

Adolescent Health and Well-Being in the Twenty-First Century: A Global Perspective

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Adolescence is a critical developmental period with long-term implications for the health and well-being of the individual and for society as a whole. The most significant factors to adolescents' health are found in their environments, and in the choices and opportunities for health-enhancing or health-compromising behaviors that these contexts present (e.g., exposure to violence, supportive families). Inadequate contexts represent a failure to invest

in and protect adolescents, a choice to alienate rather than integrate them into society. This article describes a number of societal trends, including growing poverty and income disparities, government instability, the changing health-care system, the spread of HIV/AIDS, increased migration and urbanization, changing family and cultural contexts, and new information technology. The health implications of these trends for the well-being of adolescents in the 21st century are contemplated.

On the surface, adolescence appears to be one of the healthiest periods of the life course. Adolescents have survived the infectious ailments of childhood and most do not yet have chronic conditions or the experiences of declining health associated with older adulthood (Ozer, Brindis, Millstein, Knopf, & Irwin, 1998). The perception and classification of adolescents' health, however, depends on one's definition. A narrow definition, based on morbidity and mortality, ignores the underlying, cumulative impact of adolescents' behaviors and experiences, which can create a burden of health problems that will be manifested later in life. It also ignores the positive habits and competencies that many adolescents develop that prepare them to be resilient as adults. Thus, adolescents in Manila or London who are influenced by peers to take up smoking, alcohol, or illicit drug use acquire a behavior with lifelong implications for their health; youth in India who work in a glass factory are exposed to cyanide with cumulative effects (Verma & Saraswathi, 2002). Likewise, young people in any part of the world who learn from a parent or teacher to protect themselves from AIDS (through abstinence or safe sex practices), or who develop capacities for good decision-making through a life-skills class, have improved their long-term well-being.

A central factor in adolescents' health and well-being, as these examples suggest, is adolescents' interactions with their environments, with the people and settings in their daily lives. In this article, we adopt the broad view of health used by the World Health Organization (WHO, 1978), which takes into account adolescents' physical, social, and psychological well-being, as well as their collective contribution to the well-being of others. We advocate a developmental perspective of health and well-being that views adolescents' interactions with the contexts of daily life as the primary determinants of their preparation for healthy adulthood (Bronfenbrenner, 1977; Eccles, Lord, Roeser, Barber, & Jozefowicz, 1997). This approach is aimed at identifying features of contexts that allow for healthy choices and match adolescents' developmental needs with appropriate challenges and encouragement (Lerner & Galambos, 1998; WHO/UNFPA/UNICEF Study Group on Programming for Adolescent Health, 1999).

What is striking as we move into the 21st century is how the daily contexts of adolescents' lives are changing, with major implications for their health. Macrolevel changes, such as demographic trends, widening economic disparities, globalization, changes in government, and service delivery, are altering the daily conditions of life for young people (Larson, 2002, this volume). These macrolevel changes are affecting the microcontexts in which adolescents spend their days—their homes, work settings, schools, and local communities—which, in turn, affect adolescents' health and well-being. In emphasizing these contextual influences, we do not mean to suggest that adolescents are passive actors in the transition to healthy adulthood. Adolescents play an active role in selecting and interacting with the contexts in their immediate environment (Call & Mortimer, 2001; Rutter, 1990). They have little or no influence, however, over the macrosocietal changes that are and will impact their health and well-being; and they may have constrained choices in selecting or influencing some of their immediate contexts. It is vital to ask how these macro- and microcontextual changes will influence the opportunities and choices that adolescents have for good health in the future.

A clear implication of this contextual view is that adolescent health is not the sole responsibility of health-care institutions or adolescents themselves. Adolescents' health is shaped by every sector of society, and the goal of promoting it requires international, national, and local commitment (WHO, 1984). The central theme in this article is that as the world changes, contexts need to be shaped to integrate, rather than alienate, adolescents; and the orientation of nations, communities, and businesses needs to be to invest in, not exploit, young people.

In this article, the current health and well-being of adolescents around the world are examined; and the likely impact of ongoing societal changes on adolescents' health and preparation for adulthood in the years ahead is evaluated. This is followed by a discussion of the ways in which communities can better integrate and invest in young people and their long-term health and well-being. First, it is necessary to provide a more complete developmental framework.

WHY THE HEALTH AND WELL-BEING OF ADOLESCENTS MATTER

To grasp the importance of adolescent health, it is crucial to understand this developmental period. Adolescence typically is defined as beginning at puberty, a physiological transformation that gives boys and girls adult bodies and alters how they are perceived and treated by others, as well as

how they view themselves. Adolescence is also a time for first experiences of various kinds: being out of the direct control of parents and guardians, living away from home, first sexual experiences, the transition from school to work, and the transition from the role of cared for to caregiver (Lerner & Galambos, 1998; Smith & Rutter, 1995). Of course, the nature and timing of these transitions differ markedly across societies, social classes, and, in some contexts, between boys and girls (Brown, Larson, & Saraswathi, 2002). In general, however, the adolescent years are a time of increasing independence, when a person's world expands to include new contexts of interaction. Influences outside of the family become increasingly important (WHO/UNFPA/UNICEF Study Group on Programming for Adolescent Health, 1999). Adolescents also begin to explore new identities; they practice and begin to assume some of the roles and responsibilities of adulthood (Eccles et al., 1997).

In the process of taking these developmental steps toward independence, adolescents make decisions and develop habits with lifelong implications for their health and well-being. The patterns of behavior begun in adolescence, both health enhancing and compromising behaviors, often carry through to adulthood (Maggs, Schulenberg, & Hurrelmann, 1997). Of course, the years prior to adolescence are important, too, both indirectly, in their effects on habits, and directly, because they contribute cumulatively to physical health. Circumstances and experiences occurring during gestation, infancy, and childhood (e.g., poverty and its correlates—low birth weight, malnutrition, iron deficiency anemia, and lead poisoning) influence physical health prior to adolescence, and these effects may continue to accumulate through adolescence (Kuh, Power, Blane, & Bartley, 1997; McLoyd & Lozoff, *in press*). What is unique about adolescence is the turning point it provides for changes, both positive and negative, in behavioral patterns.

