because of their poorer general and nutritional health status, particularly in developing countries. With the advent of human immunodeficiency virus (HIV), tuberculosis (TB) has become a major indirect cause of maternal mortality, especially in sub-Saharan Africa. It is felt that when TB and HIV occur together, mortality is compounded three- to sevenfold. Detecting, diagnosing and treating TB can help to reduce maternal deaths (61).

3.1.6 Malaria

Malaria is endemic in many regions of the world. There is evidence that pregnant women are more prone to parasitaemia than non-pregnant women resulting in poor pregnancy outcomes both for the mother and child (211,212). There is also evidence that nulliparous women are more vulnerable than multiparous women (191,212). There is limited evidence that malaria is more of a problem in adolescent primigravidae than in non-adolescent primigravidae. Although most studies into the incidence of infections in different age groups have not shown any clear difference between the two, one study has indicated a trend towards greater placental infection in adolescent primigravidae (212). Since nulliparity is much higher among adolescents than other age groups, the incidence of malaria is more likely to be higher in pregnant adolescents. In endemic areas, malaria is one of the major causes of anaemia during pregnancy among adolescents (211). In a Mozambique study of maternal deaths, malaria was thought to be the cause of death in 27% of adolescents (relative risk 2.07 (1.26–3.41) compared to older mothers). Although adolescents made up only 18.8% of the maternal population, 37.8% of malaria-related maternal deaths occurred in this group, and most were associated with severe anaemia. The malaria-related mortality rate for adolescents was 1 per 1000 per annum (approximately double that in the 20–29 age group). Unbooked deliveries and poor antenatal care were major risk factors (66,67). Malaria can easily be treated. Due to lack of appropriate and adequate antenatal care, malaria often remains uncontrolled or is not properly treated in adolescents (27).

One other factor that must also be considered is the effect of HIV infection. Parasitaemia appears to be more common in HIV-infected primigravidae than in non-infected women—56.3% vs. 36.5% ($P = 0.04$) in one study; 56.6% vs. 43.6% in another (odds ratio for multivariate analysis = 1.55, 95% confidence limits = 1.14–2.13). Recent data also suggest that not only are women at risk during pregnancy, but that there may be a considerable risk of clinical falciparum malaria episodes in the immediate postpartum period (212).

Low-birth-weight babies are also more common among adolescents. The additional burden of malaria therefore clearly has the potential to increase adverse consequences in adolescents (212).

Studies of interventions in primigravidae are most clearly relevant to the adolescent. Parasitaemia is significantly reduced in most studies – with protective efficacies of up to 85%. Intervention does appear to reduce maternal anaemia. In one trial, the risk of severe anaemia was reduced from 23.7% to 14.5% – a protective efficacy of 39% (95% confidence limits (c.l.) = 22–52%). Haematocrit levels increased significantly in two other trials (212). Taking all pregnancies together, there is little evidence for an effect of intervention upon most indicators of fetal health. However, a different picture emerges in primigravidae subgroup analyses. Placental malaria was less common (odds ratio 0.44; 95% confidence limits

= 0.26–0.74). Moreover, mean birth weight was significantly higher in five studies that examined this (difference 101g; 95% c.i. = 32–171) and the prevalence of low birth weight was significantly reduced when examined in three studies (odds ratio 0.51; 95% c.i. = 0.32–0.81). There is no clear difference in the incidence of stillbirths or perinatal deaths, although there is a trend towards a reduction in perinatal deaths (212).

In summary, there is good evidence of significant benefit from malaria prophylaxis or intermittent preventive treatment in pregnant adolescents, particularly in their first or second pregnancy. However, there is some evidence that there are difficulties in delivering interventions to the pregnant adolescent. Both the optimum drug and the mode of delivery of antenatal care to such women need to be carefully considered. In an increasing number of regions, the choice of drug is seriously limited by the spread of resistance (212).

Four major trials of the use of bednets during pregnancy have produced data that may be relevant to the adolescent. Among 341 women studied in a low-transmission area of Thailand, the incidence of anaemia was reduced from 56% to 27% and 21% in, respectively, the untreated and treated bednet groups. The relative risk of anaemia in the treated bednet group compared to no net was 0.5 (95% confidence limits = 0.29–0.84). No effect was demonstrated on infant outcomes. A Kenyan study among primigravidae showed a non-significant trend towards reduction of severe maternal anaemia from 20.1% to 15.1%, a risk ratio of 0.71 (95% confidence limits = 0.44–1.14). Again no effect was seen on infant outcomes. A Gambian observational study of the effect of the national bednet programme on primigravidae noted a reduction in malarial parasitaemia and increased mean birth weight among those using nets during the rainy season. A reduction in the incidence of severe anaemia was also found, but only during the dry season. These changes occurred despite relatively low usage among those assigned bednets. More recently, data from western Kenya suggest that the use of bednets in gravidae 1–4 reduced malarial parasitaemia and maternal anaemia by 38% (95% confidence limits = 17–54%) and 47% (95% confidence limits = 6–71%) respectively. The prevalence of low birth weight was reduced by 28% (c.i. = 2–47%) in the same group. Despite these encouraging results, it must be noted that compliance was worst in adolescents (50%) (212).

WHO developed a strategic framework for malaria control during pregnancy in the WHO African Region (213). The policy summary is shown **at right**.

3.1.7 Preterm labour and delivery

Preterm birth (birth before 37 weeks of gestation) is a major cause of neonatal and perinatal mortality. There is evidence from population-based and hospital-based studies both in developed and developing countries that pregnant adolescents are at increased risk for preterm labour and delivery, compared to older pregnant women (40,70,94,97,98,211). The youngest age groups run the highest risk (130,211).

While a large proportion of preterm birth remains unexplained (92,211), psychological stress has been hypothesized to contribute to preterm birth, especially when social support is inadequate (92,124). Stress and social support are thought to influence pregnancy outcomes directly through physiological reactions that influence neurological, endocrine, and/or immunological systems, or indirectly by influencing behaviours such as smoking or drug abuse (121) and nutritional habits (76).

3.1.8 Low birth weight

Infants born to adolescent mothers are more likely to be of low birth weight (LBW) (defined as birth weight <2500 g), and therefore also more likely to suffer from the sequelae of LBW (216). A number of hospital-based studies in developing countries have shown a higher incidence of LBW among infants of adolescent mothers (11,97,98,101). In some hospital-based studies in developed countries the incidence of LBW and/or very low birth weight (birth weight <1500 g) in infants of adolescent mothers was found to be higher, compared to infants of older women (Zhang and Chang, 1991; Miller et al., 1996 cited in 212). In addition, a large population-based epidemiological study in the United States has also shown an increased incidence of LBW in infants of adolescent mothers, compared to mothers in their twenties (56).

POLICY SUMMARY: BEST PRACTICES FOR MALARIA CONTROL DURING PREGNANCY

- Effective case management of malaria illness must be assured for all women of reproductive age in malarious areas.
- The policy for malaria control during pregnancy should emphasize a preventive package of intermittent preventive treatment (IPT) and insecticide-treated bed nets (ITN), particularly in areas of stable transmission.
- All pregnant women should receive at least 2 doses of IPT after quickening, during routinely scheduled antenatal clinic (ANC) visits, as recommended by WHO.
- At present, the most effective drug for IPT is sulfadoxine-pyrimethamine (SP) due to its good safety profile in pregnancy, relative efficacy in reproductive-age women, and good programme feasibility, with the opportunity to deliver it as a single-dose treatment under observation by a health worker.
- To assure that women receive at least 2 doses, delivery of IPT doses may best be linked to routinely scheduled antenatal clinic visits. WHO recommends a schedule of 4 ANC visits, with 3 visits after quickening. The delivery of IPT with each scheduled visit will likely assure that a high proportion of women receive at least 2 doses.
- There is no evidence that receiving 3 or more doses of IPT with SP will result in an increased risk of adverse drug reactions.
- IPT doses should not be given more frequently than monthly.
- ITN should be provided to pregnant women as early in pregnancy as possible, and their use should be encouraged for women throughout pregnancy and during the postpartum period.
- ITN can be provided either through the antenatal clinic or through other systems in the private and public sectors that may be available at the community level.
- Anaemia is one of the most important consequences of malaria infection during pregnancy. As part of routine antenatal care, every woman should receive iron/folate supplementation as well as appropriate malaria interventions (e.g. IPT, ITN). In addition, every woman should be screened for anaemia, and those found to have moderate to severe anaemia should be managed according to national reproductive health guidelines.
- Programmes should seek the highest possible coverage of pregnant women with these interventions – at least 60% (Abuja RBM goals) and preferably higher – and document this accomplishment. Given current high rates of antenatal clinic attendance in most sub-Saharan African countries, this should be achievable.

The incidence of LBW is estimated to be significantly higher among younger adolescents aged 10–14 years as compared to adolescents 15 years of age or more (40). Studies in the United States have found that pregnant adolescents who are still growing in stature, according to knee-height measurement, and those who are primiparous have lower-birth-weight babies than multiparous or adolescents who have stopped growing (152,154). The World Health Organization recommends that if the adolescent is still growing, steps must be taken to assure adequate weight gain and nutrient intakes to prevent poor pregnancy outcomes, including low birth weight (208).

Low birth weight is a complex problem because the weight at birth depends both on gestational age and intrauterine growth patterns. Low birth weight may in part be secondary to preterm delivery. In adolescents, maternal age is found to be an independent risk factor for preterm birth and thus for low birth weight (40). However, intervening social, psychological, biological, and genetic processes have also been causally associated with LBW, although much of the etiology remains unknown (212).

Small for gestational age (SGA) infants are infants below the 10th percentile of birth weight for gestational age. A study found an increased incidence of SGA infants in adolescent mothers, compared to mothers aged 20–24 years. Another study showed a higher incidence of SGA infants among black adolescent mothers, compared to white mothers. A logistic regression analysis found that maternal age was not an independent risk factor for SGA but that black maternal race, inadequate antenatal care, and low educational attainment were. In the Netherlands, using data from a national obstetric database, among 4500 infants of adolescent pregnancies, an increased incidence of preterm birth, but no increased incidence of SGA was found, compared to the infants of mothers aged 20–29 years. An important determinant of SGA is maternal smoking (212).

3.1.9 Perinatal³ and infant⁴ mortality

Some studies only deal with live births and consequently only report on neonatal mortality, while others only report on stillbirths. Some hospital-based studies of perinatal mortality have found increased rates among infants born to adolescent mothers, compared to infants of older mothers (212). Neonatal mortality is found to be higher among infants born to adolescents (216). An epidemiological study in the Netherlands, using data from a national obstetric database, found a significantly increased risk of stillbirth in adolescents aged 15–19 years, compared to women aged 20–29 years (28).

Risks of perinatal and infant mortality are particularly high for young adolescents, i.e. those aged 15 years and below (6). A study in Sweden finds that infants born to younger adolescents (10–13 years) are at greatest risk for neonatal mortality (130). The increase in the risk could be largely explained by increased rates of preterm births. However, the literature on perinatal mortality shows that stillbirths and early neonatal deaths are multi-causal, having only a weak association with single risk factors such as age, parity and birth interval.

Evidence from a recent DHS data analysis suggests that children born to adolescents ≤ 18 years in some countries (e.g. India, Indonesia and to some extent Nicaragua) are less likely to have child immunization than children born to women aged 19–23 years (139). In some developing countries, the children of poor adolescent mothers have a significantly poorer nutritional status than children of older mothers (and children of ‘non-poor’ adolescents) (212).

As mentioned earlier, forced sexual initiation or sexual assault was found to increase the risk of pregnancy in early adolescence and it has been demonstrated that when the pregnancy is a result of rape or sexual assault, the child born is at a high risk morbidity and mortality (104).

3.1.10 Maternal mortality

In developed countries, maternal mortality rates are so low that age-specific rates are not easily available. In developing countries where maternal mortality is much higher, it is difficult to attain reliable age-specific data in a well-defined population. Most data are hospital-based and the population from which they are derived remains unknown. Adolescents tend to have a higher maternal mortality rate than older women (Figure 11). The risk of dying from pregnancy-related causes is twice as high for women aged 15–19 as for women in their early twenties. For girls aged 10–14 years, the risk of dying may be five times higher than for women in their twenties (185).

A few reports suggest a link between the risk of dying during pregnancy and childbirth and the lower social and economic status and lower level of education of adolescents (20,194). In addition, less use of health facilities and antenatal and obstetric care has also been linked to high maternal mortality among

³ Perinatal mortality, according to WHO, is defined as stillbirth and mortality of live-born infant (birth weight of ≥ 500 g) from birth up to the end of the first week following birth.

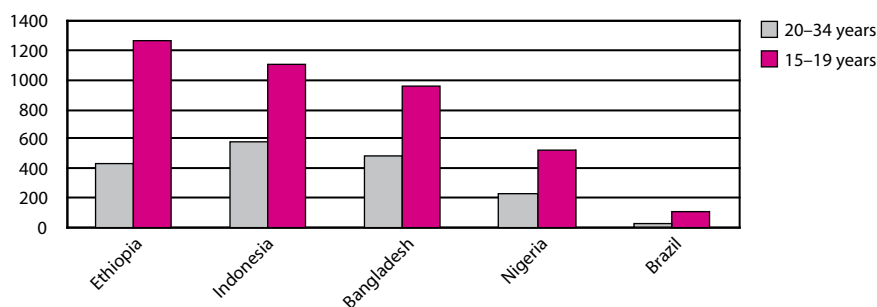
⁴ Infant mortality is defined as mortality of live-born infants in the first year of life.

adolescents (20). Maternal mortality is higher among adolescents in rural areas, reported rates being up to 4–6 times higher than for poor urban areas (194). This suggests an association between high maternal mortality and lower socioeconomic and educational status as well as lower availability and accessibility of services.

A Confidential Enquiries into Maternal Deaths (CEMD) report from the United Kingdom suggests that maternal mortality rates are high among the socially excluded, including women from lower socioeconomic classes, young girls (<18 years of age) and specific ethnic groups (103). All the deaths between 16 and 18 years of age were to adolescents who were severely socially excluded. The report also highlights the fact that access to care was an issue for many of these groups; 20% of the women who died had booked for maternity care after 24 weeks of gestation or had missed over four routine antenatal care visits.

Moreover, there are indirect causes of maternal mortality such as violence and physical abuse among adolescents (143). The CEMD report suggests that 12% of all the women (including adolescents) whose deaths were included in the report declared that they were subject to violence in the home (103). Fifty percent of the deaths among adolescents aged 16–18 years were among those who had suffered repeated episodes of domestic violence and several of these also had suffered sexual abuse.

Figure 12. Maternal mortality per 100 000 women, by age, in selected countries



Source: Safe Motherhood 1998 (146)

3.1.11 Adolescent pregnancy and abortion

A considerable proportion of pregnancies are either unplanned or unwanted (section 2.8). In many countries, 30–60% of pregnancies among adolescents end in abortion (212). The extent to which unplanned or unwanted pregnancies among adolescents end in abortion varies considerably between countries and regions (163).

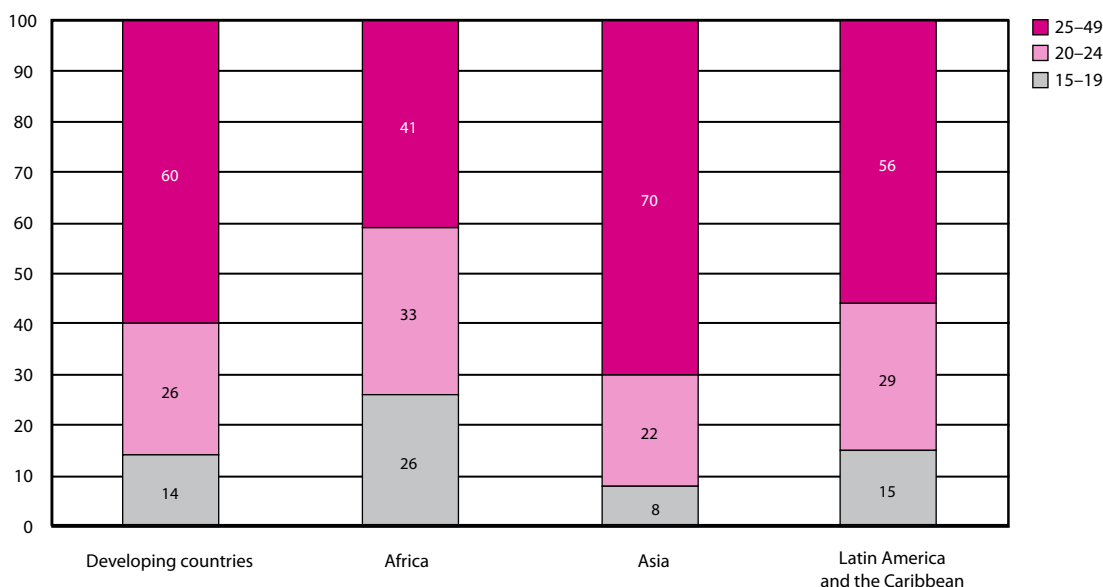
In a number of countries where abortion is legal, medically safe abortions can be obtained. In some countries, pregnant adolescents have access to abortion counselling and services earlier in pregnancy (28). If unrestricted availability of quality abortion services is combined with good contraceptive services, the number of abortions remains limited as shown in Scandinavian countries and the Netherlands (212).

However, in many countries abortion services are not available legally and, therefore, women resort to unsafe abortion. An estimated 20 million illegal abortions are performed worldwide, especially in Africa, Southern Asia and Latin America (72). Among the women who are exposed to these dangerous interventions, pregnant adolescents are an important group (212). A conservative estimate of the total number of abortions among adolescents in developing countries ranges from 2.2 to 4 million annually (129); most of these are considered unsafe (204). Globally, 13% of all maternal deaths are due to unsafe abortion practices (59). Recent WHO estimates of unsafe abortion in developing countries are presented in Figure 12 (3,212).

Adolescents tend to delay seeking abortion, resort to the use of less skilled providers, use more dangerous methods, and delay seeking care for complications. They are therefore more likely to suffer serious complications and even death, particularly the unmarried adolescents (24,118). A review on abortion in sub-Saharan Africa found that 20% of maternal deaths in East and Central Africa were due to complications

of abortion, the majority of patients being young, single women (142). For young women, marital status emerged as the most important factor as to whether a pregnancy is unwanted (212). Many adolescents are aware of abortion and its complications, but strong social condemnation is of greater concern for young girls than the risk of death and illness associated with unsafe abortion (Rogo 1999, cited in 212).

Figure 13. Percentage of the total unsafe abortions, by age group



Source: Ahman 2002 (3)

About one third of abortion complications worldwide are in women below 20 years of age (77). In many developing countries, hospital records of women treated for complications of abortion suggest that between 38% and 68% are below 20 years of age (198). In Kenya, adolescents account for 28–64% of hospital-based abortions, although strict abortion laws force many young women to seek out illegal providers (126). In Nigeria, adolescents account for up to 74% of all induced abortions, comprising nearly 60% of all gynaecological hospital admissions (2). Studies from Brazil, Mexico and the United Republic of Tanzania found that one fourth to one third of patients admitted for abortion complications were under 20 years of age (24). In Tanzania, nearly half the number of adolescent patients seeking abortions were aged 17 years or younger (116).

Hospital-based research provides limited evidence of the magnitude of unsafe abortion practices because these data tend to measure only women who both suffer complications and are able to access care. Two large community-based studies gathered data on levels of induced abortion using large surveys with representative samples. One of these studies was carried out in Cuba where abortion is both legal and accessible (192). The study reported more than two abortions for every live birth among adolescents. The other study, conducted in Colombia, found that 12% of all adolescents reported an abortion despite its illegality (217).

3.1.12 HIV

Sexually active adolescents are at increased risk of contracting HIV infection and other sexually transmitted infections (STIs). There are many socio-cultural practices in developing countries that contribute to this. In regions in Southern, East and Central Africa 20–30% of all pregnant women are infected. The infection is also spreading rapidly in South-East Asia. An association has been shown between maternal viral load and the risk of mother-to-child transmission (MTCT). The presence of other STIs (such as

syphilis, gonorrhoea, and chlamydia) with local inflammation may increase viral shedding, thereby increasing the risk of transmission during labour (211).

In many developed countries interventions are made available during pregnancy and delivery to reduce mother-to-child transmission, and it has therefore become crucial to ensure women have access to voluntary HIV testing and counselling in antenatal settings. The potential benefits of knowledge of HIV status are now recognized to be many. For the individual, these benefits include enhanced ability (a) to reduce the risk of acquiring, or being further exposed to or transmitting HIV; (b) to have access to HIV-specific care, treatment and support; (c) to manage one's health better; and (d) to plan for the future. A recent WHO consultation firmly supported efforts to normalize HIV testing for MTCT and primary prevention, and recommended that efforts be made to ensure that adolescents are not excluded from HIV testing (211). However, in developing countries, many of which are greatly affected by the HIV epidemic, widespread access to interventions to reduce mother-to-child-transmission is rarely available.

The UN strategic approach for preventing the transmission of HIV to women and their children includes four areas:

1. primary prevention of HIV infection in women, especially in young women;
2. prevention of unintended pregnancies among HIV-infected women;
3. prevention of HIV transmission from HIV-infected mothers to their infants; and
4. provision of care, treatment and support to HIV-infected women, their infants and family.

The prevention of HIV transmission from infected mothers to their infants requires the following measures:

- incorporating HIV testing and counselling into routine antenatal care;
- ensuring that antenatal care includes management of sexually transmitted infection and counselling for safer sex, e.g. promotion of faithfulness, reducing the number of sexual partners and provision of condoms;
- giving prophylaxis with antiretroviral drugs to HIV-positive women and, in some regimens, to their babies;
- promoting safer obstetric practices;
- giving infant-feeding counselling and support, including promotion of exclusive breastfeeding by HIV-negative women and by women unaware of their HIV status; and
- providing follow-up care and support to HIV-positive women, their infant and families.

