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HEALTH STATUS OF CENTRAL ASIAN ADOLESCENTS AGED 15–17, FOCUSING ON KYRGYZSTAN AND UZBEKISTAN

Abstract: The article will examine the current health trends, highlight risk factors, and propose a scientifically grounded program for maintaining and improving adolescent health. Adolescence is a pivotal period of life marked by rapid physical, emotional, and social changes. Promoting health in adolescence not only improves immediate well-being but also yields a “triple dividend” of benefits for youth as they become adults and for the next generation. In Central Asia, countries like Kyrgyzstan and Uzbekistan have predominantly young populations; in Uzbekistan, adolescents (ages 10–19) make up over 16% of the population (nearly 5.9 million youth as of 2023) [unicef.org](https://data.unicef.org/), and Kyrgyzstan is similarly youthful with more than half its population under age 25 [unfpa.org](https://data.unfpa.org/). Ensuring the health of adolescents aged 15–17 is therefore both a public health priority and a cornerstone for future national development. This introduction outlines the scope of our review: assessing the health status and trends among 15–17-year-old adolescents in Kyrgyzstan and Uzbekistan, and providing a scientific rationale for a tailored health preservation and promotion program. We frame the discussion as a scientific paper, examining existing literature and data on adolescent health indicators – from nutrition and mental health to physical activity, substance use, and sexual and reproductive health – and propose evidence-based strategies to address identified challenges.

Key words: health, Central Asian, Kyrgyzstan, Uzbekistan.

Language: English

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Introduction

Recent years have seen growing recognition of adolescent health needs in global and regional policy. The World Health Organization (WHO) has developed frameworks such as the **Global Accelerated Action for the Health of Adolescents (AA-HA!)**, urging countries to craft adolescent-responsive health strategies [unicef.org](https://data.unicef.org/). Both Kyrgyzstan and Uzbekistan have begun aligning with these global efforts. For instance, Uzbekistan's government has drafted a multisectoral adolescent health and well-being strategy (with UNICEF support) expected to benefit about 5.5 million

adolescents [unicef.org](https://data.unicef.org/). Similarly, Kyrgyzstan's health sector and partners have identified adolescent health as a priority, emphasizing linkages with education and youth policies [unicef.org](https://data.unicef.org/). Despite these steps, many health risk behaviors that begin or intensify during adolescence – such as tobacco and alcohol use, unhealthy diets, and physical inactivity – remain inadequately addressed in current programs [unicef.org](https://data.unicef.org/). Moreover, emerging issues like mental health and digital-era challenges (e.g. cyberbullying) have raised new concerns about adolescent well-being [hbsc.org](https://www.hbsc.org/hbsc.org).

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In the sections that follow, we review existing literature and context for adolescent health in Central Asia, present current health trends among 15–17-year-olds in Kyrgyzstan and Uzbekistan, analyze key determinants and risk factors, and outline the scientific rationale for a comprehensive health promotion program. We then propose an implementation strategy grounded in evidence-based interventions and discuss expected outcomes. Throughout, we draw on reliable sources including WHO, UNICEF, and national health databases to ensure an accurate and up-to-date portrayal of adolescent health in these two countries. By doing so, we aim to contribute to academic and policy discussions on safeguarding the health of Central Asian youth and ensuring they thrive into adulthood.

Literature Review and Context

Global Adolescent Health Overview: Adolescence (typically defined by WHO as 10–19 years) is increasingly recognized as a critical window for intervention in public health health.medicaldialogues.in. Habits and exposures during these years have profound implications for future health, given that many non-communicable diseases (NCDs) and health-compromising behaviors track from youth into adulthood unicef.org. The **Lancet Commission on Adolescent Health** describes investment in adolescent health as yielding a triple dividend: improving adolescents' current health, enhancing their health in later life by preventing risk factor accumulation, and benefitting the health of their future children health.medicaldialogues.in. This global perspective has spurred international frameworks like WHO's AA-HA! and UNICEF's adolescent well-being initiatives, which call for comprehensive, multi-sectoral approaches addressing adolescents' diverse needs – from nutrition and infectious diseases to mental health, injury prevention, and sexual and reproductive health.

Regional Context in Central Asia: Kyrgyzstan and Uzbekistan, as part of the Central Asian region, share certain historical and socio-economic contexts that shape adolescent health. Both are lower-middle-income countries that emerged from the former Soviet Union with relatively strong basic education and primary healthcare systems, yet have faced economic transitions and pockets of poverty. They have youthful age structures: as noted, Uzbekistan's population is “predominantly young” unfpa.org, and Kyrgyzstan is among the youngest of the former Soviet states with a median age in the mid-20s kyrgyzstan.unfpa.org. This youth bulge presents an opportunity for a demographic dividend if the health and education of adolescents are well supported. However, it also means that adolescent health issues are prominent in national health profiles. For example, both countries exhibit moderate to high rates of early childbearing compared to European countries. Kyrgyzstan's

adolescent fertility rate (births per 1,000 girls 15–19) was around 43 in the early 2010s – **a high share of adolescent pregnancies** – before declining to about 29 per 1,000 by 2023 w3.unece.org. Uzbekistan's adolescent birth rate, conversely, has **increased** in recent years, from roughly 24 per 1,000 in 2010 to over 37 per 1,000 by 2023 w3.unece.org, indicating persistent early childbearing in some communities. Such figures underscore ongoing gaps in reproductive health education and services for youth.