This is why the environments that adolescents experience are critical. As adolescents take key developmental steps, the daily contexts of their lives are vital influences that can hinder or foster the development of health and well-being. As adolescents spend less time in the family and more time in new contexts—with peers, in the community, in a work setting, and in romantic or sexual relationships—these contexts can maintain well-being, support resiliency, or increase risk.

There are multiple ways in which the developmental steps that occur in adolescence can accentuate risks. The new, more adult contexts that adolescents experience can often be less nurturing and more stressful than those of childhood, affecting mental health. These new contexts may also present new threats, such as the availability of alcohol and drugs, exposure to violence, and exposure to AIDS. For many adolescents, such threats

to mental and physical health are compounded by other circumstances, such as when adolescents live in impoverished surroundings, experience ethnic or gender discrimination, or move to a new community or another country where they have fewer familiar resources to draw on (Crockett, 1997; Gore & Colten, 1991). The negative impacts of these developmental and environmental challenges is evident in data on the behavior and mental health of adolescents. Although the majority of youth move through the transition to adulthood with minimal difficulty or remarkable resiliency (Masten & Garmezy, 1985; Werner & Smith, 1982), rates of depressed mood (especially for girls), suicidal behavior, and other serious disorders increase from earlier age periods (Allgood-Merten, Lewinsohn, & Hops, 1990; Petersen, Sargiani, & Kennedy, 1991; WHO, 1998). Although most adolescents develop health-enhancing behaviors—in some cases after experimentation with less salutary lifestyle practices—many develop health-compromising behaviors, such as unsafe sexual practices, substance use and abuse, poor nutrition, unhealthy eating habits, and lack of exercise (Perry, Story, & Lytle, 1997; WHO, 1998).

Just as adolescence is a period of increased developmental risk, however, it is also an important opportunity for the development of health-enhancing behaviors. The daily contexts that adolescents experience are vital to healthy development, too. Strong family and community connections help adolescents to develop resilience and coping skills, and prepare young people to choose healthy behaviors (Robinson & Garber, 1995; WHO/UNFPA/UNICEF Study Group on Programming for Adolescent Health, 1999). Supportive relationships and experiences of success foster the development of personal resources that, in turn, promote effective coping (Rutter, 1990). Across the world, it is not simply parents, but older siblings and peers, extended family, and community members (e.g., neighbors, teachers, employers, religious communities, youth groups, and elders) who take responsibility for the healthy upbringing and socialization of adolescents (Cauce, Felner, & Primavera, 1982; Verma & Saraswathi, 2002). Of course, these relationships need to be seen as reciprocal. Adolescents play an active and integral role in their own development as well as the functioning of their communities (Nsamenang, 2002). In sum, it is critical that features of adolescents' environments that lead to well-being and thriving are both discovered and promoted (Hein, 2000).

THE CURRENT STATE OF ADOLESCENT HEALTH

How are adolescents around the world doing? Are they having interactions with their environments that promote their present and future

health? The picture is mixed. As noted above, adolescents tend to have lower rates of morbidity and mortality when compared with other age groups in the same environments. Nonetheless, youth in the developing world continue to face serious threats to their immediate well-being, including starvation and infectious diseases such as malaria and tuberculosis. Adolescents in developed countries have their own unique problems, such as obesity, eating disorders, and an increasingly sedentary lifestyle, that affect their long-term health (CDC, 1998; Dietz, 1998). Across developing and developed nations, adolescents face several common enemies (injuries, homicide, suicide, substance use and abuse, sexually transmitted diseases, and mental illnesses). As a prelude to examining effects of larger societal changes on adolescents' health, current indicators are briefly reviewed, with a focus on these common health problems.

Injuries, Homicide, and Suicide

The greatest threat to adolescents' health around the world is injuries resulting in death or disability (Morrison, Stone, & The EURORISC Working Group, 2000). These include injuries due to accidents, violence, and self-inflicted harm. In the United States, injury accounts for 80% of deaths among adolescents age 15 to 24, and is the most expensive health problem among this age group (Fingerhut & Warner, 1997). Suicide, a key indicator of youth alienation and disengagement, is one of the leading causes of death among adolescents in many nations. Although reported rates of suicide are higher in developed than developing nations, the social stigma against reporting suicide may mask higher rates in some nations (Morrison et al., 2000; Ozer, Macdonald, & Irwin, 2002).

A downward trend in vehicular injuries and deaths, evident in some nations (Morrison et al., 2000), provides a positive contrast and powerful example of the importance of environmental changes in protecting the health and well-being of adolescents. The decline in vehicular injuries is attributed less to the actions of teens themselves than to improvements in highway construction and car safety equipment, licensing procedures, stricter laws, and enforcement of restrictions on alcohol use in developed countries (Blum, 1998; Morrison et al., 2000).

Adolescents and Drug, Alcohol, and Tobacco Use

In many societies, adolescents' use of licit and illicit substances is high, a reflection of youthful exploration and risk taking (Bachman, Wadsworth,

O'Malley, Johnston, & Schulenberg, 1997; WHO, 1998). Although common across socioeconomic strata, early onset and continued use of psychoactive substances (e.g., inhalants, coca products, and pharmaceutical drugs) is more frequent among adolescents living in disadvantaged circumstances (Welti, 2002; WHO, 1997). On the other hand, alcohol abuse tends to be more prevalent among middle class youth and in developed countries, because it is more costly than other psychoactive substances (WHO, 1998). Use of alcohol and drugs are related to difficulties in school, violence, suicide, motor vehicle accidents, and unprotected sex (Dryfoos, 1990). Thus, use of these substances jeopardizes adolescents' present and future health in numerous ways.

