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Review Article

Addressing Sexual and Reproductive Health Issues among Adolescent Population - Challenges, Areas of Concern and Lessons Learnt

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Abstract

In a broader context, adolescence period seems to be a relatively healthy, although not "hazard-free-period of life", given the relatively low mortality rates of young people. Adolescents and young adults, however, engage in a range of behaviors that can affect the quality of their health and the probability of their survival in the short term. Also, behaviors are likely to affect their lifetime health and survival.

In this context, it is pertinent to note that adolescents (from across the regions of the globe, irrespective of their socio-economic and demographic profile) are likely to face a wide range of health issues, social challenges and resulting consequences. Pregnancy during adolescence, for example, is associated with higher risk of health problems. The associated issues health issues are comprised of anaemia, sexually transmitted infections (STIs), and unsafe abortion (including mental disorders, like depression). Over and above, pregnant adolescent girls and women are confronted with negative social consequences. They, often, have to leave schooling half-way (or uncompleted). This situation, in, turn, reduces their employability (leading to long-term economic implications).

Several initiatives have been undertaken, across the regions of the globe, in order to address sexual and reproductive health (SRH) issues of adolescents. This reflective research paper primarily aims to look into lessons learnt from past programmes on adolescent SRH. Notably, the author investigates into SRH issues in the broader perspective of other health challenges the adolescents are confronted with, since SRH problems and issues among adolescents are linked with their overall behaviour during their childhood days. Experiences derived from lessons learnt can pave way for future programmes that can manage adolescent SRH issues in varying contexts. This work is based on secondary data and nature of research method employed is descriptive. The paper concludes that in order to address the unique health problems associated with the adolescent years, policy makers, the community health workers, and other stakeholders must expand the knowledge base on effectiveness, costs, and economic benefits. Also, there is need to pay more attention to areas such as road safety, nutrition, and mental health.

***Keywords**: Sexual and Reproductive Health (SRH); Adolescence; Challenges; Areas of Concern; Human Immunodeficiency Virus Infection (HIV) and Acquired Immune Deficiency Syndrome (AIDS); Lessons Learnt; Sexual and Reproductive Health Rights (SRHR); Sexuality Education (SE); Sexually Transmitted Diseases (STDs); Sexually Transmitted Infections (STIs)*

Introduction

In terms of conceptual framework, sexual and reproductive health (SRH) indicates a state of complete physical, mental and social well-being in all matters relating to the reproductive system. From this perspective, the SRH, thus, implies that adolescents are able to (or are in a position to) have a satisfying and safe sex life, including the capability to reproduce. Also, it envisages the freedom of adolescent population to decide in matters pertaining to reproduction, if, when, and how often to do so. It has been found that in order to maintain one's sexual and reproductive health to the optimum level, adolescents (both men and women) need to have access to accurate (and more scientific) information and the safe, effective, affordable and acceptable contraception methods of their choice. It is equally important to ensure that they are informed and empowered to protect themselves from sexually transmitted infections, including human immunodeficiency virus infection (HIV) and acquired immune deficiency syndrome (AIDS), and sexually transmitted diseases (STDs). Again, when they decide to have children, it is the responsibility of the health care providers to ascertain that "women have access to services that can help them have a (a) safe pregnancy, (b) safe delivery, (c) healthy baby, and (d) safe motherhood. Every adolescent individual has the right to make his (or her) own choices about their sexual and reproductive health. Today, a number of national governments and inter-governmental organizations, like the United Nations Population Fund (UNFPA), together with a wide range of partners, work toward the goal of universal access to sexual and reproductive health and rights (including family planning) [that is key to meeting sustainable development goals (SDGs)] [1].

It has been found that adolescents and youth population (defined as "those people aged less than 15 years of age") face significant barriers that undermine their SRH and rights (SRHR). At this juncture, it is pertinent to note that the SRHR also includes lack of access to (a) comprehensive sexuality education (SE), and (b) SRH services (SRHS). Those adolescents who do to have access to adequate SRHS (including contraception, abortion, and maternal health care), one in four of them has an unmet need for contraception. What is of utmost importance is that early pregnancy (and resulting childbearing) poses added risks to adolescents' SRH and well-being. More specifically, equipping girls with skills needed to make informed and autonomous decisions about their SRH is critical for fulfilling their human rights. Also, this intervention results in ensuring enhanced access to: (a) education, (b) economic opportunities, (c) social empowerment, and (d) financial independence. It is because of these considerations that there are several governmental and inter-governmental organizations (including the UNFPA) that work around the world to guarantee adolescents the full exercise of their SRH rights (SRHR). Importantly, the SRHR includes their rights (a) to make informed decisions about their sexuality and reproduction, and (b) to access sexual and reproductive health services [2].