Policy and Programs: Both Kyrgyzstan and Uzbekistan have begun addressing adolescent health in policy. In Kyrgyzstan, government and UN partners (UNICEF, UNFPA, WHO) have identified priority adolescent health issues – notably *early marriages and pregnancies, violence, mental health, and substance use* – as focal areas for programming unicef.org. Kyrgyzstan has established Youth Friendly Health Services (YFHS) with UNFPA support and has piloted comprehensive health education curricula (covering topics like reproductive health, substance abuse, and violence prevention) in some schools and vocational colleges. However, systematic integration of these interventions into all schools remains limited, partly due to political sensitivities around school health. Uzbekistan in recent years signaled strong political will to improve youth health: the government declared a “Year of Youth” and is formulating a national adolescent health strategy. Efforts in Uzbekistan have included enhancing school-based mental health support and expanding youth-friendly clinics with confidential services (e.g. for family planning and HIV testing). Importantly, the **UN Convention on the Rights of the Child (CRC)** recommendations for Uzbekistan emphasize adopting comprehensive sexual and reproductive health education, developing a mental health strategy for youth (including self-harm and suicide prevention), ensuring access to contraception, and providing youth-friendly substance abuse treatment services. These align with global best practices suggesting that adolescent health requires coordinated efforts across health, education, and social sectors.

Sociocultural Factors: Cultural norms and social determinants heavily influence adolescent health in Central Asia. Traditional values around family and gender can contribute to health risks like early marriage and motherhood, especially in rural areas. In Kyrgyzstan, for example, early marriage is often rooted in “*national traditions, customs, mentality and stereotypes*,” which historically led to teenage girls leaving school for marriage. While official statistics in Uzbekistan indicate that only 0.5% of girls 15–17 are married or in union (suggesting that **child marriage** is low on record), under-the-radar cases and unregistered religious marriages may not be fully captured. Both countries have legal frameworks setting 18 as the marriage age, but enforcement can be

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challenged by local customs. Moreover, societal taboos around discussing sexual and reproductive health openly have been barriers to educating adolescents on contraception and sexually transmitted infection (STI) prevention. Similarly, stigma around mental health issues is common; families may underrecognize or hide adolescent depression or anxiety due to shame, which hinders help-seeking.

Health System and Data Gaps: Historically, national health monitoring systems in these countries were geared toward maternal and child health (under-5 and maternal mortality, etc.), with less focus on adolescents. The Kyrgyz health information system has struggled with consistent age-disaggregated data for adolescents. Nevertheless, recent surveys provide valuable insights: Kyrgyzstan’s first Health Behavior in School-aged Children (HBSC) survey (2022) and Uzbekistan’s Multiple Indicator Cluster Survey (MICS 2021–2022) and other studies have generated data on adolescent health behaviors and outcomes. These data reveal that adolescent health in both countries is at an intersection – with some indicators improving (e.g. education enrollment, certain immunization coverages) but others worsening or newly recognized (e.g. rising obesity rates, mental health issues, and injuries). This literature review highlights the complex context in which a health promotion program for Central Asian adolescents must operate: one that accounts for a mix of **persistent challenges** (like malnutrition and infectious diseases in some areas) and **emerging challenges** (like NCD risk factors and psychosocial stress), all within a shifting socio-cultural landscape. With this context in mind, we now turn to the current health status and trends among adolescents in Kyrgyzstan and Uzbekistan, using recent data to pinpoint areas of concern.

Current Health Trends Among Adolescents in Kyrgyzstan and Uzbekistan

Nutrition and Physical Health: Adolescents in Kyrgyzstan and Uzbekistan face a *triple burden* of malnutrition – simultaneously confronting undernutrition, micronutrient deficiencies (hidden hunger), and rising overweight/obesity. In Uzbekistan, about one in ten adolescent girls is underweight and a similar proportion is overweight, and **16.5% of girls suffer from anemia**, three-quarters of which is due to iron deficiency. Deficiencies in essential nutrients like vitamins A, B₁₂, and folate are also common among Uzbek adolescent girls. These nutritional challenges, if unaddressed, can impair growth, cognitive development, and immunity in adolescence and beyond. In Kyrgyzstan, dietary patterns among youth are often imbalanced. A national analysis found **excessive consumption of fats and carbohydrates and insufficient protein, fruits, and vegetables** in adolescents’ diets, especially in rural and high-altitude regionm cardiovascular, respiratory, gastrointestinal, and

endocrine disorders in the early 2010s, suggesting that even by age 15–17 some lifestyle-related NCDs (or their risk factors) are emerging. At the same time, overweight and obesity have become notable issues among Central Asian teens. In Kyrgyzstan, recent estimates classify 14.5% of adolescent girls as overweight – a level considered “high” by WHO thresholds – and the prevalence rises to **20.8% among older adolescents (16–18 years)**. This reflects a growing trend of sedentary lifestyles and high-calorie diets in urbanizing areas. Indeed, physical inactivity is widespread: in the Kyrgyz HBSC survey only **20.7% of adolescents achieved at least 60 minutes of physical activity daily** (the recommended level). Adolescent girls saw a significant drop in physical activity between ages 11 and 15, with far fewer meeting daily exercise guidelines at 15 compared to boys. Such low physical activity rates, coupled with easy access to sugary drinks and ultra-processed snacks in school environments, contribute to weight gain and pose long-term health risks. Notably, both countries have recognized these issues: Uzbekistan has expanded a nationwide school feeding program to improve nutrition, although its focus is on younger students and needs quality safeguards, and Kyrgyzstan has engaged in policy dialogues on reducing unhealthy food marketing to children. However, more targeted efforts for adolescents 15–17 are necessary to address anemia (through micronutrient supplementation and diet diversification) and to promote healthy eating and active living to curb the rise of obesity.

Mental Health and Well-Being: Mental and emotional health problems have come to the forefront of adolescent health concerns in Kyrgyzstan and Uzbekistan. According to Uzbekistan’s recent situation analysis, *mental disorders are among the leading causes of disease burden for adolescents*, especially girls. In fact, for adolescents aged 10–19 in Uzbekistan, mental health conditions are a top cause of disability-adjusted life years lost (with unintentional injuries ranking highest for boys). Over the past few years, there has been a **reported decrease in the incidence of diagnosed mental disorders among 15–17-year-olds** in Uzbekistan (from 208.7 per 100,000 in 2019 to 110.0 per 100,000 in 2022), but this may reflect under-diagnosis or shifting cases to other categories. Notably, the incidence of “nervous system diseases” (which can include stress-related somatic complaints or neurological issues) in the same age group **increased from 3,157 to 4,200 per 100,000** between 2019 and 2022. This suggests that many adolescents experiencing psychological distress might be presenting with somatic symptoms or being seen in neurology rather than mental health services, pointing to potential gaps in mental health detection.

