

Adolescent Health 2



Adolescence and the social determinants of health

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The health of adolescents is strongly affected by social factors at personal, family, community, and national levels. Nations present young people with structures of opportunity as they grow up. Since health and health behaviours correspond strongly from adolescence into adult life, the way that these social determinants affect adolescent health are crucial to the health of the whole population and the economic development of nations. During adolescence, developmental effects related to puberty and brain development lead to new sets of behaviours and capacities that enable transitions in family, peer, and educational domains, and in health behaviours. These transitions modify childhood trajectories towards health and wellbeing and are modified by economic and social factors within countries, leading to inequalities. We review existing data on the effects of social determinants on health in adolescence, and present findings from country-level ecological analyses on the health of young people aged 10–24 years. The strongest determinants of adolescent health worldwide are structural factors such as national wealth, income inequality, and access to education. Furthermore, safe and supportive families, safe and supportive schools, together with positive and supportive peers are crucial to helping young people develop to their full potential and attain the best health in the transition to adulthood. Improving adolescent health worldwide requires improving young people's daily life with families and peers and in schools, addressing risk and protective factors in the social environment at a population level, and focusing on factors that are protective across various health outcomes. The most effective interventions are probably structural changes to improve access to education and employment for young people and to reduce the risk of transport-related injury.

Introduction

Young people grow to adulthood within a complex web of family, peer, community, societal, and cultural influences that affect present and future health and wellbeing. Over the past two decades, theorists have begun to argue that understanding and enhancing health needed a focus upstream from an individual's risk or protective factors to the social patterns and structures that shape people's chances to be healthy. Commonly referred to as the social determinants of health (SDH) approach, such work focuses on the social contexts that affect health and also the pathways by which social conditions translate into health effects. In assessing the so-called causes of the causes, work on SDH particularly focuses on how the causes of individual problems relate to the causes of population incidence, how differences between individuals relate to differences between populations, and how social gradients and cultural factors affect health outcomes.¹

WHO defines SDH as “the conditions in which people are born, grow, live, work and age”, conditions or circumstances that are shaped by families and communities and by the distribution of money, power, and resources at global, national, and local levels and affected by policy choices at each of these levels.¹ The first report in this Series on adolescent health² shows one model of the overlapping spheres of influence of social determinants on young people, which could be elaborated to incorporate further positive influences and assets that support adolescent health. The health burden associated with operation of these SDH, and the substantial potential for improving health through

modifiable SDH is increasingly recognised by nations and international agencies. In 2008, the report of the WHO Commission on Social Determinants of Health emphasised the importance of a life-course approach to action on SDH.¹ However, life-course approaches have

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This is the second in a [Series](#) of four papers about adolescent health

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Key messages

- The social determinants of health are defined by the WHO Commission on the Social Determinants of Health as “the conditions in which people are born, grow, live, work and age”; these conditions or circumstances are shaped by families and communities and by the distribution of money, power, and resources at worldwide, national, and local levels, and affected by policy choices at each of these levels.
- Adolescence is a second sensitive developmental period in which puberty and rapid brain maturation lead to new sets of behaviours and capacities that trigger or enable transitions in family, peer, and educational domains, and in health behaviours. These transitions modify childhood trajectories towards health and wellbeing.
- Our analyses show that the strongest determinants of adolescent health are structural factors such as national wealth, income inequality, and access to education. Furthermore, safe and supportive families, safe and supportive schools, together with positive and supportive peers, are crucial to helping young people develop to their full potential and attain the best health in the transition to adulthood.
- Improving adolescent health worldwide requires improving young people's daily lives with families and peers and in schools, addressing risk and protective factors in the social environment at a population level, and focusing on factors that are protective across various health outcomes.
- The most effective interventions are probably structural changes to improve access to education and employment for young people and to reduce the risk of transport-related injury. Other crucial aspects are ensuring participation of young people in policy and service development, and building capacity in personnel and data systems in adolescent health.

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thus far focused almost entirely on early childhood determinants of later adult health.^{3,4} Adolescence, as a key developmental stage in the life course, has been neglected in SDH research.

Developmental theorists have long identified adolescence as a crucial period of psychological and biological change, second only to early childhood in the rate and breadth of developmental change. During adolescence, rapid development of the CNS and other biological systems interact with social development to entrain new behaviours and to allow many transitions important for an individual to function as a productive adult (panel 1). Approaches to problems in adolescent health have moved beyond traditional risk-factor reduction focused on the individual to emphasise the importance of enhancing protective factors in young people's lives. Such resiliency-based approaches have focused on family and peer factors as important in protecting young people from harm, but also emphasise that a successful and healthy transition to adulthood needs promotion of positive social and emotional development as much as avoiding drugs, violence, or sexual risk.⁶ However, despite extensive published work on potentially malleable factors that act as risk and protective factors across a range of adolescent-health outcomes,⁷ there has been little systematic study of the effects of social determinants on adolescent health.

Our objectives in this report are to review what is known about SDH in adolescence, to use original data to assess key determinants of adolescent health, and to extend existing life-course models of SDH to include adolescence.