In developing countries, many of which are greatly affected by the HIV epidemic, widespread access to testing and counselling, antiretrovirals (ARV) and access to interventions to reduce transmission through breastfeeding and delivery are rarely available. Caesarean section and artificial feeding of the baby, if available, will often not be affordable to people in countries with the highest prevalence of HIV.

HIV testing and counselling are increasingly accessible particularly in the urban areas of Southern and East Africa and Brazil. However, whether adolescents can access these services has not yet been studied. While knowledge of HIV status may enable the woman to take precautions to help prevent transmission to sexual partners, it may also stigmatize the woman within her community and even increase the risk of violence against her. HIV testing and counselling should be carried out on a voluntary basis only. Counselling prevents unprepared discovery of a positive HIV status, which may be devastating for the pregnant adolescent, and also provides an opportunity to HIV-negative women to remain negative (212).

Pregnant adolescents who are tested HIV-positive are likely to be carrying a first pregnancy. Therefore, they need special counselling (though we do not know what messages are effective), postpartum fam-

ily planning, and support and care to avoid future HIV-positive births. This is especially important in contexts where fertility is highly valued.

3.1.13 Substance use

Smoking during pregnancy causes fetal growth retardation and increased perinatal mortality rates (212), premature delivery and spontaneous abortion (61). Reports on the effects of marijuana use during pregnancy are inconsistent – some studies report shortening of gestational age and lower birth weights but this has not been confirmed by others. Cocaine use during pregnancy has been associated with placenta abruptio. Alcohol in large quantities causes congenital malformations and growth retardation, but there is no proof of a negative influence of small amounts (212).

In a number of studies, a high prevalence of smoking during pregnancy has been found in adolescents, compared to non-pregnant adolescents and pregnant women >20 years of age. However, other studies show different results. Smoking rates are generally higher in white than in black adolescents; one study found a lower prevalence of smoking in young primigravidae (aged 12–15 years), compared to older primigravidae (>17 years of age). Reported rates of marijuana use in pregnant adolescents in the United States in two different studies were 16.5% and 11% (212).

Besides, the effect of smoking goes beyond the perinatal period. Maternal smoking and maternal passive smoking during the postpartum period has been linked with sudden infant death syndrome. There is also evidence that smoking cessation education can result in higher cessation and reduction rates among pregnant smokers as compared to non-pregnant smokers (61). Health-care providers can successfully be part of these programmes, which should also include family members who smoke (61).

SUMMARY

There is a high prevalence of nutritional anaemia among adolescents in developing countries. The risk of LBW and preterm delivery is particularly high among iron-deficient anaemic adolescents. The risk of LBW is significantly higher in younger adolescents aged 10–14 years. The risk of dying from pregnancy-related causes is double for women aged 15–19 years and five times higher for girls aged 10–14 years, compared to women aged 20–29 years. Unsafe clandestine abortion continues to cause a heavy burden of morbidity and mortality among adolescents not only in settings where legal abortion is restricted, but also where services are available. In endemic areas, malaria is one of the major causes of maternal mortality among adolescents. Perinatal and infant mortality are higher among adolescents, particularly those under 15 years of age, compared to 20–29-year-olds. Sexually active adolescents are at increased risk of contracting HIV infection and other STIs. In pregnant adolescents with HIV there is a risk of mother-to-child transmission of the infection. Evidence also indicates that the bulk of adverse consequences of adolescent childbearing may be of social and economic origin, rather than attributable to the effects of young age *per se*. The prevalence of overall poverty, poor health and nutrition, and lack of health care compound the health consequences of adolescent pregnancy. Therefore, the age below which the physical risks of adolescent pregnancy are considered to be significant varies, depending on the general health condition of adolescents and their access to adequate antenatal and obstetric care.

3.2 Social and economic consequences of pregnancy and childbearing among adolescents

The social and economic consequences of adolescent pregnancy and childbearing depend on the adolescent's particular cultural, family and community settings (31,199). The public health problem of adolescent childbearing is a reflection of what is considered to be socially, culturally and economically acceptable (99). Pregnancy can bring status for married adolescents in cultures where motherhood is a core aspect of a woman's identity (161). On the other hand, a pregnant unmarried adolescent might be considered an embarrassment for the clan and is either abandoned or chased from home, and therefore left with no guaranteed means of support both for the child and for herself (125).

Adolescent pregnancy and childbearing have been associated with poor educational achievement, poverty and related factors (173); the interruption and discontinuation of education are of particular significance. Often pregnant girls are forced to leave school and abandon career aspirations because of both embarrassment and the physical demands of pregnancy and childbirth, or they may be expelled outright (101). For example, in Jamaica, pregnant girls are required to leave school during pregnancy (133). In Chile, even though there is a Ministry of Education circular recommending continued education for pregnant girls, these girls may still be pressured into abandoning school (177).

In Kenya, as many as 10,000 girls leave school every year due to pregnancy (133). Even where girls do not have to leave school during pregnancy or after childbirth, as in Burkina Faso, the school dropout rate for pregnant girls is high (101). Similar findings are reported for Pacific island countries, e.g. Fiji and Marshall Islands (182). While many pregnant adolescents are able to return to school (194), often legal/policy, social or religious restrictions prevent their return. When young girls drop out of school as a result of pregnancy and childbearing, there is a loss of educational and employment opportunities that can plague them throughout their lives (57).

Studies have documented socioeconomic disadvantages in adulthood among women who give birth during adolescence, as measured by their lower educational attainment, limited employment opportunities and dependency on social welfare (131). However, in rural areas of developing countries, where both educational and employment opportunities are few, an early pregnancy may not necessarily worsen an adolescent's economic prospects (110).

Negative socioeconomic outcomes of early childbearing certainly may be attributed to existing conditions such as low socioeconomic status or poverty (30). In the developed world, adolescent mothers are more likely to have been brought up in a less advantageous social environment and in a low socioeconomic status household (74). High adolescent pregnancy rates occur in the poorer and more deprived sectors of developed nations (4). In Australia (Queensland), birth rates among adolescents who live in disadvantaged areas are 2 to 4 times higher than the rates for all of Queensland and 10 to 20 times higher than the rates in affluent areas (41). An investigation in five developed countries (Canada, France, Sweden, the United Kingdom and the United States) suggests that adolescent childbearing is more likely among women with low income and education than among their better-off peers (166).

In developing countries, comparable relations between poverty and adolescent childbearing are observed. In Nicaragua, a multidisciplinary study was conducted aimed at understanding the complex social, economic, cultural and psychological contexts of unwanted and adolescent pregnancy. One of the conclusions that emerged from in-depth interviews with adolescent girls was that, in Nicaragua, unwanted pregnancy is to a large extent another characteristic of poverty. Almost all of the women approached for the study came from and still lived under impoverished circumstances with little or no social support (18).

There are indications of individual deprivation leading to intergenerational transmission of social and economic disadvantage through early childbearing (167). Since adolescent mothers often come from poor social environments, socioeconomic problems in adulthood might reflect conditions that are already present before pregnancy or childbirth. Therefore, socioeconomic disadvantages can be both a cause and a consequence of adolescent childbearing. Some studies in Latin America and the Caribbean also suggest that adolescent motherhood is marked by absence of fathers (30% of fathers were absent in a Barbados study, though 56% had a close relationship with the mother and helped with child care). Performance in school in this context was found to be best predicted by the relationship with the father. Other studies show that the nutritional status of the children of young childbearers was significantly

worse than those of older mothers (29). However, these effects are mitigated by higher education and income-earning opportunities. These indicate that government policies directed at these issues can help to break the cycle of poverty (30).

In summary, globally, adolescent pregnancy is linked with social deprivation. In the United States, race is a predictor of poverty with disproportionate numbers of African Americans and Hispanics being socially deprived. There is also a strong interaction between social deprivation, race and childbearing, and the percentage of pregnant adolescents who are black is relatively high, especially in the youngest groups. In the United Kingdom, a correlation has been found between the incidence of adolescent birth and social deprivation in the area of residence. In Latin America there is also an association between social circumstances (poverty) and the incidence of teenage pregnancy (212).

Adolescent childbearing has also been associated with higher fertility in some studies from Latin America and the Caribbean. Fertility patterns of younger mothers were significantly different from those of mothers 18–19 years old. Younger adolescent mothers had more births, and this could be a function of the early start of such relationships. However, they were also found to have a shorter period of time before the next pregnancy, and the differences remained even after controlling for the mother's education. This higher total fertility effect can be expected to be controlled by access to and use of effective contraception. Furthermore, the studies also suggest that adolescent mothers tend to give birth to children who later also become adolescent mothers (29).

4

Adolescents' health-care-seeking behaviour during pregnancy, delivery and the postpartum period

4.1 Antenatal care

Antenatal care is an important part of obstetric and perinatal care. In the past, too much emphasis was laid on the number of antenatal care visits but more recently attention has been directed at the content of antenatal care and the importance of early initiation. A WHO Technical Working Group produced recommendations on the content of antenatal care (200). For routine antenatal care, WHO recommends four visits during the pregnancy (at 16 weeks, between 24 and 28 weeks, at 32 weeks and at 36 weeks) with specific activities (scientifically proven to be effective) during each visit (210).

Evidence indicates that insufficient antenatal care is related to complications among adolescents (90,105,153). Many of the health problems associated with adolescent pregnancy and childbearing can be prevented and controlled with timely and appropriate care during and after the pregnancy (216). A report of the CEMD in the United Kingdom shows that over one fifth of the women who died, including adolescents, did not receive optimum antenatal care, i.e. they either booked late for antenatal care (after 20 weeks of gestation) or did not make an adequate number of visits (103).

Obstetric and neonatal outcomes can be improved if comprehensive antenatal care emphasizing the specific medical, nutritional, and social aspects of adolescence is available (115,141,153,160,169). Adolescents often lack experience and tend to be psychologically less mature and emotionally less stable, which leads to poorer maternal and child care (101). In certain situations – for example, in many parts of sub-Saharan Africa and parts of India – family ties and extensive assistance of older female relatives may limit the impact of these factors. A study in India shows that none of the first-time pregnant adolescents, irrespective of their socioeconomic status, suffered an adverse pregnancy outcome as compared to those in the 20–24-year-old age group. The reason was that the adolescents who became pregnant had been married for a few months and subsequently returned to their maternal home for care during pregnancy and delivery. They therefore had better care and their health status was relatively better. This reflects the significant role of psychological and social support for adolescents during pregnancy and delivery (172).

Vast disparities exist in maternal health coverage between developed and developing countries, and between rich and poor, urban and rural, married and unmarried, and educated and uneducated segments of the population (184; Abouzahr, unpublished). Maternal care rates tend to be low, with high maternal mortality rates, in countries where women have low status and in areas with poor access to routine health services (185).

It is generally acknowledged that adolescents do not often utilize health services (206). Adolescents are more socially constrained than adults from seeking timely and appropriate care, irrespective of whether the pregnancy occurs within or outside marriage (or union). In developing countries where access to antenatal care is often limited, the level of utilization of services by adolescents may be even lower (144). In fact, a large proportion of adolescents in developing nations receive no antenatal care (6). However, a recent DHS data analysis found that pregnant adolescents in Asia, but not necessarily in Africa or Latin America, were less likely to use maternal and child health services (139).

Adolescent girls are often regarded as a difficult group to reach for antenatal care services (27). Some studies have reported poor antenatal care attendance by adolescents from low socioeconomic backgrounds (115), by girls attending school at the time they became pregnant, by younger girls (<18 years of age) (101) and by adolescents in a subsequent pregnancy (21). In the case of the latter study, however, it is not known whether low attendance was due to the failure of the health-care system to convince adolescents of the value of antenatal care, or whether it reflected the consequences of specific social, economic and political barriers to access to antenatal care by pregnant adolescents.

There are few studies that compare pregnancy-related care among adolescents and older women; the existing evidence is mixed. For example, in Bangladesh, a report suggests that 85% of pregnant adolescents received some kind of antenatal care, but only 59% of them received that care at a health facility (68). Other studies in Bangladesh show that few young women receive antenatal care and that, overall, 71% of pregnant adolescents (<20 years of age) and 78% of women (>35 years of age) received no antenatal care (36,65,140). In India, in 1998–99, 68% of women aged 20 years and 66% of women aged 20–34 years received antenatal care, compared to 44% of women above the age of 35 (81). A study focusing on reproductive health of adolescents in Nepal observed large regional disparities in pregnancy-related care (109). For example, 52% of married Nepalese adolescents in rural areas did not receive antenatal care as compared to 12% of married adolescents in urban areas. Only 26% of adolescents in rural areas received three or more visits as compared to 73% in urban areas. In the Philippines, maternal care coverage was low among pregnant adolescents; nearly 71% of pregnant adolescents did not receive any antenatal care (47).

A population-based study in a small village in Nigeria reported that pregnant adolescents did not receive antenatal care, especially if they were unmarried (127). Another study from Nigeria examining adolescent health service utilization for pregnancy-related issues found that 37% of those utilizing public health services for maternity care in the southern part of the country were married despite a 5% overall marriage rate among this population. Conversely, in the northern part of Nigeria where 60% of the study sample were married, 71% of the women receiving maternity care in the general hospital were married (128). This appears to confirm the earlier observation by Okonofua et al. (127) that pregnant unmarried adolescents were less likely than married adolescents to utilize public health facilities. A study in Kenya showed that more than one third of pregnant girls attending school received no antenatal care, with 28% attending a clinic for the first time around the eighth month of pregnancy (Khasiani 1985, cited in 216). A study in southern Malawi showed about 33% of nulliparous girls attended a clinic at 20–23 weeks, while 30% of multiparous girls attended at 24–27 weeks (27).

Data from Egypt, however, comparing antenatal, delivery and postnatal care and postnatal family planning and child care showed significant differences between adolescents (15–19 years of age) and older women (20–24 years of age) (58). Regarding the time of initiation of antenatal care, 23% of adolescents compared to 37% of 20–24-year-olds began antenatal care in the second month of pregnancy, while 29% of adolescents initiated antenatal care in the third month as compared to 19% of 20–24-year-olds. While over two thirds in both groups received their first check-up in the first trimester, 11% of adolescents had their first contact with a health-care provider in the seventh month of pregnancy. Overall, 57% of adolescents compared to 66% of 20–24-year-olds received antenatal care.

In Sudan, 63.3% of adolescents as compared to 82.3% of older women (20–24 years of age) received antenatal care, with 40% and 50%, respectively, initiating in the first trimester (58). The primary reason for not having antenatal care was the unavailability of services. Doctors and traditional birth attendants in the public or private sector provided antenatal care at home.

A review of the literature in developing countries on the use of antenatal services by pregnant adolescents suggests that use is typically low, regardless of country, region, and urban or rural areas (Table 2). Similarly, it appears that their access to antenatal services is consistently lower than that documented for adult pregnant women aged 20–34 years, but usually higher than utilization by older women aged 35 years and above. Adolescents under 20 years of age appear to access services later in pregnancy than their older cohorts. On the other hand, the pattern of use among adolescents is extremely varied, by country and study, and dependent upon variables such as marital status, level of education, parity, and urban versus rural areas. According to the studies reviewed, the influence and weight of these different

⁵ Comparison group 20–24 years of age

Table 2. Utilization of antenatal care services among adolescents in selected developing countries

COUNTRIES	Any antenatal care	
	<20 years of age (%)	20–34 years of age (%)
ASIA		
India	67.7	65.8
Bangladesh	60.1	62.6
AFRICA		
Nigeria	51.5	71.5
Zimbabwe	90.8	94.6
Ghana	91.4	89.2
LATIN AMERICA & THE CARIBBEAN		
Colombia	89.3	92.3
EASTERN MEDITERRANEAN		
Egypt*	56.9	66**
Sudan*	63.3	82.3**

Sources: Jejeebhoy, 2003 (81) – unpublished, based on IIPS and ORC Macro, 2000

* Galal (58)–unpublished, based on PAPCHILD data

** Comparison group 20–24 years of age

variables across countries is not consistent. More importantly, what is not known is the content of care that pregnant adolescents receive during pregnancy.

Evidence also suggests that even in developed countries where health-care services are available, pregnant adolescents do not receive adequate antenatal care (46). Many studies conducted mainly in the United States on antenatal care for adolescents reached a general conclusion that utilization by this group of pregnant women is often insufficient (212).

4.1.1 Timing of entry into antenatal care

It is generally considered that antenatal care should preferably start early, in the first trimester or early in the second trimester (212). This would allow early screening and management of complications such as malaria and anaemia, as well as promote cessation of smoking and drug use, and improve dietary habits (16).

However, evidence shows that even when adolescents do seek pregnancy-related care, it is often delayed or of inadequate frequency (153). In Dublin (Ireland), Fitzpatrick et al., describing the profile of patients attending adolescent antenatal care clinics, found that the average gestational age at booking was 16.4 weeks and that 24% of adolescents attended the clinic after more than 20 weeks of gestation (53). The

timing of entry into antenatal care is affected by numerous factors. Some adolescents do not differentiate vaginal bleeding early in pregnancy from normal menstruation, and thus delay their entry into antenatal care (170). Many adolescents do not want to believe that they are pregnant (165).

A review (76) of 12 studies from the United States, using multivariate analyses to identify the characteristics of women most likely to delay entry into antenatal care, found a greater likelihood of such delays occurring in unmarried women (under 20 years old) and women with lower incomes. Their pregnancies were likely to be unplanned, their levels of education lower, their perceived benefit of antenatal care lower, their access to a health-care system poorer, and their attitudes towards providers more negative. The review also indicates that a large proportion of the variance of entry into antenatal care was still unexplained, suggesting that other unidentified factors remain.

4.1.2 Content of antenatal care

Antenatal care for adolescents need not be different from antenatal care for adult women; however, the care should be adapted to the needs of adolescents (212). Increased incidence of preterm delivery and of LBW infants among adolescents is of great concern for care providers, as mentioned in sections 3.1.7 and 3.1.8. However, there is no clear indication of which measures during antenatal care could prevent preterm labour or delivery (212). Evidence suggests a high risk of LBW and preterm delivery among iron-deficient anaemic adolescents (151,155). Adolescents often enter pregnancy with reduced nutritional stores and hence are at increased risk of nutritional deficiencies (489). Therefore, iron and nutritional supplementation during pregnancy is an important component of antenatal care to increase gestational age and weight of the infant at birth (162).

Adolescents, particularly the very young ones, are often not psychologically and emotionally mature enough to cope with the demands of pregnancy (101). There is some evidence to suggest that psychosocial support during pregnancy modifies the effect of stress and results in a reduction in preterm delivery and low-birth-weight infants (141,169). If signs of preterm labour occur, there should be adequate obstetric and paediatric treatment, including hospital admission. Thus the management of preterm labour does not differ between adults and adolescents (212).

Another condition of concern among adolescents is anaemia, especially in developing countries, as discussed in section 3.1.2. Detection during routine antenatal care is straightforward if the pregnant woman does not book too late in pregnancy (because then they do not have enough time to build their iron stores with the prescribed dose of iron/folate); the management of the condition includes provision of iron and folate supplements (210), the same as for adult women. In severe cases of anaemia, women should be referred to hospital (212).

Malaria is another issue for pregnant adolescents living in affected areas. WHO developed a strategic framework for malaria control during pregnancy in the WHO African Region (213). The policy summary is shown in section 3.1.6. Basically, it recommends intermittent preventive treatment. This can be delivered as part of antenatal care.

The “Plan for Birth” is recommended as good antenatal care practice by WHO (208). As discussed earlier, adolescents are at high risk of preterm delivery and it is even more important to discuss the birth plan. The plan must be established in the first antenatal care visit and emphasized at every other visit; it includes risk assessment and discussion about the place of birth, whether delivery will be at home (with a skilled attendant) or in a hospital/health centre. It is also important to discuss the availability of transportation and the costs involved. Information on the signs of labour and preparation for labour and delivery should be given in simple language, as many young mothers are very anxious in anticipation of the unknown (211). A study in Brazil shows that adolescents who were informed about labour and delivery during pregnancy were better prepared for parturition (49).

Other issues for counselling during pregnancy should include awareness of danger signals, breastfeeding and its benefits, and the adverse effects of smoking and alcohol. However, the question of where this special counselling should take place, i.e. within a health-care facility during an antenatal visit or more generally at household/community level, needs to be explored.

In many developed countries, interventions are available during pregnancy and delivery to reduce mother-to-child transmission of HIV; it is therefore crucial to ensure that women have access to voluntary HIV testing and counselling in an antenatal care setting.

Neonatal tetanus is a serious infection, usually occurring in situations where basic hygiene during and after delivery is neglected or unknown, and where immunization coverage of young women is not adequate. Maternal tetanus is also a cause of at least 5% of maternal deaths in developing countries (61); prevention is achieved by clean delivery, together with immunization of children, pregnant women and women of childbearing age (203). Some adolescents may not have been immunized adequately; if they become pregnant and do not seek antenatal care, they may not be protected at the time they give birth. Moreover, many seek unsafe abortion which puts them at further risk of tetanus infection. A public-health intervention to reduce neonatal tetanus in this group is to give tetanus toxoid in infancy with booster doses in later childhood, early adolescence and during pregnancy as appropriate (212).

4.2 Abortion-seeking behaviour among pregnant adolescents

As mentioned above, adolescents delay entry into antenatal care for various reasons. One important factor associated with late entry into antenatal care is the intention to terminate the pregnancy. In the perception of adolescents whose pregnancies are unwanted or unplanned and who do not wish to continue their pregnancy, antenatal care is not of primary importance and is delayed (212). Adolescents tend to search for abortion later in term and in clandestine, unsafe conditions, thus increasing the health risks (51). The younger the adolescent, the more likely she is to delay seeking an abortion, and when she does have the abortion, the greater is the likelihood that she chooses a non-medical provider or attempts a self-induced abortion, e.g. by drinking herbal medicine (182). Another report suggests that adolescents are more likely than adults to deny they are pregnant; not recognizing the signs of pregnancy, they delay decision-making and seek abortion later in term, which puts them at greater risk for complications (212).

For most adolescents, economic issues play a central role in the decision-making process. It is more difficult for them to obtain financial resources for an abortion (165); safe procedures are usually expensive, and adolescents of low economic status seek less skilled providers and undergo dangerous procedures (51,116).