Survey data on self-reported mental health underscore the seriousness of the issue. In Kyrgyzstan’s HBSC survey, **34% of school-aged**

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adolescents reported prolonged sadness (feeling sad every day for ≥ 2 weeks) in the past year, and alarmingly 16% had seriously contemplated suicide while 12% had even made a suicide plan in the previous 12 month. These figures were higher among older teens (especially girls 15 years old) compared to younger ones Uzbekistan has likewise seen troubling trends: **suicide and self-harm cases doubled among 15–19-year-olds in the last three years**, with this age group now accounting for the highest adolescent suicide mortality (about 9.8 deaths by suicide per 100,000 adolescents). A 2022 study of students in Uzbekistan found 15.4% had moderate to severe anxiety and 9.8% screened positive for depression. Nearly one in five students felt their school environment was unsafe due to bullying, violence, or discrimination – a factor closely tied to mental well-being. In both countries, bullying is a pervasive issue: about **32% of Kyrgyz adolescents reported being victims of bullying** in the past months, with 28% admitting to bullying others. Although cyberbullying rates (13–14%) were lower than face-to-face bullying, they are significant in the age of social media. These hostile experiences contribute to anxiety, post-traumatic stress, and low self-esteem in youth.

Common psychosocial stressors reported by adolescents include family problems, academic pressure, and social isolation. Uzbek adolescents in focus groups cited **family conflict or violence, lack of communication or understanding from parents, absence of close friendships, unsupportive teachers, excessive academic pressure, and bullying** as key risk factors worsening their mental health. Additionally, external factors like parents' labor migration (leaving teens with relatives) and poverty can compound stress and feelings of insecurity. Importantly, both societies face stigma around mental health help-seeking: in Uzbekistan, adolescents and parents reported reluctance to approach school psychologists or counselors due to embarrassment and low trust in the professionals' confidentiality and skills. Kyrgyzstan likely mirrors this, given similar cultural norms – indeed, integrating mental health into primary care or school services is still nascent in both settings. The net effect is that many teens with mental health needs do not receive support, which can lead to chronic issues or tragic outcomes (suicide being among the leading causes of death in older adolescents worldwide).

Substance Use and Risk Behaviors: The adolescent years are when experimentation with tobacco, alcohol, and other substances often begins, though prevalence in mid-adolescence can vary. In Kyrgyzstan, data indicate that **most 15-year-olds have not yet become regular smokers or drinkers**, but a non-negligible minority have experimented. By age 15, about 4.5% of Kyrgyz boys and 0.8% of girls reported having ever smoked a cigarette. Overall, 6.6% of adolescents (11–15) had tried smoking at least

once, meaning over 93% had never smoked – a reassuring statistic, possibly reflecting strong tobacco control or social norms disapproving youth smoking. Daily smoking at age 15 was very low (around 1% or less). However, these numbers tend to rise sharply in later adolescence and early adulthood, especially among males, as suggested by high adult smoking rates in the region. Alcohol experimentation is slightly more common than smoking among Kyrgyz teens: about 10.1% of adolescents had tried alcohol at least once in their lives, and 1.1% reported drinking alcohol at least once a week (with boys more likely than girls to do so). By age 15, roughly 14–16% of teens had consumed alcohol, up from ~8% at age 11. Binge drinking patterns are not well captured in the survey, but early initiation of alcohol, even if infrequent, is a concern given links to accidents and future dependency. For Uzbekistan, less recent survey data is publicly available, but given cultural context (a predominantly Muslim population), youth drinking and smoking might initiate slightly later or at lower rates than in Kyrgyzstan's diverse society. Nonetheless, qualitative reports suggest that tobacco use among young males in Uzbekistan becomes common by late teens, especially as cheap cigarettes and nasvai (chewing tobacco) are accessible. Both countries have laws limiting sales of tobacco and alcohol to minors, but enforcement can be uneven.

Other risk behaviors remain relatively limited in 15–17-year-olds but are present. For instance, **cannabis use** was reported by 2–3% of 15-year-old boys in Kyrgyzstan's survey. While low, this indicates some exposure to illicit drugs at the margins, which could escalate without preventive education. Sexual behavior is another sensitive area: by age 15, about **2.9% of Kyrgyz adolescents reported having had sexual intercourse** (boys 4.7%, girls 1.4%)^g. Those who were sexually active tended to have had only one encounter (59% of them) or a few, but even this limited level of early sexual activity raises the need for sexuality education and access to contraception and STI prevention for older teens. In Uzbekistan, official data on adolescent sexual behavior is sparse, yet the rising trend in adolescent birth rates suggests that by ages 17–19, a considerable number of girls are sexually active (often within early marriage). Indeed, in Uzbekistan's 2019 health survey, 6.8% of young women aged 15–19 had begun childbearing (i.e. had a child or were pregnant) – a figure that likely varies by region and socio-economic status. Together, these risk behavior trends underline that while younger adolescents in school are mostly abstaining from substances and sex, the later teen years bring greater exposure and vulnerability. This transition demands proactive measures in education (e.g. life skills curricula covering substance abuse and sexual health) and youth-friendly services (e.g. counseling, reproductive health clinics) to guide adolescents safely into adulthood.

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Injuries and Violence: Unintentional injuries (such as road traffic accidents, falls, and drownings) are a leading cause of adolescent mortality globally, and Central Asia is no exception. In Uzbekistan, unintentional injuries are the top contributor to disease burden (DALYs) in adolescent boys. Factors like low seatbelt/helmet use, risky road behaviors, and hazardous environments in some areas put youth (especially males) at risk. Kyrgyzstan's HBSC found that by age 11, over 25% of adolescents had had an injury in the past year requiring medical attention; this slightly declined by age 15 to ~23%, possibly as risk-taking behavior plateaus or recall bias occurs. Nonetheless, a significant share of teens suffer preventable injuries, indicating the need for safety education (road safety, sports safety, etc.). Violence, including peer violence and domestic violence, also impacts adolescent health. As mentioned, bullying victimization affects roughly one-third of school students in Kyrgyzstan; such victimization is associated with physical injuries and psychological trauma. There are also concerns about gender-based violence: adolescent girls may face harassment or even bride-kidnapping in parts of Kyrgyzstan, and in Uzbekistan around 8% of adolescent girls 15–19 reported experiencing some form of discrimination or harassment in the past year according to a recent MICSViolence and safety issues not only cause immediate harm but also deter adolescents from participating fully in school or community life, thereby indirectly affecting their health and development.