Cigarette smoking is another serious widespread substance use problem. It typically begins in adolescence, and is a significant risk factor for later emphysema, heart disease, stroke, birth defects, and premature death (Bachman & Wallace, 1991). Those who initiate smoking at younger ages are most likely to develop a lifelong addiction (Kuh et al., 1997; WHO, 1998, 1999a). Current trends in adolescent smoking differ markedly between developed and developing countries. In many developed countries, very high rates of adolescent tobacco consumption fell markedly between the late 1970s and early 1990s. The decline in the United States has been attributed to drastic shifts in public opinion about the social acceptability and safety of cigarette smoking following publicity about the negative health consequences of smoking. The large-scale initiation of smoking prevention programs in American schools in the early 1980s probably helped to sustain this downward trend among adolescents (McLloyd & Lozoff, in press). In contrast, tobacco consumption is increasing in developing countries by about 3.4% per year. The globalization of trade has opened the markets in Africa, Asia, Eastern Europe, and Latin America to transnational tobacco conglomerates. Facing decreased demand in developed nations, tobacco companies are dumping excess product into poorer nations for sale at low prices, and youth in these nations become the biggest consumers (Verma & Saraswathi, 2002). Thus, in the Philippines, for example, 20% of adolescents now smoke (Santa Maria, 2002).

Based on current smoking patterns, it is projected that by 2030, smoking-related illnesses will result in the death of 10 million people annually worldwide. Further, if the divergence in this trend between developing and developed nations persists, the majority of these deaths are expected to be in the developing world (WHO, 1999a). Another distressing pattern, perhaps associated with increased gender equality, is the narrowing of the gender gap in smoking among males and females in developed nations

(WHO, 1996). Easy access to tobacco products represents a clear example of exploitation of, rather than investment in, adolescents.

Adolescents and Sexual Behavior

Sexual behavior is another important domain in which adolescents are jeopardizing their future health trajectories. Again, current trends differ between developed and developing nations. The United States has witnessed positive changes in recent years, with fewer youth having their first sexual experience during their teenage years and increasing contraceptive rates among those adolescents who do have sex (Ozer et al., 2002). Although teen childbearing has fallen in the past decade, American adolescents are still less likely than European adolescents to use contraceptives and have higher rates of teen pregnancy and abortion than their European counterparts (Arnett, 2002). Despite reductions in their rate of sexual activity, American adolescents continue to have higher rates of sexually transmitted diseases (STDs) than all other age groups (Ozer et al., 2002).

Many developing countries show opposite trends. India, China, and nations in Africa, Latin America, and Southeast Asia are showing increasing rates of nonmarital adolescent sexual involvement, with urban youth engaging in premarital sexual activity at earlier ages than youth in rural regions (Brown et al., 2002). High rates of unprotected sex among these youth create major health risks. Santa Maria (2002) reports that 90% of sexual encounters among Filipino male youth are unprotected, and only one third of sexually active Thai youth use contraceptives. The breakdown of traditional barriers in urban settings, as well as growing poverty, have led to an increase in prostitution among adolescents and their use in the international sex trade (Castells, 1998; WHO, 1995), a blatant example of adolescent exploitation.

Adolescents' Mental Health

Although the overall physical health of adolescents has improved over the past several decades, this trend is not evident for mental health (Smith & Rutter, 1995; WHO, 1998). Adolescence is a critical developmental period for mental health. Symptoms of lifelong mental illness typically develop before the age of 25 (WHO, 1998). Adolescence is also a peak period for the experience of sexual abuse and assault, which is widespread in youth across nations and has severe consequences for subsequent mental health (WHO, 2000b). The high rates of risk behavior just discussed are also interrelated

with adolescents' mental health: these behaviors reflect deficits in their environments; deficits in coping and other life skills; or, in some cases, serious mental health problems. It follows that adolescence may be the most important period to intervene and invest in establishing healthy patterns.

High rates of adolescent mental health problems appear to occur across the developed and developing world, although reliable statistics on mental health are not available in all regions (Brown et al., 2002). Depression, which often begins in adolescence, is expected to be the second leading cause of disease burden by 2020 (WHO, 1999c). Despite the prosperity in the West, increases in the prevalence of some mental health problems among adolescents, such as depression, suicide, and eating disorders, were seen during the last half of the 20th century (Arnett, 2002; Diekstra, Kienhorst & de Wilde, 1995). In many parts of the world, warfare, community violence, family displacement, and extreme poverty create trauma and hardship that lead to long-lasting mental health disabilities, and interfere with a healthy transition to adulthood (UNICEF, 2000; WHO, 1999c). In a study that bridged 12 developed and developing nations, Gibson-Cline, Martinson, Shaw, and the Youth and Coping Research Team (2000) found that both middle class and poor youth reported frequent emotional problems related to school achievement, interpersonal conflicts, and identity-related issues. Although many adolescents drew on friends or family to help cope with these stresses, others tried to solve their problems themselves, becoming discouraged, feeling helpless, and giving up.

In sum, the current picture of adolescent health is a mixture of good and bad news. Many threats to adolescents' physical health persist, but, in general, adolescents around the world are physically healthier than they were 50 years ago (a trend that is true for other age groups as well; WHO, 1998). A particular concern, however, is that many adolescents are developing behaviors with long-term negative consequences for their health. Increasingly, health-compromising behavior and poor mental health are becoming the greatest obstacles to adolescents' well-being. Thus, it is important to discuss how this picture is likely to change in the future.

SOCIETAL TRENDS AND THEIR IMPLICATIONS FOR THE HEALTH AND WELL-BEING OF ADOLESCENTS

The health of adolescents, as previously stated, is integrally shaped by the daily contexts in which they grow and develop. Transformations in world economics, government, families, and technology, among other things, are altering societies around the world, and, in turn, reshaping the contexts of adolescents' lives. Will these transformations provide adolescents with

greater options for health-enhancing choices, or further compromise adolescents' development into healthy adults? This section reviews a set of societal trends that are likely to affect adolescents' health and preparation for adulthood in the years ahead.