Many models exist to explain the operation of social determinants, from levels proximal to the individual,

Panel 1: Biological and socialisation processes in adolescence that allow unique opportunities for social determinants to affect health

- CNS and pubertal development drive identity formation, new behaviours, and new causes of ill health.
- Adoption of behaviours (eg, smoking, drug misuse, and sex) that are risky to health yet might be normal within adolescent social development.
- Life stage transitions and changes in personal and social responsibilities and relationships entailed. The World Bank World Development Report 2007⁵ outlined five important transitions for young people:
 - Learning: transition from primary to secondary schooling, and from secondary to higher education.
 - Work: transition from education into workforce.
 - Health: transition to responsibility for own health.
 - Family: transition from family living to autonomy, early marriage, and parenthood.
 - Citizenship: transition to responsible citizenship.
- Experience of unequal chances related to sex, ethnic origin, education, employment, and socioeconomic status.

such as family or peers, through communities, to factors quite distal from the individual, such as economic opportunities provided by the state. Since these models deal with “the conditions in which people are born, grow, live, work and age”, it is perhaps not surprising that published work contains competing models with a complex and inconsistent array of concepts and terms (panel 2). We will use the conceptual framework of the WHO Commission on Social Determinants of Health to identify two main levels at which determinants operate: structural and proximal.

Structural determinants are the fundamental structures that generate social stratification, such as global and national economic, political, and social welfare systems, and education systems. Proximal, also called intermediate, determinants are the circumstances of daily life, from the quality of the family environment and peer relationships, through availability of food, housing, and recreation, to access to education. Proximal determinants are generated by the social stratification that results from structural determinants, but are also generated through cultural, religious, and community factors. These proximal determinants establish individual differences in exposure and vulnerability to health compromising factors that generate health or ill health.¹ These levels closely correspond to environmental spheres of influence affecting a young person, from family and peer group, to school, to neighbourhood, and to wider society.⁴

Life-course theorists have identified three ways in which SDH might operate. Determinants that affect

Panel 2: Terms used to describe social determinants of health

Social determinants of health

The circumstances in which people live—ie, the economic, political, social, environmental, and cultural conditions that affect the health of these individuals.

Social stratification

Status inequalities between individuals within a social system.

Structural determinants

Fundamental structures of the nation state that generate social stratification, such as national wealth, income inequality, educational status, sexual or gender norms, or ethnic group.

Proximal or intermediate determinants

The circumstances of daily life, from the quality of family environment and peer relationships, through availability of food, housing, and recreation, to access to education. Proximal determinants are generated by the social stratification resulting from structural determinants, but are also generated through cultural, religious, and community factors. Proximal determinants establish individual differences in exposure and vulnerability to factors that compromise health.

development in early life or experiences that affect adult health independent of intervening experience have been termed latent effects. Determinants that set individuals onto life trajectories that affect their health, wellbeing, and competence over their life course can be understood as pathway effects. Cumulative effects refer to the accumulation of advantage or disadvantage due to exposure to unfavourable environments over time.⁸

We review existing data on the effects of structural and proximal SDH, and their interactions, on health in adolescence. We also present findings from a series of ecological analyses done with worldwide country-level data on the health of young people aged 10–24 years from publicly available UN agency sources. Studies of natural experiments such as variations in health outcomes between nations provide useful data on the effect of structural determinants on health, although ecological analyses cannot prove causation. They might also provide information on the operation of proximal determinants outside high-income countries, particularly since the operation of determinants within countries is similar to those operating between countries.⁹ In our analyses we assess the associations of fundamental SDH known to be relevant to adolescent health with important adolescent-health outcomes including mortality, sexual health, health behaviours, and mental health (we describe our methods in the appendix).

Structural determinants: systems and opportunities

Nations present young people with structures of opportunity as they grow up. Since health and health behaviours track strongly from adolescence into adult life, the way that these structures of opportunity affect adolescent health are important for the health of the whole population. Crucial structural factors include political and economic systems, wealth and its distribution within a country, the education system including access to education, employment opportunities for young people, health service access, poverty, migration and homelessness, and cultural factors such as sex and ethnic equality, as well as factors such as war or conflict and climate change.

National wealth and income inequality

It is well established that greater national wealth improves health outcomes in children and adults.^{10,11} Only two studies have assessed the way that national wealth and income distribution affects adolescent-health outcomes across countries. Adolescent all-cause mortality was associated with both national wealth and inequality in a recent worldwide ecological study from birth to old age.¹² Adolescents living in less affluent countries and countries with greater socioeconomic inequalities have poorer self-reported health.¹³

There is substantial evidence that income inequality within countries affects various aspects of adolescent

health, particularly within middle-income and high-income countries.^{14,15} Gold and colleagues¹⁶ reported that teenage pregnancy rates across states within the USA were associated with both poverty and income inequality; the effect of poverty seemed to be direct whereas income inequality seemed to exert its effects principally through social capital.¹⁷ However, the effects of structural determinants on global adolescent health has not been systematically studied. We assessed ecological associations between national wealth and inequality and various health outcomes in adolescence (figures 1–3).

We noted that greater national wealth was strongly associated with better health across most outcomes in both sexes, with the exception of reported injuries, exposure to violence, and smoking (figure 1). The effect size of these associations was moderate to large. However, as we show in figure 2, countries with a very low income have a five-times variation in male adolescent mortality and a ten-times variation in teenage birth rate despite similar national wealth, suggesting that cultural, religious, or other social factors strongly moderate the effects of structural determinants such as wealth.

National spending on health is one aspect of national wealth that can affect wellbeing.¹ In ecological analyses, we noted that national health spending per person was not associated with any outcomes in adolescent health under study after adjustment for national wealth. This probably relates to the strongly social and environmental causes¹⁸ of much of adolescent mortality and morbidity worldwide.