There is, thus, need for adequately addressing SRH issues among adolescent boys and girls. As outlined above, they are confronted with several challenges. There are areas of concern that the stakeholders in the governmental and non-governmental sectors must look into with utmost care. It is in this context that the present work has been authored.

Objectives and Methodology

With regards to objectives, this work aims to outline lessons learnt from past programmes in the area of adolescent SRH initiatives. Most importantly, the author investigates into SRH issues in the broader perspective of other health-related challenges the adolescents are confronted with (such as injuries, drug or substance abuse, accidents, violence, etc.). This is because of the fact that SRH problems (adolescents are encountered with) have their roots in the way teenagers behave and react in the real world situations. Two significant aspects of SRH - "health challenges of adolescents", and "health risk behaviors among adolescents and young people" - have also been addressed by the author. At this juncture, the author makes a point that the United Nations (UN) defines 'youth' (sometimes referred to as 'adolescents') as those who are in the age group of 15 to 24 years. On the other hand, according to the definition conceptualized by the World Health Organization (WHO), (a) 'adolescence' is the age between 10 and 19 years, and (b) "young people" refer to those in the age group of 10 to 24 years. Regional data presented in this work by the author are based on nationally representative surveys carried out

between the mid-1990s and 2001. Another significant point the author makes here is that in while considering cost-effectiveness analysis, estimates are needed not only of "what has actually happened", but also of "what would have happened in the absence of the programmes (or strategic interventions)".

In terms of methodology employed in this research paper, secondary data has been used (sources are quoted in the reference section). Secondary date used are 'qualitative' in nature. Method of data analysis is descriptive, involving "desk-based research".

Health risk behaviors among adolescents

Demographically, adolescents are a changing group. There are several areas of health concern among this section of population. In addition to SRH issues, adolescents are also confronted with other health issues, such as obesity, and violence. Substance use, irresponsible social behaviour (including behaviour within the family setting), and risky driving are another areas that need to be looked into [3]. When it comes to risks associated with adolescent SRH, their vulnerability to risky or (unwanted sex) and other unhealthy behaviors is tied to a host of individual, family, and community factors. Such contributing factors influence their behavior (that are closely linked to their economic and educational opportunities). Good health (including other physical, moral, and intellectual development outcomes) are often mutually reinforcing. Healthy children, e.g., demonstrate comparatively better during school days. Having more years of schooling, likewise, provide essential information and skills that are linked to more protective and less risky behaviors.

Thus, the SRH challenges, that today's adolescents are confronted with, needs to be looked into in the broader context and perspectives of their other risky behaviors. For the purpose of this paper, the author has classified risky behaviors among youth and adolescents into five categories: (a) injuries; (b) mental health; (c) smoking, alcohol, and drug abuse; (d) nutrition and exercise; and (e) sexual and reproductive behaviors. Description of these five outcomes of risk behaviors among adolescents is presented below.

Injuries

It has been reported that violence and war account for more than a quarter of injury-related deaths among young men aged 15 to 29 years. Adolescent boys form an important part of the military forces in many countries. As a result of this, they are at increased risk to injuries, particularly in countries (or areas) where occurrence of armed conflict is more frequent. Some of such countries are Afghanistan, Yemen, Syria, Nigeria, etc. According to estimates by the United Nations Children's Fund (UNICEF), worldwide, nearly 300,000 soldiers under the age of 18 are involved in armed conflicts [6].

In addition, homicide is an important cause of death for young men, in particular. It (homicide) has been found to be the leading cause of death for young men in some Latin American countries. Again, road accidents account for significant proportions of injuries and deaths among adolescents. Further, "self-inflicted injuries" (including suicide), which are linked to mental illness, also pose a major health problem for young people.

Mental health

It has been observed that depression, schizophrenia, and other mental illnesses are important causes of illness and death among adolescents (both men and women). Notably, the relative importance of mental illnesses is much greater in the high-income countries [6].

Smoking, alcohol, and drug abuse

Mental health professionals have reported that most of the adult smokers, worldwide, begin smoking in adolescence or earlier. According to more than 100 surveys that have been conducted since 1999 by the Global Youth Tobacco Survey Program (carried out under the auspices of the WHO and the U.S. Centers for Disease Control and Prevention), an estimated 15% of young men and 7 percent of women (aged 13 to 15 years) are currently smoking cigarettes. Analysis of data also suggest that every day, worldwide, nearly 100,000 young people start smoking. More than two-thirds of them are located in LMICs. It has been estimate that of the 300 million young people smoking today, half will eventually die from tobacco use.