Several studies have gathered information on the characteristics of adolescents consulting for advice on decision-making regarding elective abortion. Social networks are important for making a decision, locating a provider, and paying the costs of an abortion. Adolescents report turning principally to mothers, relatives, and female friends (often older women) (24). In Cambodia, adolescents do not inform their parents for fear of punishment; they only tell their boyfriend/sexual partner and seek an abortion from non-medical outlets (182). In China and the Lao People's Democratic Republic, parental consent is required for an abortion in hospital. Therefore adolescents often resort to private health-care providers for abortion services (182).

The attitudes of health-care providers have also been reported to be a barrier in seeking care or appropriate services. A study of contraceptive behaviour among married and unmarried women in rural India (60) looked at issues of access to abortion services, decision-making, determinants of provider choice, and extent of morbidity. While the study focused primarily on married women, it included a cohort of unmarried women. Although a comparison between these groups was beyond the scope of the study, some interesting differences were uncovered with regard to unmarried adolescents' access to abortion services. Although abortion is legal in India, over a quarter of the adolescents interviewed thought that abortion was illegal under all circumstances and 42.9 % believed that legality was dependent upon marital status, thus making all extra-marital abortions illegal. Similarly, providers consider unmarried adolescent cases to be "illegal" and selectively refused services to these young women or, in some cases, charged them three to four times the normal cost.

Religion and cultural norms appear to be strong determinants influencing the view of health-care providers on abortion.

4.3 Obstetric care

In addition to receiving adequate antenatal care, the World Health Organization recommends assistance from a skilled birth attendant during delivery (208). More than one in four maternal deaths in developing countries occur during labour and delivery (89). In the late 1980s and 1990s, the priorities of safe motherhood programmes focused on the management of obstetric problems, with particular emphasis on emergency obstetric care and skilled attendance at delivery (Winikoff *et al.*, Villar 2000, Loudon 2000, all cited in 114). There is evidence to show that skilled birth attendants can effectively reduce maternal mortality with Basic Essential Obstetric Care (BEOC) (89). Most safe motherhood programmes therefore currently stress ensuring access to emergency obstetric care and ensuring that all women benefit from the care of a skilled health-care professional during delivery.

The large majority of pregnant adolescents should not be considered as at high risk during labour (212). If the pregnancy is uneventful and complications such as anaemia are treated adequately, if labour starts at term (between 37 and 42 completed weeks of gestation), and if the infant is in cephalic presentation, then labour is not at increased risk and can take place at the most peripheral level at which appropriate care is feasible and safe (212). However, special attention is required for pregnant adolescents ≤ 14 years of age.

If during pregnancy serious complications occur, e.g. severe pregnancy-induced hypertension or pre-eclampsia, or severe anaemia not treated adequately, then labour is considered to be at high risk and should, if possible, take place in a well-equipped health facility or hospital (212). In addition to monitoring the physical well-being of the mother and fetus there is a need for emotional support during labour, particularly in adolescents. Evidence suggests that continuous strong support during labour results in shorter labour and diminishes the need for interventions such as instrumental deliveries and use of pain medication, and also prevents the birth process from being a traumatic experience for the young girl (212).

REGIONS (UNICEF)	Births (2000) (in millions)	% births attended by skilled personnel (1995–2000)
Sub-Saharan Africa	25.6	39
Middle East & North Africa	9.7	67
South Asia	36.9	35
East Asia & Pacific	32.3	66
Latin America & the Caribbean	11.4	84
CEE/CIS & Baltic States	5.9	92
Industrialized countries	9.8	98
Developing countries	118.8	53
Least developed countries	26.6	27

Source: UNICEF, 2001 (184)

In many developing countries, where more than 98% of deaths associated with pregnancy and child-birth occur, women often do not deliver at health-care facilities. Fewer than half of the women in some African countries give birth in such facilities (216). Most statistical data have been based on information collected for women aged 15–49 years without further age-disaggregated analyses, as shown in Table 3. Current estimates indicate that a skilled person assists only 53% of births in the developing world and only 35% in South Asia (184). However, the rate is higher in Central and Eastern Europe and Commonwealth of Independent States (CEE/CIS) (92%) and in many countries in Latin America and the Caribbean (84%) (184).

Information about the percentage of births to adolescents that are attended by skilled personnel is limited. However, a few examples may help to ascertain some general patterns (Table 4). In India, in 1998–99, 31% of adolescents under 20 years of age experienced institutional deliveries as compared to 35% of women aged 20–34 years. Between 41% and 43%, respectively, reported having a skilled attendant at delivery (81). In Bangladesh, institutional deliveries among adolescents were as low as 6.7% though the corresponding figure for women aged 20–34 years was 8.9% (81). The above-mentioned examples indicate no significant difference in institutional deliveries and deliveries by skilled attendants between adolescents and older women (20–34 years of age). However, in Nepal, there is a wide variation in the number of institutional deliveries among adolescents according to their area of residence. For example, only 13% of rural Nepalese girls experience institutional deliveries as compared to 70% among urban adolescents (75); corresponding figures for older women are not available.

The average proportion of pregnancies and deliveries among women of all ages, including adolescents, attended by skilled personnel in the Eastern Mediterranean Region is estimated to be between 46% and 57% (personal communication – Dr Mahaini, RA/WRH – EMRO, 2003). Data from Egypt suggest that a considerably larger proportion of women deliver at home, particularly adolescents; thus, 73% of adolescents as compared to 11% of 20–24-year-olds delivered at home. Overall, 60% of adolescents and 39% of 20–24-year-olds were delivered by traditional birth attendants (TBAs) and the rest of the deliveries in both groups took place in private clinics with doctors or nurses (58). In Sudan, 76.3% of adolescents as compared to 62.9% of older women (20–24 years) delivered at home and 20% and 28%, respectively, delivered in a public health establishment. Deliveries were mainly attended by TBAs (over 70% in both groups – adolescents and older women) (58).

A recent DHS data analysis found that children born to adolescents ≤ 18 years old were significantly less likely to deliver with a skilled provider in seven countries (Guatemala, Peru, Bangladesh, Cambodia, Nepal, India and Indonesia) out of 15 studied, as compared to children born to women aged 19–23 years (139).

4.4 Postpartum care

The aims and standards of postpartum care are described in the WHO report *Postpartum Care of the Mother and Newborn* (203). The majority of maternal deaths occur because of postpartum haemorrhage, and almost half of maternal deaths occur within one day of delivery and 70% within a week (1). It is therefore very important to pay attention to immediate and later postpartum care. The value of postpartum care particularly for adolescents is not only for diagnosing and treating complications such as haemorrhage or infection, but also for providing contraceptives to prevent or delay repeat pregnancy, for promoting and supporting breastfeeding, and giving nutritional advice and immunization (212). Ideally counselling for breastfeeding should start during antenatal care (122) (the case of mothers who are HIV-positive or want to give the baby for adoption will be discussed later). At present, the literature on risks vs. benefits of breastfeeding in very young adolescents, who are still growing and have significant nutritional needs regardless of lactation, is scant.

Postpartum care in both developed and developing countries is less routine compared to the use of antenatal services (153). A review and meta-analysis of studies on antenatal care and maternal health during adolescent pregnancy show that adolescents attending antenatal care have a higher rate of return for postpartum care (153). Information regarding postpartum care among adolescents is scarce (Table 4).

Table 4. Delivery and postpartum care among adolescents in selected developing countries

Region & Countries	Institutional deliveries		Skilled attendant at delivery		Postpartum care within two months	
	<20 years of age (%)	20–34 years of age (%)	<20 years of age (%)	20–34 years of age (%)	<20 years of age (%)	20–34 years of age (%)
ASIA						
India	31.8	35	40.8	42.8	18.1	16.4
Bangladesh	6.7	8.9	Na	22.8	Na	Na
AFRICA						
Nigeria	22.2	41.3	23.8	46	Na	Na
Zimbabwe	78	72.6	78.6	72.9	42.7	48.3
Ghana	48.7	43.7	75.8	69	55.7	49.8
LATIN AMERICA AND THE CARIBBEAN						
Colombia	86.9	88.1	85.7	87.2	16	18.9
EASTERN MEDITERRANEAN						
Egypt*	26.8	376	33.66	50.8	24.26	22
Sudan*	23.7	37.16	77.86	86.4	32.96	24.9

Sources: Jejeebhoy (81) – unpublished, based on IIPS and ORC Macro, 2000

*Galal (58)–unpublished, based on PAPCHILD

In pregnant adolescents with HIV infection, there is the risk of mother-to-child transmission of the infection to the infant. Therefore, it is important to take into account such cases. Risk factors for mother-to-child transmission include (i) maternal factors (disease progression as measured by low CD4 count or high ribonucleic acid (RNA) viral load in plasma, or severe clinical symptoms; breast condition, e.g. mastitis; local immune factors in breast milk; and presence of systemic infections) and (ii) infant factors (duration and mode of breastfeeding; and morbidity, e.g. oral thrush). There is evidence that exclusive breastfeeding presents a reduced risk compared with mixed feeding, but the results of further research are needed. Results of clinical trials suggest that short-course ARVs can substantially reduce the risk of HIV transmission (55,207). More detailed discussions of prevention of MTCT can be found in appropriate WHO guidelines (212).

The decision whether or not to perform an HIV test was discussed in section 3.1. It is primarily the woman who should decide if she wants to be tested or not. There is scant evidence on adolescent breastfeeding; in the United States, adolescents are breastfeeding their babies at a significantly lower rate than women aged 20 years and older (136).

UNAIDS issued a statement putting the matter in the context of human rights, and requiring that families be empowered to make a fully informed choice about the best method of feeding for their infants. UN guidelines (207) state that, “When replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV-infected mothers is recommended. Otherwise, exclusive

breastfeeding is recommended during the first months of life and should then be discontinued as soon as it is feasible. To help HIV-positive mothers make the best choice, they should receive counselling that includes information about the risks and benefits of various infant feeding options based on local assessments, and guidance in selecting the most suitable option for their situation.” These guidelines and recommendations would be even more important for an adolescent mother.

Young adolescent mothers often lack motivation for contraception use, usually due to difficulties in obtaining reliable contraceptives. It is a task of the health worker to counsel them on contraceptive methods and to show them how to obtain contraceptives if they are needed. Because adolescents often have irregular sexual contacts and sometimes multiple partners, the first method to consider in the post-partum period is the condom, combined with one of the other methods.

Other issues relate to supporting adolescent mothers and their infants. The preventive effect of postpartum home visits has been studied, sometimes in combination with antenatal home visits, in a number of trials (212). A systematic review of randomized controlled trials on the prevention of childhood injury reported that home-visiting programmes have the potential to significantly reduce the rates of childhood injury. One drawback is that these programmes require enormous amounts of effort from the caregivers (often nurses or social workers) and consequently are very expensive. Nevertheless, where appropriate, it may be useful to effect follow-up with relevant community-based organizations (212).

Of 23 studies in a Cochrane review on parenting programmes for improving psychosocial outcomes for adolescent parents and their children, 19 were excluded because of methodological shortcomings, and the remaining four had a limited number of participants. The review showed that specific programmes aimed at improving maternal attitudes produced positive results on a range of maternal and infant outcomes including mother-infant interaction, language development, parental attitudes and parental knowledge. The setting of all studies was in developed countries and the duration of the studies was up to 2 years. Such conditions are not comparable with the circumstances encountered in clinical practices in many developing countries. Health workers should therefore bear in mind that, whenever possible, they should try to organize help – as much as is feasible in the context – for adolescent mothers who are without a partner or home, in conflict with their family, or with financial problems (Coren & Barlow 2002, cited in 212).

SUMMARY

Adolescents often do not utilize health services. Adolescent girls are often regarded as a difficult group to reach for antenatal care services; they are more socially constrained than adults from seeking timely and appropriate care, irrespective of whether the pregnancy occurs within or outside marriage (or union). In developing countries where access to antenatal care is often limited, the level of utilization of services by adolescents is even lower, a large proportion receiving no antenatal care. Some studies have reported poor antenatal care attendance by adolescents from low socioeconomic backgrounds, by girls attending school at the time they became pregnant, by younger girls (<18 years of age) and by adolescents in a subsequent pregnancy. Low attendance could be due to the failure of the health-care system to convince adolescents of the value of antenatal care, or it may be a reflection of the consequences of specific social, economic and political barriers to the pregnant adolescents' access to antenatal care. Obstetric and neonatal outcomes can be improved if comprehensive antenatal care emphasizing the specific medical, nutritional, and social aspects of adolescence is available. Antenatal care should start early, preferably in the first trimester of pregnancy or early in the second trimester. The content of antenatal care need not be different from antenatal care for adult women; however, the care should be adapted to the needs of adolescents. Adolescents often enter pregnancy with reduced nutritional stores and are therefore at increased risk of nutritional deficiencies. Iron and nutritional supplementation during pregnancy is an important component

of antenatal care, particularly to help increase the gestational age and weight of the infant at birth. It is also important to discuss the availability of transportation and the costs involved. The adolescent needs to be informed about the signs of labour and prepared for labour and delivery. The large majority of pregnant adolescents should not be considered as at high risk during labour. If pregnancy is uneventful and complications such as anaemia are treated adequately, if labour starts at term (37–42 completed weeks of gestation), and if the infant is in cephalic presentation, then labour is not at increased risk and can take place at the most peripheral level at which appropriate care is feasible and safe. However, special attention is required for pregnant adolescents ≤ 14 years of age. Postpartum care is particularly important in order to diagnose and treat complications such as haemorrhage or infection and also for providing contraceptives to prevent or delay a repeat pregnancy, for promoting and supporting breastfeeding, and for giving nutritional advice and immunization.

5

Key determinants of pregnant adolescents' health-seeking behaviour

Many factors play a role in determining the health-seeking behaviour of pregnant adolescents and in meeting their reproductive health needs. These range from autonomy, awareness of health needs of pregnancy, delivery and postpartum period to societal norms and national laws and policies. These are discussed in detail in this section and in Annexes 3 and 4.

Direct evidence on the extent to which pregnant adolescents, whether married or unmarried, exercise their choices in seeking health care is limited. Relevant studies include those that directly address the issue of adolescent pregnancy, and those that explore general aspects of adolescent behaviour. The results of the latter group of studies may be extrapolated to address the specific issues of pregnancy-related care.

The “Three Delays” model postulates that access to pregnancy-related care can be impeded at three levels: (i) delay by the individual, the family, or both in deciding to seek care; (ii) delay in reaching an appropriate health care facility; and (iii) delay in receiving appropriate and adequate care after reaching the facility (174). There is evidence that the first and third delays may be more compromised among adolescents than among older women, as elaborated below.

5.1 Autonomy

Personal autonomy is known to be a key determinant of a woman's ability to seek reproductive health services (78). Women often lack the authority to make health-care decisions for themselves (64,87), hence the “first delay”. They require permission of other family members to make use of antenatal or delivery care, even in complications (181). Where women's decision-making is restricted and women's health and illness rank low on the family's priority list, decisions regarding health care for pregnancy and pregnancy-related complications may be delayed, often with significant health consequences. The influence of limited autonomy on health-seeking behaviour is of particular importance in adolescents (15,151). Adolescents who have little autonomy and limited possibilities for self-care and good nutrition probably suffer the most (172).

Much of the incidence of adolescent pregnancy in developing countries involves women who are in a union or marriage. In general, adolescents and young women are less likely to participate in decisions relating to their own health and treatment (87).

After marriage, adolescents face additional constraints on their autonomy in the marital home and are unlikely to participate in the decisions regarding their own health care (148). Marriage abruptly restricts an adolescent's social support and they are expected to adjust to family responsibilities without resources and decision-making power (109). In South Asia, some Muslim countries, and parts of sub-Saharan Africa, the decision to seek medical care is made by the husband, mother, mother-in-law, village elders, or other family or community members (9). A Ugandan study found that men generally control the cash needed for transport to and payment for health services (Kasolo 1991, cited in 95). The role of husbands has been noted in other studies; however, the influential role of the mother-in-law has also been suggested (15,78). In Bangladesh, a study on the use of contraceptives reported that women encouraged their daughters-in-law (newly-wed adolescent girls) to use contraceptives because, through community education, they realized the importance of contraception (7).

Evidence also suggests that young married girls are treated relatively quickly if the family members (decision-makers) feel that her problem is serious enough and her ability to carry out domestic chores is affected (78). Husbands also appear to be the primary decision-maker for abortions if they feel a need to ensure “spacing” between children (15).

Evidence from rural Bangladesh highlights severe constraints placed on the autonomy of first-time married pregnant adolescents; for example, these girls are usually expected to deliver at their marital home attended by traditional birth attendants. The decision is largely made by the mother-in-law, with the adolescent girls having little or no influence (36). In some cultures, the marital family expects the newlywed pregnant adolescents’ parents and brothers to shoulder the major costs of health care. This custom proves to be a constraint, especially if the parental home is not close by (78).

5.2 Education and perceptions of need

In general, it is believed that greater educational achievement is associated with an increased likelihood to use medical care services (95). A multivariate analysis of household data from Jamaica shows education to be an important determinant of the health status of adults (171). However, in the case of adolescents, age plays a more powerful role in enhancing decision-making authority regarding their own health care than does education (59). An uneducated older woman aged 20–34 is significantly more likely to have decision-making authority than a secondary school adolescent (15).

Lack of education, limited exposure to media messages and inability to comprehend printed communication materials may result in lack of knowledge of the health needs and complications during pregnancy, delivery or postpartum period. Therefore, there could be a delay in recognizing the need to seek care (174). A study in Zimbabwe reports that the main reason why women with cervical cancer, for example, delayed seeking care was that they did not recognize the condition as serious enough (Stein and Muir (no date), cited in 174).

5.3 Financial constraints

Economic obstacles to the use of health services include the costs of seeking and obtaining care. Some studies reported cost as a major barrier to seeking and reaching care for emergency complications (35,54). These costs consist of the user fee that must be paid to the health-care provider and/or to institutions, the travel costs and the opportunity costs of the potential patient’s time (and that of the accompanying caregiver) (95). Financial and opportunity costs limit adolescents’ access to health care, thus delaying the decision to seek care (206). In general, where resources are scarce, families, including the women, spend less time, effort and money in seeking health care for women and girls than for men (Chatterjee 1996, cited in 81). Women’s illnesses rank low among family priorities, especially when the condition is perceived as non-threatening or self-limiting, thus delaying the decision to seek care (59). Ascadi and Johnson-Ascadi cite Visaria’s findings that, in India, families are willing to incur heavy expenses for the treatment of a son but not for a daughter (9). Adolescent girls’ lack of control over the use of resources suggests that costs of seeking care can be a major obstacle in their utilization of services.

Financial concerns regarding access to care are also expressed in developed countries. A study in the United States, based on focus group discussions with adolescents, found “payment” as a specific barrier for adolescents to access health care (63), though this particular study was conducted primarily to determine the factors affecting the decision to seek preventive health care. Financial barriers, including lack of medical insurance, ineligibility for subsidized antenatal care, and transportation costs have also been suggested as impediments to acquiring adequate care in developed countries (33).

5.4 Limited mobility

In many developing countries, the mobility of adolescent girls is severely constrained, making it difficult for them to seek services especially in rural areas where most health services are not readily accessible (113). Evidence at a national level in India suggests that adolescents are less likely than older women to

be able to visit different places without permission (148). This freedom of movement is curtailed to a greater extent after marriage (149). The limited mobility of pregnant adolescents has been highlighted in a study in 24 rural sites in Bangladesh, where a large proportion of women begin childbearing in adolescence. The study confirms that, in general, young women have limited mobility, and restrictions on mobility are more strictly enforced during pregnancy (36). A programme in Bangladesh, addressing the needs of newly-wed girls, reported difficulty in reaching this group as these adolescents rarely left their homes, and their social network was primarily the household and surrounding neighbourhood (13). Restricted mobility thus delays the initial decision to seek care.

5.5 Availability and accessibility of health services

Services, if available, may be situated far from the adolescents' homes, which may be a disincentive to seek care and thus cause delay in seeking care. However, in some circumstances, even if the decision to seek care is timely, there is often a delay in arriving on time at the health-care facility (First and second delays) because transportation may be costly or unavailable (174). Poor road conditions further aggravate the situation. A study of the determinants of compliance with nutritional supplements during pregnancy in Guatemala and Indonesia found that the distance women had to travel to obtain these supplements determined compliance to a large degree, highlighting distance as a barrier to utilization of services (206). Distance can be a deterrent to seeking care and forms an important part of the "first delay". This may not always be the case, however. A study in West Africa found that even if women, particularly adolescents, live in close proximity to a facility, they are not always able to visit the facility for pregnancy-related complications without her husband's permission (limited autonomy) (181).

Studies from both developed and developing countries have shown that utilization of health-care services by pregnant adolescents is affected by the availability of health centres and awareness of their existence (78,106,141,169). In addition, limited access to available health facilities also affects the utilization of these facilities (8). A study in an urban area of the United States measured the effect of the source of antenatal care on care-seeking behaviours among pregnant adolescents and found that adolescents who live in neighbourhoods with an antenatal care clinic were more likely to begin receiving care earlier in pregnancy (32). A large multi-centre research project in six francophone African countries using focus-group and individual interviews found that ignorance of the availability of services and difficulty in access to them were the main obstacles in utilization of services by pregnant adolescents (12).

Reaching the health facility does not necessarily mean the end of the health-care-seeking journey, especially for adolescents (indeed all women). Delay occurs in receiving appropriate and adequate treatment due to shortage of trained staff, equipment, and supplies, especially in case of emergency obstetric care, and contributes to maternal mortality in developing countries (78,106,141,169,174,181).

5.6 Providers' attitudes

Utilization of services is also affected by patients' satisfaction (106), and the environment of the clinic in which they receive care (32). Available facilities are not always oriented to the special needs of adolescents (22,88). The routine antenatal care offered at some clinics often fails to address the special needs of adolescents (32). The training and social backgrounds of many health personnel may make them unaccommodating to adolescents (216). The situation is aggravated for unmarried adolescents because the available facilities are not oriented to their special needs (88) and is a major impediment to receiving quality care, and affects health-care-seeking behaviour throughout pregnancy, childbirth and postpartum period. Adolescent pregnancy needs more time for better client contact, but survey data reveal that in actual practice this is rare (199).