We identified that countries with political and economic systems that produced greater income inequality had poorer health across all outcomes (figure 3), again with the exception of self-reported violence, injuries, and smoking. Effect sizes were similar to those for wealth, and associations largely remained robust to further adjustment for GDP, suggesting that income inequality was associated with health irrespective of national wealth.

These associations between national wealth, inequality, and adolescent health probably relate to cumulative effects persisting from childhood together with contemporary pathway effects in adolescence itself. Although wealth generated by national economic development is highly beneficial for young people, their health is vulnerable to the inequalities generated by development, particularly where rapid economic development and urbanisation create large populations of deprived and displaced youth.¹⁹ Employment is a mechanism through which young people share in the wealth of a society, and many within-country studies show that greater youth unemployment leads to poorer health outcomes, particularly mental health outcomes, suicide, and violence-related mortality.^{20,21} Data comparability issues mean that between-country studies on youth unemployment and health are not possible at present.

See Online for appendix

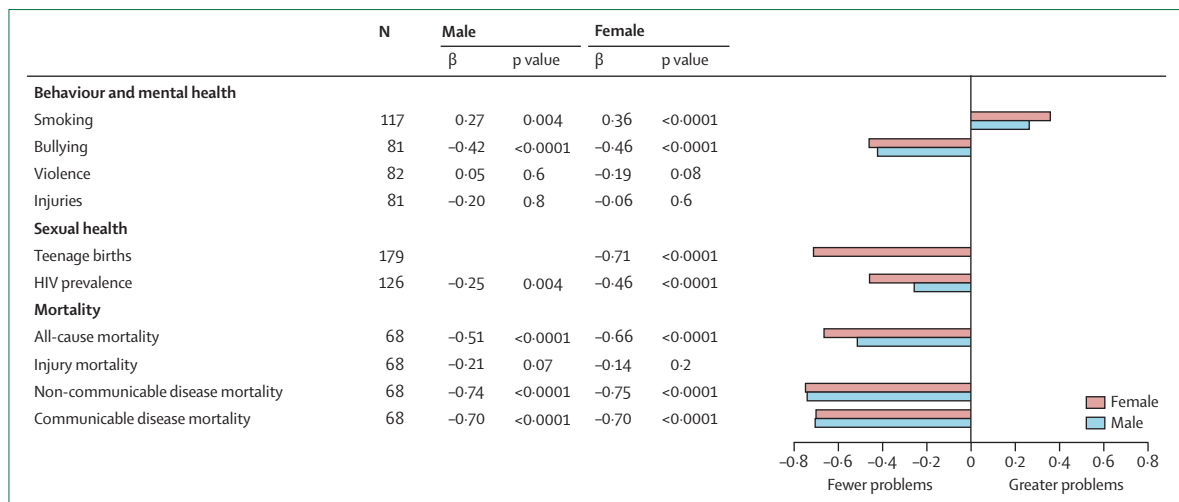


Figure 1: Associations of national wealth with adolescent health outcomes by country

Data show associations across countries of log GDP with log of each adolescent health outcome, adjusted for log of country population. Sample sizes (N) show number of countries with data on both GDP and the outcome under study. Associations are expressed as β coefficients on the x-axis, which represent the change in each health outcome for a 1 SD increase in GDP. Positive associations suggest greater level of each health problem, and negative associations represent fewer problems. We show only significant associations at the $p < 0.05$ level, with all data shown in the table. We defined smoking as any tobacco in the past 30 days, bullying as being bullied one or more times per day in the past few months, violence as involving in one or more fights in the past 12 months, injuries as one or more substantial injuries in the past 12 months, teenage births as births per 1000 women aged 15–19 years, HIV prevalence as percentage aged 15–24 years who are HIV positive, and mortality as deaths per 100 000 person years of observation. We list our data sources in the appendix. GDP=gross domestic product.

Education

The WHO Commission on Social Determinants of Health emphasised the wealth of evidence linking educational involvement and attainment in early life with later health outcomes.¹ Improved education of women has substantial benefits for the health of children worldwide.²² The priority placed by the world community on early education is shown in the second Millennium Development Goal: that all children complete primary school.

However, education beyond the primary level has received less attention. In low-income and middle-income countries, up to 33% of all lower secondary school age adolescents do not attend school compared with 4% in Canada, the USA, and western Europe.²³ Yet, within-country studies show that completion of secondary school provides great benefits for adolescents, improving health and wellbeing, increasing their capacity and motivation to prevent pregnancy,²⁴ empowering them to take responsibility for their own lives, and for improving the lives of others. Education also improves survival of their children.²²

There are also economic and political benefits, with increased productivity, sustainable development, and social stability accruing to nations with high proportions of both male and female adolescents in secondary education.²⁵

We are unaware of any worldwide studies of the effect of education on various adolescent health outcomes. Figure 4 shows associations between national secondary school participation rate and health outcomes in our worldwide dataset. We note that countries with a greater proportion of their young people in education had lower male and female mortality as well as lower male injury

mortality and lower female non-communicable disease mortality. Higher education participation was also associated with lower HIV prevalence, and lower injury levels in both sexes, and fewer teenage births. Educational participation remains an important structural determinant after early childhood, protective against many new problems in adolescence, including health behaviours, teenage pregnancy, and injury deaths.