Research findings also indicate that by the year 2030, tobacco is expected to be the single biggest cause of death worldwide (accounting for about 10 million deaths annually). Although discouraging young people from starting to smoke and providing means for them to quit is extremely important, deaths caused by tobacco tend to occur many years later. Evidence indicates that young people are starting to drink at earlier ages. Again, longitudinal studies have found that the earlier young people start drinking, the more likely they are to experience alcohol-related injuries and alcohol dependence later in life [6].

Nutrition and exercise

This is another area of concern. Nutritional deficiencies (such as anaemia) are widespread, in both adolescent men and women (more among girls and women from low-income countries in Asia and Africa). Worldwide, these conditions account for almost 5% of disability-adjusted life-years (DALYs) among girls aged 5 to 14 years and almost 4% among boys of the same age. Anaemia has been found to me most significant contributory factor in health component for both girls and boys. Although nutritional deficiencies are relatively less important among 15- to 29-year-olds (just over 1.0% among young men and about 1.5% among women), anaemia accounts for the bulk of these deficiencies [6].

Chronic under-nutrition among young people (a) delays growth and physical maturation, (b) increases risks to pregnant mothers and their new-borns, and (c) decreases the capacity to learn and to work. Malnutrition, especially among new-borns and children can take other forms; being overweight or obese, thereby increasing the risks for diseases such as diabetes. Malnutrition of these types are of increasing relevance in middle-income countries such as Brazil, China, the Arab Republic of Egypt, Mexico, and South Africa. At times, it coexist with under-nutrition. It's another aspect is that nutritional deficiencies increase the risks that girls and young women face during pregnancy and childbirth. Evidences are emerging about the connection between poor maternal nutrition and greater risk of transmission of HIV from mothers to their infants [6].

Diet and lifestyle-related chronic diseases (many with their roots in childhood and adolescence) are emerging as one of the most important health problems in low-and middle-income countries (LMICs). It has been reported by the WHO that cardiovascular diseases, which are responsible for 10% of DALYs lost in LMICs, typically occur in middle age or later. Risk factors, however, are determined to a great extent by behaviors learned during childhood and adolescence (and continued into adulthood), such as (a) dietary habits, and (b) smoking. These risks, throughout the world, are starting to appear earlier. It is pertinent to note that physical activities have decreased markedly among adolescences, particularly in girls, and the outcome is: "obesity has increased substantially" [6].

Sexual and reproductive behaviors

Majority of adolescents, the worldwide, initiate sexual activity during adolescence period. Again, significant proportions or majority of them, in some regions and countries, marry and become parents. Globally, the age of onset of puberty has been decreasing progressively for both boys and girls. It has been observed that the age at first marriage has also increased in most parts of the world over recent decades, except in some regions, such as Latin American countries. The decline in the age at puberty, combined with the general trend toward later marriage, increases the period of time during which adolescents may be sexually active before marriage. This demographic trend may result in sexual initiation at an earlier age [6].

Young women typically make the transition to marriage and parenthood at an earlier age than young men, and early marriage predisposes girls to HIV infection through unprotected sex, because the partner, by virtue of age, has an elevated risk of being HIV positive. In addition, marriage changes adolescent girls' support systems, thereby limiting their access to knowledge about HIV/AIDS. All these key transitions to adulthood bring with them the potential for risks to health that may have both immediate and longer-term effects.

Even though adolescent childbearing has declined in recent years, the proportion of young women who become mothers during adolescence remains high in most LMICs. Early childbearing remains an issue of concern in some regions. As is obvious, childbearing before the age of 16 years brings with it a high risk of health consequences, both for the mother and for the new born.

In the most recent surveys carried out in LMICs, high proportions of adolescents report that they have heard of contraceptive methods. However, little is known about the quality and accuracy of young people's knowledge of contraception. Moreover, substantial proportions of young women appear to have an unmet need for contraception. They are not using contraception even though "they are sexually active and do not want to have a child".

In addition to having a risk of early and unwanted pregnancy, adolescents are also at risk of acquiring sexually transmitted infections (STIs), including human immunodeficiency virus (HIV). It has been noted that (a) HIV/AIDS (acquired immunodeficiency syndrome) accounts for most of the sexual and reproductive health DALYs lost by adolescent men aged 15 to 29 years (almost 9%); and (b) nearly half of all HIV infections occur in people under the age of 25 years [6].