Growing Poverty and Income Disparities

Changes in the distribution of wealth, both between and within nations, are among the most significant worldwide changes affecting the daily contexts that adolescents experience. The recent era of economic growth has brought unprecedented prosperity to some countries (such as Japan, Korea, and Singapore), leading to changes in the daily environments of adolescents that improve health, provide more choices, and better prepare them for healthy adulthood. Not all countries are sharing in this prosperity, however. The difference in per capita income between the poorest and richest countries has grown by a factor of five since 1870 (Guillén, 2001). Africa is largely excluded from the new global economy. Developing nations in Latin America, the Middle East, and South Asia are also becoming less able to make investments in government infrastructure—such as education and public services—for the health of their populations (Castells, 1998; Fussell & Greene, 2002). Children and adolescents have been and continue to be disproportionately represented among the poor (Duncan, 1991).

For a large portion of adolescents living in poor countries, the primary threats to health are the devastating daily living conditions brought on by poverty. These include lack of adequate sanitation and uncontrolled infectious disease. Nutritional disorders are common in poor nations and among the poor within nations (WHO, 1999b). A growing percentage of adolescents in sub-Saharan Africa face recurrent starvation and steadily declining living standards. Across the continent, an average of only 10% of the population has access to clean, pipeborne water (Nsamenang, 2002). In India, poverty and malnutrition are widespread, and the ravages of substandard living conditions are manifested in prominent social class differences in the stature and physical well-being of adolescents and young adults (Verma & Saraswathi, 2002). In much of Africa, Latin America, and India, most impoverished adolescents do not attend school—a context in which they would potentially learn skills to enhance their health and lift them out of poverty as adults. Instead they work—sometimes in factories where they are exposed to toxic chemicals, or in the streets where they learn health-compromising behaviors (Nsamenang, 2002; Verma & Saraswathi, 2002; Welti, 2002).

There is a mutually reinforcing relation between a nation's wealth and

the health of its citizens (Bloom & Canning, 2000; Kawachi & Berkman, 2000). When investments are made in the health of a nation's children and adolescents—through schools, sanitation, and the regulation of child labor—they become healthy citizens who, in turn, produce a more robust national economy. When a nation fails to invest in the health of its citizens, a “death spiral” can ensue, in which an unhealthy citizenry leads to a weak national economy that, in turn, leads to a lack of investment and unhealthy citizenry (Bloom & Canning, 2000).

We must emphasize, however, that it is not just the average wealth of a nation, but the distribution of wealth within a nation that affects the health and development of adolescents. Evidence suggests that it is often the most egalitarian countries, not the richest, that enjoy the best aggregate health (Szwarcwald, Bastos, Viacava, & de Andrade, 1999; Wilkinson, 1996). This is illustrated in differences between states within the United States. Even after controlling for differences in absolute household incomes, states with greater income inequality have higher rates of age-specific mortality, low birth weight, homicide, violent crime, work disability, and smoking (Kaplan, Pumuk, Lynch, Cohen, & Balfour, 1996). Income inequality may undermine social cohesion, setting in motion processes and policies that underinvest in human health, public education, and social programs (Kawachi, Kennedy, & Glass, 1999; Lynch & Kaplan, 1997). As Gallagher, Stewart, and Stratten (2000, p. 393) noted: “though health progress in general occurs concomitantly with industrialization and rising living standards, it comes more rapidly in countries where there is a more equitable distribution of income and wealth.” Thus, the growing economic stratification within many nations (Castells, 1998) also endangers the health of adolescents.

In industrialized countries, living in impoverished family and neighborhood environments is associated with high-risk behaviors, such as substance use and delinquency (Jessor, Van Den Bos, Vanderryn, Costa, & Turbin, 1995), early pregnancy (Furstenberg & Hughes, 1995), poor nutrition, school failure, and feelings of despair (McLeod & Shanahan, 1996; McLoyd & Wilson, 1991). The effect of poverty on adolescents' mental health and risk-taking behavior is often indirect through its impact on their parents, who become anxious or hopeless and have little energy to focus on effective parenting and monitoring of adolescent children (Elder, Van Nguyen, & Caspi, 1985; McLoyd, 1990). More hopefully, poor adolescents who enjoy positive connections at home or in the community may escape these consequences and instead enjoy the positive health trajectory documented among resilient youth (Masten & Braswell, 1991; Rutter, 1990).

In sum, world economic trends are likely to continue to undermine the health of large numbers of youth in the decades ahead. So detrimental are

the implications of extreme poverty that the WHO designates it as a health problem in its International Classification of Diseases (WHO, 2000a). We stress again that economic changes have improved the health of youth whose nations or families have enjoyed increasing wealth—although it should be reiterated that middle-class youth are hardly exempt from mental health and behavioral problems. The increasing poverty of some nations and the persistence of poverty even within wealthy nations, however, exert a toll on the health and development of many youth throughout the world, denying them daily contexts in which they are safe and can become prepared for healthy adulthood.

Government Instability and Increased Exposure to Violence

Governments are also in flux, in conflicts, or functioning ineffectively in many parts of the world, with implications for the contexts of adolescents' health and development. The number of civil wars and regional conflicts has been increasing, and in some nations governments exercise limited civil control over life on the streets (Larson, 2002). Terrorism spans the globe. As a result, violence is a continued health threat to adolescents in both developing and developed nations. In addition to the threat of injury or death, the experience of violence can have long-term emotional effects and foster risky behaviors, including perpetration of violence (Aptekar & Stocklin, 1997).

As a result of political conflicts, youth in many parts of the world are conscripted or lured into military service, and in some cases become combatants. In Africa, it is believed that there are more than 120,000 child soldiers (Nsamenang, 2002). In the Middle East, poverty and other conditions make some adolescents susceptible to radical Islamic movements, which promise the glory of martyrdom and paradise in the afterlife to lure youth into terrorism and holy war (Booth, 2002). In areas of conflict across the world, adolescents are recruited into armies, rebel militia, and gangs of bandits. They are separated from their families, and may be tortured or drugged in an effort to make them aggressive fighters (Castells, 1998). War and acts of terrorism do not exclusively impact the combatants. Civilians become involved in the fray and young women are sexually assaulted, as the battles are brought into villages, towns, and cities.