A survey of providers in Nepal concluded that underlying the poor access to reproductive health services by young females, even when they are married, was the reluctance of providers to communicate and interact with adolescent girls, to discuss issues related to sexuality, and a lack of skills in counselling young women in general (109). A study in Ghana identified hostile staff attitude as one of the barriers in accessing public health services (91). A simulated client study in Dakar, Senegal, noted providers' attitudes

as one of the barriers to family planning services for adolescents (84). Participants in the study reported that the providers were reluctant to deal with them.

A study in the United States measuring the effect of the source of prenatal care on care-seeking behaviour among pregnant adolescents found that adolescents were more likely to obtain adequate care if the antenatal care site was attractive and inviting, and if special efforts were made to register and retain them in care (32). Another study in the United States determining the factors affecting adolescents' decisions to seek health care found that adolescents were more concerned about the characteristics of the provider than the site or system (63).

5.7 Coercion and violence

Population studies from a number of world regions found increased rates of intimate partner violence during pregnancy for adult women (ranging from 6% to 15%) (93). Adolescent girls may be more vulnerable to violence because of female gender-role beliefs that their status is dependent on their attachment to a male and their lack of experience in making decisions. It is estimated that one in five adolescents and one in six adult women experience abuse during pregnancy (132). The risk of intimate partner violence continues into the postpartum period, with 21% of adolescents reporting intimate partner violence 3 months after having their baby. This risk gradually drops over the next 2 years (69).

Physical abuse and violence during pregnancy have been recognized as important risk factors for poor health in both mothers and infants (120). A meta-analysis of violence during pregnancy found increased rates of low birth weight in mothers experiencing intimate partner violence during pregnancy, compared to non-abused women (119), while other studies found increased rates of maternal complications, including miscarriage, stillbirth and premature delivery in pregnant mothers experiencing abuse (93).

Exercising choice to seek care is constrained by the threat and previous experience of domestic violence (148). Evidence also suggests that the threat and experience of violence increases the tendency to delay reproductive health decision-making and care-seeking (80). Moreover, coercion and violence resulted in late entry into antenatal care (132); it was observed that among adolescents, 21.9% of those abused entered antenatal care in the third trimester, compared to only 7.5% of those not abused. For the adults, the percentages were 15.8% and 8.7%, respectively.

A prospective study of abuse during pregnancy among women of low income in Baltimore and Houston (United States) also suggested that women who suffer violence during pregnancy were significantly more likely than other women to delay antenatal care (111). While most of the women in this study were between 20 and 29 years of age, 31% were adolescents. Another study in the United States found that women who delayed entry into antenatal care were more likely to have reported physical violence, compared with women who entered antenatal care early. They were also more likely to be younger, less educated, unmarried, or of non-white racial backgrounds (50).

In South Africa, in a matched case-control study among pregnant and non-pregnant sexually active adolescents the pregnant adolescents were significantly more likely to have experienced forced sexual initiation and were beaten more often. They were much less likely to have confronted their boyfriend when they discovered he had other girlfriends. Such associations were mediated through unequal power relations within the relationship which were reinforced by violence (82).

Physical abuse and violence were also associated with adverse pregnancy outcomes. Abuse during pregnancy is related to LBW, significantly greater risk for poor weight gain, first- or second trimester bleeding, smoking and alcohol or drug use among adolescents (45,132). A few studies, mostly in high per-capita income countries, have suggested that physical violence against pregnant women increases the risk of preterm labour or delivery (17), fetal distress and death (39). However, increased risk of infant and child mortality has also been reported in a study in Nicaragua (10), with about 18% aged 15–19 years, although the mother's age was not included in the final multivariate model. Another study in Nicaragua, on physical abuse during pregnancy as a risk factor for LBW found that 53% of LBW infants were born to women who were less than 20 years old (190). In a population-based study from Bangladesh, pregnant

adolescents had a threefold increase in mortality from intentional and unintentional injuries, compared with girls who were not pregnant (143).

In any setting, the biological consequences of violence during pregnancy reflect a negative impact on pregnancy outcome, although the severity of these consequences might be attenuated with better economic resources and widespread availability of health-care services (10). A simple abuse assessment protocol during ANC can lead to better detection of abuse, as well as referral (61).

5.8 Socio-cultural factors

Knowledge about pregnancy and delivery, recognition of complications, and ability to decide to take necessary action are all determined by a complex interaction of social and cultural factors that vary widely both between and within countries. Cultures also define who is entitled to access reproductive health services, sometimes by social control and sometimes by laws, policy restrictions or other measures (194). Ascadi and Johnson-Ascadi argue that in many cultures, pain and illness are considered to be a normal part of women's lives and are not worthy of medical attention (9). They cite examples from Africa, Latin America, the Caribbean, and South Asia. The problem is most severe in South Asia, where not only pain and illness but also the consequences of domestic violence are not ordinarily deemed sufficient to warrant modern medical care or even traditional care.

A conflict between biomedical and traditionally perceived causes of health conditions may also delay decisions to seek care. This is particularly evident in pregnancy. In some communities in West Africa, pregnancy and delivery are regarded as natural processes. Signs and symptoms of complications are not always recognized as reasons for concern or to seek care. For example, swelling of the feet, which is one of the signs of pre-eclampsia is thought to be an indication that the baby will be a boy. Small amounts of bleeding and spotting, often an early sign of antepartum haemorrhage, tend not to be considered a cause for concern (181).

Rapid recognition of the signs of complications requiring emergency care may improve the odds of the adolescent for survival by reducing the delay in obtaining treatment, if this is given promptly. There is ample evidence that health education (including for males) is effective in improving the numbers of women who seek skilled attendance, with resulting lower rates of poor outcomes for mother and baby. This could include involving them in maternity care, STI counselling and services, and safe motherhood. This also led to improvements in attendance of the spouses in ANC. Evidence suggests that general community awareness and individual counselling about danger signals requiring emergency obstetric care (EOC) can increase the knowledge and use of the health-care services (61).

In some parts of Africa, a prolonged period of labour is deemed to be punishment for past infidelity, and an unassisted delivery is deemed a sign of a woman's courage (174). In some cultures, obstructed labour is believed to be caused by the will of God or evil spirits and therefore the care of the traditional healer, spiritual healer or diviners is first sought. The modern health-care system is often used as a last resort. Often these alternative treatments cause delay in utilization of modern medical facilities, leading to further complications or even death (181,206).

There may be cultural restrictions on girls' consulting a male health-care provider, particularly in Muslim countries. In Egypt, for example, trained providers are available throughout the country, but most are male. In many cases, adolescents cannot seek treatment from these providers because of the belief that they should not be seen by any male other than a close relative. They also need permission from their husband to seek care, even in emergencies. However, this restriction is not specific to adolescents and applies to women of all ages. Use of services is severely limited in cultures where these conditions exist, e.g. in some Arab and South Asian countries and in some rural areas of Latin America (9).

Other traditional practices have been found to result in obstetric morbidity in adolescents. In a study in Nigeria, of women seeking ANC and family planning, those who had undergone female genital cutting (FGC) had significantly higher risks of tearing and stillbirths even after controlling for other variables, such as place of delivery, assistance at delivery, age and marital status. The degree of tearing depended on

the type of cutting. Other studies also confirm this, women who had FGC being associated with more obstetric complications (perineal tear, episiotomy, haemorrhage, obstructed labour and caesarean section) than uncircumcised women. An intervention study in Kenya which involved training for the entire community on the effects of FGC and other sexuality issues and which presented alternative rites of passage for girls resulted in a significant decline in the overall prevalence of FGC (61). Evidence suggests that community education on FGC and presentation of alternative rituals to FGC can reduce maternal morbidity and stillbirths (61).

5.9 National laws and policies

The legal and policy context has direct implications as to which services can be provided to adolescents with or without parental and (in some cases) spousal consent, and is therefore a determinant of health-seeking behaviour (14). In addition, whether national policies promote service availability and integration of services are also important considerations related to adolescents' help-seeking.

Pregnant adolescents have the same maternal health needs as pregnant adult women, yet in many countries their rights and access to quality health services are denied by social and cultural norms as well as discriminatory laws and local policies. In general, there is a lack of specific reference to the problems of adolescents in health-care legislation for pregnant women (135). Legislation often deals with the broader aspects of maternal health, irrespective of age or marital status. Hence, the services available to adolescents are invariably assumed by larger programmes catering to the needs of all pregnant women (135).

However, with increased awareness of the unmet needs of adolescents, some governments have adopted laws and policies to protect and promote the reproductive health and rights of adolescents. For example, in 1992, the legislature of Catamarca province in Argentina passed a law offering free medical attention to pregnant adolescents who are not covered by health insurance. As a result the executive branch in this province provides antenatal care, including nutritional supplements and vitamins, to the mother and covers the costs of normal delivery or caesarean section (176). The Minor's Code in Bolivia states that the state has responsibility for guaranteeing special antenatal and postpartum care for pregnant adolescents, and thus free childbirth services are offered in state hospitals (176).

There are some other examples of positive government initiatives. For example, Costa Rica promotes protective laws for adolescents through the Costa Rican Code of Childhood and Adolescents, 1998. This code guarantees that the Ministry of Health offers maternal health services to pregnant adolescents, including antenatal and postpartum care, child health services and HIV-related care (182). In 1996, the government of Ghana also enacted the Adolescent Reproductive Health Policy, thus providing guidelines to government agencies to recognize the rights of adolescents to information and services relating to sexual and reproductive health, including protection against unsafe abortions (176).

However, for the most part, adolescents still lack access to maternal health services and safe abortion services and to a full range of contraceptive methods (179). The restrictive abortion laws in Nigeria, which have led to one of the highest incidences of unsafe abortion worldwide, have impacted on adolescents in particular (179). In Kenya, the National Population Policy for Sustainable Development 2000 (NPP) hopes to address adolescents' special needs by developing new programmes to deal with adolescent pregnancies and other reproductive health issues, and emphasizes that, "in no way will contraceptives be given in schools while adults should be guided by religious and cultural values" (179).

As previously mentioned, many girls are subjected to coercion in sexual relations. The consequences of unprotected sexual activity place girls at high risk for early, unwanted pregnancy and exposure to STIs including HIV. Thus, the absence of adolescents' rights to reproductive health services and information may have lasting consequences for their lifelong physical, social and economic well-being (178).

The Convention on the Rights of the Child addresses the human rights of all persons under 18 years of age and is one of the key international human rights documents containing numerous provisions addressing the reproductive rights of adolescents, which obliges governments to assure reproductive health services for girls (186). However, in some countries, policies designed to protect and promote

the reproductive rights of adolescents meet barriers in implementation due to political sensitivities and disagreements.

The Committee on the Rights of the Child, in its 33rd session, ratified a general comment on adolescent health and development in the context of the Convention on the Rights of the Child (37). The general comment stated:

“Adolescent girls should have access to information on the negative impact of early marriage and early pregnancy and those who become pregnant should have access to health services that are sensitive to their particularities and rights. State Parties should take measures to reduce maternal morbidity and mortality in adolescent girls, particularly due to early pregnancy and unsafe abortion practices and to support adolescent mothers and fathers in their parenthood. Young mothers, especially in settings lacking support may be prone to depression and anxiety, compromising their ability to care for their child. The Committee urges States Parties to (a) develop and implement programmes that ensure access to sexual and reproductive health services, including family planning, contraceptive methods and safe abortion services in circumstances where abortion is not against the law, adequate comprehensive obstetric care and counselling; (b) foster positive and supportive attitudes towards adolescent parenthood, for mothers and fathers; and (c) develop positive policies to ensure continued education of adolescent mothers.” (37)

SUMMARY

The decision-making process surrounding the pregnant adolescent's ability to seek care is complex, with clear variations among countries and cultures. In many countries and regions, a woman's decision-making capacity is severely limited and women's health and care during pregnancy rank low in family priorities. In most cultures in the developing world, the pregnant adolescent has even less autonomy and is totally dependent on her partner, mother-in-law or parents for approval and resources to access services. Evidence suggests that the financial and opportunity costs limit the adolescents' access to health care, thus delaying the decision to seek care. Utilization of health-care services by pregnant adolescents is also affected by availability and limited access to these services. Underlying the poor access to reproductive health services by young females, even when married, is the reluctance of providers to communicate and interact with adolescent girls and to discuss issues related to sexuality, as well as a lack of skills in counselling young women in general. The threat and experience of violence increase the tendency to delay reproductive health decision-making and care-seeking. In some countries, social and cultural norms, discriminatory laws and local policies further thwart the adolescent's ability to access services. Delays in seeking care for maternal complications during pregnancy and obstetric emergencies result in high maternal and fetal morbidity and mortality. Delays in seeking abortion lead to unsafe abortion, particularly among unmarried adolescents. The decision to seek abortion is especially difficult for adolescents if they lack social support and financial resources.

6

Programmatic evidence of interventions for the promotion of pregnant adolescents' health and development

This section documents the evidence on maternal health programmes that appear to effectively meet the health needs of pregnant adolescents. This effort is an attempt to advance the current level of understanding and to throw further light on what ensures effectiveness in programmes aimed at improving pregnancy, delivery and social outcomes among adolescents. It is important to note that the prevention of pregnancies is the most efficient way of preventing morbidity and mortality related to adolescent pregnancy.

This section describes selected maternal health-care programmes for adolescents, with evidence of their achievements and lessons learned from success or failure. There are several types of programmes. The most basic is the hospital, clinic, or health centre whose policies minimize or remove restrictions that tend to exclude adolescents from access and treatment, but do not provide services specifically directed to this population (156). For example, in the Netherlands the general practitioner, without the consent of the parents, often performs the pregnancy test and initial counselling. The adolescent can then be referred to a midwife for antenatal care or to an abortion clinic. In this way, pregnant adolescents can make a decision early in the pregnancy to seek an abortion or to continue with the pregnancy (28).

Some countries have developed specialized services within facilities serving all women, particularly in facilities where a large number of adolescents are giving birth or seeking post-abortion care. These add-on programmes offer antenatal and postpartum care with concerted efforts to improve nutritional status, provide psycho-social support, educate young mothers about breastfeeding and infant care, and encourage follow-up visits. Many programmes also provide family planning counselling and services for adolescent mothers in an effort to prevent unwanted pregnancy. Efforts have been made to provide special clinics for adolescents. However, the value and effectiveness of most of these interventions have not been adequately evaluated (124), and little is known of the cost implications for the workload and resources involved in providing such services (79).

The following section describes and considers the effectiveness of both types of programmes – integrated maternal and reproductive services as well as specific services for pregnant adolescents.

6.1 Programmes designed to improve pregnancy outcomes among adolescents

6.1.1 Programmes based on a multidisciplinary approach in a specialized health-care facility for pregnant adolescents

The programmes described below are based on multidisciplinary teams of care providers that include a public health nurse, general physician, obstetrician/gynaecologist, dietician and social worker, in adolescent-focused clinics. Note that in the description given below, “adolescents” and “teens” are used interchangeably depending on the term used by the author of the study.

(1) A comprehensive adolescent-focused antenatal care programme at the University of Texas Medical Branch (UTMB) in the United States was evaluated using a retrospective review of 1080 adolescent pregnancy records (115). The study compared pregnancy outcomes among three groups of pregnant adolescents: (i) those receiving antenatal care in the “teen clinic” ($n = 660$); (ii) those receiving antenatal

care in the “traditional clinic” ($n = 277$); and (iii) those receiving no antenatal care ($n = 143$). Details from the adolescent-focused clinic suggest that the clinic provided general monitoring during the course of pregnancy, with special emphasis on educational, social and nutritional support. A team of nurses, physicians, obstetrician-gynaecologist residents, a social worker and a nutritionist provided the care. However, no further details of the intervention were given.

The study was based on two hypotheses: Firstly, adolescents receiving antenatal care from a comprehensive pregnancy programme would outperform adolescents receiving antenatal care from a traditional clinic on all outcome variables. Secondly, adolescents receiving antenatal care from either type of clinic would outperform adolescents who received no antenatal care on all outcome measures. Outcome measures studied were: type of delivery – caesarean section or vaginal; Apgar scores at 1 minute and 5 minutes; gestational age at delivery <37 weeks; birth weight ≤ 2500 g; and stillbirths. The study also compared the teen clinic participants and traditional clinic participants for initiation of antenatal care by trimester and adequacy of antenatal care received using a modified version of the Adequacy of Prenatal Care Index.

The evaluation showed that a significantly higher number of “teen clinic” participants started antenatal care by the end of the first trimester (45.2% vs. 19.5%, $p = 0.001$) and had more visits than traditional clinic participants (9.4 ± 4.6 vs. 7.8 ± 3.5 , $p = 0.0001$). Teen clinic participants were also more likely to have had adequate antenatal care (34.1%) than traditional clinic adolescents (17%); $p = 0.0001$. Maternal weight gain patterns were similar for both groups, with mean weight gains of 31.5 pounds (14.3 kg) for teen clinic and 31.1 pounds (14.1 kg) for traditional clinic participants.

The pregnancy outcomes were evaluated for the three groups. The participants receiving antenatal care either at the teen clinic or traditional clinic were different from the no-care group on all outcome measures except incidence of caesarean section. The caesarean section incidence varied from 12.1% for the teen clinic adolescents to 12.6% for the no-care group to 14.8% for the traditional clinic participants. Apgar scores at 1 and 5 minutes for the antenatal care groups were significantly different from the no-care group but not from each other. The no-care group had significantly lower Apgar scores than groups receiving antenatal care ($p = 0.0001$). A similar trend was seen with the incidence of preterm births and LBW infants. The no-care mothers had significantly more preterm deliveries ($p = 0.0001$), giving birth to 35% of their infants before 37 weeks’ gestation, compared to 10.5% for teen clinic mothers and 8.7% for traditional clinic mothers. The mean birth weight was also significantly lower for the no-care group (2834 g; $p = 0.0001$) than for either the teen clinic (3169 g) or the traditional clinic (3195 g) groups. The incidence of stillbirths was too small to calculate significance. Results comparing the incidences of preterm births, LBW and Apgar scores were similar after controlling for the gynaecological age of the mother. (Table 5)

Table 5. Comparison of adolescents’ outcomes with type of ANC in the Texas project

	“Teen clinic” ANC	Traditional ANC clinic	No ANC	
Began ANC in first trimester (%)	45.277	19.5	0	$p = .001$
Number of ANC visits	9.4	7.8	0	$p = .0001$
Mother’s weight gain (pounds)	31.5	31.1	N/A	
Birth < 37 weeks gestation (%)	10.5	8.7	N/A	
Delivery by caesarian section	12.1	14.8	12.6	
Mean birth weight	3169	2834	N/A	$p = .0001$

The authors concluded that the results of the study suggested improved pregnancy outcomes among adolescents who received antenatal care as compared to those who received no care. However, care received in a specialized adolescent pregnancy clinic was not associated with a better outcome than care received in a traditional antenatal care setting. In spite of the fact that teen clinic participants initiated care earlier in pregnancy and had more visits than their counterparts, the outcomes for the two antenatal care groups were similar. The authors also suggested that although there was no medical advantage of a special clinic for pregnant adolescents over the traditional antenatal care clinic, there may be social and emotional advantages. Also, the earlier initiation and higher number of antenatal visits might indicate that adolescents felt less threatened or more comfortable visiting a special clinic that could have helped them to develop a social network. However, the authors did not have any evidence to support this assumption.

(2) Another study in the United States compared the outcomes and cost-effectiveness of comprehensive, interdisciplinary adolescent antenatal care clinics—e.g. Young Women’s Clinic (YWC) and Group Health Cooperative’s Teen Pregnancy and Parenting Clinic (TPPC)—with “traditional” adult-centred obstetric services in the Maternity and Infant Care Center at the University of Washington Medical Center (UWMC) and Group Health Cooperative Women’s Center (GHC) (16).

In the teen-focused setting (YWC and TPPC), the clinic team consisted of a public health nurse and a social worker who provided services in the clinic or community settings, as well as a registered dietitian, certified nurse-midwives who provided antenatal care, and an adolescent medicine physician who provided non-obstetric medical care in the clinic. Services at UWMC were provided by obstetrics and gynaecology (OB/GYN) with support from registered nurses, social workers, and a registered dietitian. An obstetrician, certified nurse-midwife and family physicians provided services at GHC.

The hypotheses of the study were that the adolescents would be more likely to attend adolescent-focused antenatal clinics, have equal or better birth outcomes, and show improvements in health behaviours (smoking and substance abuse, breastfeeding and contraceptive use) both during and within the first year after pregnancy. Adolescents who encounter an adolescent-friendly antenatal clinic environment may be more likely to enter into care early, to miss fewer appointments, to access additional services and resources through referrals, and to continue care during the postpartum period. Improved access of antenatal care would allow for early screening for complications, and improvements in health behaviours may in turn reduce the likelihood of complications during delivery, preterm birth and instrumental and caesarean delivery. Such reductions may reduce costs of antenatal and neonatal health care.

The sample included pregnant adolescents aged 13–18 years who delivered their babies between 1 December 1996 and 30 November 1997 at either the UWMC or GHC. Evaluators using the sample of 106 records, including 27 index adolescents from the YWC and matched cases from the other three clinics, concluded that such an approach resulted in higher compliance with antenatal care. Adolescents who received care in teen clinics missed significantly fewer appointments, on average, than their counterparts receiving care in adult settings (0.96 vs. 2.29, $p < 0.05$); however, there were no significant differences in the time of entry into antenatal care, number of antenatal care visits, or the amount of weight gained. The teen clinic participants were more likely to be linked to supportive community resources such as First Steps ($p < 0.0001$) and Special Supplemental Food Program for Women, Infants and Children (WIC) ($p < 0.01$). The other findings are summarized in Table 6.