War and conflict

National social, economic, and educational systems are disrupted by war, internal conflict, and exposure to high levels of violence. Furthermore, conflict can particularly affect young people through disruption of the transitions into adult life and the involvement of young people as soldiers. The latter has become a defining feature of many modern conflicts, with an estimated 300 000 child soldiers worldwide.²⁶ Although involvement in conflict, particularly as a child soldier, is associated with poor health outcomes,^{27,28} there is evidence that education²⁸ and family support²⁷ retain their protective role.

Sex and ethnic inequalities

It is in adolescence that young women and men begin to take on adult gender roles in all spheres from personal to family life to work. National political and economic opportunities for women, together with cultural and religious gender norms, thus affect young people's exposure to risk and protective factors for health.

Sex inequalities are present in many aspects of health in adults in high-income countries. In adolescence, European data and data from Canada and the USA have

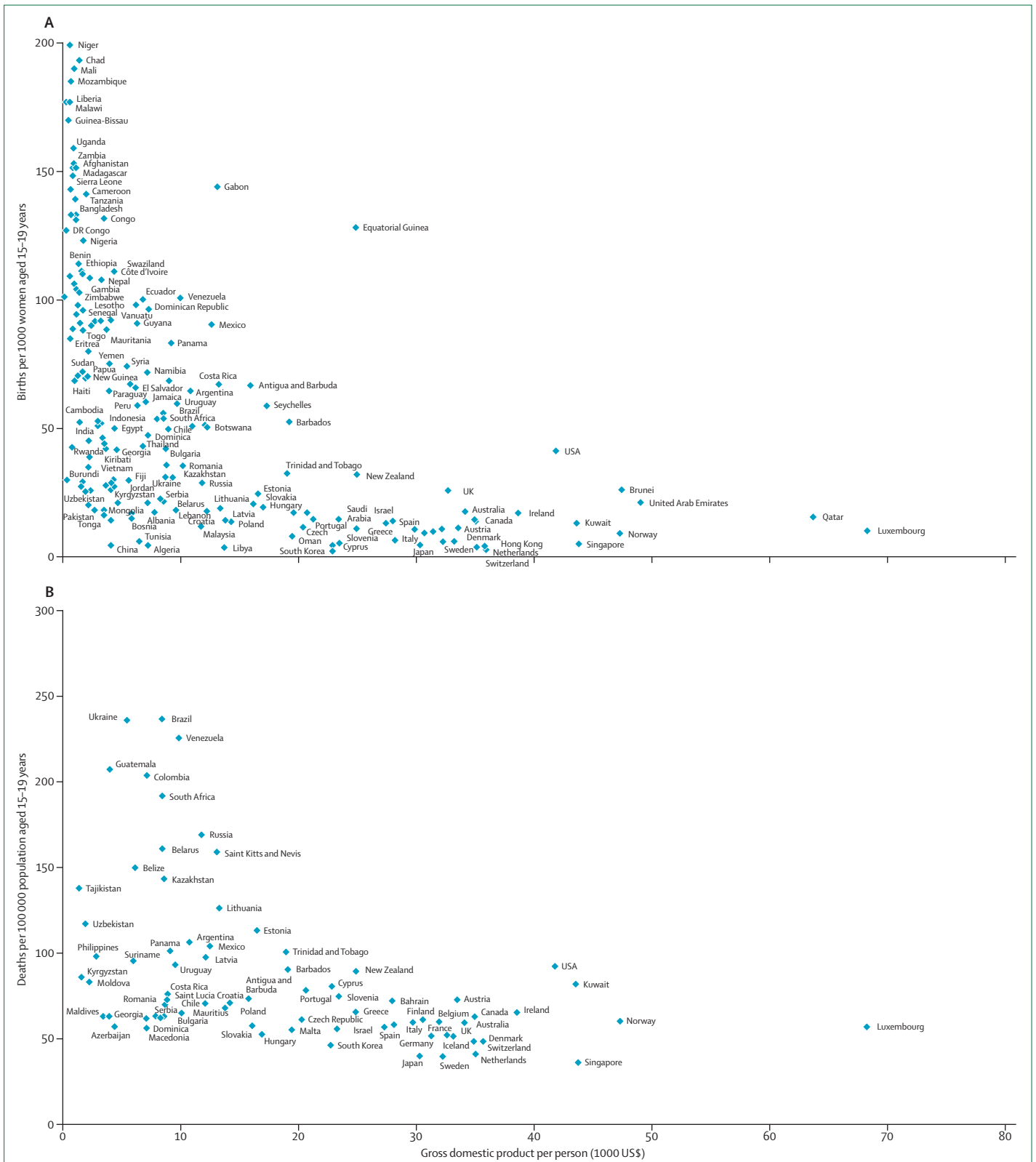


Figure 2: Associations of male all-cause mortality and teenage birth rate with national wealth by country

(A) Teenage births per 1000 women by country and national wealth (GDP by purchasing price parity). (B) Male all-cause mortality (per 10 000 people) by country and national wealth (GDP by purchasing price parity). Sample sizes are as shown in figure 1. Some labels are omitted for legibility. GDP=gross domestic product.