In summary, the health profile of 15–17-year-olds in Kyrgyzstan and Uzbekistan is mixed. On one hand, most adolescents are in school and literate, vaccination rates for basic immunizations are relatively high, and early childhood undernutrition has improved over past decades. On the other hand, **new challenges like anemia and obesity, mental health struggles, emerging substance use, and persisting risks of early pregnancy and injuries create a complex panorama of adolescent health needs.** Some trends are encouraging (e.g. Kyrgyzstan's decline in adolescent fertility and smoking rates among school students), while others are concerning (e.g. Uzbekistan's spike in adolescent fertility and self-harm cases, and widespread inadequate physical activity and dietary issues in both countries). These current trends point to several key determinants and risk factors that must be addressed, which we examine in the next section.

Understanding the determinants of adolescent health in Kyrgyzstan and Uzbekistan is crucial for designing an effective health promotion program. The risk factors are **multifactorial**, spanning individual behavior, family and peer influences, schools and community environments, and broader socio-economic conditions:

- **Unhealthy Lifestyles and Behavior Habits:** Many health risks for Central Asian adolescents stem from behaviors established during this period. Poor diet (rich in fried, sugary, and salty foods but low in fruits, vegetables, and protein) is a major contributor to both nutritional deficiencies and obesity hvt-journal.com. Traditional diets are being supplanted by inexpensive processed foods and sugary drinks available in school canteens and bazaars. Coupled with low levels of physical activity (especially among girls and urban youth), this leads to weight gain and metabolic issues. Physical inactivity is influenced by increased screen time and lack of recreational facilities – for example, adolescents are spending more time on smartphones and less on outdoor play or sports, as evidenced by Kyrgyzstan's data on active electronic communication: about one-third of adolescents are “actively” engaged in online communication daily kyrgyzstan.un.org, potentially replacing physical activity. Substance use risk increases with age: though 15-year-olds have relatively low smoking/drinking rates kyrgyzstan.un.org, kyrgyzstan.un.org, the lure of cigarettes (including e-cigarettes/vaping, which are reportedly growing in popularity), alcohol, and other substances intensifies in later teens due to peer pressure and perceived adult behavior. Early initiation of these behaviors is linked to higher likelihood of addiction or chronic NCDs (like lung disease or liver problems) in adulthood.
- **Educational Environment and Academic Pressure:** Both countries boast high secondary school enrollment, which is a protective factor for many health outcomes. Schools provide a platform for health education and services – indeed, **school is seen as an opportune platform to deliver health interventions** in Kyrgyzstan due to high enrollment rates unicef.org. However, academic stress and competitive exams (for university admission or scholarships) put pressure on students, often at the expense of their mental health and sleep. The Uzbekistan analysis highlighted *academic pressure and the absence of effective school counseling* as issues – school psychologists are often overloaded with administrative tasks and are not fully equipped to provide psychosocial support unicef.org. Without coping skills, students facing exam stress may develop anxiety or engage in unhealthy coping mechanisms (like substance use or withdrawal). Additionally, rigid school

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schedules and heavy homework can limit time for exercise and leisure, indirectly affecting physical health.

- **Family and Socioeconomic Factors:** The family remains the primary unit influencing adolescent health in Central Asia. Family communication and support emerge as critical determinants: adolescents who feel understood and supported by parents have better mental health outcomes [unicef.org](https://www.unicef.org). Conversely, family conflict, domestic violence, or authoritarian parenting styles contribute to stress, depression, or even trauma in adolescents [unicef.org](https://www.unicef.org). Economic hardship is another determinant – poverty can restrict access to nutritious food, make adolescents more likely to engage in child labor (affecting school attendance and health), and is associated with earlier marriage/pregnancy for girls who see limited educational prospects. Rural adolescents and those in poorer regions (e.g. parts of the Kyrgyz highlands or Uzbek western provinces) often face *disadvantages* like less access to quality healthcare (e.g., fewer clinics offering adolescent-friendly services) and lower health literacy. Parental migration for work is common in Kyrgyzstan: a significant number of teens have one or both parents working abroad in Russia or elsewhere kyrgyzstan.un.org. This scenario can lead to inadequate supervision, emotional difficulties, or poorer nutrition for the adolescent left behind. On the positive side, extended family networks in these cultures can provide some support, but they might not replace parental guidance.
- **Cultural Norms and Gender Roles:** Normative beliefs influence behaviors such as diet, physical activity, and healthcare utilization. In some communities, there is a cultural notion that a plump child is a healthy child, which may downplay concerns about adolescent overweight. Likewise, norms around gender affect health: girls in traditional families may be expected to be modest and not participate in sports or certain outdoor activities, limiting their physical exercise. Moreover, topics like sexual health or mental health are often taboo, meaning adolescents (especially girls) lack critical information about their bodies and emotions. This can lead to misinformation (e.g., myths about contraception) and reluctance to seek help for issues like depression or contraceptive needs. Norms tolerating early marriage – for instance, the idea that marriage secures a girl’s future or protects “family honor” – directly encourage early

childbearing and curtail girls’ educational and health opportunities kyrgyzstan.unfpa.org. For boys, cultural expectations to be tough and not show vulnerability can discourage them from admitting mental health struggles or avoiding risk-taking; this partially explains why injury rates and substance use are often higher in male adolescents.