SRH challenges of adolescents and areas of concern

If one look only at disability-adjusted life years (DALYs) for the adolescent age group, adolescents appear to be relatively healthy. However, it has been reported that many of youth engage in risky behaviour during adolescence years. According to an estimate, more than 33% of the disease burden and nearly 60% of premature deaths among adults can be associated with behaviors or conditions that began (or occurred) during adolescence period. Risky behaviours include: (a) tobacco and alcohol use, (b) drug consumption, (c) poor eating habits, (d) sexual abuse, and (e) risky sexual behaviour (often resulting in "unwanted pregnancy"). Adolescence-related risk factors prevail in all societies and countries, irrespective of their socio-economic and demographic parameters. Nevertheless, these trends are in greater prevalence in high-income (or rich) countries. This is because of the relatively greater impact of smoking and diet-related risks in those countries. But as indicated above, the prevalence of these risky behaviours is expanding rapidly in many low-and middle-income countries (LMICs) [3].

It has also been observed that although adolescents are apparently (or look) healthy, they are practicing "unhealthy behaviors" that, often and ultimately, result in much death and disability. This is an immense health issue that requires urgent attention of health care providers, policy makers, and other involved stakeholders [5]. It is because of these reasons that there is need to focus or shift greater attention (than earlier) both on (a) diseases experienced during adolescence, and (b) risk factors with their roots in adolescence. Prioritizing these areas in SRH programmes in the twenty-fist century makes more sense, especially in view of the fact that in today's world, adolescents are likely to be influenced by wrong information or messages that they obtain through internet platforms, especially social media.

Most importantly, priority areas in the context of health challenges of adolescents, adolescent health efforts should increasingly emphasize prevention. This is because of the fact that much of the disease burden is preventable. Again, interventions aimed at prevention are particularly cost-effective strategy in relation to adolescents, when one looks at (a) the long duration over which benefits will be reaped, and (b) adolescents' greater openness to change than adults.

Burden of disease in adolescence-reflections from WHO study

The "global burden-of-disease" (GBD) approach used to calculate disability-adjusted life years (DALYs) is an imperfect representation of the prevalence, morbidity, and mortality of conditions that adolescents face. The DALYs fail to capture fully the complexity of adolescent health concerns. Nonetheless, no better comprehensive and comparative measure currently exists. Thus, the discussion in the section will rely primarily on available DALY data [4].

The World Health Organization (WHO), in the year 1999, commissioned a special analysis of the burden of disease in adolescence, which examined the 10 to 14 and the 15 to 19 age groups. Findings of the study indicate that young people (aged 10 to 19 years), who constitute 19% of the world's population, account for 15% of the disease and injury burden worldwide. This WHO-supported study also found that more than 1 million people in that age group die each year. The top three causes of DALYs were found to be (a) unipolar major depression, (b) transportation accidents, and (c) falls. The profile of disease burden was significantly different for younger and older adolescents. In the 10 to 14 age groups, injuries and communicable diseases were prominent causes of DALYs. Again, for the 15 to 19 age groups, the disease burden shifted to outcomes of sexual behaviors and mental health [6].

Worldwide, among young men aged 15 to 29 years, injuries and neuropsychiatric illnesses account for a high proportion of DALYs: 33% and 32% respectively. By comparison, among young women aged 15 to 29 years, injuries account for 14% of DALYs, and neuropsychiatric illnesses for about the same percentage of DALYs as among young men. The SRH conditions, however, account for 33% percent of young women's DALYs, much higher than the 10% for young men. Another significant conclusion of the above study is that in case of both young men and young women, all other communicable and non-communicable diseases account for moderate proportions of DALYs: 7 to 11% (depending on sex and disease group) [4].

The disease burden among 5- to 14-year-olds is markedly different from that for the 15- to 29-year-olds. However, differences between males and females are quite small. Communicable diseases and respiratory illnesses account for much larger proportions of DALYs for this age group compared with the 15 to 29 age groups. On the other hand, (a) neuropsychiatric and sexual and reproductive conditions account for much smaller proportions, and (b) HIV/AIDS accounts for less than 4% of DALYs for both males and females aged 5 to 14 years [4].

Linkages between poverty and adolescent health

As outlined above, adolescent health, including SRH, is influenced by series of contributing factors. Poverty is one of the factors that shape trends in adolescent SRH. This section of the paper discusses the framework within which poverty and adolescent health are inter-linked. It has been found that poverty and resulting inadequate health systems compound adolescents' vulnerability to sickness and early death. At the same time, poor health exacerbates poverty by: (a) disrupting and cutting short school opportunities, (b) weakening or killing young people in the prime of their working lives, and/or (c) placing heavy financial and social burdens on families. Poor adolescents, especially in the LMICs, bear a disproportionate burden of the health problems. An analysis of data from demographic and health surveys (Macro International 1990-98, unpublished data) indicates a strong association (a) between poverty and the health status of adolescents, and (b) between poverty and adolescents' use of health services. The poorest 20% of young women, for example, are between 1.7 and 4.0 times as likely to have an early birth as the richest 20% of young women. Similar disparities between rich and poor adolescents are seen for demographic indicators such as (a) early marriage, (b) skilled attendance at birth, (c) use of contraception, and (d) knowledge of HIV/AIDS transmission [7].