The authors of the study concluded that teen-focused clinic care appears to result in improved outcomes and better continuity of care than traditional adult-centred models of obstetric care and is more cost-effective. The authors also identified the limitations of the study, i.e. retrospective study design, small sample size, and the need to explore costs and savings using larger samples and a more sophisticated technique to assess the impact of different components of care on the outcome of pregnancy.

(3) A prospective study in the U.S. measured pregnancy outcomes in 123 adolescents receiving antenatal care in a comprehensive, multidisciplinary, adolescent-oriented programme and compared them with 72 young women aged 19–30 years receiving antenatal care in a traditional adult-oriented obstetric clinic (university hospital-based antenatal clinic) (169). Physicians, nurses, nurse-midwives, social workers

and a dietician provided antenatal care in the adolescent-oriented clinic, while the adult-oriented clinic was staffed by attending obstetricians who provided care.

Table 6. Comparison of pregnancy outcomes with type of ANC in YWC & TPPC and UMWC & GHC study

	Adolescent- focused ANC clinic	Traditional adult-centred ANC clinic	P value
Delivery by caesarian section (%)	10	25	<0.05
Mean birth weight (grams)	3330	3048	<0.05
48-hour post-discharge home visit	-	-	<0.01
Postpartum checkup	-	-	<0.001
6- or 8-week postpartum visit	-	-	<0.05
Postpartum contraception (%)	87.7	64.3	-
Breastfeeding at 2, 8 & 24 weeks (%)	62	Data missing	-
Return to school (%)	62	-	-

The study was based on the hypotheses that antenatal patients cared for in the adolescent-oriented antenatal programme were more frequently referred to WIC (food) supplementation and to community agencies for help with non-obstetric, psychosocial and financial problems, and were tested and treated for anaemia and STIs more frequently than antenatal care patients in a traditional adult-oriented antenatal clinic. The outcome measures included maternal outcomes (maternal weight gain and the incidence of non-obstetric and obstetric complications) and neonatal outcomes (birth weight, gestational age, and Apgar score at 1 and 5 minutes).

Evaluation showed maternal and neonatal outcomes to be similar in the two groups in spite of the fact that patients attending the adolescent-oriented clinic entered antenatal care 2 weeks later than the patients attending the adult-care clinic and also missed more appointments. The adult-care patients received “adequate” quantity of care by the standards of the Institute of Medicine (76) compared to the adolescent-care patients. Adolescents weighed less early in gestation and were more likely to report psychosocial problems (79% compared with 40.2%; $p < 0.001$), had lower haematocrits (34.5 mean SD ± 3 g% vs. 36.3 mean SD ± 3 g%; $p < 0.01$), and were more likely to be diagnosed with STIs such as *Chlamydia trachomatis* (22% vs. 0%; $p < 0.001$) and *T. vaginalis* (35% vs. 19.4%; $p < 0.01$). During gestation, adolescents gained weight at a rate equal to that of adults, reported a greater decrease in depressive symptoms, were no more likely to be diagnosed with anaemia, and gave birth to infants of equal size (3090 \pm 552 g and 3060 \pm 656 g, respectively) and maturity (38.7 \pm 2.4 weeks and 38.6 \pm 2.6 weeks, respectively).

There was no difference in the frequency with which the adolescent-care and adult-care patients were referred to WIC (87% and 83%, respectively), so the first hypothesis was not supported. Both adolescents and adults began receiving WIC supplements at approximately 20 weeks of gestation. The adolescent-care patients were more frequently referred to community agencies providing emotional, legal and financial assistance than were adult-care patients (37% vs. 8%; $p < 0.0001$). The authors concluded that the difference in the frequency of referrals for help with non-obstetric problems might reflect a greater availability of support services for pregnant adolescents than for adults and perhaps a greater appreciation of the need for such services among adolescent-oriented health-care providers.

(4) The Resource Mother for Pregnant Teens Program (RMP) in the United States (141) was also based on a multidisciplinary approach, and on the hypothesis that social support intervention can result in increased antenatal care use and in improved pregnancy outcomes, i.e. reduction in LBW and preterm births. By providing social support the pregnancy outcomes could be improved by modifying the effect of stress and behavioural change such as nutritional habits or smoking and substance abuse.

RMP used paraprofessional women to provide social support to pregnant adolescents through home visiting. These women were carefully selected from the community because of personal warmth, parenting experience, and a demonstrated ability to accept responsibility. Resource mothers received three weeks of intensive training designed to assist them in providing social support services to pregnant adolescents. Information was provided on pregnancy and infant care, nutrition, communication skills, home visiting techniques, referral skills, and community resources.

Resource mothers actively recruited primiparous adolescents to the programme through community education and outreach activities, e.g. making presentations and distributing brochures. The programme expanded on routine antenatal care services by providing supportive, educational home visits, and helping the pregnant adolescents to use the health-care services. Each visit was structured and goal-oriented. During the antenatal period, the emphasis was on the need for early and regular antenatal care and reduction of risk factors such as smoking, drug abuse and poor nutrition. Resource mothers facilitated the adolescents' use of antenatal care by following up on any missed appointments, arranging transportation, and assisting with referrals to community and health services.

Evaluation of the programme, comparing pregnancy outcome among 1901 RMP participants and 4613 controls, found that RMP participants initiated antenatal care earlier (odds ratio (OR)=1.48; 95% confidence interval (CI) (1.32–1.66)) and received adequate care more than the controls (OR=1.58; 95% CI (1.40–1.78)). Although the programme had no significant effect on LBW, unmarried adolescents were less likely to have preterm birth (OR=0.81, 95% CI (0.70–0.95)) compared to their counterparts in the control group, and the effect remained significant even after controlling for the effect of antenatal care. The authors concluded that the significant effect of the programme on preterm birth, independent of the effect of antenatal care, suggested a positive role of social support provided to the RMP participants on preterm birth. However, it was not possible to determine which components of social support had an effect on preterm birth.

The authors concluded that although the RMP curriculum targeted health behaviours that affect the growth of infants, e.g. smoking, drug use and nutrition, the programme activities may not have had the intensity necessary to result in behaviour change.

(5) In Portugal, a hospital-based programme with comprehensive antenatal care emphasizing the specific nutritional and other health needs demonstrated a positive effect on the outcome of pregnancy in adolescents (160). The study evaluated an antenatal care intervention for pregnant adolescents with three components: initiation of antenatal care at registration, continuity of care by the same obstetrician, and emphasis on the specific nutritional and other health needs of pregnant adolescents compared with a control group of pregnant adolescents who received routine care provided to pregnant adult women. The outcomes measured were: time of entry into antenatal care, number of visits, maternal weight gain, infant birth weight, gestational age at delivery, and admissions to a high-risk paediatric unit. The hypothesis was that this model would result in early initiation of antenatal care and increased number of visits. Emphasis on the nutritional needs of pregnant adolescents would result in increased maternal weight gain, and improved birth weight and gestational age of the infant.

Participants in the intervention group received antenatal care by the same obstetrician throughout the pregnancy; thus the trust and supportive relationship encouraged patient compliance. The obstetricians specifically addressed the nutritional and other special needs of pregnant adolescents, encouraged increased caloric intake, and provided education about health behaviours such as hygiene, prevention of STIs, and compliance with health providers.

Results of the study demonstrate important differences between the intervention group ($n = 80$) and control group ($n = 60$). Intervention group mothers had their first antenatal care visit at an average of 2

weeks earlier than adolescents in the control group ($p = 0.02$) and they had twice the mean number of antenatal visits (9.0 ± 4.1 and 5.2 ± 1.8 , respectively). Intervention group mothers also gained more weight during pregnancy, 2.0 kg more on average, than did the routine care mothers ($p = 0.05$). See Table 7.

	Intervention group $n=80$	Control group $n=60$	
Began ANC in first trimester (%)	Average 2 weeks sooner than control group		$p = 0.02$
Number of ANC visits	9.0 ± 4.1	5.2 ± 1.8	
Mother's weight gain	Average 2 kg more than control group		$p = 0.05$
Mean birth weight	$3172 \text{ g} \pm 501 \text{ g}$	$2991 \text{ g} \pm 562 \text{ g}$	$p = 0.05$
Admission to high-risk paediatric unit	4%	10%	$p = 0.005$
Birth < 37 weeks gestation	No difference in the two groups		

Infants of the adolescents in the intervention group weighed more than the infants born to adolescents in the control group ($3172 \text{ g} \pm 501 \text{ g}$ and $2991 \text{ g} \pm 562 \text{ g}$ respectively, $p = 0.05$) and were also less likely to have admissions to the high-risk paediatric unit (4% and 10% respectively, $p = 0.005$, two-tailed Fischer exact test). Even after controlling for the variables such as planned versus unplanned pregnancy, smoking, age, race, socioeconomic status, duration of gestation, years of education, STIs, urinary tract infections, time of entry into antenatal care, weight gain and Body Mass Index (BMI), the infants in the intervention group weighed 174 g more on average than infants in the routine care group ($p = 0.02$). The mean gestational age at delivery was the same for the two groups.

The authors concluded that simple intervention, which included continuity of antenatal care and emphasis on specific nutritional and health needs of pregnant adolescents, resulted in improved fetal growth and decreased need for care in the high-risk newborn unit. The authors also identified the need for a randomized trial to ensure comparability between the groups.

The models of care described above are based on adolescent-focused practice, with a multidisciplinary team, home visits and postpartum follow-up of mother and infant, and emphasis on the educational, social and nutritional needs of pregnant adolescents. This model of care is based on the hypothesis that pregnant adolescents will be attracted to adolescent-focused clinics, and therefore early initiation and adequate antenatal care will result in reduction in preterm births and LBW infants. However, there is not enough evidence to support this hypothesis. One study (115) found that in spite of early initiation and adequate antenatal care, there was no difference in the pregnancy outcomes between those receiving care in a specialized adolescent pregnancy clinic and those receiving care in a traditional antenatal care clinic. Only one study (169) compared the pregnancy outcome among adolescents receiving care in an adolescent-focused clinic and the pregnancy outcome among older women (19–30 years) receiving care in a traditional clinic and found no difference.

The second hypothesis of the multidisciplinary approach is that emphasis on educational, social and nutritional needs would result in improved pregnancy outcomes. The effect demonstrated in the above-mentioned studies (115,141,169) on the outcome of pregnancy, i.e. improvement in maternal weight gain and reduction in LBW and preterm infants, was most likely due to social support and improvement

in health behaviours such as change in nutrition (as the participants were more frequently referred to a food supplementation programme) and behaviour change related to smoking and substance abuse.

The outreach component (141) and emphasis on continuity of care (160) with providers expert in the unique developmental needs of adolescents suggest that forming a long-term relationship with providers helps adolescents to stay connected with the health-care services and to improve the outcomes.

The evidence derived from the above-mentioned studies and programmes highlights the need to address pregnant adolescents' social, educational and nutritional needs in any programme. In spite of the fact that the evidence is primarily from United States -based research, these strategies can be applied to resource-poor settings. However, training of health-care providers to attend to the unique needs of pregnant adolescents is crucial.

6.1.2 Programmes based on an integrated and holistic approach

The programmes described below are a step further than the ones described above. These programmes are based on a more integrated and holistic approach including empowerment of girls, emphasis on development of life skills, education and medical concerns.

1. Better Life Options Programme (BLO) in India

This programme has been implemented by the Centre for Development and Population Activities (CED-PA) in India since 1989—in the urban slums of Delhi, rural Madhya Pradesh and rural Gujarat (102). The programme is based on a holistic approach integrating education, livelihood and reproductive health, and aims to broaden the life options of adolescent girls aged 12–20 years.

The programme offers a combination of life skills including literacy and vocational training support to enter and stay in school, family life education, and leadership training. An assessment of the impact of this programme shows that the BLO participants ($n=179$), compared to non-participants ($n=223$), had significantly higher rates of education completion (66% vs. 46%), mobility – as measured by use of public transport (58% vs. 25%), and employment. Compared to 22% in the controls, 99% of BLO participants had learned a vocational skill and had increased self-esteem and confidence, both by taking a greater role in decision-making and frequently accessing health-care services for themselves and their children (175).

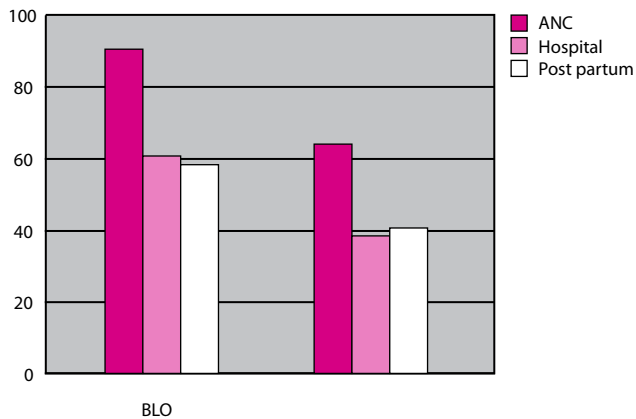
The programme, while meeting developmental needs of adolescent girls, also promotes social change through the education of parents and family, the community, and decision-makers at local, national and international levels. BLO offers tentative support for empowerment and enables young girls to have a greater say in pregnancy and delivery-related care.

In the assessment of reproductive health behaviours, only married BLO participants were assessed. BLO participants were more likely to have received antenatal care and to have received it by a professional. They had at least three check-ups and had complied with iron/folate supplementation and tetanus immunization. About twice as many BLO girls delivered at a hospital compared to the controls (60% and 37%). Also, most of the girls had their deliveries attended by a trained person both at home and in the hospital. The main reasons cited for not delivering in a health facility include the expense of delivery at the hospital, a lack of perceived necessity by the client, or incompatibility with prevailing local customs.

Some 48% more girls in the BLO group received postpartum care; they were 51% more likely to have received postpartum care within a month of delivery and 37% more likely to receive it in a hospital as compared to the non-participant adolescents. (Figure 14)

There are several limitations in this study. Baseline data were not collected. The study sample excluded alumni who might have married and moved away, and therefore were not available to participate in the survey. Selection bias is also likely because participation in the programme was voluntary and may reflect the high motivation of the participants for obtaining life and vocational skills.

Figure 14. Utilization of health services by married adolescents (BLO versus controls)



2. Programme for Adolescent Mothers – Women’s Centre of Jamaica Foundation (WCJF)

WCJF is one of the few concerted efforts that have been evaluated and documented to support pregnant as well as parenting adolescents (112).

WCJF started a quality programme for adolescent mothers with the objective of motivating and encouraging pregnant and lactating mothers under the age of 16 years to return to school and continue education. The programme participants were also encouraged to delay a second pregnancy until their academic and professional goals were achieved. This effort raised young mothers’ employment potential and provided them an alternative to depending on others (especially men) for support.

The programme offers the following services:

- **Educational programming.** Since pregnant girls are required to leave school during pregnancy, academic and skills training are geared towards strengthening participants’ capabilities and preparing them academically for return to formal school. For girls who get pregnant in the last year of high school, the programme provides tutoring to prepare them for their final exam. This can be taken at the Women’s Centre, which has been approved by the Ministry of Education as an official examination centre. The centre also provides training in doll-making, embroidery, and chicken or fish farming, etc.
- **Nutritional education and support.** While participants are given nutritional education to develop good eating habits, they are also provided with a daily cooked lunch as well as daily breakfast for the very needy.
- **Day nursery.** To facilitate the return of parenting adolescents, each centre operates a Day Nursery where the babies are cared for while the mother attends educational programmes. The nurseries have been expanded to care for babies of working adolescent mothers. The participants are given advice on breastfeeding. Good parenting habits are encouraged in both young mothers and fathers.
- **Counselling and referral services.** Extensive individual and group counselling are given to adolescents to build self-esteem and increase their understanding of sexual and reproductive health and family planning. Special counselling and referral services are given to the young fathers and parents of adolescent mothers and fathers.

An evaluation of the programme in 1997, twenty years after its initiation, demonstrated that the programme reached 51% of the 3016 adolescents under 16 years of age giving birth island-wide. The programme is responsible for a change in the Education Code (a regulatory law), allowing pregnant and parenting adolescents to continue education. The academic achievements are not limited to the ado-

lescent mothers participating in the programme but also include their children. All the children of the participants attend school and, more importantly, no pregnancies have occurred in the adolescent children of programme participants. A 1996 study, tracing the lives of women who participated in the programme in the past 15 years, found that 50.7% still had one child and that the average spacing between first and second births of all participants was 5.5 years.

3. Reproductive and Child Health Clinic–Action Research and Training for Health Programme (ARTH) in India

The clinic was initiated by ARTH in 1998 as part of a field health service and surveillance programme in a rural area of southern Rajasthan, India (78). Initially, a study of the health-seeking behaviour of women and adolescents was conducted with a baseline study from October 1997 to February 1998. The survey provided baseline data about the socio-demographic profile of 10 project villages, the availability of health-care services and providers, and the reproductive health situation and health-seeking behaviour of women including adolescents related to their reproductive health needs. A set of community outreach and clinic-based interventions was subsequently introduced with the aim of bringing about a positive change in reproductive health status. In 2000 a follow-up end-line survey was conducted with the following objectives:

- to assess utilization of reproductive health services and health seeking behaviour;
- to study current fertility preferences and contraceptive practices;
- to assess major constraints faced by women in accessing reproductive health care;
- to study how the knowledge, beliefs and health-related behaviour of husbands influence the couple's reproductive health.

One of the interventions of the programme is to promote safe motherhood. ARTH's safe motherhood intervention provides maternal and neonatal health services through professionally trained community midwives. In addition, the programme enhances the role of men in the family through community education, thus contributing to safe motherhood.

The clinic is intended to serve two purposes: (a) to provide access to integrated reproductive health services to women and adolescents, and (b) to learn about their needs, perceptions and constraints in seeking health care.

The services offered by the clinic are:

- Antenatal and postnatal care: Because of adolescents' limited mobility and autonomy to travel alone or visit the clinic, especially for the first time, village women volunteers accompanied the adolescent girls to the clinic.
- 24-hour delivery service: both at home and at the health centre.
- Obstetric flying squad (OFS) with first aid services: A nurse-midwife and a male field worker respond to calls for domiciliary delivery and maternal complications and reach the woman's home on motorcycle. They carry an essential drug and equipment kit. The midwife carries out a home delivery and monitors the woman's clinical progress, which includes looking for signs of maternal complications, manages them as per clinical protocols and, if necessary, arranges for referral.
- Obstetrical services: For obstetric emergencies, a nurse mid-wife and male worker arrange transport and accompany women (including adolescents) to hospital.

- Abortion services: They include management of complications of abortion, counselling for unwanted pregnancy, first trimester medical termination of pregnancy and referral services, and post-abortion contraception.
- Child health services: immunization, treatment of malnutrition and common ailments.
- The programme offered low-cost or free services especially to adolescents. For emergency obstetric care, poor women in general and adolescents in particular receive free transport and some medicines.
- Promotion of male involvement: An important aspect of the programme is involvement of men in issues of maternal and neonatal health. Targeted community education of expectant fathers and fathers of young infants (0–2 years) promoted male participation in reproductive health care.

The end-line survey of the above-mentioned study showed a gradual increase in the overall number of client-visits per month from 30 in November 1997 to 350 in January 2000. Safe motherhood interventions resulted in increased utilization of services; for example, several women (numbers not known) sought antenatal care (many came only for tetanus injection) and a minimum essential package⁵ of antenatal care was provided so that complications could be detected and managed in time. Most importantly, the trained nurse-midwives were called to attend 45 deliveries in the initial phase of the study (from November 1999 to November 2000). Most of these women were considered as being at risk by the families – e.g. adolescents with a first pregnancy, or women who had already suffered repeated child losses or had developed a complication.

Men's involvement was evident from the statements made by women visiting the reproductive and child health (RCH) centre affirming that their husbands had become more concerned and cooperative about their health. More men were also seen accompanying their wives and daughters to the RCH centre. In 2000, 56% of men reported having advised their wives to take antenatal care while 29% accompanied their wives during antenatal care visits. However, the baseline data for this particular variable were not available.

6.2 Programmes designed to detect violence during pregnancy among adolescents

Because the high prevalence of physical abuse and violence during pregnancy among adolescents and its subsequent effects on the outcome of pregnancy, as discussed earlier in section 5.7, suggested the inclusion of the detection of violence in antenatal care programmes for adolescents, we identified a study in the United States which demonstrated an increased reporting of violence with a structured assessment protocol (43).

The Maternity Care Coordination (MCC) programme in a health department antenatal clinic in North Carolina implemented a systematic violence assessment protocol with trained staff for all adolescents attending the clinic. The study was based on the hypothesis that a structured assessment tool using a direct approach and multiple assessments throughout pregnancy would increase reporting of violence during pregnancy among adolescents compared with a single, non-structured routine assessment.

The study group included all adolescents 12–19 years of age ($n = 117$) enrolled in the MCC programme between April 1994 and April 1995. The comparison group included all adolescents 12–19 years of age ($n = 129$) who were enrolled in the programmes from January 1993 to December 1993. For the study group, violence during the current pregnancy was determined by an answer of “yes” to the question “Have you been hit, slapped, kicked or hurt since you have been pregnant?” If the answer was “yes”, they were asked about the perpetrator of violence and how and where they were hurt. This assessment was

⁵ This includes haemoglobin estimation, blood pressure, assessment of uterine growth, fetal presentation, fetal heart sounds, albuminuria, tetanus toxoid injection, iron tablets, treatment of other conditions, counselling about the place of delivery, and education about danger signs.

done at the first contact at MCC and repeated in the second trimester and third trimester contacts. For the comparison group, violence during the current pregnancy was determined by an answer of “yes” on the violence item in the psychosocial assessment form labelled “violence at home”, with no further follow-up. There were no statistically significant differences in the socio-demographic characteristics such as age ($p = 0.9$), marital status ($p = 0.6$) and race ($p = 0.09$) between the two groups.