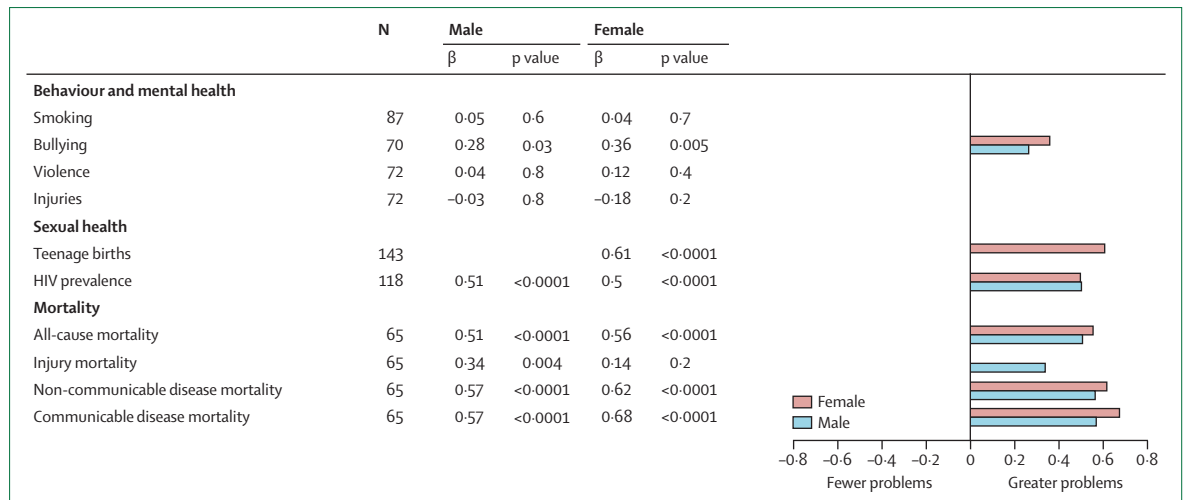


Figure 3: Associations of national income equality with adolescent health outcomes by country

Data show associations across countries of log Gini with log of each adolescent health outcome, adjusted for log of country population. Sample sizes (N) show number of countries with data on both Gini and the outcome under study. Associations are expressed as β coefficients on the x-axis, which represent the change in each health for a 1 SD increase in inequality (Gini). Positive associations suggest greater level of each health problem, and negative associations represent fewer problems. We show only significant associations at the $p < 0.05$ level, with all data shown in the table. We defined smoking as any tobacco in the past 30 days, bullying as being bullied one or more times per day in the past few months, violence as involving in one or more fights in the past 12 months, injuries as one or more substantial injuries in the past 12 months, teenage births as births per 1000 women aged 15–19 years, HIV prevalence as percentage aged 15–24 years who are HIV positive, and mortality as deaths per 100 000 person years of observation. We list our data sources in the appendix.

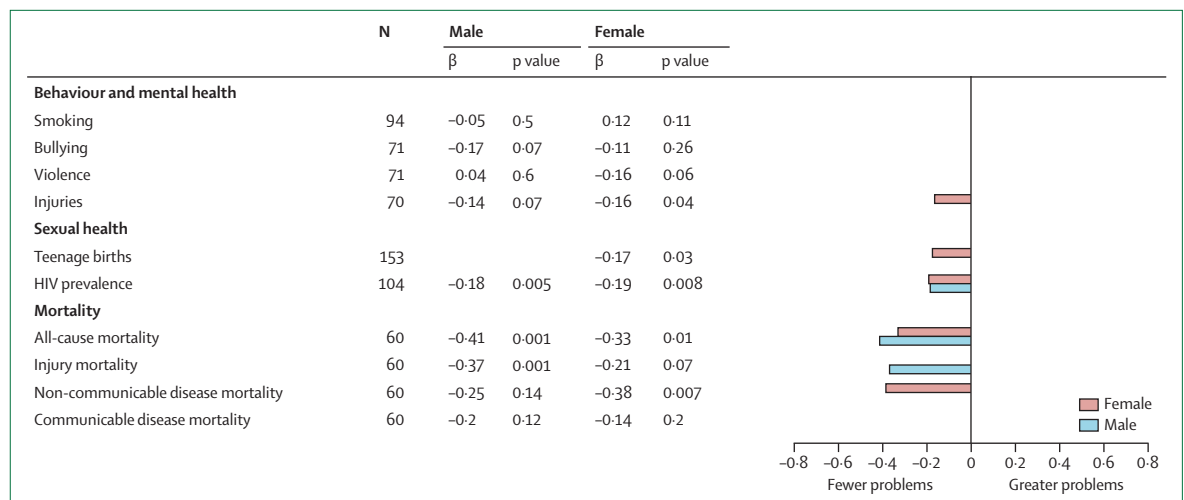


Figure 4: Associations of access to education and adolescent health outcomes by country

Data show associations across countries of log of proportion of adolescents participating in secondary education with log of each adolescent health outcome by country, adjusted for log of country population. Sample sizes (N) show number of countries with data on both education participation and the outcome under study. Associations are expressed as β coefficients on the x-axis, which represent the change in each health outcome for a 1 SD increase in education participation. Positive associations suggest greater level of each health problem, and negative associations represent fewer problems. We show only significant associations at the $p < 0.05$ level, with all data shown in the table. We defined smoking as any tobacco in the past 30 days, bullying as being bullied one or more times per day in the past few months, violence as involving in one or more fights in the past 12 months, injuries as one or more substantial injuries in the past 12 months, teenage births as births per 1000 women aged 15–19 years, HIV prevalence as percentage aged 15–24 years who are HIV positive, and mortality as deaths per 100 000 person years of observation. We list our data sources in the appendix.

shown notable sex inequalities from early adolescence: girls consistently have poorer wellbeing indicators, such as self-rated health, psychosomatic complaints or symptoms, and life satisfaction, whereas boys have consistently higher levels of injury and being overweight.²⁹ Although there has been a notable process of sex equalisation in some health behaviours in Europe over the past decade,³⁰

the extent to which structural factors reinforce the gendered nature of health during adolescence needs greater exploration.