The inadequacies of government expose adolescents to violence in other ways, too. Among developed nations, the United States stands out as providing particularly dangerous community settings for youth, especially in urban areas. Restrictions on the availability of firearms in the United States are the least stringent and most circumvented among West-

ern nations (Arnett, 2002). Partly as a result, homicide is the second leading cause of death among U.S. adolescents, and the leading cause of death among African American and Hispanic adolescents (Ozer et al., 2002). Firearm homicides among males age 15 to 24 in the United States occur at a rate five times that in Canada, 12 times that in Denmark, and 50 times that in Great Britain (Arnett, 2002). Latin America is another region where youth, particularly males, experience high rates of interpersonal violence (WHO, 2000b).

The new millennium, it appears, is not likely to be one of world peace. Kaplan (2000) forecasts increasing breakdowns of civil authority in the poorest parts of the world. Unless there is a concerted worldwide effort to make governments more effective, reduce regional conflicts, control terrorism, and address the underlying conditions that create conflict and violence, the health of adolescents of the future will continue to be jeopardized.

Trends in Health Care and Health Policy

Effective government is important, also, in insuring fundamental services such as health care to adolescents. The provision of health care is changing around the world. Medical care is estimated to explain only 10% to 20% of the variation in health status. More important determinants of health are environmental (e.g., sanitation, clean water, adequate housing, and safety) and behavioral (e.g., nutrition, substance use, and exercise; Williams, 1990). Those with the fewest socioeconomic resources, however, appear to gain more from the medical services they receive (Hadley, 1982; Nersesian, 1988). In developing nations, where poverty is widespread and the danger of infectious disease is greatest, consumption of medical services has a larger impact on population health than in developed nations (United Nations Development Programme, 1998). For adolescents' health, the most relevant services are preventive and mental health care.

On the positive side, the importance of preventive health care for adolescents is receiving increased recognition, especially in developed nations where such investments are economically feasible (Ginzberg, 1999; Ozer et al., 2002). In almost all countries, however, a gap exists between need and the availability of health services (Mhatre & Deber, 1992). Given the economic trends mentioned earlier, the provision of primary and preventive services to poor adolescents is at risk. In developed and developing countries alike, health care is increasingly being treated as a commodity, the purchase of which is determined by personal wealth or a country's economic health, rather than being seen as a basic human right (Gutiérrez & Kendall, 2000; WHO, 1978). When budgets are tight and there are competing de-

mands, investing in preventive care for seemingly healthy adolescents is viewed as costly and impractical. Instead, health-care interventions and resources are targeted toward young children and the elderly who have more health problems; this trend may be more true in the future with the worldwide increase in the elderly population (Fussell & Greene, 2002).

There is increasing recognition of adolescents' mental health as a component of their overall health (Ozer, Macdonald & Irwin, in press; UNICEF, 2000). The United States, for example, recently passed the Mental Health Parity Law, which requires insurance companies to reimburse mental health services at the same level as physical health services. There is also growing acceptance and expansion of complementary and alternative medicine, which assumes a more holistic view of health and patient care (Eisenberg et al., 1998). As with preventative care, however, economic constraints are likely to be a significant obstacle to expanding mental health services to poor youth, especially in developing nations. The stigma associated with mental illness in some cultures is also likely to be an obstacle to expanded adolescent use of mental health services.

The Spread of HIV and AIDS and the Impact on Adolescents Worldwide

The HIV/AIDS pandemic is a growing global problem, with serious implications for the future health and behavior of adolescents in all nations. The impact of AIDS in developed nations, however, is dwarfed by comparison to its present and anticipated effect in the developing world. The impact of AIDS in many African countries is already appallingly clear and widespread. Eastern and southern Africa account for only 4.8% of the world's population, but contain 50% of the cases of HIV infection (Nsamenang, 2002). Currently in South Africa alone, 3.5 million people are infected with HIV (approximately 10% of the population), and this number is expected to rise to 6 to 10 million people within 15 years (Stephenson, 2000). Although there seems to be hope of stemming the tide of AIDS in some developing nations, it is estimated that by 2010, India and China will have the highest absolute numbers of HIV-infected individuals in the world, as the epidemic spreads from urban to rural areas (Stephenson, 2000; Verma & Saraswathi, 2002).

Adolescents and children "are being swept into the epidemic" (Stephenson, 2000). In South Africa, more than 60% of new HIV infections occur among 15- to 25-year olds, with adolescent girls being among the most frequently diagnosed (Stephenson, 2000). In some of the hardest hit African nations, such as Botswana, it is estimated that nearly 60% of ado-

lescents will die of AIDS (Hamilton, 2000). The impact of AIDS on children and adolescents in the developing world is not limited to the health effects of the disease itself. The AIDS epidemic has created a generation of "AIDS orphans"—children whose parents and extended family members died of AIDS. It is estimated that worldwide there are approximately 13 million AIDS orphans; 95% of them live in sub-Saharan Africa (Nsamenang, 2002). By 2005, South Africa alone will have more than 800,000 AIDS orphans; this number is expected to rise to 1.95 million by 2010 (Stephenson, 2000). In the villages of Africa, these orphans are often taken in by unrelated tribal members (Knodel & VanLandingham, 2000; Stephenson, 2000). Still, threats to the physical and emotional health of these orphans are numerous: poverty, substance use and abuse, violence, and involvement in criminal activity and the sex trade (WHO, 1996). At the very least, adolescents of nations devastated by AIDS live in a world of near-constant bereavement, facing the death of family, friends, and acquaintances on a daily basis (Nsamenang, 2002).

The impact of the AIDS epidemic on the economic health of sub-Saharan African nations is only in its earliest stages. According to Paul Delay, Chief of the AIDS Office of the U.S. Agency for International Development, the epidemic has set back economic development in some African countries as much as 50 years (Hamilton, 2000). In some African nations, nearly 50% of the employed workforce is expected to die of AIDS (Stephenson, 2000). As skilled laborers, teachers, military personnel, and hospital workers are lost to the epidemic, the pool of adults available to train new workers, educate children and adolescents, provide for national security, and care for the ill steadily shrinks. According to Delay, even if the AIDS epidemic in Africa were completely reversed today, its economic impact would still be felt by these nations for the next 20 to 30 years (Hamilton, 2000). As a result, adolescents who escape AIDS infection itself will live in countries with few resources to devote to public health and education and will bear the burden of their countries' struggling economies.