The evaluation of the programme demonstrates that the reporting of violence at the initial assessment was almost twice as high when using the systematic assessment protocol (10.3%) than with the routine assessment (5.4%) (Table 8). However, the difference was not statistically significant (relative risk (RR) = 1.8; 95% CI (0.6–5.2)). Multiple assessment of the systematic protocol increased reporting of violence from 5.4% to 16.2% (RR = 2.8; 95% CI (1.1–7.7)). The multiple regression model, which controlled for race, indicated that adolescents were 2.9 times (95% CI = 1.6–5.6) more likely to report violence during pregnancy using the multiple, systematic assessment protocol than using the single, routine assessment.

Table 8. Comparison of programmes to detect violence among adolescents during pregnancy

	Study group (n=117) Systematic assessment	Comparison group (n=129) Non-structured assessment	Outcome RR (95% CI)
Reporting of violence at the initial assessment (%)	10.3	5.4	1.8 (0.6–5.2)
Reporting of violence during later assessments	16.2	5.4	2.8 (1.1–7.7)

The authors identified some key factors that contributed to increased detection of violence among pregnant adolescents using the standardized assessment protocol. For example, having a written protocol and data collection form provided consistency to the assessment; asking direct questions about specific behaviours such as hitting and kicking were more effective rather than using the term “violence”. Finally, multiple assessments identified more violence for two reasons, either the violence had not started at the first assessment or the client was not ready to disclose at the first assessment because, as the authors noted, one third of the newly reported incidents of violence were identified at the second and third assessments. However, the authors could not determine whether increased reporting in second and third assessments was due to increased exposure to violence in later stages of pregnancy or increased rapport with the maternity care coordinators over the period.

There are some acknowledged limitations of the study such as non-randomized study design; secondly, the study used retrospective assessment of the records in the control group that could have introduced a bias over time, such as social, demographic or other changes that may be responsible for differences in reported rates of violence rather than the assessment tool.

However, in order to replicate or initiate a similar violence assessment protocol the staff’s training would be a critical component not only for violence assessment but also in violence counselling and intervention.

6.2.1 The health sector response to detecting violence during pregnancy among adolescents

The evidence base for a health sector response is still controversial, mainly due to a lack of research in the area, especially regarding the health benefits of interventions. Research is still needed on the women’s perspective of a ‘successful outcome’ regarding health sector responses and interventions. (137,196).

Even less research exists of the health sector response of gender-based violence in pregnant adolescents, for which evidence only comes from North America. This has implications regarding what is an appropriate response to gender-based violence prevention in a health-care setting, and depends upon the cultural setting, availability of resources in the health sector and support from community services.

A particular concern is the implementation of a programme when there is insufficient training for health workers or community support services for referral. This may lead to a situation that is more dangerous for the pregnant adolescent than just doing nothing.

The Pan American Health Organization (PAHO) have recently released a strategy report on how the health sector should respond to gender-based violence, the key points are summarized in Annex 7.

6.3 Programmes designed to increase postpartum contraception use and/or breastfeeding

The value of postpartum care, particularly for adolescents, in providing contraceptives to prevent repeat pregnancy, and in promoting and supporting breastfeeding, nutritional advice and immunization has been highlighted (212). We examined programmes that emphasized the use of postpartum contraception and breastfeeding. A few programmes were identified, but details of the interventions were missing, which makes it difficult to replicate or implement them in different settings.

1. The Adolescent Programme in Santa Barbara D'Oeste in Brazil was started in the *Centro de Pesquisas das Doenças Materno-infantis de Campinas (CEMICAMP)* and uses the social support model for pregnant adolescents (49). The programme provides specialized antenatal care and participation in the support group in preparation for parturition, puerperium and contraception. Evaluation of the programme shows that between 1996 and 2002, the number of adolescents receiving antenatal care in the referral centre increased significantly (approximately one third). The participation in the support group also increased significantly from 2 in 1996 to 268 adolescents (out of a total of 451 pregnant adolescents) in 1999. Most clients returned for postpartum consultation and initiated contraceptive use. However, the follow-up rate was influenced by the location of the centre. Most of the adolescents participating in the programme were aged 14–17 years. The qualitative data also show that the programmatic approach is useful in preparing for parturition.

Pregnant adolescents' evaluation of the programme indicates no difficulties in accessing the services. Although clients sometimes had to wait up to two weeks to obtain an appointment, they could also consult without an appointment when necessary. They expressed great satisfaction with the attention given by the providers and their attitude. They reported receiving important information about labour and delivery and were able to discuss breastfeeding and contraception during pregnancy.

2. A hospital-based programme in Mexico, implemented by the *Asociación Mexicana de Educación Sexual (AMES)*, offered family planning information and counselling at both antenatal and postpartum sessions for adolescents in a public hospital. Education and services were also offered through a special adolescent clinic located in the hospital. An earlier evaluation using focus groups, a survey of programme participants and controls, and a discussion with a "panel of specialists" found that although the intervention group had a somewhat higher rate of contraceptive use than the control group (86% vs. 73%, respectively), more than half (54%) of the intervention group participants did not remember counselling and education sessions given immediately after delivery (42).

As a result of these findings the approach was changed and efforts were made to reach adolescents at various points during pregnancy and in the postpartum period. A second evaluation of the project, two years later, showed some positive effects, e.g. adolescents who had attended an antenatal educational session or received counselling were more likely to space their subsequent births than those who did not attend the sessions (86% vs. 64%, respectively). Even more significant was the effect on antenatal care, the participating adolescents receiving more antenatal check-ups; however, specific data were not reported.

3. Another hospital-based programme in Mexico, the *Educational Program for Adolescent Mothers (PREA)*, is conducted by the Centro de Orientación para Adolescentes (CORA – Adolescent Guidance Centre) (Velasco, 2003 – personal communication). Participants attended postpartum sessions and one or more subsequent sessions on family planning. An evaluation consisting of direct observation, focus groups, in-depth interviews, pre- and post-tests, and system analysis showed that participants who attended postpartum and one or more subsequent sessions had a longer duration of breastfeeding and a higher rate of contraceptive use than the control group (107). However, specific data were not available.
4. In Bangladesh, where marriage tends to occur early, newlywed adolescents have become a priority group for reproductive health programmes. Pathfinder Bangladesh, through its Rural Service Delivery Program (RSDP), has developed a Newlywed Program to address the needs of young married girls (134). The main component of the programme is to encourage both delayed first birth and small families. The programme identifies and registers newlywed couples who are then visited by family planning field workers (depot holders) and hold orientation meetings for newlyweds. Family planning field workers bring congratulatory letters to newlyweds and motivate them to use contraception during home-visits. However, it was not known how these field workers reached newlyweds.

The programme also caters to married pregnant adolescents to promote maternal and child health care and encourage birth spacing for newlywed adolescents (7). The field workers encourage pregnant newlyweds to seek antenatal care services and care from trained birth attendants, as well as provide education about nutrition and breastfeeding. An evaluation found that 78% of the births to newlyweds reached by the programme were attended by trained traditional birth attendants or a health professional, compared to 41% of births to all 15–19-year-olds. Of newlyweds reached by the programme, 89% fed colostrum to their newborn babies, compared to 50% of all mothers who breastfed their infants within the first day after birth.

6.4 Post-abortion care (PAC) programmes for adolescents

Despite the large number of adolescents seeking abortion, PAC programmes have greatly neglected adolescent-specific services and few initiatives have been community-based. On the other hand, many adolescent programmes that focus on the reproductive health needs of youth have neglected to address the special needs of those who have had abortions. For all adolescents who have had an abortion, making a post-abortion contraceptive service available is critical to prevent repeat abortions. Few adolescent-specific post-abortion care programmes exist.

1. Since 1990, Pathfinder International has supported a hospital-based adolescent PAC project at Kenyatta National Hospital in Nairobi, Kenya (73). The hospital treats an average of 20–25 women for abortion complications each day, one third of whom are under 25 years of age. A high risk clinic (HRC) has been established at the hospital to help young women prevent future unintended pregnancies after having had an unsafe abortion or a delivery.

At the clinic, adolescents receive reproductive health, STI/HIV, and contraceptive counselling and are provided with contraception, including emergency contraceptive pills (EC). The clinic has established referral links in schools and communities with a telephone hotline to make follow-up care and contraceptives more easily accessible. Similar projects based on this model have been established in smaller hospitals and clinics in Kenya but no other details are available.

An evaluation of the programme reveals that while approximately half the clients accepted a contraceptive method at the first visit, contraceptive use fell sharply between the first and second months after the visit. The 20% of clients who continued to use contraceptives did so for an average of seven to eight months, thus indicating a need for more effective follow-up and possibly community-based services.

2. In Fortaleza, Brazil, after adolescents receive PAC services in the emergency department at *Escola Assis Chateaubriand Maternity*, they are referred to the hospital's Adolescent Centre (AC), where they receive counselling on reproductive health, in groups and individually, by trained providers sensitive to adolescents' needs and life situations. A longitudinal study conducted at the AC found that 56% in the induced abortion group and 43% in the spontaneous abortion group were using contraception at one year post-abortion.

Both hospital-based programmes—in Nairobi and Fortaleza—indicate an increase in contraceptive use immediately postpartum and post-abortion. However, there is a need to assess and document programmes that sustain contraceptive use and child-spacing through community-based programmes targeting married and unmarried adolescents and their partners.

However, post-abortion care would not be sufficient to improve pregnancy outcomes for adolescents; in countries where abortion services are legal or liberally available, such services would form a programmatic input for dealing with adolescent pregnancy. Since adolescents are at particularly higher risk for seeking services at later gestations, it is important to identify approaches that facilitate early confirmation of pregnancy. Also, since they are at higher risk for accessing services from unsafe providers, it is important to identify approaches for safe abortion for adolescents (in countries where abortion is legal).

6.5 Programmes designed to improve financial access to care

This issue has not been studied specifically in adolescents. However, the prevention of maternal mortality projects in West Africa included two studies, though not specifically directed at adolescents. They involved the setting up of emergency loan funds for pregnant women with complications. The funds were leveraged with external resources and were managed by the communities. Loans were then granted to pregnant women for commodities and services such as transport, drugs, blood and other hospital supplies. The projects concluded that with little external financial input, communities can be enabled to set up and administer loan funds for emergency transport and care. The reports suggested that availability of community loans may increase utilization of emergency obstetric care, but cautioned that this required strong community leadership, strong community mobilization, and continuing involvement of the communities for sustainability over the long term (35,54).

6.6 Lessons learned and programme implications

This section presents lessons drawn from the investigation into some of the major strategic approaches, programme characteristics, and services that exist for pregnant adolescents which have been described above. As most of these are from developed countries, and primarily from the United States, the evidence derived from them may not *per se* be considered a definitive basis for programme strategies and planning in developing countries. This being said, some lessons can nevertheless be learned from these efforts and need to be seen together with the conclusions drawn from the evaluation conducted on strategies and programmes existing in developing countries, and adaptation of the idea to local conditions.

These are summarized below.

1. Specialized adolescent clinics have been suggested to enable early initiation and adequate antenatal care, which contributes to improved infant's birth weight and gestational age at delivery. The programmatic evidence, primarily from the United States, suggests no difference in the pregnancy outcomes in spite of early initiation and adequate antenatal care (115). Moreover, the cost-effectiveness of this approach, particularly in developing countries where resources are limited, needs to be further explored.

2. Multidisciplinary approach. Programmes based on a comprehensive and multidisciplinary approach use a number of care providers, generally including a public health nurse, general physician, a gynaecologist/obstetrician, a dietician or nutritionist, and a social worker (16,115,141,160,169). Home visits and postpartum follow-up visits are often part of this approach which may require more resources. The evidence is mainly from the studies conducted in the United States. The cost-effectiveness of this ap-

proach has not been evaluated rigorously. However, the evidence derived from these studies highlights the probable utility of the following:

- **Social support.** Provision of social support results in improved pregnancy outcome by directly modifying the effect of stress or indirectly influencing health behaviours such as smoking or drug abuse, poor nutrition and attitude towards health-care-seeking (section 6.1) (115,141,169). Social support facilitates the adolescent's use of health-care facilities, e.g. following up on missed appointments, arranging transportation, and assisting with referrals to other services for financial or legal support. Supportive and educational home visits may encourage pregnant adolescents to use health-care services (141). Psychosocial support may be particularly important for very young or unmarried pregnant adolescents.
- **Nutritional support.** Emphasis on the nutritional needs of pregnant adolescents is likely to result in increased maternal weight gain, and improved birth weight and increased gestational age of the infant at birth (160). Improving the nutritional status of girls may contribute to breaking the inter-generational cycle of malnutrition, poverty and disease as well (202).

Addressing the nutritional, social, psychological and financial needs of pregnant adolescents has a positive impact on the outcome of pregnancy to improve birth weight, gestational age at birth, behavioural change in nutritional habits, smoking, and drug abuse.

3. Integrated and holistic approach. Integrating activities into existing services is more cost-effective than creating adolescent-specific services (156). Many efforts have been made to combine services for pregnant adolescents in the same facility as part of a larger programme. Programmes, as described in section 6.5, that offer better life options, are more likely to improve the overall outcome of pregnancy among adolescents than only clinically oriented efforts (78,102,112). The main components of this approach are education, development of life skills, and empowerment of girls, in addition to addressing their medical needs.

Interruption and discontinuation of education, resulting in poverty and related outcomes of pregnant and parenting adolescents, is a major concern. The concern stems not only from the point of view of the adolescent herself but also from intergenerational transmission of poverty and disadvantage to their children. This approach will not only improve pregnancy outcome for the mother and child but also broaden the adolescents' life options, as demonstrated by these programmes described earlier (78,102,112).

An ideal programme for pregnant adolescents is one that addresses their educational, social, economic, nutritional and psychological needs, as well as medical needs.

4. Obstetric services. As discussed in section 4.3, in addition to appropriate antenatal care, proper obstetric care and assistance from a skilled birth attendant at delivery are necessary. Emergency obstetric care (EOC) should be an essential component of any programme for pregnant adolescents, as a greater proportion of maternal mortality occurs during labour, delivery and in the 24 hours post delivery (89). Yet, there is no evidence of such efforts in most of the programmes described in Part 6. The two programmes, ARTH (79) and BLOP (102), have included basic and emergency obstetric care as part of their efforts to improve pregnancy outcomes for the mother and child.

5. Abortion services and post-abortion care. A large number of adolescents seek abortions that are mostly unsafe, leading to high morbidity and mortality (section 3.1.10 and 4.2), and yet there are few initiatives that focus on their specific needs. Special needs of those who have had an abortion, with provision of a contraceptive service, is critical for prevention of repeat unwanted pregnancy (73).

6. Postpartum/post-abortion contraception to prevent repeat pregnancy. Contraceptive counselling should be an integral part of antenatal, postpartum and post-abortion care to prevent repeat pregnancy (section 4.4). Combining contraceptive counselling with antenatal, and postnatal and post-abortion care is increasingly being used in programmes for pregnant adolescents (section 6.3) (7,49,73). Studies are still inconclusive about the most effective time for contraceptive counselling, whether it should be given during pregnancy or postpartum (42,107).

While it is known that immediate postpartum and post-abortion family planning counselling and services can increase family planning use by adolescents, it is believed that contraceptive behaviour cannot be sustained without continued community service interventions that are available and accessible to adolescents. Unfortunately, in many countries there are policy barriers precluding adolescents' access to these services in the community, particularly for unmarried adolescents.

7. Promotion and support for breastfeeding. Given the advantage of breastfeeding and the evidence of programme potential in a few of these efforts (7,49,107), programmes should include components to promote, encourage and support breastfeeding among adolescents. Breastfeeding has to be started as early as possible, preferably in the first hours following birth (203). Counselling for breastfeeding can start during the antenatal period, and adolescents particularly need guidance (212). A study in India found that women who received information about breastfeeding during pregnancy were more likely to initiate early breastfeeding (122). However, it is important to take into account special cases such as HIV-positive mothers and those who want to give their babies for adoption.

8. Child health services. In order to reduce neonatal and infant mortality (section 3.1.8) among the infants of adolescent mothers, support for newborn and infant care is essential. Child health services should include immunization, treatment of minor ailments, and malnutrition particularly in developing countries (78).

9. Detection of violence. An area of increasing concern is violence and coercion during or before pregnancy (section 5.7). Pregnant adolescents' contact with the health-care provider is the opportunity to detect violence that should not be missed. The issue of detecting violence during pregnancy is challenging and even more so is its prevention. However, staff training is crucial for assessment, counselling and intervention (43).

10. Recruitment and outreach. It is a common conclusion that pregnant adolescents do not often utilize health-care services for various reasons (section 4.1) (205). Community outreach approaches may have potential for increasing the use of health-care services, but more research is needed (78,102,141).

11. Community involvement and involvement of men. Community involvement has not often been measured as a factor leading to programmatic success, but there is consensus that it does play a role (Barker and Fontes 1994, Koontz and Conly 1994, cited in 156). In this review of programmes a community-based programme in India by ARTH, as described in section 6.5 (3) (78), suggests a greater potential for success of such programmes with community involvement. Involving the community at large, men in particular and community leaders, in societies where men are the main decision-makers at both the household level and community level would ensure their support and acceptance.

The adolescent father is neglected in most programmes. Sachs, Poland, and Giblin addressed the issue of involvement of the adolescent father more fully in pregnancy and childbearing (145) and suggested the father as a support for the adolescent mother. The evidence is limited; however, data from Latin America suggested a positive effect from the involvement of the father on the well-being of the child. (section 3.2)

Community loan funds can be useful, but the access of adolescents to these funds needs to be further studied. (section 6.5)

12. Clinic environment. Many aspects of the clinic environment have been cited in the literature to make the setting inviting, comfortable and pleasing. Adolescents are likely to utilize services if the antenatal care clinic environment is attractive and welcoming, and if special efforts are made to register and retain them in care (32). We identified three characteristics as essential elements of a clinic service for pregnant adolescents.

- *Providers' attitude.* As discussed in section 5.6, adolescents have needs that have to be addressed differently from adults. It has been shown that health workers often lack the experience and special training in dealing with adolescents. Thus, they may be reluctant to provide services.
- *Location.* Convenient location of the health care delivery centre is of greater importance for pregnant adolescents. As distance can be a deterrent to seeking health care (section 5.5), the service should be available within the vicinity (49) with facilities for transportation (78). Transportation is necessary for routine clinic use and becomes even more crucial in case of obstetric emergencies. Sendrowitz recapitulates the situation, "Proximity is the key, with affordable transportation as part of the equation" (156).
- *Costs.* Financial and opportunity costs limit adolescents' access to health-care services (section 5.3). The cost of antenatal and obstetric care including emergency obstetric care must be affordable (78,102). Community loans can be useful, but the access of adolescents to these funds needs further study (section 6.5)

Other reports have described the characteristics of an adolescent friendly health service: policies and procedures, health-care providers and support staff, facilities, community involvement and dialogue, outreach and peer-to-peer services should all be adolescent friendly in a health service that is appropriate, comprehensive, effective and efficient (211).

7

Conclusions and recommendations

This section presents the conclusions and recommendations related to pregnancy and childbearing among adolescents, based on this review of the literature. Numbers in brackets in roman type (e.g. 3.1.2) refer to sections in this document, and in italics (e.g. 215) to references.

7.1 Conclusions

7.1.1 Consequences of pregnancy and childbearing among adolescents:

Anaemia

There is high prevalence of anaemia among adolescents in developing countries (153), often caused by nutritional deficiencies (e.g. iron and folic acid) and malaria (3.1.2) (213,212). Iron supplementation delivered through the school and targeted at adolescents who are at risk, and before pregnancy is an effective way to prevent anaemia and iron deficiency (3.1.2) (61).

Anaemia can be treated adequately during antenatal care. Since adolescents often do not receive adequate antenatal care, anaemia during labour and delivery may be worse than in older women (3.1.2) (212). There is a high risk of LBW and preterm delivery among iron-deficient anaemic adolescents (3.1.2) (151,155).

Improving the nutritional status of girls may contribute to breaking the inter-generational cycle of malnutrition, poverty and disease as well (202).

Malaria

In endemic areas, malaria is one of the most important causes of maternal mortality among adolescents (3.1.6) (26,67). Effective delivery of chemoprophylaxis or intermittent preventive treatment to all pregnant adolescents is one of the most important interventions in malaria in this age group. Bednets may prevent infection in certain transmission conditions. The prompt recognition and treatment of malaria is crucial in the pregnant adolescent. Early detection and treatment is the most important intervention in low and unstable transmission areas with multidrug-resistant *P falciparum* (3.1.6) (212).

HIV

In countries with a high prevalence of HIV infection, sexually active adolescents are at increased risk of acquiring HIV infection (3.1.12) (212). Preventing, diagnosing and treating tuberculosis (TB) can reduce the number of maternal deaths among pregnant women, including those with HIV (61).

Fistulas

Early marriage, malnutrition and poor access to emergency obstetric care can lead to obstetric fistulas (183).

Pre-term delivery

Pregnant adolescents are at greater risk of preterm labour and delivery as compared to older women in both developed and developing countries (3.1.7) (40,70,94). Pregnant adolescents <14 years of age have the highest risk of preterm birth (3.1.7) (130,212).

Psychological stress, especially where social support is inadequate (92,123), poor nutrition (76), and smoking or drug abuse contribute to preterm birth (3.1.7) (121). Physical violence during pregnancy also increases the risk of preterm labour or delivery (5.7) (39).

Low birth weight in infants

Adolescents are at increased risk of a LBW infant, including very low birth weight, compared to older pregnant women, but there is no evidence that they are at increased risk of a small-for-gestational-age infant. (3.1.8) (11,56,97,101,212).

The incidence of LBW is significantly higher in younger adolescents aged 10–14 years as compared to adolescents aged 15 years or more (40). Social, psychological, and nutritional factors have been causally associated with LBW (212). The additional burden of malaria therefore clearly has the potential for increasing adverse consequences in adolescents, including LBW infants (3.1.6) (212).

Maternal mortality

The risk of dying from pregnancy-related causes is twice as high for women aged 15–19 years as for women in their twenties. For girls aged 10–14 years, the risk may be five times higher than for women in their twenties (3.1.10) (184). Risk of dying during pregnancy and childbirth is higher among adolescents of lower socioeconomic status and lower level of education, and who make less use of health facilities and antenatal and obstetric care (3.1.10) (20,103,194).