The UN's Sex Inequality Index provides an opportunity to assess associations between sex inequality and health outcomes across countries. We noted that countries with greater sex inequality had poorer health outcomes for

both sexes, after adjustment for national wealth (appendix). This suggests that sex inequality is detrimental for both young men as well as young women, and supports the need for policies to actively address sex inequalities.

There is strong evidence that ethnic origin affects health in adolescents, with evidence strongest for high-income countries and relating to mental health,³¹ obesity,³² substance misuse,³³ and sexual health and teenage pregnancy.³⁴ These associations are not entirely explained by structural factors that lead to deprivation in immigrant groups, but also relate to differing cultural and religious norms³³ and effects of discrimination.³⁵ However, there is substantial variation in behaviours and health status within ethnic groups,³⁶ corresponding with individual differences in the way that adolescents adopt traditional or host-country cultural norms.³⁷

Proximal determinants: the circumstances of daily life

Young people grow up within social entities from family and peer group to school and neighbourhood, within contexts affected by national structural determinants and sociocultural factors. Existing life-course models of SDH identify supportive parenting along with education in early childhood as crucial to preventing the development of health inequalities and improving population health.¹ However, factors that emerge in adolescence are neglected within these models, such as peer and neighbourhood factors and connectedness with school.

There is very strong evidence that these proximal determinants related to social and educational domains affect the differences in exposure and vulnerability of young people to health-compromising conditions. In particular, this evidence arises from a long tradition of efforts to prevent substance misuse, sexual risk, violence and delinquency, and poor mental health in adolescence.^{38,39} Prevention science conceptualises potentially modifiable proximal determinants as subsets of risk or protective factors for health outcomes and therefore as building blocks for preventive interventions.⁴⁰ This is outlined in detail in the third paper in this Series.⁴¹

School environment

In addition to access to education functioning as a structural determinant, there is strong evidence from high-income countries that stronger connection of young people and their parents with their school, together with aspects of school environment such as leadership and safety, positively affect many health outcomes directly.^{42,43} There is also emerging evidence that connections within school protects against a wide range of health risk behaviours in middle-income and low-income countries.^{44,45} Programmes that improve secondary school environment and connectedness are the most promising large-scale interventions for improving health outcomes in adolescence,^{43,46} and need further study in resource-poor settings.

Families

Family factors are well established as a determinant of health across the life course and across many cultures. Families are the primary influence on the development of children,⁴ and the WHO Commission on Social Determinants of Health identified supporting parents to improve early childhood development as a crucial step to improving global health.¹ During adolescence, young people transition from dependent children to young adults who function partly autonomously. Although the primacy of the family as the source of environmental influence lessens, there is extensive published work on the protective nature of family level factors for adolescent health, most from the UK, Canada, and the USA, but with increasing evidence that parenting behaviours predict positive outcomes across cultures.⁴⁷

Social connections serve as protective factors for adolescents, and family connectedness seems to be one of the most important factors that protects against poor health outcomes in adolescence,⁴² even after taking into account ethnic origin, income, and family structure.⁴⁸ US adolescents who feel connected to their family are more likely to delay sexual initiation,⁴² report lower levels of cigarette, alcohol, and marijuana use,⁴² and are less likely to engage in violence.⁴⁹ Similar findings have been shown in Europe,³³ Brazil,⁴⁴ the Caribbean,⁴⁵ and Turkey.⁵⁰

Parents who are highly knowledgeable about their child's activities have adolescents who are less likely to engage in problem behaviour,⁵¹ including sexual risk behaviours,⁵² teenage pregnancy,⁴⁷ violence,⁵³ and substance misuse.⁵⁴ Furthermore, high levels of parental monitoring help to protect young people exposed to peer violence and risk taking.⁵⁵

Family norms and attitudes also strongly affect adolescent smoking,⁵⁶ alcohol use,⁵⁴ and a range of sexual behaviours.⁵⁷ Parents' own behaviours can influence adolescent health and behaviour directly,⁵⁸ through modelling positive behaviours⁵⁹ or modelling risk. Young people whose parents smoke,⁶⁰ drink alcohol,^{54,61} or engage in violence⁶² are more likely to engage in these behaviours.