The devastation of the HIV/AIDS epidemic provides a particularly vivid example of the need for investment in adolescents. In some developing countries, such as Uganda and Thailand, genuine commitment to HIV prevention from the upper echelons of government has led to a significant reduction in HIV prevalence (Stephenson, 2000; WHO, 1996). In other countries, however, such as South Africa, the government has failed to provide support for prevention and education efforts (Stephenson, 2000). Nations that fail to invest in prevention efforts and in medical treatment can expect unprecedented morbidity and mortality from AIDS in the years to come.

The Shrinking and Shifting World: Implications of Migration and Urbanization

Current high rates of migration within and between nations are certain to continue into the 21st century, and will also affect adolescents' health and development (Gibson-Cline et al., 2000; United Nations Development Programme, 1998). The increase in regional conflicts has raised the number of refugees around the world into the tens of millions. The shift of populations from rural to urban areas is a continuing process in developing nations, and changing economic opportunities are causing family members and entire families, particularly in developing nations, to emigrate in search of work (Brown et al., 2002).

One immediate implication of large-scale migration for the health of adolescents is that it sets the stage for epidemic spread of infectious disease (Gutiérrez & Kendall, 2000). In 1994, the millions fleeing violence in Rwanda to crowded and unsanitary refugee camps led to the most devastating cholera epidemics in recent history (Kristof, 1997). Economic migration also played a significant role in the spread of HIV throughout Africa (Lurie, Hintzen, & Lowe, 1995).

Migration requires that adolescents leave behind their homes and their support networks of extended family and friends to start over again in a new community. Adapting to a new environmental, cultural, and sometimes linguistic context may be less difficult for the more mutable adolescents, especially if family relationships remain positive and parents are not overwrought (Lempers, Clark-Lempers, & Simons, 1989). Adolescent children of refugees and immigrants may actually gain status in the household and develop a strong sense of efficacy as they become their parents' interpreters and guides in the strange new world. The stresses of dislocation, however, can also create alienation and mental health problems in adolescents (Calabrese, 1989).

Migration from rural to dense urban areas often compounds threats to health (Gutiérrez & Kendall, 2000). Urban poor around the world typically experience higher health risks than their rural counterparts (WHO, 1995). Although rural areas offer less access to health-care services and educational experiences, there is generally less pollution and more nutritious food available. In contrast, many urban dwellers in Africa, Asia, and Latin America live in substandard housing and unsafe and unclean neighborhoods, without access to drinkable water, increasing the risk of exposure and fast spread of infectious disease (Gutiérrez & Kendall, 2000). Adolescents in urban environments also become more vulnerable targets for sexual predators. In sum, although the frequent migration of the 21st century may protect families from war or improve their economic condition, the new contexts present new risks to adolescents' well-being.

Changing Family and Community Contexts

An interrelated set of ongoing changes concerns the family and community settings in which adolescents live. In many parts of the world, such as Africa and India, urbanization and industrialization have eroded the traditional upbringing of children in which the extended family and community shared the responsibility of socializing youth (Nsamenang, 2002; Verma & Saraswathi, 2002). Rural communities tend to be more homogeneous, generally offering more consistent messages about roles, rules, and appropriate behavior. These communities and their norms can be a comforting guide for the developing adolescent, or a stifling constraint to identity formation and growth. Research suggests that cohesive communities that are rich in social and emotional resources are related to fewer risk behaviors and better adolescent mental health, however, these types of communities can occur in urban as well as rural areas (Benson, 1997).

A related challenge faced by adolescents in developing nations is the struggle of living in coexisting traditional and modern worlds. This struggle is often played out within families, because adolescents and parents have dramatically different generational experiences. In India, where the developing economy has radically changed both the societal roles of women and the importance of kinship networks, adolescent girls must contend with the often times conflicting expectations of old and new cultures (Verma & Saraswathi, 2002). Adolescents in many Arab nations face tensions between values of conservative Islamic sects that are at odds with worldwide trends toward globalization, consumerism, and secular values (Booth, 2002). Such tensions can be particularly acute for youth whose families immigrate to a new country. Dealing with the daily conflicts that can result from these cultural disjunctions (e.g., regarding clothing, media use, friends, and religious practices) can be taxing to adolescents' mental health, and lead adolescents into risky behavioral patterns that are not governed by the social controls of either the old or new cultural systems. Some may stubbornly choose one way of life over another (traditional or modern) and suffer the costs of alienating parents or friends. Others may acquire the flexibility to select what is positive about both ways of life.

Family structures are changing too. In many regions of the world, urbanization and industrialization have led to a shift away from extended households and toward nuclear households, with implications for the well-being and integration of youth (Bharat, 1991; Stevenson & Zusho, 2002). Some argue that this shift diminishes the adult support available to adolescents, leading to an increase in health-compromising behaviors. Still others argue that it is not the quantity of time or activities shared with par-

ents and other adults that matters; rather, it is the quality of the connection, clear rules, and high expectations for adolescents, held by their parents and other adults, that protect and keep youth healthy (Resnick et al., 1997; Zeldin & Price, 1995). In fact, families in all parts of the world are having fewer children and many appear to be employing more child-centered forms of parenting (Larson et al., 2002, this volume), factors that are related to improved mental health and well-being.

A consistent trend in most parts of the globe is that increasing numbers of children and adolescents are being raised in divorced, single-parent, or other diverse types of households (Larson et al., 2002). Although attention and money may be spread thin in single-parent households, research indicates that satisfying and protective relationships exist in diverse family structures, and the majority of youth in these families grow up to be healthy adults (Hetherington, 1989; McAdoo, 1995)—particularly when there are other extended family members involved in their lives, as happens in many parts of the world. There appear, however, to be increasing numbers of youth who are raised with few or no significant adults in their lives (e.g., the large number of African youth orphaned by AIDS). The health risks and developmental deficits for these groups are high (Raffaelli & Larson, 1999).