- **Peer and Social Media Influences:** Adolescents are highly influenced by peers and media. Peer groups can propagate both positive behaviors (sports, studying) and negative ones (smoking, unsafe sex). The high bullying rates in schools hbsc.org indicate toxic peer dynamics that can normalize aggression or substance use as a form of social dominance. Social media and internet access have rapidly increased among Central Asian youth, exposing them to new ideas and also health misinformation (e.g., fad diets or pro-smoking imagery) as well as potentially harmful content (promoting self-harm, etc.). However, online platforms also present opportunities for health promotion if leveraged (for example, youth engagement campaigns via Instagram or via UNICEF’s U-Report polls have been used to gauge youth opinions on health [unicef.org](https://www.unicef.org)).
- **Health System Factors:** A determinant often overlooked by adolescents themselves is the accessibility and youth-friendliness of health services. Even when adolescents recognize a health issue, they may not receive care if services are not welcoming. In Uzbekistan, there are “*significant gaps in provision of mental health and psychosocial support services for adolescents*”, partly due to poor integration between schools and health clinics [unicef.org](https://www.unicef.org). Adolescent boys and girls may avoid going to clinics out of fear that their confidentiality won’t be respected (for sexual health or substance issues) or due to costs and distance. The availability of **youth-friendly clinics** (with appropriately trained staff, privacy, and free or low-cost services) is limited but growing – largely thanks to UNFPA-supported initiatives in both countries [unicef.org](https://www.unicef.org). For instance, Kyrgyzstan has piloted Youth Friendly Health Service centers where adolescents can drop in for counseling, though these are not yet nationwide. School health services (nurses, counselors) exist but are under-resourced; for example, in Uzbekistan more than 78% of secondary schools have only one nurse on staff, often focused on basic screenings [unicef.org](https://www.unicef.org). Consequently,

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preventive services like anemia screening, mental health counseling, or contraceptive counseling are not routinely provided to 15–17-year-olds. This system gap is a determinant that leaves many risks unmitigated – e.g., a sexually active 16-year-old might not know where to obtain contraceptives or an anxious 17-year-old might not have access to therapy.

In light of these determinants, it becomes evident that adolescent health outcomes are shaped by an interplay of **behavioral factors (diet, activity, substance use), environmental and social factors (family, school climate, poverty), and health system responsiveness**. Any program aimed at preserving and promoting adolescent health must therefore adopt a holistic, multi-faceted approach. The next section will leverage this understanding to articulate the scientific rationale for a comprehensive health promotion program tailored to the needs of 15–17-year-olds in Kyrgyzstan and Uzbekistan.

Scientific Rationale and Proposal for a Health Promotion Program

Given the health trends and determinants outlined, a strategic program is needed to protect and improve the health of Central Asian adolescents. The scientific rationale for such a program rests on several pillars:

1. Addressing Critical Health Priorities: The evidence highlights certain **priority health issues** – nutritional anemia, mental health, and risk behaviors (tobacco/alcohol, etc.) – that have significant short- and long-term consequences. For example, adolescent anemia (particularly iron deficiency anemia affecting ~16% of Uzbek girls [unicef.org](https://www.unicef.org)) not only causes fatigue and reduced academic performance now, but also increases risks in future pregnancies. Likewise, adolescent mental disorders can lead to lifelong disability or suicide. Early pregnancies pose high risks for maternal and infant health and often perpetuate cycles of poverty. Each of these issues has *proven, evidence-based interventions*: iron supplementation and dietary diversification for anemia; psychosocial counseling and life skills training for mental well-being; sexuality education and contraceptive access to prevent teen pregnancies; enforcement of age restrictions and health education to delay substance use. The program is justified as it will implement known interventions to curtail these problems at a formative stage. By intervening in adolescence, we can prevent or mitigate health conditions that would otherwise carry over into adulthood, aligning with the public health principle of early prevention.

2. Long-Term Societal Benefits (“Triple Dividend”): Investing in adolescent health yields outsized returns. Healthy adolescents are more likely to become healthy, productive adults who contribute positively to the economy and society health.medicaldialogues.in. Conversely, health issues

like untreated mental illness or substance abuse can derail young people’s education and employment trajectories, leading to economic costs for the country (through lost productivity and higher healthcare burden). Modelling studies (including those by the World Bank and WHO) have shown that every dollar spent on adolescent health interventions can produce a tenfold benefit in terms of improved labor force outcomes and reduced NCD burden later. Additionally, healthier adolescents will one day become parents and can give their own children a better start – breaking intergenerational cycles of malnutrition or poor health. This rationale resonates strongly in countries like Kyrgyzstan and Uzbekistan, which are aiming for accelerated development: **supporting adolescents is essential for national prosperity, ensuring an empowered future generation capable of positive contribution** [unicef.org](https://www.unicef.org). In short, a health promotion program for adolescents is not just a health sector initiative but an investment in human capital that supports education, gender equality, and economic growth.

3. Global and Regional Commitments: Both countries have committed to the Sustainable Development Goals (SDGs), including targets for health (SDG3) and youth well-being. SDG 3.4 calls for reducing premature mortality from NCDs (which implies acting on risk factors starting in adolescence), SDG 3.7 aims for universal access to reproductive health care (including for adolescents), and SDG 3.5 targets prevention of substance abuse. Additionally, the Convention on the Rights of the Child obliges governments to ensure the right to health for those under 18, which includes appropriate adolescent healthcare and health information. A dedicated adolescent health program would operationalize these commitments by creating a structured approach to meeting specific indicators – e.g., reducing the adolescent birth rate (SDG 3.7.2), which remains elevated (around 29–37 per 1,000 in these countries) [w3.unece.org](https://www.w3.unece.org), or lowering adolescent tobacco use prevalence. The scientific rationale is reinforced by WHO and UNICEF technical guidance that encourages countries to have **national adolescent health strategies** with defined packages of interventions [unicef.org](https://www.unicef.org). In fact, Uzbekistan’s draft strategy and Kyrgyzstan’s intentions in this area provide a policy umbrella under which our proposed program would fit, ensuring alignment with national priorities and facilitating governmental buy-in.