Parenting styles that include high levels of the above positive constructs, often referred to as authoritative parenting, promote prosocial behaviour, school achievement, and greater self-confidence,^{63,64} as well as protect against many risk behaviours in adolescence.⁶⁵ Although there is some evidence that authoritarian parenting might not predict similar academic achievement across all cultural and economic subgroups,⁶⁶ these associations are evident within US and European families from diverse racial and social backgrounds as well as within Argentina, Australia, China, Hong Kong, Pakistan, and Scotland.⁶⁷

Although in-country studies show similar parenting factors affect adolescent health across many cultures, we identified no cross-country studies of parenting constructs and adolescent health. In the appendix we show associations between family connectedness and

health outcomes in adolescence worldwide. In countries with greater family connection, adolescents had fewer behavioural and mental health problems, particularly young women. This association suggests that the family effects evident within countries seem to operate across countries. Yet there remains substantial variation in the prevalence of outcomes such as bullying in countries with similar levels of family connection (appendix). This variation emphasises that other factors, including structural factors, might affect the way that families deploy social and economic resources. The need to earn income, together with poor parental health relating to inequality and deprivation, might limit parents' ability to support and protect young people,⁶⁸ including less positive communication,^{29,69} less proactive parenting, and less monitoring of behaviour.⁷⁰ The context of the family environment can affect a parent's sense of efficacy to positively influence their child's behaviour,^{68,71} although many adolescents experience supportive parenting and high family connection despite adversity. Interventions should therefore focus on societal factors that predict family connectedness and resilience, as well as the more traditional aims of improving parenting and family functioning.⁷²

Neighbourhoods

Increasing autonomy and time spent outside the home increases the importance of neighbourhood environments in adolescence; access to resources and services, social norms and supervision, collective efficacy, and connection to others outside the family potentially affect health.⁷³ Structural determinants might affect the collective efficacy of those in the community to monitor, supervise, and convey values to adolescents.⁷⁴ Neighbourhood deprivation in high-income countries has been associated with poor educational attainment,⁷⁵ teenage pregnancy,⁷⁶ poor mental health,⁷⁷ and youth violence.⁷⁸ Elements of social capital, including levels of social support and cohesion, civic and community participation, and diversity of social relations, promote better outcomes in adolescent health in Brazilian,⁷⁹ Lebanese,⁸⁰ and UK⁸¹ adolescent populations.

In low-income countries, overall child health outcomes are better in urban than rural populations.⁸² However, rapid urbanisation has resulted in an explosion of poor urban settings that now house half the world's population including particularly large numbers of adolescents.⁸³ Young people in these settings face severe health risks due to the lack of public infrastructure, poor housing, crowding, and high levels of violence.⁸⁴

Peers

The emergence of strong peer relationships is one of the key developmental changes of early adolescence, and peers can have a positive or a negative influence on young people's health.⁸⁵ Strong connections with prosocial peers can support positive health, with peer

connections protecting against a broad range of health risk behaviour in US and international samples of adolescents.^{42,44} Similar to family factors, peer modelling⁸⁶ and awareness of peer norms⁸⁷ are protective against violence, substance misuse,⁶¹ and sexual risk.⁸⁸ Although most studies are from high-income countries, similar findings have been shown in low-income and middle-income countries.^{44,50}

However, peer factors can also increase risk,⁸⁹ with peer participation in behaviours likely to increase risk of smoking initiation and persistence,⁹⁰ alcohol initiation and use,⁶¹ sexual risk,⁸⁷ and violence.^{38,62} Other peer-relationship characteristics affect health, such as partner communication⁹¹ and negotiation,⁸⁷ particularly affecting sexual risk and HIV risk in low-income and middle-income countries⁹² and high-income countries.^{87,91} Social networking and new media are providing new opportunities for peer factors to affect health.⁹³

Peer influence operates within wider social contexts, both in terms of family and neighbourhood contexts and structural determinants. Peer influence operates as a counterpoint to continued parental influence throughout adolescence, although parental influence declines relative to peers in many domains in high-income countries.⁹⁴ Less is known about the importance of peer relative to family factors within low-income and middle-income countries, particularly in more sociocentric (ie, family-centred) societies. However, urbanisation and economic development erode traditional family life and increase the influence of peer groups where there are many dislocated or deprived young people.

Health behaviours

Adolescence is the key period for the adoption of health behaviours relating to substance misuse, sex, diet and exercise, and the self-management of chronic disorders. These behaviours are shaped by social, economic, and cultural forces, and are major determinants of ill health and health inequalities across the life course.⁹⁵

There is substantial evidence across cultures that young people in lower socioeconomic positions are more likely to engage in unhealthy behaviours, irrespective of ethnic origin.^{33,96} However, the evidence for social patterning of some important health behaviours in adolescence, such as smoking, is inconsistent,⁹⁷ with many studies from different countries showing no social gradients or that young people of higher status were more likely to smoke.⁹⁶ This might relate to the way in which peer factors moderate the socioeconomic patterning of health behaviours evident in adults.^{95,96}

It is important to recognise that young people's access to, adoption of, and persistence with health behaviours is highly constrained by national political, economic, social, and cultural contexts.⁹⁵ Access to substances is constrained by national legal systems and cultural norms, as is, to some extent, sexual initiation and risk. The strong association of deprivation with unhealthy lifestyles in

adults limits the ability of poorer families to model healthy lifestyle choices to young people.

Many other aspects of the social environment might affect health outcomes through differential exposures to health risk or protective factors. One such aspect is the substantial increase in young people's exposure to and use of various forms of media and information technology over the past 40 years. Although many forms of information technology promote educational and social development,⁹⁸ exposure to violent and sexualised content linked with advertising for cigarettes and alcohol has been shown to increase problems of violence, cigarette and alcohol use, and early initiation of sexual behaviour in susceptible adolescents and other young people.⁹⁸

Conclusions

There is strong evidence that the health of adolescents and young adults is affected by social factors at personal, family, community, and national levels. We identified that the strongest determinants of health were structural factors such as national wealth, income inequality, and access to education. Although ecological analyses cannot establish causality, national wealth, inequality, and education had the largest effect sizes in our ecological analyses, and were associated with the largest range of health outcomes in young people. Nations present young people with structures of opportunity as they grow up. Since health and health behaviours track strongly from adolescence into adult life, the way these structures of opportunity affect adolescent health are crucial to the health of the whole population and the economic development of nations.