Interventions required for addressing adolescent SRH

In this part of the paper, the author summarizes interventions required for addressing adolescent SRH issues. Also, efforts have been made to answer the pertinent question: what is known about the effectiveness of such interventions?

In most of the SRH programmes, focus has been placed on SRH, especially on risky behaviors, such as tobacco and drug abuse. It is important to note that the lack of data on age-specific data and traditional reliance on mortality and morbidity contribute to the unbalanced attention. Another factor may be that such behaviors tend to have longer-term health consequences (that are not reflected in standard DALY calculations). An additional reason for the imbalance in adolescent data may be (a) the significant social impacts of sexual and

reproductive behavior (e.g. the contribution of high fertility to rapid population growth); (b) the social and economic implications of large proportions of HIV-infected adolescents in many countries; (c) the mortality implications of initiating tobacco use during adolescence; and (d) the anti-social behavior associated with substance abuse. Efforts and initiatives of the public health systems to address health problems associated with road safety and mental health have devoted inadequate attention to developing and implementing programmes that target adolescents [8].

Today, the fact remains is that improving the health of young people is complex and difficult. This is because of the fact that adolescents, as compared with children, are (a) less protected by their families and communities, and (b) less amenable to simple solutions to their health problems (many of which are behaviour-based). As against adults, adolescents know less about (a) how to stay healthy, and (b) mobilize and manage fewer (or limited) resources to prevent or treat SRH problems [8].

Adolescents' behaviors are less firmly entrenched, and they are often involved in institutional activities, such as schools and training programs (where programmes with high coverage can be sustained). Most importantly, the influences on young people's behaviors are becoming better understood. However, despite availability of data on such influences, the challenge of designing interventions to reinforce protective factors and mitigate risk factors associated with SRH remains. Many of the factors associated with less risky health behaviors, such as family connectedness and academic performance, go far beyond the purview of SRH programme managers. Interventions to improve adolescent SRH have typically reflected these consensus and are echoed in sustainable development goals (SDGs) that have been adopted internationally [8].

In terms of specific interventions required for more effectively addressing SRH issues, programmes will have to seek multi-sectoral solutions that link health sector interventions with other types of interventions delivered through other sectors. Such interventions may be sought either at the programme level or at the policy level. The fact remains is that the difficulty in attributing improvements in SRH outcomes among adolescents to interventions delivered in multiple settings or sectors reflects the challenges involved. Programs aimed at young people are relatively new and untested. Accumulated experience, however, backed by an increasing body of research, has created international consensus around a multi-intervention approach. Such an approach, which is gaining increased momentum, over the years, centers on following three important aspects associated with adolescence:

a) Adolescents need information and skills to make the right decisions about behaviors that affect their health, such as whether and when to have sex, and whether to use tobacco.

b) Adolescents need access to a broad range of SRH services that give them the means to act on their knowledge, including access to condoms.

c) Adolescents need a social, legal, and regulatory environment that supports healthy behaviors and protects them from likely harm.

In summary, all SRH programmes should be effective in promoting positive knowledge and attitudes. Most programmes need to effectively influence behaviors of adolescents. They should significantly change important adolescent behavior (in the desired direction) pertaining to SRH. Often, many programmes fail to improve adolescents' behaviors that need to be changed. Another significant aspect of area in which strategic intervention is needed can be found from the fact that in cases which have found programmes to be effective in changing behaviors, such changes have typically not been large. Further, on the basis of international reviews, relatively strong evidence of effectiveness on a range of outcomes has emerged for the following interventions:

a) Life-skills and health and sexuality education in schools: Well-designed, well-implemented SRH education can provide young people with a solid foundation of knowledge and skills to enable them to engage in safe and responsible sexual behavior.

b) Peer education: Peer education programmes are especially appropriate for young people who are not in school and for hard-to-reach, at-risk subsets of the youth population, including sex workers and street children.

c) Mass media and community mobilization: Mass media and community mobilization efforts that engage influential adults, such as parents, teachers, community and religious leaders, and music and sports stars, can help normalize positive adolescent behaviors and gender roles as well as direct young people to appropriate health services.

d) Youth development programs: Youth development programmes typically address a range of key adolescent needs, including life skills, education, jobs, and psychosocial needs. Programmes with a voluntary community service component have successfully improved key SRH behaviors.

e) Clinical health services: Although some young people seek care through the formal health system, many others are deterred by the often judgmental attitudes of health workers, particularly when seeking care and advice on matters related to sexuality.

f) Social marketing: This approach involves the use of public health messages to promote healthy SRH behaviors and the use of condoms and other health products and services. Effective programmes bring products and services to places in the community that young people frequent, such as shops, kiosks, and pharmacies.

g) Workplace and private sector programmes: Programmes that reach young people do so at their places of work and through private channels, such as pharmacies and for-profit medical services, where many adolescents prefer to seek care.