4. Adolescence as a Window of Opportunity: Neuroscience and developmental science indicate that adolescence is a period of high neuroplasticity and openness to change. Behavior patterns are not yet firmly fixed, making it an ideal time for interventions to instill healthy habits (like regular exercise or balanced eating) and to shape attitudes (such as rejecting smoking or valuing mental health self-care).

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Moreover, adolescents tend to be receptive to peer influence and modern communication – which can be leveraged positively through peer education and social media campaigns in a program. Intervening in the 15–17 age range is particularly strategic because these older adolescents have enough maturity to absorb complex health information (for instance, understanding how HIV is prevented or how nutrition affects their body), and they are on the cusp of adult independence where they will make their own health choices. The program can equip them with knowledge and skills right before they transition to work or higher education environments, thus “inoculating” them against future risks. This rationale is supported by evidence from school health promotion trials globally, which show that interventions (like life-skills training or physical activity promotion) conducted in late adolescence have measurable impacts on behaviors and health outcomes (e.g., reduced smoking initiation, lower BMI, etc.) that persist into young adulthood.

5. Need for Integrated, Multisectoral Action:

The breadth of issues affecting adolescent health – spanning nutrition, mental health, violence, sexual health, etc. – cannot be effectively tackled through isolated efforts. A scientific rationale for a *programmatic approach* (as opposed to disparate interventions) is that it allows integration of efforts across sectors. For instance, improving adolescent nutrition might involve schools (for meal programs and nutrition education), health services (for anemia screening or supplements), and community agriculture/markets (to ensure food security). Similarly, reducing adolescent injuries might involve the transportation sector (road safety regulations) along with education (safety awareness in curriculum). The program we propose will coordinate such multisectoral inputs, reflecting the understanding that adolescent health determinants lie in various domains. This echoes recommendations from UNICEF and WHO that *multisector action* is required – e.g., “**adolescent health is not only a responsibility of the health sector... addressing it requires multisector action**” [unicef.org](https://www.unicef.org). The program can act as a platform for collaboration between ministries (Health, Education, Youth, Sport, etc.), which increases efficiency and coherence of initiatives, avoiding duplication and ensuring all determinants are addressed. From a scientific standpoint, complex public health problems (like adolescent obesity or suicide) are best addressed with comprehensive strategies combining policy, community, and individual-level interventions, rather than single-component interventions.

Proposal Overview: Based on the above rationale, we propose a **Comprehensive Adolescent Health Preservation and Promotion Program** for Kyrgyzstan and Uzbekistan, targeting ages 15–17 (with spillover benefits to the broader 10–19 group). The program’s goal will be to **improve health**

outcomes and healthy behaviors among adolescents through an integrated model encompassing health education, accessible services, and supportive policy and community environments. Key components of the program will include:

- **School-Based Health Promotion:** implementing or strengthening health curricula and interventions in secondary schools (e.g. modules on nutrition, mental health, life skills, and sexual/reproductive health), training teachers and peer educators, and establishing school health clubs.
- **Youth-Friendly Health Services:** expanding adolescent-friendly corners in clinics and mobile health teams that provide counseling, basic screening (for anemia, mental health, etc.), immunizations (like HPV vaccine, if not already covered), and referral to specialist care when needed – all in a confidential, non-judgmental setting convenient for youth.
- **Community and Parental Engagement:** running community dialogues and parental workshops on adolescent health topics (for example, positive parenting skills to improve communication and reduce conflict [unicef.org](https://www.unicef.org), or community campaigns against early marriage and substance abuse), so that the environment at home and in the community becomes more supportive of healthy adolescent development.
- **Policy and Environment Changes:** advocating for policies such as enforcing bans on sales of tobacco/alcohol to minors, regulating marketing of junk food to children, ensuring safe recreational spaces (e.g., parks, sports facilities) for physical activity, and establishing protocols in schools for bullying prevention and mental health crisis management. Where applicable, working with government to incorporate adolescent health indicators into national health information systems for better monitoring [unicef.org](https://www.unicef.org).
- **Peer and Digital Interventions:** leveraging adolescents’ own agency by training peer mentors and harnessing digital platforms (social media, messaging apps) to disseminate health information and capture youth feedback (like Kyrgyzstan’s planned “M-report” mobile platform for adolescent feedback on services [unicef.org](https://www.unicef.org)).

The scientific basis for each of these components is strong. For instance, multiple studies have shown comprehensive sexuality education leads to delayed sexual initiation and lower teen pregnancy rates; school-based physical activity programs can improve fitness and even academic performance; and counseling services can reduce depression and suicide

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attempts among youth when accessible. This multifaceted program, tailored to the cultural context of Kyrgyzstan and Uzbekistan, is expected to synergistically tackle the major health issues identified. In the next section, we outline an implementation strategy for operationalizing this program and discuss the expected outcomes and how they align with our health promotion objectives.

Implementation Strategy and Expected Outcomes

Implementing the adolescent health promotion program will require careful planning, coordination, and adaptation to local contexts in Kyrgyzstan and Uzbekistan. Below we detail the strategy across key domains:

Program Governance and Multisector Coordination: We recommend establishing a **National Adolescent Health Task Force** in each country, under the auspices of an existing structure (for example, the Vice Prime Minister’s office or a Ministry of Health department for youth health). This task force would include representatives from Health, Education, Youth/Sports, and Finance ministries, as well as UN partners (WHO, UNICEF, UNFPA) and youth representatives. Its role is to coordinate the various components, mobilize resources, and monitor progress. For instance, the task force would ensure that the Ministry of Education integrates new health education content into the school curriculum, while the Ministry of Health trains healthcare providers in adolescent-friendly practices. A lesson from Kyrgyzstan is the value of linking adolescent health with broader youth policy – Kyrgyzstan is developing a national youth strategy for ages 14–28 [unicef.org](https://www.unicef.org), which presents an opportunity to embed health goals. Similarly, Uzbekistan’s youth agency can champion the program as part of its youth well-being agenda [unicef.org](https://www.unicef.org). Both countries can also leverage existing donor-funded initiatives (e.g., GIZ or USAID projects on health) by aligning them under this program’s framework for coherence.