Furthermore, safe and supportive families, safe and supportive schools, together with positive and supportive peers are crucial in helping young people develop to their full potential and attain the best health in the transition to adulthood. Our worldwide ecological analyses show that the same family, peer, and educational factors shown to affect adolescent health within high-income countries also explain worldwide variations between countries (appendix). This suggests that similar factors help protect young people from harm within low-income and middle-income countries. National social and economic structures also affect and constrain the way in which family, school, and peer factors affect young people's health. This finding might explain why many of the most powerful interventions are systemic efforts that seek to embed interventions within community contexts.⁹⁹

These data suggest that adolescence might be a second crucial developmental period in which the SDH can modify trajectories towards health and wellbeing in adult life. Existing life-course models of SDH therefore need to be extended to include adolescence as a period in which new latent and pathway effects affect exposure to health promoting or compromising factors. New latent developmental effects related to puberty and brain

development¹⁰⁰ start new sets of behaviours and capacities that trigger or enable transitions in family, peer, and educational domains, and in health behaviours. These transitions act as pathway effects, modifying childhood trajectories towards health and wellbeing and interacting with the adoption of new health behaviours. These transitions are modified by structural determinants that allow or constrain opportunities and generate inequalities. These transitions might represent crucial points for preventing the accumulation of health risks, such as the transfer from primary to secondary school and entry into the labour market.

Implications for policy and practice

Policy responses in adolescence must integrate interventions at the individual, school, and family level with a focus on opportunities provided by SDH. We summarise implications and potential actions in the three crucial aspects identified for action by the WHO Commission on Social Determinants of Health.¹

First, improve the conditions of daily life—the circumstances in which people are born, grow, live, work, and age. This means improving young people's daily life with families and peers and in schools, addressing risk and protective factors in the social environment at a population level and focusing on factors that are protective across a range of health outcomes. The greatest benefits probably lie in a determined search for interventions that address malleable determinants (ie, social determinants amenable to change), in part through modification of evidence-based existing interventions within resource-poor settings. Particularly important is improved daily living conditions and education and employment opportunities for young women, because of the high proportion of children born to young mothers in low-income and middle-income countries, and since maternal morbidity and mortality disproportionately affect young women.

Structural changes to improve access to secondary and later education and to improve young people's entry into the workforce will improve their health as well as drive economic development, ensuring the prosperity of nations and fostering a sense of cohesion in communities. Increased provision of secondary and later education is a crucial component of sustainable economic and social development in low-income and middle-income countries.²⁵ Action at several social levels is probably most effective, particularly in view of the evidence that greater numbers of adverse social factors increases risk of poor outcomes in adolescence.¹⁰¹

Second, tackle the inequitable distribution of power, money, and resources. Structural changes are needed to empower young people and increase wealth available to older adolescents and young adults as they move towards autonomy. Reduced barriers to youth employment, changes in national employment policy, student support, and taxation can be highly effective in reducing

youth poverty. However, smaller-scale interventions such as microfinance initiatives, the provision of financial services to those who lack access to banking and related services, and other economic interventions might have transformational effects on young people's health and behaviour, particularly for young women in low-income countries,¹⁰² without requiring large-scale social change. Microfinance initiatives might also increase retention in education,¹⁰³ thus increasing benefits.

The great burden of injury mortality and morbidity in young people highlights the need for action at the structural level. Changes to transport infrastructure and road safety policy can substantially affect young people's health,¹⁰⁴ as can gun control.¹⁰⁵

Health systems alone cannot reduce inequalities in health, but they have a vital role. Health ministries have an important role as active stewards, affecting the development plans, policies, and actions of players in other sectors. Youth health and wellbeing should be priorities in all policies affecting young people across government sectors.¹⁰⁶

A further element of empowerment is ensuring the participation of young people in policy decision making and in health service and community development. Within health settings, involving young people offers health benefits¹⁰⁷ as well as promoting positive youth development.

Third, measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health. Lack of systematic study of SDH across countries in adolescence and the lack of routine worldwide data on adolescent and young adult health is a substantial barrier to improving young people's health. The fourth report in this Series¹⁰⁸ identifies key indicators that, if collected worldwide and systematically, would allow the most appropriate and cost-effective service developments and intervention targeting.

Future work needs to assess causal pathways related to the biological embedding of adolescent developmental processes and adolescent transitions in relations to health and wellbeing, and assess the extent to which adolescence truly represents a second crucial developmental period after infancy. Work is also needed to better understand the role of risk and protective factors and developmental assets in resource-poor settings and to assess how investment and interventions during adolescence can preserve investments in early childhood to improve health and wellbeing across the life course.

Contributors

RMV conceived this report as part of the planning of *The Lancet Series* on global adolescent health. RMV led the writing of the report, undertook the analyses, and contributed to the review of published work. CC, EMO, and SD contributed to the review of published work and to the writing of the report. AF, MM, and MR contributed to the writing of the report. RMV guarantees the report.

Conflicts of interest

We declare that we have no conflicts of interest.

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