Promising but unproven interventions

There are nearly 1.2 billion adolescents (10-19 years old) worldwide. In some countries, adolescents make up as much as a quarter of the population. It is important to note that the number of adolescents is expected to rise through 2050, particularly in the LMICs. Globally, each year there are more than 1.2 million adolescent deaths. While the majority of adolescent health issues are preventable or treatable, adolescents face multiple barriers in accessing SRH care and information [9]. Many promising adolescent-focused interventions have not yet been rigorously evaluated. These interventions include:

a) Programs aimed at providing young, newlywed couples with reproductive health information and services;

b) Programs that combine livelihoods skills with reproductive health information and services;

c) Voluntary counseling programs on and testing for HIV;

d) Actions aimed at changing social norms such as gender roles; and

e) Interventions that address the political and social context.

A few studies of multi-pronged approaches are just becoming available and have shown mixed results. Findings from a four-country study found little or no effect of such an approach on key reproductive SRH behaviors among adolescents. By contrast, a study in Tanzania found that a multi-component approach had a significant effect on key reproductive health behaviors but no effect on health outcomes. Other possibly promising efforts include suicide prevention programmes, tuberculosis education linked with health education (interpersonally or through the mass media), and malaria treatment programmes that focus on young people. Adequate evaluation is available on the efficacy of programmes promoting the use of seat belts and crash helmets through enforcement of related laws and the support of intensive publicity and information campaigns, as well as on the efficacy of programs preventing alcohol use among adolescents. The evaluations are sufficient for building confidence for investment, and they serve as a basis for intervention design.

Cost-effectiveness of interventions

Good cost studies of adolescent SRH health programmes in LMICs are rare. The reported cost of such programs varies greatly, depending on the country, type of intervention, target group, and so on. Cost estimates are available only for certain types of interventions, with most of the estimates being for reproductive health and HIV education programmes. A few studies have tried to measure cost per DALY of adolescent SRH interventions [6] and [10].

Cost-benefit analysis is well suited to the economic analysis of projects aimed at youth, in part because many investments in young people yield multiple benefits, such as additional schooling and improved health. Finding any effectiveness measure that adequately reflects the wide range of benefits obtained from some types of investments in adolescent population is difficult, but cost-benefit analysis has the advantage of allowing comparisons across a range of interventions that may vary considerably in terms of: (a) type, and (b) effects [6].

One of the few cost-benefit analyses specific to adolescent SRH, for instance, would be a study that examines three interventions. Such a programme may aim to provide iron supplementation for secondary schoolchildren, a school-based programme of health education to prevent HIV/AIDS, and a tobacco tax [6].

The examples of cost-benefit studies show that health interventions aimed at adolescents can be good public investments. However, the results must be interpreted with some caution. The relatively low benefit-cost ratio of an HIV prevention programme in Honduras, e.g. was for a programme in a country where HIV incidence among young people is relatively low (0.1%). Where the incidence is much higher, as in many of the hardest hit countries in Africa (1% or more), this ratio would be proportionately higher. In addition, in the Honduran study, the benefits included were limited to the prevention of HIV/AIDS and did not include other possible benefits, such as (a) increased education, (b) reduced STIs other than HIV, and (c) reduced teen pregnancies and abortions [6].

Beyond the question of how sensitive such estimates are to the underlying assumptions and the context, the basic question is: "what guidance they provide for public policy"? High benefit-cost ratios certainly point to areas that merit further consideration for possible policy interventions. But they do not indicate whether using public resources for interventions has an efficiency rationale, because they generally do not identify differences between private and social benefit-cost ratios. If the purely private benefit-cost ratios for an investment are high, then presumably incentives to use private resources for this investment are high, but an efficiency rationale for using public resources does not exist unless the social benefit-cost ratio exceeds the private one because of factors such as spillovers or market imperfections. High benefit-cost ratios that do not distinguish between social and private returns, therefore, call for further investigation. Interventions may warrant the use of public resources on efficiency grounds. But they also must answer that important question of whether the benefits are social or private [6].

Programme implementation and lessons learnt

Relatively few adolescent-focused programmes have been tried on a large scale. SRH interventions and suicide prevention are some of the few that have gone to scale, and even in those areas, large-scale interventions are relatively infrequent. The vast majority of interventions have been in relatively small programmes, often through non-governmental organizations (NGOs) [6].