School-Based Interventions: The program will roll out a strengthened **Healthy Lifestyles Education** module in secondary schools (Grades 8–11, roughly ages 14–17). This builds on the existing curricula (like Kyrgyzstan’s pilot “healthy lifestyle” curriculum covering reproductive health, substance abuse, etc. [unicef.org](https://www.unicef.org)). We will update and expand content to include nutrition (e.g., understanding food groups and anemia prevention), mental health literacy (coping with stress, how to seek help, anti-bullying), and digital/media literacy (safe internet use). Teachers will receive training to deliver these topics interactively. Where possible, peer education will be utilized: students can be trained as **peer health educators** to lead discussions or clubs, which has been effective in engaging youth. Schools will also implement specific campaigns, such as “**Anemia-Free Schools**” where iron-rich meals and

supplements (weekly iron-folate tablets for girls, following WHO recommendations) are provided, and “**Active Schools**” initiatives that ensure daily physical activity opportunities (e.g., active recess, after-school sports). Recognizing mental health, we will work to increase the availability of school psychologists or counselors. Uzbekistan has already started improving school mental health services (training psychologists for 6 million students) [unicef.org](https://www.unicef.org); this program would support expanding those efforts, ensuring that each secondary school has at least a part-time counselor trained in adolescent-friendly counseling. Additionally, we propose a **zero-tolerance policy for violence and bullying**: building on Kyrgyzstan’s “School without Violence” program which showed positive results [unicef.org](https://www.unicef.org), both countries’ schools will adopt anti-bullying protocols (clear reporting mechanisms, awareness campaigns by students). The expected outcomes in the school setting include improved health knowledge (measured by surveys on topics like HIV, where currently only ~8% of 15–19-year-old girls in Uzbekistan have comprehensive HIV knowledge [unicef.org](https://www.unicef.org), indicating room for improvement), and observable behavior changes such as increased physical activity rates and reduced bullying incidents.

Youth-Friendly Health Services Expansion: On the healthcare side, the program will strengthen adolescent-targeted services at primary care and community levels. Building on Kyrgyzstan’s Youth Friendly Health Service concept and Uzbekistan’s existing clinics, we will standardize **Adolescent Health Corners** in clinics: dedicating specific times or spaces for adolescents to drop in after school hours. Providers (doctors, nurses, psychologists) will be trained on confidentiality, non-judgmental communication, and issues like managing teenage depression or providing contraceptive counseling to unmarried youth (an area which can be sensitive). Mobile health units can be deployed in remote areas to reach rural adolescents periodically for check-ups and health education. A key service will be mental health screening and counseling – given stigma, having approachable services is crucial. Where full-time specialists aren’t feasible, we will set up referral linkages so that if a school or clinic identifies a high-risk adolescent (e.g., suicidal or severe eating disorder), they can be fast-tracked to appropriate care (psychiatric or emergency services). The program will also introduce or scale up **telephone or online helplines** for adolescents, which can provide anonymous advice on issues from mental distress to sexual health questions. Experience from other countries shows that helplines can bridge the help-seeking gap for youth who fear face-to-face visits. By the end of the program’s initial phase, we expect to see increased utilization of health services by adolescents – this could be measured by indicators such as the number of adolescents receiving counseling or the

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percentage of adolescent girls receiving iron supplements at clinics. Another outcome target is a reduction in unmet need for contraception among older adolescent girls, which would reflect better access and counseling (helping to drive down the adolescent birth rates further).

Community and Parental Components: The success of adolescent health initiatives often hinges on community acceptance. Thus, our strategy includes community outreach through local influencers (e.g., village health committees, religious leaders, and youth clubs). We will organize **community dialogues** on topics like early marriage and reproductive health, aiming to shift norms in favor of girls' education and delayed marriage – this is important especially in rural pockets of both countries where tradition holds strong. Showcasing positive deviants (communities or families that have benefitted from allowing girls to pursue higher education instead of marrying early) can be persuasive. In tandem, **parent workshops** or forums will be offered in schools, covering adolescent development and effective communication. Given that many parents simply lack information on how to handle teenage issues, these workshops can improve parent-child relationships and encourage supportive parenting (for instance, learning that open discussions about mental health or sex do not corrupt youth but protect them). In Kyrgyzstan, efforts to invest in “*families' wellbeing through work on parenting skills*” have been noted as having potential to address youth mental health, violence, and suicides [unicef.org](https://www.unicef.org) – we will replicate and expand such efforts. Expected outcomes on the community level are harder to quantify in the short term, but we anticipate improved attitudes (measured by periodic surveys or focus groups indicating greater disapproval of underage drinking, or more acceptance of seeking mental health care, etc.) and possibly metrics like a decrease in school dropout rates for girls (as a proxy for reduced early marriage).

Policy and Advocacy: The program will not operate in isolation but also advocate for supportive policies. For example, one quick win is enforcing higher taxes and minimum pricing on tobacco and alcohol – evidence from WHO shows that price measures are among the most effective ways to curb youth smoking/drinking [unicef.org](https://www.unicef.org). Both countries can strengthen such measures (Uzbekistan recently increased tobacco taxes, and Kyrgyzstan can follow suit). Another policy area is **micronutrient fortification**: advocating for flour fortification with iron and folic acid, which both countries have attempted in the past with mixed success, could significantly reduce anemia among adolescents (who consume bread as a staple). The program's advocacy might push for revising any regulations that impede adolescents' access to services – e.g., ensuring that by law, mature minors can seek certain health services without parental consent (for sexual health or mental

health), which encourages timely care. Over the program period, we expect to see policy outputs like updated national guidelines on adolescent health services, budget allocations specifically earmarked for adolescent health (ensuring program sustainability), and integration of adolescent health indicators in routine health surveillance (so progress can be tracked, addressing the current data inconsistency [unicef.org](https://www.unicef.org)).