Increased employment of mothers across developed and developing nations has also altered the family contexts experienced by adolescents (Larson et al., 2002). Santa Maria (2002) observes that in the Philippines, increasing maternal employment has reduced parental monitoring and increased adolescents' risk behaviors. Women's entry into the workforce, however, fortifies the resources available to raise healthy families, and diversifies the role models that adolescents can draw on as they make choices about their own futures. Research in Western nations has repeatedly shown that maternal employment does not harm, and may sometimes improve the well-being of adolescents (Furstenberg, 1995).

Changing Information Technology: Adolescents and the New Media

A final societal change with both positive and negative implications for adolescent health is the growth of electronic media. This includes "old" media, such as television, radio, telephones, and magazines, that are finding their ways into the most isolated villages and rural areas, bringing images of a materialistic world culture (Altman, 2001). It also includes "new" media such as computers, E-mail, chat rooms, CD-ROMs, satellite television, paging devices, and video games. These new media compete for young people's time and attention in industrialized nations and will

increasingly diffuse from the elite to the middle class in developing nations. All these media constitute another "context" of adolescent daily interaction that can promote both health-compromising and health-enhancing behaviors.

Of all the types of media content, the portrayal of violence has received the most scrutiny. Evidence shows that it contributes to youth desensitization and the adoption of violent attitudes and behaviors (Committee on Communications, American Academy of Pediatrics, 1995). The new media, in the form of video games and virtual reality systems, provide more extreme forms of violence and an interactive component not present in the old media, which increases its potential to desensitize youth. Indeed, research is beginning to show a relation between adolescents' participation in video games and their subsequent aggressive behavior (Anderson & Bushman, 2001).

The new media also have the potential to foster health and well-being, with a number of Internet sites providing valuable information that is designed to promote healthy development and responsible behavior. This information can be obtained quickly, conveniently, and confidentially. The Internet also has the potential to impact well-being by connecting adolescents to supportive peers or adults, which is likely to be particularly valuable for those who feel marginalized or who are minorities in their communities. Message boards and chat rooms may become an important source of support for gay and lesbian youth, youth with disabilities, and ethnic minorities (Hellenga, 2002).

For these reasons, the new media have gained a central place in discussions of factors that may affect adolescent health in the 21st century. The types of interactions that adolescents can have via the new media, however, are enormously varied, and little research has yet been done on the impact of these interactions on adolescent health and development (Hein, 2000). Little is known about how adolescents' exposure to the new media may undermine traditional cultural values. It is important to ask how the new media can be used constructively for the integration of adolescents into their communities.

LOOKING TOWARD THE FUTURE: NEEDS OF ADOLESCENTS

Although adolescence is often thought of as the healthiest time of life, embracing a definition of health that goes beyond a narrow focus on disease to incorporate emotional and social health alters this picture. Indeed, many of the threats to adolescents are as much to their emotional well-being and mental health as to their physical health. Furthermore, most of

the threats to adolescents are products of their environment or the choices their surroundings present (e.g., subjection to poverty and violence, involvement in the sex trade, malnutrition, substance use, and other risky behaviors). Health-compromising and health-promoting behaviors initiated during adolescence often continue throughout the life course, making this a critical period for integration and investment. This section focuses on aspects of the social environment and what is needed to bolster the health and well-being of adolescents.

The Role of the Health-Care System

Increased attention to preventive-care services among adolescents around the world is clearly welcome, but this trend will have a greater impact if more comprehensive definitions of health and preventive care are adopted—definitions that go beyond immunizations and monitoring physical development to focus on the psychological well-being of adolescents. As is evident by the leading causes of morbidity and mortality among adolescents—namely injury, homicide, and suicide—the current health-care system provides crisis care rather than playing a vital role in protecting youth from harm. The health-care system must evolve and balance attention given to physical health and development with attention given to the emotional well-being of adolescents.

Although many adolescents are proactive and resourceful, caring adults and organizations must put resources within easy reach, or even in the way of adolescents (Gibson-Cline et al., 2000). School-based health and social services programs (Resnick et al., 1997; Robinson, Ruch-Ross, Watkins-Ferrell, & Lightfoot, 1993), and services in neutral locations within the community (Dryfoos, 1990) are resources that give adolescents frequent, unsolicited reminders that there are people interested in them, who will listen and help if asked.

Connections to Family and Community

Contexts outside the health-care system play a more important role in promoting the health of adolescents. Factors that promote adolescents' healthy development are found in the families and caring communities that surround, nurture, and encourage them to make good choices and act in ways that enhance their healthy development. As we begin the 21st century, it is important to think more broadly about whether the institutions and mechanisms that have been relied on in the past to foster adolescent

health and well-being can be relied on in the future (Furstenberg & Hughes, 1995; Pittman, 1996). The erosion of extended family structures and increasing prevalence of single-parent households around the world are vivid examples of changing institutions that must be fortified so that they can help to guide adolescents into adulthood. Similarly, the decay of communities due to migration and urbanization threatens another resource important to the socialization and protection of adolescents.

Clearly it is not simply changing family structures and changing community contexts that threaten healthy development, because the literature provides clear evidence that function precedes form (Hetherington, 1989; Rutter, 1990). What is critical is that the evolving institutions of family and community continue to integrate, engage, and invest in the well-being of adolescents during this important period of the life course. Adults must see this as a responsibility and find ways to accomplish this important function, whether through families, communities, community organizations, or some combination of all of these. Of equal importance, adults must provide opportunities and healing contexts for adolescents already exposed to unhealthy environments (e.g., those involved in war or prostitution, AIDS orphans, and substance users or abusers) to turn negative health trajectories into positive ones that enhance resilience.