Perhaps the main lesson learned from the experience to date is: programmes to reach adolescents are not simply programmes for adults applied to a younger population. They require different thinking and a different approach. Experience to date suggests that effective, youth-focused efforts share a set of common general principles. These principles include the following:

a) Recognize the diversity of the youth age group: A sexually inexperienced 11-year-old has vastly different needs than a married 20-year-old. Programmes should apply different strategies to reach youth, who vary by age, sex, employment, schooling, and marital status.

b) Involve young people: Policies and programmes are more effective when young people are involved in all aspects of their design, implementation, and evaluation. Involvement must go beyond tokenism and be genuine, meaningful, and sustained.

c) Make health services appealing to youth: A key to rapidly expanding young people's access to health services is to make them more youth friendly by using specially trained health workers and by bolstering the privacy, confidentiality, and accessibility of care.

d) Address gender inequality: Gender inequalities expose young girls to coerced sex, HIV infection, unwanted pregnancy, and poor nutrition. Efforts should focus on changing the factors that perpetuate gender inequalities.

e) Address the needs of boys: Adolescence presents a unique opportunity to help boys form positive notions of gender relations and to raise their awareness of health issues. At the same time, boys seem to be disproportionately exposed to a number of adolescent health risks, including accidents and injuries, suicide, tobacco use, substance abuse, and violence. Programme design should take into account the specific needs of boys and young men as well as of girls and young women.

f) Design comprehensive programmes: Comprehensive programmes that provide information and services while addressing the social and political context are more effective than narrowly focused interventions.

g) Consider all important benefits: Many adolescent SRH interventions focus on only one benefit. For example, a school-based sex education programme may focus exclusively on HIV prevention and may neglect other possible benefits from the intervention, such as increased education, averted teen pregnancy and abortions, and other averted sexually transmitted infections (STIs).

h) Address the many non-health factors that influence adolescent health: Linking school and livelihood opportunities to adolescent SRH programmes, at either the policy or program level, is key to helping young people avoid risky behaviors.

i) Address underlying risk and protective factors**:** Factors such as feelings of self-efficacy, attitudes and behaviors of friends, connectedness with parents and other influential adults, and involvement in the community can either increase ("risk factor") or decrease ("protective factor") the chances that a young person will engage in unhealthy behaviors.

Adolescent health programmes are complex and may not be easy to scale up because of technical, management, and political challenges. The following are examples of adolescent health programmes that are national in scope. Unfortunately, little is known about the costs and effectiveness of such large-scale efforts [5]. Description of examples of adolescent health programmes follows:

a) National suicide prevention program in New Zealand: Among industrial nations, New Zealand has one of the highest suicide rates for both males and females age 15 to 24 (New Zealand Ministry of Health 2002). In 1998, on the basis of international good practice, the New Zealand Government developed the National Youth Suicide Prevention Strategy. This strategy, which includes a component for the general population and one that focuses on the indigenous Maori community, provides a framework for understanding suicide prevention and signals the steps that government agencies, communities, and service providers must take to reduce suicide. Even though the national strategy has not been in place long enough to adequately gauge its effects, in 1999, the first year following the adoption of the strategy, youth suicide rates fell to their lowest levels since 1991.

b) Sexuality education in Mongolia: Mongolia has implemented a locally developed and tested sexuality education curriculum in 60 percent of schools nationwide. Current challenges include (1) increasing the number of hours allocated to sexuality education; (2) developing more and better written resources for adolescents, including textbooks; (3) developing materials that will help parents communicate better with their children on sexuality; (4) expanding access to clinical services for adolescents through the public health system; (5) reaching out-of-school youths and the broader community with sexuality education; and (6) monitoring and evaluating the program regularly to assess its weaknesses and strengths and how it could be improved.

In terms of lessons learnt from SRH initiatives in the past, addressing the health needs of poor youth is worth mentioning [6]. The following strategies, based on what is known about services for poor people more generally and about the specific needs of adolescents (especially from the LMICs), show promise for meeting the needs of poor youth:

a) Targeting out-of-school youth: Out-of-school youth of a given age are likely to be more marginalized than those who are in school, and they are often those most in need of critical services, such as pregnancy prevention and prevention of HIV/AIDS and other STIs. A number of countries, including Paraguay, South Africa, and Zimbabwe, have launched effective programs targeting out-of-school youth that combine the use of mass media, peer education, and community-based efforts.

b) Focusing efforts on vulnerable youth: Young people who have been orphaned or left vulnerable by AIDS typically rely first on their extended families and communities for support. Efforts to help vulnerable youth should strengthen those safety nets. One example is the COPE programme in Malawi, where a non-governmental organization (NGO) sponsored effort works through existing government structures to help orphans and other vulnerable children.

c) Tailoring subsidized programs to poor youth: Social marketing of reproductive health products and services (such as contraceptives and condoms for pregnancy and disease prevention or promotion of iron supplementation) often targets young consumers, but such efforts should ensure that they reach the desired clients, namely, those who are poor and less likely to be able to afford market prices. The Social Marketing for Adolescent Sexual Health Project in four African countries combined the use of mass media with peer education to encourage young people to practice safer sex, including condom use.