In developed countries with reliable abortion statistics, a high percentage of adolescent pregnancies (30–60%) end in induced abortion (212). In developing countries, especially where induced abortion is unlawful, adolescents run the highest risk of serious complications from unsafe abortion (3.1.11) (212).

Perinatal mortality

There is an increased risk of stillbirths (28) and neonatal mortality (216) among adolescents compared to women aged 20–29 years (3.1.9). Risks of perinatal and infant mortality are particularly heightened for young adolescents <15 years of age (3.1.9) (130).

Smoking during pregnancy causes fetal growth retardation and increased perinatal mortality rates (3.1.13) (212). Other studies found higher rates of premature delivery and spontaneous abortion as a consequence of smoking (61). Passive smoking has also been found to lead to LBW in infants (61). Chewing of tobacco (as opposed to smoking) has also been found to have adverse effects on the offspring (61). In a number of studies, a high prevalence of smoking during pregnancy has been found in adolescents, compared to non-pregnant adolescents and to pregnant women aged >20 years (3.1.13) (212).

Smoking cessation programmes for adolescents can be effective in preventing tobacco use (61). Health workers can successfully be part of the smoking cessation programmes, which should also include family members who smoke (61).

Economic

Adolescent pregnancy and childbearing can be associated with poor educational attainment and poverty (3.2) (173). In developed countries a close correlation exists between social deprivation and the number of adolescent pregnancies (3.2) (212). Often pregnant girls have to leave school, thus further limiting their long-term educational, employment and self-support opportunities (3.2) (101,133,180).

Adolescent childbearing is more likely among women with low levels of income and education in developed (166) as well as in developing countries (3.2) (31). In several countries, adolescent childbearing is associated with negative long-term effects for adolescent mothers, e.g. more future (adolescent) births, adverse socioeconomic conditions, premature termination of education, and poor earning capacities (3.2) (212).

Fertility patterns of younger mothers were significantly different from those of mothers aged 18–19 years. Younger adolescent mothers had more births. This higher total fertility effect can be expected to be mediated by access to and use of effective contraception (3.2) (29).

Studies also suggest that adolescent mothers tend to give birth to children who later also become adolescent mothers (3.2) (29). In some developing countries, the children of poor adolescent mothers have

a significantly poorer nutritional status than children of older mothers (and children of “non-poor” adolescents), poorer development of language, and behavioural problems (212).

Violence

Pregnant adolescents are as vulnerable to violence and physical abuse as older women. With staff training and a systematic approach, violence can be detected during antenatal care (5.7) (43). A simple abuse assessment protocol during ANC can lead to better detection of abuse, as well as referral (61). Children of adolescent mothers are at increased risk of physical abuse and maltreatment (5.7) (212).

Access to contraception

In many countries, access of adolescents to contraceptive services is difficult compared to adults (211). In developed but especially in developing countries, more attention is needed for emergency contraception (211). Access to a choice of safe, affordable and appropriate family planning knowledge and methods is essential to ensuring safe motherhood by reducing unwanted pregnancies (61).

7.1.2 Health-seeking behaviour of pregnant adolescents

Utilization of antenatal care services is poor among adolescents (212) and varies by region of the world, marital status, level of education, parity, and urban versus rural area of residence (4.1) (27,108,127). In developed and developing countries, antenatal care of adolescents often falls short of the standard of the country and is insufficient (212). Even when adolescents do seek pregnancy-related care, it is often delayed or of inadequate frequency (4.1) (53,153).

The reasons for delay in receiving care earlier in pregnancy are inability to recognize signs of pregnancy (170), unwillingness to believe or admit they are pregnant (165), unavailability and inaccessibility of services (5.5) (32,78,106,141), and coercion and violence during pregnancy (5.7) (50,132). Delay in entry into antenatal care could also reflect an unwillingness to continue with pregnancy (4.2) (212). Adolescents also seek abortion later in pregnancy and resort to unsafe procedures, putting them at greater risk of complications (3.1.11 & 4.2) (209).

7.1.3 Content of antenatal care for adolescents

Timely entry into antenatal care (by first and second trimester) and appropriate care are important for the management of anaemia, malaria, and preterm labour (4.1) (212). Antenatal care and management of conditions such as preterm labour and delivery, anaemia, and hypertension (though there is no evidence to suggest that adolescents have a higher risk of hypertension during pregnancy) need not be different for adolescents from that for adult women (4.1) (212). There is some evidence that preterm labour and delivery can be prevented with nutritional advice and supplementation, but more research is needed (160,210).

The “Plan for Birth” is an essential component of antenatal care for adolescents, given the high incidence of preterm labour and delivery among them (4.1) (208). Pregnant adolescents are as vulnerable to violence and physical abuse as older women. With staff training and a systematic approach, violence can be detected during antenatal care (43).

The malaria-related mortality rate for adolescents can be significant and more serious than in older women. Unbooked deliveries and poor antenatal care were major risk factors (3.1.6) (66,67). Malaria can easily be treated and WHO has a framework for malaria control during pregnancy. This should be especially applied to adolescents who may be given priority for insecticide-treated bednets in resource-poor settings (3.1.6) (214). The prevention and treatment of malaria among pregnant adolescents, the management of anaemia during pregnancy, and treatment of STIs can significantly improve fetal outcomes and improve maternal health (3.1.2, 3.1.5, 3.1.6, 3.1.12). Adverse outcomes such as low birth weight can be reduced through a combination of interventions to improve the nutritional status of adolescents and prevent infections (malaria, STIs) during pregnancy. A large majority of pregnant adolescents are not considered at high risk during labour and delivery, but special attention is needed for pregnant adolescents <14 years of age (212).

The effect of smoking goes beyond its adverse effect on perinatal mortality. Maternal smoking and maternal passive smoking during the postpartum period has been linked with the sudden infant death syndrome (3.1.13) (61). There is evidence that smoking cessation education can result in higher cessation and reduction rates among pregnant smokers as compared to non-pregnant smokers (3.1) (61).

Immunization with tetanus toxoid is one of the ways to reduce neonatal mortality, as well as maternal tetanus which is also a cause of maternal mortality (61).

Treatment of severe iron deficiency with iron and folate may reduce the risk of maternal mortality and morbidity (61).

Preventing, diagnosing and treating tuberculosis can reduce the number of maternal deaths among pregnant women, including those with HIV (61).

7.1.4 Care during labour, delivery and postpartum period

In developing countries, where 98% of pregnancy- and childbirth-related deaths occur, most women do not deliver in health-care facilities and are not aided by a skilled birth attendant (4.3) (185,216).

Social and emotional support can minimize the effect of labour and delivery for young girls (212).

In some countries, adolescents appear over-represented in the group not being delivered by a skilled attendant. Information regarding the proportion of adolescents giving birth at health-care facilities or whose deliveries are attended by a skilled birth attendant is extremely limited. More research is required on this issue (4.3 & 4.4).

Postpartum care is less routine as compared to antenatal care in both developed and developing countries (4.3) (153).

The woman who has just delivered should be observed for at least 24 hours (and preferably for one week postpartum) to detect major causes of maternal mortality, such as postpartum haemorrhage, eclampsia, infections and mental health problems (61).

Postpartum care is important for counselling, provision of contraceptives to prevent or delay repeat pregnancy, promotion and support of breastfeeding, nutritional advice, immunization, and care for the newborn (4.3) (212). Postpartum care is vital, especially for adolescents, to delay a second birth, allow development of economic and life plans, and reduce the birth interval.

7.1.5 Determinants of health-care-seeking behaviour of pregnant adolescents

Pregnant adolescents' health-care-seeking behaviour is influenced by a large number of factors operating at the individual, family, school, community and societal levels. These factors are all potential leverage points for intervention, and therefore information on their relative importance in different country settings is essential to determine intervention priorities (Part 5).

Higher levels of schooling for girls and women are correlated with increased obstetric survival (5.1) (61).

Socio-cultural and educational barriers to the autonomy of pregnant adolescents preclude access to health-care services and health information, in spite of their level of education (5.1 & 5.2) (15,149).

Limited mobility and financial barriers, including transportation and opportunity costs throughout the developing world and even in some developed countries, preclude active health-care-seeking behaviour by pregnant adolescents (5.3, 5.4 & 5.8) (9,33,59,63). These barriers are further exacerbated by lack of training and skills on the part of health-care providers.

Transportation systems can be successfully linked to emergency obstetric care, thereby decreasing the number of maternal deaths (61).

The decision to seek care is largely made by husbands and, in some situations, community and religious leaders and village elders. Mothers-in-law also have an influential role to play (5.1).

Community health education, including the men, is effective in improving the number of women who attend ANC and seek skilled attendance for their birth, with resulting good outcomes (5.8) (61).

Besides general community awareness, individual counselling of women and sometimes of members of the community about danger signals requiring EOC can increase the knowledge and use of the services (5.8) (61).

Delay occurs in receiving appropriate and adequate treatment due to shortage of equipment and supplies, particularly in cases of obstetric emergencies that contribute to maternal mortality (5.5) (78,174).

Community education on female genital cutting and presentation of alternative rituals for FGC can reduce the risks of maternal morbidity and stillbirths (5.8) (61).

7.1.6 Barriers to utilization of health services

Available services are not always oriented to the special needs of adolescents, particularly unmarried girls (5.6) (22,88).

Ignorance of the existing services is one of the major barriers to the utilization of services by adolescents (5.5) (12).

Threats and previous experience of domestic violence prevent adolescents from seeking care (5.7) (148).

In general, national laws and policies on health care for pregnant women lack specific reference to the problems of adolescents. The legislation mainly deals with the broader aspect of maternal health, irrespective of age or marital status (5.9) (135). However, for the most part, adolescents still lack access to maternal health services and safe abortion services (5.9) (179).

Training clinic staff and making sexual and reproductive health services more adolescent friendly can increase the number of adolescents who receive ANC (61).

Improving the quality of care can increase the likelihood that pregnant women will go to health-care facilities in case of obstetric emergencies, thereby averting death (61).

7.2 Recommendations

The evidence shows that the situation of pregnant adolescents varies greatly depending on the age, marital status, whether the pregnancy is wanted or not, social class, educational attainment, urban or rural residence, region and cultural context, and therefore requires interventions that are flexible and appropriate. A single programme model cannot suit all needs. Models have to be adapted to the available resources and the social and cultural contexts.

Taking into consideration these remarks, a conceptual framework of the recommended basic package for pregnant adolescents is presented in Annex 5. Key elements of the basic package, with potential benefits as discussed in section 6.5, are shown in Annex 6.

Some general recommendations are given below:

7.2.1 Policy

- Minimize restrictions or remove barriers to pregnant adolescents' access to services (6.1) (28).
- Ensure dissemination of policies for making the adolescents aware of their rights and available services.
- Provide linkages with alternative options, e.g. increasing the age at marriage could be linked with universal education, availability of vocational training (6.1.2).
- Ensure that pregnant and parenting adolescents return to school (6.1.2).
- Ensure that reproductive health information and services for married and unmarried pregnant adolescents are legally available and widely accessible (5.9).
- Provide safe abortion and post-abortion care services for adolescents (where abortion is legal) (6.4).

7.2.2 Capacity-building

- Train providers, particularly in counselling and communication skills, to work better with adolescents (6.1, 6.2, 6.3 & 6.4).
- Build the capacity of health-care providers to ensure access to emergency obstetric care (4.3 & 6.1.2).

7.2.3 Content of care

- Antenatal care for adolescents should start early with the provision of pregnancy tests, counselling, and options for continuing or terminating the pregnancy (3.1.10) (28).
- Treatment of anaemia with iron/folic acid supplementation during pregnancy (3.1.7 & 4.1) (208).
- Counselling and nutritional supplementation during pregnancy and postpartum period (4.1) (48,160).
- In endemic areas, treatment and management of malaria should be a component of antenatal care provided to adolescents (3.1.2) (27,214). Intermittent preventive treatment and insecticide-treated bednets should be provided, particularly in areas of stable transmission, and adolescents should be given priority.
- Adolescents, in particular, should be given adequate social support during pregnancy, labour, delivery and the postpartum period (4.1, 4.1, 4.3 & 4.4) (141,212).
- Adolescents, especially those ≤ 14 years, need special attention to address their social, nutritional and medical needs (3.1.3, 3.1.4, 3.1.7, 3.1.8, 3.1.9 & 3.1.10).
- Adolescents should have access to interventions to reduce mother-to-child transmission of HIV during the antenatal period and delivery. This is usually in the form of voluntary HIV testing and counselling and should be followed by appropriate treatment, support and care (4.2) (212).

- The “Plan for Birth”, including the place of birth and availability of transportation and costs involved, is essential particularly for adolescents, in light of the higher incidence of premature delivery (4.1) (208).
- Preparation for parturition relieves anxiety about the unknown events of labour and delivery (4.1) (49).
- Systematic detection of violence should be part of the routine antenatal care provided to adolescents (5.7 & 6.2) (43); the training of providers is crucial in this respect.
- Postpartum care (if possible, home visits) is particularly important for adolescents in order to promote and support breastfeeding and contraceptive use (4.4 & 6.3) (49,132).
- Counselling for breastfeeding and contraception should start during the antenatal period (4.1 & 6.3) (121,203).

7.2.4 Family and community

- Involving the community at large and men in particular and including “mothers-in-law” in societies where they are the main decision-makers both at household and community level, would ensure their support and acceptance in utilization of services (5.1) (78).
- It is important that knowledge of the complications of pregnancy and their signs should be widely disseminated to pregnant adolescents and the community at large. It may provide the route for ensuring that pregnant adolescents deliver with the assistance of a skilled health-care provider.
- Life skills (including vocational training) and sexuality education programmes will increase adolescents’ autonomy, mobility, self-esteem and decision-making (6.1.2).
- Programmes need to be implemented to empower adolescents to deal with domestic violence (6.2).
- Reaching newly wed adolescents will delay their first pregnancy (6.3.4).
- Emergency loan funds for health care should help improve financial access to care (6.5).
- If possible, provide 100% subsidy for maternity care and services for all adolescents and very young adolescents in particular.
- Community-based distribution programmes for postpartum and post-abortion contraception (6.4) should be encouraged because of the evidence that contraceptive use can fall sharply after post-abortion care provided at the clinic.
- Programmatic evidence suggests that community involvement, particularly involving men as major stakeholders in support of the adolescent, eases some of the barriers related to pregnant adolescents’ access to services. Thus, community and male involvement strategies should be applied and the result assessed in other projects designed to improve pregnancy outcome among adolescents.

7.3 Research gaps and implications for research

The review of the literature on adolescent pregnancy highlights the following gaps in research and implications for research.

- A definite need for disaggregated data collection (by age). It is not possible to relate the age at pregnancy to adverse outcomes in each age group starting at 11 or 12 years of age. Because of the paucity

of data, this information should be obtained so that in future one would know when the risk of adverse pregnancy outcome is high among adolescents.

- The health-care-seeking behaviour of pregnant adolescents *vis-à-vis* their use of health-care services during pregnancy, particularly during labour, delivery and in the postpartum period.
- Information on the proportion of adolescents giving birth at health-care facilities or whose deliveries are attended by skilled birth attendants is extremely limited.
- Data particularly regarding the utilization of services and the pregnancy outcomes among the very young adolescents (<15 years of age).
- Definition of the needs of pregnant adolescents from their perspective as well as from that of their family and community.
- How successful is male involvement in overcoming the barriers for pregnant adolescents to have access to maternal health, family planning and abortion services.
- Operational research and evaluation regarding outreach activities, particularly in reaching pregnant adolescents who are out of school, very young and very poor.
- The characteristics and services offered to pregnant adolescents at individual clinics and the training approaches for providers.
- The effect of youth-friendly maternal health services related to their utilization and pregnancy outcome.
- The relative costs and effectiveness of individual components of care in different programme strategies and approaches.
- Issues relating to policy and the influence of policy to promote and prevent pregnant adolescents' rights and access to services.

Future research would necessarily have to take into account these gaps and deal with these issues to enhance knowledge on which policies and programmes can be designed.

8

Policy implications

Some governments have adopted laws and policies to protect and promote the rights and health of adolescents. However, the rights and health care of *pregnant adolescents*, married and unmarried, are neither protected nor promoted by the legal systems in many countries. Moreover, pregnant adolescents face many obstacles in exercising their rights due to rigid social and cultural norms, limited access to financial resources, and restrictive government policies. Many of these governments are committed to UN Conventions, such as the Rights of the Child or the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW), and the monitoring systems can be used to hold governments accountable.

Policies must address the underlying social, cultural and economic factors that contribute to pregnancy and childbearing among adolescents. They must improve the status of adolescent girls and expand their opportunities by:

- Providing opportunities for formal education. Special efforts are needed to overcome barriers that preclude young girls from attending school. Greater commitment, political will and resources are required to improve the overall status of girls.
- Enabling pregnant and parenting girls to continue their schooling. Traditionally, pregnant school girls have been forced to leave school. Policies designed to keep girls in school allow them to acquire education and develop skills that enhance their ability to care for themselves and their families and to increase their long-term employment opportunities.
- Publicizing and enforcing existing laws on the minimal age of marriage and establishing statutory marriage law applicable to all marriages. Experience in many countries suggests that it is difficult for policy-makers to influence age at marriage and childbearing directly. In spite of the legal age for marriage (16 or 18 years of age), many women marry below this age.
- Informing adolescents about their rights, especially the right to have access to health-care services.
- Improving access to antenatal, postpartum and post-abortion care services for married and unmarried adolescents.
- Making family planning information and services more widely available to adolescents and offering emergency contraception.
- Ensuring that married couples (a significant proportion of adolescent pregnancy and childbearing occurs within marriage) have counselling and education about contraception and abortion.
- Linking access to information on abortion with access to services.
- Improving post-abortion care for those who are hospitalized for abortion complications.
- Integrating services to identify, refer and prevent domestic violence in primary health or reproductive health-care programmes for adolescents.
- Sensitizing safe motherhood programmes to be particularly vigilant and responsive to the condition of physically abused adolescents during pregnancy and the postpartum period.

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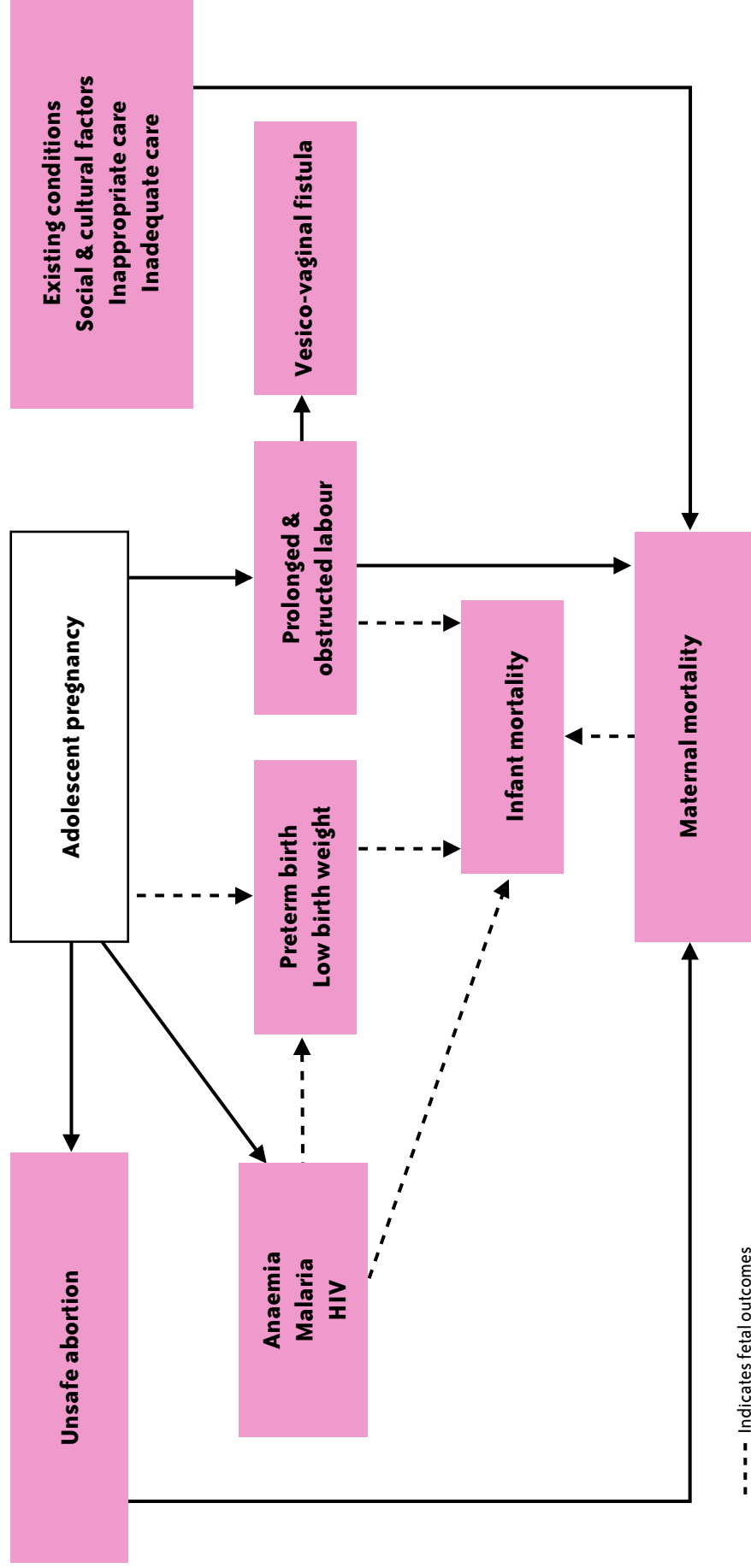
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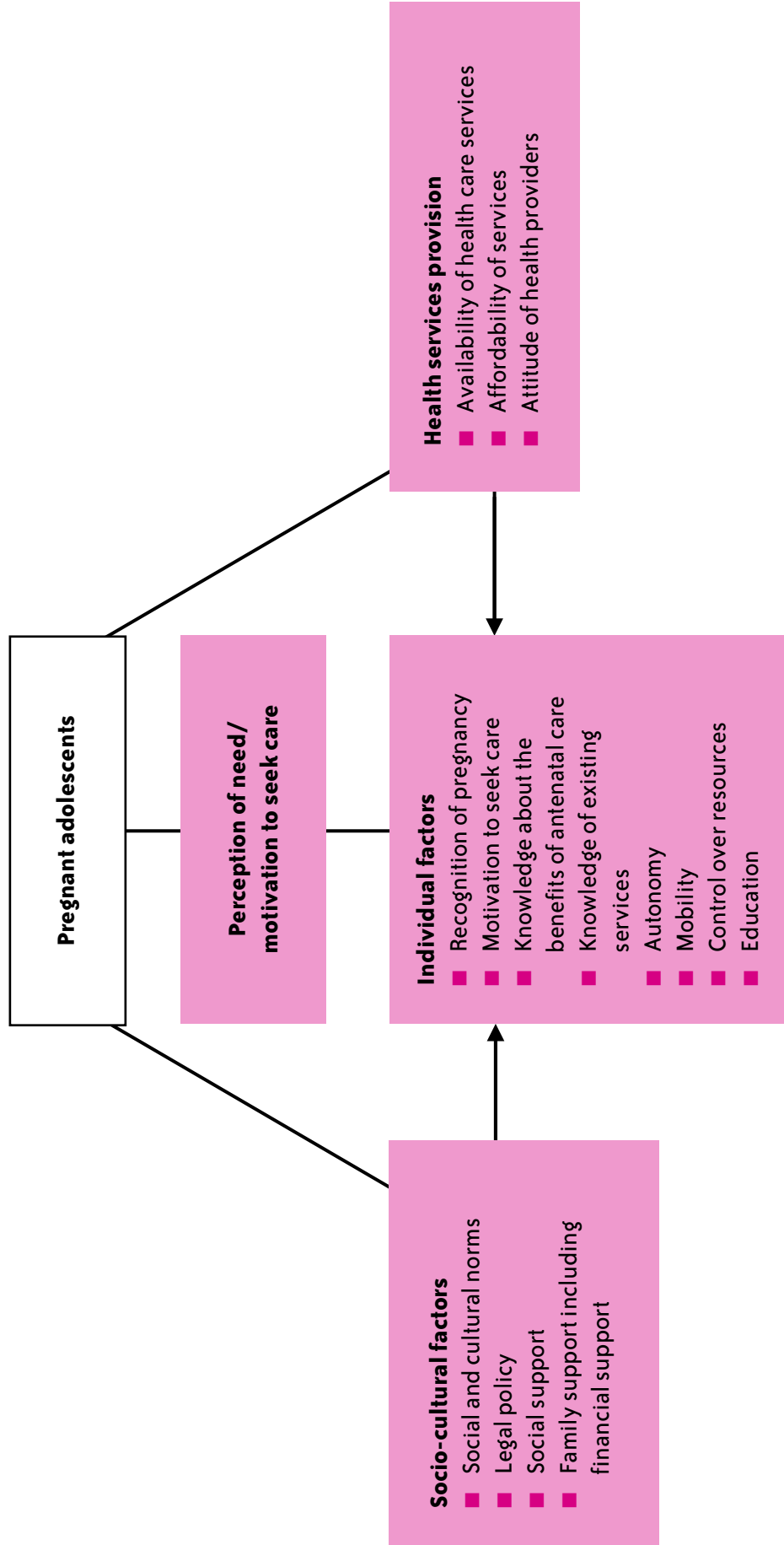
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Annex 2. Health consequences of adolescent pregnancy