Adolescents as Active Participants in Healthy Development

Adolescents are also willing and able to foster their own healthy development, select friends, and collaborate in the creation of programs that promote the skills they need to become contributing members of their communities and future families (Blum, 1998; Camino, 2000; Zeldin & Price, 1995). Institutions in developed countries have too frequently been based on assumptions that adolescents cannot act constructively on their own behalf, thus destroying budding competence and self-confidence. Cultivating the necessary skills and then supporting adolescents' constructive behavior are appropriate roles for adults and organizations serving youth in both developing and developed societies. Adolescents have already demonstrated enormous creativity and talent in initiating projects; adults should lend support and necessary resources (Petersen, 2000).

One promising approach to youth development is service learning, in which young people learn through performing voluntary service and reflecting on what they have learned with guidance from supportive adults (Petersen, 2000). The primary lesson from studies of service learning is that adolescents need a constructive role in their communities, so that they can learn how to function as adults and take pride in their surroundings. For

youth, service learning has been shown to enhance self-esteem and social relationships; increase understanding of self and the broader world; develop values; permit exploration of career options; and decrease alienation from school, family, and community. Research demonstrates that youth who are engaged in service learning are less likely to become involved in health-compromising behaviors, such as criminal behavior and early teen pregnancy (Kirby & Coyle, 1997). The benefits for those served include taking on a more positive view of youth as well as the direct results of the service performed (Stukas, Snyder, & Clary, 1999).

The Role of Media in Health Promotion

Several features inherent to the new media make it an attractive context for promoting psychosocial development. Adolescents possess an apparent natural affinity for this technology. In addition, new media use is self-initiated, confidential, and without boundaries; provides access to health-relevant information; and expands both the networks of support and the diversity of the support available to adolescents. Although more research is needed, if indeed the new media is used for good rather than harm, extensive efforts should be made to decrease the "digital divide."

Several examples from the old media provide clues to the yet-untapped potential of the new media to promote healthy development, and to involve adolescents in this effort. When the star of the hit television show "Felicity" recently decided she was going to have sex with her boyfriend, millions of viewers went with her as she learned how to buy and use a condom (Brown & Cantor, 2000). This U.S. phenomenon has international echoes. In India, Dehleez, a radio serial, has used its hero's adventures to inform a large number of young people about reproductive health, and has made it easier for adolescents to discuss questions about health and sex. The Jamaica Red Cross Peer Education Project used a radio serial drama to encourage young people to avoid premature and unsafe sex, and to seek medical treatment if they suspect that they have contracted an STD (WHO/UNFPA/UNICEF Study Group on Programming for Adolescent Health, 1999).

Multiple forms of media have been used with some success in other health-promotion efforts, notably in attempts to counter the efforts of media-savvy tobacco companies. In New Zealand, where rates of smoking range between 40% to 60%, a major social marketing initiative, "Auahi Kore," has been launched. This effort is composed of a media campaign and community activities that reaffirm a smoke-free Maori culture as a source of positive identity for Maori youth (WHO International Consultation on Tobacco and Youth, 1999).

In Singapore, a Youth-to-Youth Smoke-Free Campaign was organized for students. This competition, jointly created by the Ministries of Health and Education, Nanyang Polytechnic, the National Library Board, the National Youth Council, and the Singapore Cancer Society (in conjunction with the WHO Consultation), engaged young people to design Web pages that expressed their ideas about a tobacco control campaign targeted at 14- to 20-year-olds (WHO International Consultation on Tobacco and Youth, 1999).

Research is needed to better understand the impact of old and new media on adolescent well-being, and to assess their potential for promoting healthy development and fostering change when risky behaviors occur. Challenges that lie ahead are, first, to evaluate the content and reliability of material available on the Internet, and, second to engage the communications industry in the process of creating and disseminating health-focused messages—when possible, in partnership with adolescents.

Alleviating the Threat of Poverty: The Role of Government and Nongovernment Institutions

Poverty is the most devastating of the threats to adolescent health, and exacerbates the effects of other threats. Poverty threatens adolescents' physical health, via poor sanitation and nutrition, as well as their psychological well-being, through decrements to the resources that families can expend on their adolescent children and decrements to the communities in which these families are embedded. Investment by nations and global institutions in the eradication of poverty is key to the well-being of adolescents. Improving a nation's economy permits increased investment in education, preventive health measures, and infrastructures necessary for adolescents to grow into a healthy, integrated, and contributing adulthood. Truly advancing the health of all adolescents may be possible only through social and economic change (Link & Phelan, 1995). Although dramatic shifts in the distribution of wealth across or within countries are unlikely, perhaps movement toward new health-conscious ways of developing policies is within reach for adolescents in the 21st century. Specifically, in recognition that investments outside of the health sector (e.g., commerce, housing, education, and defense) have consequences for the health of populations, the potential impact of nonhealth policies on population health should be an integral part of the policy-making process (Gutiérrez & Kendall, 2000).

Links between economic wealth and population health are particularly salient in discussions of adolescent health and well-being. After all, it is adolescents who represent the future intellectual, educational, spiritual, and economic stock of a nation. Investment in the healthy development of

adolescents and in their integration into society supports the development of human and social capital and represents an investment in the future. Leaders and policy makers are beginning to pay attention to the resource that adolescents represent, as was demonstrated by recent health and social policies in the United States (e.g., the Younger Americans Act and the State Children's Health Insurance Program) and the United Kingdom (e.g., the Social Exclusion Unit). The government of Kerala in India made a conscious choice to invest its limited current resources on policies that promote the health of its youth, riding on the optimism of creating a "health spiral" for future generations (Sen, 1999).

Concluding Comments

The primary message of this article is that societal investment in, and integration of, adolescents are key to a positive future for the society as well as for adolescents. As societies continue to change, it is essential that they keep this fundamental truth front and center. It is quite clear that holding adolescents as an integral rather than an alienated component of a society yields many positive outcomes, just as failure to do so may, at the very least, mean the loss of a generation and a severe missed opportunity for the society to advance. The choice is clear, and adolescents are willing partners in forging a path toward a healthy future.

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