Improving health systems to meet adolescents' SRH needs is equally important. The shortcomings of health systems in LMICs are well known. Adolescents, in particular, would benefit from the following health system improvements:

a) Strengthening human resource capacities: The poor quality of the interaction with health workers is one of the main barriers to adolescents' use of health care in public sector facilities. Through training, supervision, and other means, health systems should encourage health workers to adopt a more youth-friendly outlook. In addition, health systems should integrate such training into the curricula of medical, nursing, and nurse auxiliary schools.

b) Involving the private sector: Many young people already seek care from private doctors, nurses, and nurse-midwives or from local pharmacies or other drug distribution outlets. Along with encouraging private for-profit health providers to serve youth, government policies should encourage efforts to tap into the private sector as a source of health care for adolescents by means of interventions such as social marketing, contracted services, youth-focused social franchising, and programs that serve young people at their place of work.

c) Strengthening the stewardship oversight function of governments: Governments have a key role to play in developing supportive policies, both within the health sector and across sectors; in contributing to cross-sectoral policies such as national youth policies; and in providing input into policy making in other sectors, especially education and labor. Ideally, governments should have an overarching adolescent health policy with specific reference to adolescent health in policy documents for specific programmes or diseases, such as HIV/AIDS.

In terms of lessons learnt from SRH programmes, there is need to look at the health aspect from the "research and development agenda" point of view. The striking lack of good research and evaluation of adolescent health interventions limits countries' ability to address serious health problems. At this juncture, research in the following broad areas is critical:

a) Refining estimates of DALYs for adolescent: Available DALY information is inadequate to fully explore the burden of disease for adolescent age groups. Future DALY estimates should be made for five-year age groups in the 10 to 24 age range.

b) Documenting the effectiveness of current approaches: This area includes better process evaluation to understand the functioning of successful programs. Such evaluation necessitates more rigorous research designs so that the effectiveness of programs can be better documented, both in terms of health outcomes and in terms of DALYs saved. Another area in which more research could help is better documentation of the non-health effects of adolescent health interventions. Greater investment is also needed to evaluate the effects of health promotion strategies on reducing smoking, including the smoke-free spaces prevalent in the Americas and life-skills education.

c) Testing new interventions: This area includes more research on multi-component programs and on new types of interventions. In relation to sexual and reproductive health, new interventions include approaches such as providing anti-retroviral therapy to HIV-infected youth and voluntary counseling and testing for HIV, encouraging adolescents to have fewer sexual partners, reducing the trafficking of young people, preventing and addressing the health consequences of early marriage, and reaching young married women with information and services. Research must better inform interventions so that they reach groups at particularly high risk of poor health outcomes, such as child prostitutes, child workers, refugees, AIDS orphans, and street children. More research is also needed on a broad range of other adolescent health interventions, especially for those health problems that are among the biggest killers and disablers of young people: HIV/AIDS and mental illnesses for both males and females, maternal conditions for females, and road accidents for males. In addition, research is needed on programmes that attempt to influence gender roles and social norms and investments designed to avert drug and alcohol abuse and to improve mental health.

d) Enhancing understanding of the risk and protective factors influencing young people's behavior: Even though our understanding of the major influences on youth behaviors has come far, more refinement of such understanding is needed, along with a better understanding of how to incorporate such knowledge into the design of programmes and policies.

e) Improving cost and cost-benefit analysis: Good cost estimates are rare, and more needs to be done to more fully estimate the costs of the range of adolescent health interventions. This effort means collecting more data on program costs and more accurate data that include programmes' non-monetary costs. Few full cost-benefit analyses of youth programmes exist, and more need to be done to improve evaluations of the economic value of investments targeted at young people.

Conclusion

The international health community has recognized the importance of adolescent SRH problems. In order to address the unique health problems associated with the adolescent years, policy makers and the health community must expand the knowledge base on effectiveness, costs, and economic benefits and pay more attention to areas such as road safety, nutrition, and mental health. Well-documented implementation experiences from mostly small programmes have produced a sound body of knowledge about how programmes function. These experiences can provide the foundation for scaled-up efforts and can help the health community improve health systems in ways that will benefit adolescent health efforts.

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