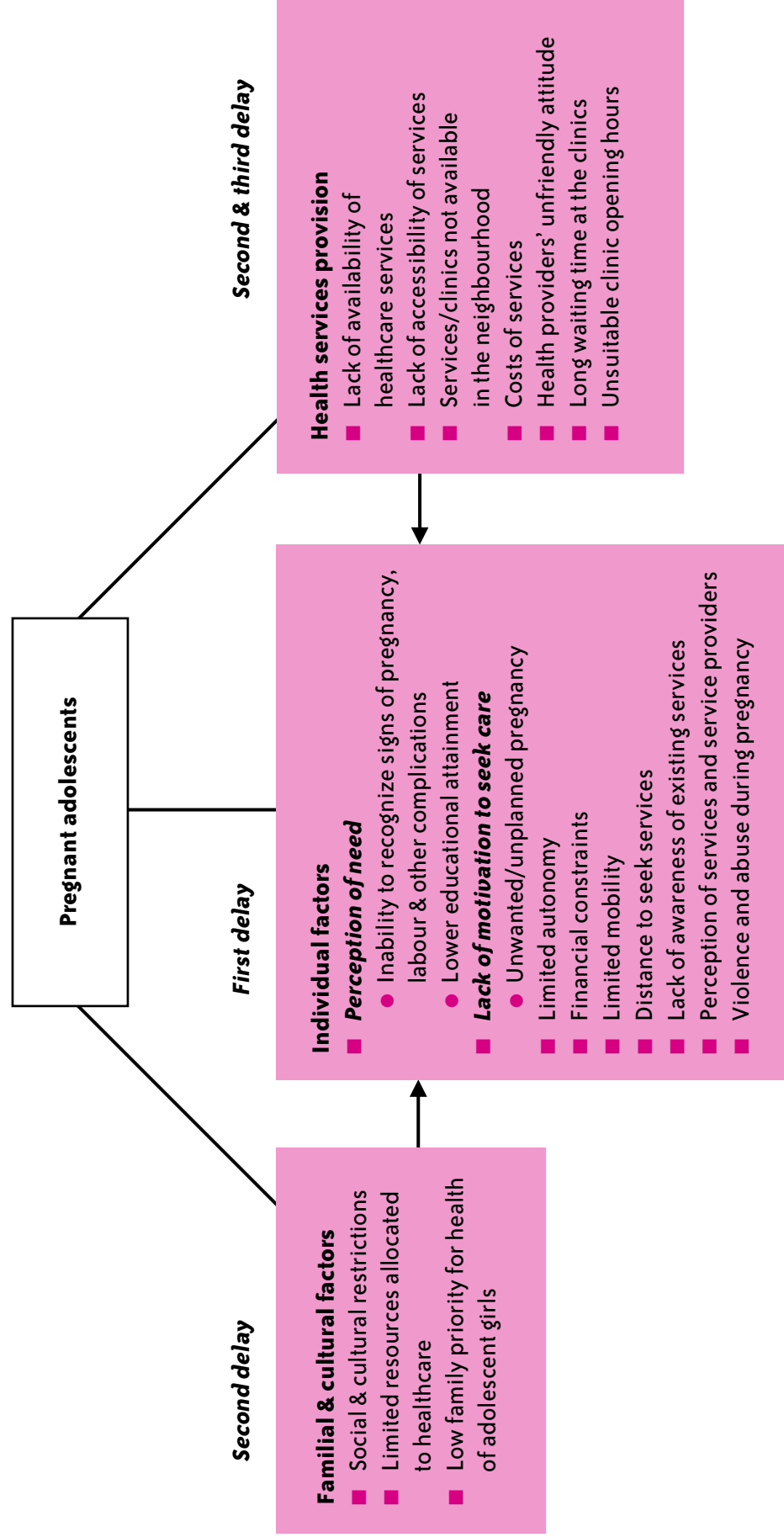


- - - - Indicates fetal outcomes

Annex 3. Determinants of health-care-seeking by pregnant adolescents

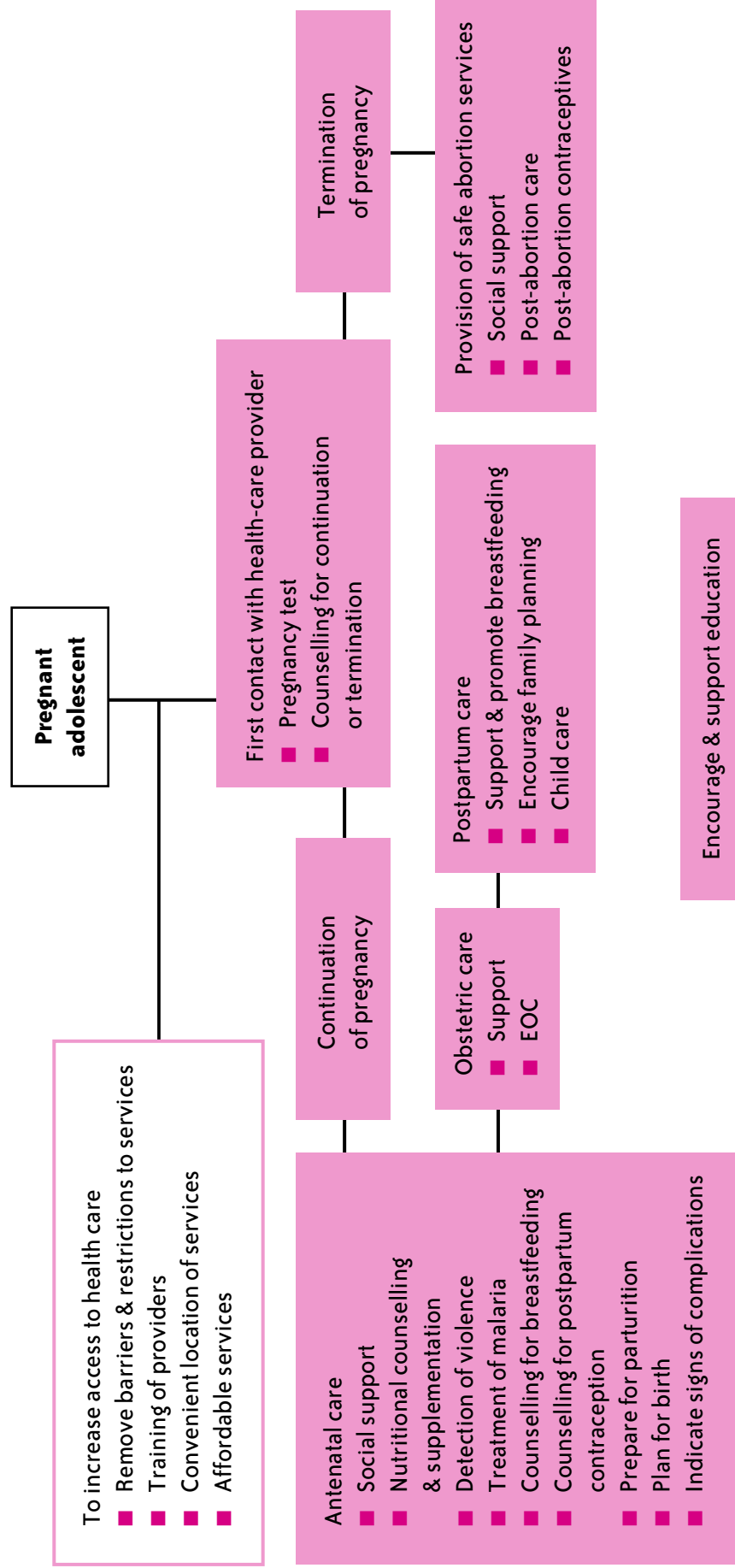


Annex 4. Barriers for pregnant adolescents to access health care



Annex 5. Conceptual framework of the recommended basic package to improve pregnancy outcome among adolescents

Aims: Reduce maternal & infant morbidity & mortality • Reduce preterm birth and LBW infants • Promote breastfeeding and prevent subsequent pregnancy • Encourage return to school after pregnancy and childbirth



Annex 6. Key elements of the basic package for health and development of pregnant adolescents

Aims: Reduction of maternal & infant mortality Reduction of LBW & preterm infants

Strategic approach/ intervention	Process benefit	Likely outcome
<i>Care during pregnancy</i>		
Counselling for abortion (first contact with the health-care provider)	Decision can be made early in pregnancy about continuation or termination	<ul style="list-style-type: none"> ■ Reduction in number of unsafe and late abortions ■ Reduced maternal mortality
Social support ¹ , including home visits	<ul style="list-style-type: none"> ■ Increases use of health-care facilities ■ Maintains connection to the health-care system ■ Promotes positive attitude towards pregnancy and childbirth ■ Reduces stress ■ Influences behaviour change, e.g. smoking, drug abuse 	<ul style="list-style-type: none"> ■ Reduction in preterm birth ■ Reduction in LBW infants ■ Reduction in instrumental deliveries including caesarean section ■ Reduced neonatal mortality
Nutritional support including counselling and supplementation	<ul style="list-style-type: none"> ■ Improves nutritional status ■ Increases maternal weight gain 	<ul style="list-style-type: none"> ■ Reduction in preterm birth ■ Reduction in LBW infants ■ Reduction in instrumental deliveries including caesarean section ■ Reduced perinatal & infant mortality
Systematic assessment of violence ²	Early detection, intervention?	Prevention of violence?

Continued...

¹ Social support is generally defined as a range of interpersonal relationships or connections that have an impact on the individual's functioning, and generally includes support provided by individuals and by social institutions (WHO, 2002d). Social support includes integration of existing services that sometimes constitute informal supports, and sometimes combines specialized services with more general services. Barker explains integration of services as deliberate efforts to create linkages among services, and to offer multiple health and social services for adolescents. This integration may take place within the same institution or community, or may involve creating referral mechanisms (WHO, 2002c).

² Training of providers is crucial

Strategic approach/ intervention	Process benefit	Likely outcome
<ul style="list-style-type: none"> Plan for birth, inform signs of complications Preparation for parturition 	Less need of EOC	
Management of malaria & anaemia		Increased haemoglobin value
Counselling for breastfeeding		Increased breastfeeding
Counselling for postpartum contraception		Increased use of postpartum contraception

Care during labour & delivery

<ul style="list-style-type: none"> Skilled birth attendant Social support – empathic attitude Referral for EOC Transportation for obstetric emergency 	<ul style="list-style-type: none"> Experience of labour and delivery is less traumatic Fewer complications during labour & delivery Early detection of complications, e.g. prolonged & obstructed labour 	<ul style="list-style-type: none"> Reduced maternal mortality Reduced perinatal and infant mortality
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Postpartum care

<ul style="list-style-type: none"> Counselling & support for breastfeeding Promotion of contraceptive use Child health services Home visits 	<ul style="list-style-type: none"> Immunization, treatment of minor ailments, management and treatment of malnutrition 	<ul style="list-style-type: none"> Increased breastfeeding and postpartum contraception Child immunization, better child care
<i>Post abortion care</i>	Management and treatment of complications	<i>Reduced maternal mortality</i>

Annex 7. Evidence base for the health sector's response to gender-based violence (GBV)

The evidence base for a health sector's response to GBV is still controversial, mainly due to a lack of research in the area, especially regarding the health benefits of interventions. Research is still needed on the women's perspective of a 'successful outcome' regarding health sector responses and interventions. Two recent systematic reviews of health-care services and interventions for the prevention of domestic violence (based in high-income settings), and mainly targeted at adult women, found the following:

Systematic review on the effectiveness of screening for domestic violence: *British Medical Journal* (137)

- The majority of women found that 'screening' for domestic violence (having been asked if they had experienced violence) was acceptable.
- The use of clinical screening tools for domestic violence was found to increase the detection rate of women experiencing domestic violence; however, the impact was weakened when implementation of the intervention was less comprehensive.
- Detection of women experiencing domestic violence led to more referrals to support services.
- In some settings, health-care staff were resistant to the implementation of screening programmes, due to pressures on time, anxieties and lack of experience in asking and in dealing with women who disclose abuse.
- No studies were found on the health outcomes for screening for domestic violence, or whether it produced any harm.
- The authors conclude that there is insufficient evidence regarding health gains to recommend screening of domestic violence at a policy level.

The majority of studies evaluated interventions targeted mainly at adult women, which reflects the majority of present health service provision. Two studies were found on the use of a screening tool to detect intimate partner violence in pregnant adolescents in North America, which showed increased rates of detection of abuse (5.4% vs. 16.2%, OR: 2.9, 95% CI: 1.6–5.6) (43,132).

Systematic review on the effectiveness of interventions for intimate partner violence against women: *Journal of the American Medical Association* (196)

- No quantitative studies exist on the effectiveness of screening for domestic violence that measure improvements in outcome for abused women.
- Screening programmes in hospital-based settings increased detection and recording of abused women, but needed repeated training to maintain benefits.
- There is fair evidence to support decreased rates of abuse and increased quality of life for women who have received counselling and assistance from advocacy services.

- There is insufficient evidence that perpetrator programmes are effective in decreasing rates of re-abuse (one well-designed study in Navy men found no benefits, while several less well-designed studies suggest some benefit for men who completed the programme).
- There is some evidence that 12-month civil protection orders decreased the rates of reported violence; however, short-term orders were ineffective and caused increased stress among women.
- The authors conclude that until there is further evidence on the effectiveness of screening with interventions that show positive health gains, the questioning of domestic violence in the form of history-taking should continue. This will enable detection of health problems related to abuse, improvement of clinical care of the patient, and referrals to appropriate support services.

Summary of recommendations for health sector's response to violence against women (VAW), PAHO, 2003: (Recommended strategy by PAHO for addressing violence against women in the health sector) (193)

- A flexible approach is needed in planning a health sector response to violence against women, according to the characteristics of the country and cultural features.
- The health sector response should be multi-level (i.e. regional, national and local), and multi-sectoral (working with education, criminal justice, NGOs and community groups).
- Planning within the health sector should be horizontal, where feasible programmes should be established in more than one health discipline, e.g. mental health, emergency care and reproductive health.
- Planners and policy-makers should aim to adopt a 'systems approach' whereby, rather than just training the front-line staff, the culture of the whole health service environment should aim to be non-supportive of violence against women. Therefore, awareness-raising and training need to be given to all staff and students working in the health sector.
- Protocols and guidelines need to be developed in general (at country level), and at local level to ensure the response to violence against women is appropriate for local community resources.
- Where feasible and safe to do so, routine screening should aim to be implemented as many women will not voluntarily disclose abuse. Cases should be documented and referrals made to community and health services, and medical follow-up should be made.
- The health sector should improve its monitoring and surveillance of violence against women, in order to provide appropriate services according to local need, and to evaluate any programmes implemented.
- The health sector has a role in raising awareness in the wider community, and in some areas taking a lead in the community response to VAW. The health sector should be involved and support community programmes and networks.

The above recommendations are mainly targeted at providing a health sector response for adult women experiencing gender-based violence. Health services may need to adapt to make themselves more user-friendly and accessible for pregnant adolescents, e.g. by training reception and health-care staff in having a non-judgmental and open approach.

Given that pregnant adolescents tend to be in more controlling relationships, either by their partners or by the extended family, they are frequently less able to access health services, and once they are at the health services, less able to express their needs or make decisions on their health. This has implications for the health service response for pregnant adolescents experiencing violence and varies for different cultural settings. The health sector needs to recognize issues of adolescent confidentiality and privacy

(and, where feasible, see adolescent female patients on their own at some point in the consultation), to enable an adolescent to disclose the abuse she may be experiencing, and to ensure her safety.

Depending upon the setting, in order to be more effective, appropriate and accessible, some health-care sectors may wish to combine adolescent health services with community services, schools or NGOs working more specifically with adolescents.

Recommendations for a health sector response to violence against adolescents

The following recommendations are made to improve the health sector response to adolescents experiencing violence:

A. Where there are limited health sector resources and community capacity to deal with adolescents experiencing violence, the following should aim to be done:

- 1. Raise awareness and aim to change the social acceptability of gender-based violence (GBV) in adolescents, and advocate for more resources:*
 - Provide posters and leaflets on the rights of adolescents (and women) not to experience GBV to help change socially accepted attitudes and norms regarding GBV.
 - Raise awareness at a political and policy level (locally, nationally and internationally) of the importance of GBV for married adolescents, especially in terms of increased health-risk behaviour and poor health outcomes, with the aim of improving financial resources for work on prevention.
 - Work with NGOs and research institutions with an interest in adolescent health, HIV prevention, sexual and reproductive health, and violence prevention to promote more work in the area of GBV in adolescents, including married adolescents.
- 2. Health care involvement with multi-sector agencies in the primary prevention of GBV in married adolescents:*
 - Advocating changes in local and national policy in order to implement primary prevention programmes on GBV in adolescents.
 - Getting public health involvement in the design and implementation of evidence-based or good-practice primary prevention interventions and programmes, e.g. working with schools, community groups and NGOs. The health sector can be involved in highlighting the health impact of GBV in marriage, and the relationship with other health-risk behaviours (e.g. HIV).•

B. If sufficient capacity and resources exist, the following should also be adopted:

- 1. Awareness and training of health-care workers and student health-care workers (preferably via integration in the student curricula) regarding the issue of GBV in adolescents:*
 - Health-care workers need to be aware that married adolescents experience higher rates of sexual and physical violence in their relationships than do older women.
 - They are less likely to mention this spontaneously, as they are in more controlling relationships.
 - They are more likely to experience negative health outcomes as a consequence (e.g. STIs and poor pregnancy-related outcomes).
 - Awareness needs to be raised on local cultural traditions of GBV affecting married adolescents, e.g. on forced marriage and abduction.

2. *The development of protocols and referral systems to deal with GBV in adolescents:*

- This may include a simple tool or questionnaire to routinely ask adolescent married women in certain health-care settings (e.g. in antenatal health care or sexual health/reproductive health clinics).
- These need to be adapted to local health sector resources and according to community support available for referral.
- They need to recognize issues of confidentiality and privacy (where feasible, seeing adolescent female patients on their own at some point during the consultation) to enable an adolescent to disclose the abuse she may be experiencing, and to ensure her safety.
- Guidelines regarding documentation are needed for cases that may involve legal involvement (e.g. following rape or sexual assault).
- Safety plans need to be developed for a married adolescent who discloses violence. This plan should also take into account the safety of health-care workers.
- Health-related psychological and counselling services should provide training for adolescents who have been referred following GBV, on how to prevent future GBV as well as emotional and practical support and advocacy.

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