Monitoring and Evaluation: A robust M&E framework will track inputs, outputs, and outcomes. Baseline data will be collected (leveraging MICS, GSHS – Global School-based Student Health Survey – or HBSC surveys to have initial measures). Annual progress reports will be generated, and adjustments made based on findings. The program might use innovative tools like the U-Report (an SMS-based youth polling system UNICEF uses) to get real-time feedback from adolescents on whether interventions are reaching them and how behavior is changing. For instance, we could poll how many youth have had a health check in the last year, or feel confident about managing stress after program interventions. These participatory M&E approaches keep the program responsive to adolescents' needs.

Expected Outcomes: By the culmination of the program (e.g., after 5 years), we anticipate significant improvements in key health indicators and behaviors among 15–17-year-olds in Kyrgyzstan and Uzbekistan. Some **quantifiable expected outcomes** include:

- **Nutritional status:** Reduction in anemia prevalence in 15–19-year-old females (for example, from 16.5% to under 10% in Uzbekistan) [unicef.org](https://www.unicef.org), and stabilization or reduction of adolescent overweight/obesity rates (no further rise beyond current ~20% levels in Kyrgyz older teens publish.kne-publishing.com, potentially even a slight decrease with better diet and exercise).
- **Mental health:** Improved well-being indicators – aiming for a decrease in the proportion of adolescents with prolonged sadness or suicidal ideation. For instance, reducing the HBSC-measured rate of 16% having suicidal thoughts in Kyrgyzstan [hbsc.org](https://www.hbsc.org) to single digits. We would also track help-seeking rates; success would be if more adolescents report willingness to seek help and actually utilize counseling (reflected by clinic records or surveys).
- **Behavioral risks:** Delayed initiation and lower prevalence of substance use. Targets could be keeping the rate of 15-year-olds who have smoked under 5% (as currently in Kyrgyzstan kyrgyzstan.un.org, and try to replicate that success in Uzbekistan through education and enforcement), and keeping underage drinking and drug use minimal. We

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also aim for increased physical activity: e.g., raising the proportion meeting 60 min/day exercise from 20% to, say, 30–40% through the Active Schools component.

- *Reproductive health:* A measurable decline in adolescent birth rates by program's end, aligning with SDG targets. Kyrgyzstan's adolescent birth rate could decline further into the low 20s per 1,000; Uzbekistan's could reverse the recent spike and drop below 30 per 1,000 w3.unece.org. Additionally, we'd monitor contraceptive uptake among sexually active older teens and expect an increase, which is a positive outcome indicating safer sexual practices.
- *Education and empowerment:* Though more indirect, we expect improved school retention (especially among girls) and academic performance due to better health (less anemia-related fatigue, better mental focus). Also, through empowerment and life skills training, adolescents should exhibit greater health literacy and confidence – intangible but vital outcomes.

Finally, an overarching outcome is the establishment of a sustainable framework for adolescent health in both countries. By institutionalizing adolescent health programs (potentially through inclusion in national health strategies like Uzbekistan's 2025–2030 child and adolescent well-being strategy unicef.org), the benefits can continue beyond any initial funding period. The program's scientific and structured approach aims to create a lasting impact, ensuring that the adolescents of today enter adulthood healthier, more informed, and more resilient.

Conclusion

Adolescent health in Kyrgyzstan and Uzbekistan is at a crucial juncture. Our review has shown that while notable progress has been made in areas like education and basic healthcare, adolescents aged 15–17 still face significant health challenges – from the *triple burden* of malnutrition (coexistence of undernutrition, micronutrient deficiencies, and obesity) to rising mental health concerns, risk behaviors, and the enduring threat of early pregnancies and injuries. The trends analyzed underscore the urgency of focused interventions: for instance, high rates of anemia and feelings of sadness among teens are **not just statistics but signals** that the well-being of a substantial segment of the youth population needs attention unicef.org/hbsc.

In response, we have proposed a comprehensive health promotion program grounded in scientific evidence and tailored to the cultural context of Central Asia. This program is justified by the enormous potential benefits – a healthier adolescent population means healthier future workers, parents, and leaders,

yielding social and economic dividends for both countries health.medicaldialogues.in. Key to the program's approach is its multi-sectoral nature, bringing together schools, health services, families, and communities to create an enabling environment for adolescents to thrive. By simultaneously targeting nutrition, mental health, physical activity, substance prevention, and sexual health education, the program addresses the interrelated facets of adolescent well-being. Importantly, it also empowers young people themselves, recognizing them as partners in shaping their health (through peer education and youth engagement platforms).

Policy Implications: The findings and recommendations in this article carry important implications for policymakers and stakeholders. Both Kyrgyzstan and Uzbekistan would benefit from formally adopting national adolescent health and development strategies (if not already in place) that incorporate the interventions discussed. Allocating government budget for adolescent health – for example, funding school nurse positions or subsidizing youth clinics – is a necessary step to institutionalize these efforts. International organizations like WHO, UNICEF, and UNFPA are likely to remain crucial allies, providing technical support and funding for pilot programs that can be taken to scale. It will also be important to strengthen data systems to track adolescent health indicators (as we noted, better age-disaggregated data is needed unicef.org) so that progress can be monitored and interventions adjusted as needed.

Challenges and Sustainability: We acknowledge that implementing such a comprehensive program is not without challenges. Potential barriers include cultural resistance to topics like sexual education or mental health (requiring sensitive advocacy and engagement of community leaders to overcome), and resource constraints such as shortages of trained school counselors or healthcare providers willing to work in remote areas. Addressing these will require capacity-building – training more professionals in adolescent health – and possibly policy changes (such as incentives for serving rural youth). However, the cost of inaction is high: failing to invest in adolescent health could reverse gains made in child health earlier in life and exacerbate adult disease burdens in the near future. By contrast, the proposed interventions are relatively low-cost and high-impact (many, like health education or supplementation, have strong cost-effectiveness evidence). We have reason for optimism that with political will and community support, the program can be sustainable. Over time, as healthier behaviors become the norm (e.g., if it becomes standard for schools to have active health clubs and for youths to seek help when distressed), the improvements will be self-reinforcing.

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In conclusion, preserving and promoting the health of adolescents in Kyrgyzstan and Uzbekistan is both a **moral imperative and a smart investment**. These young people are the future drivers of their countries' development. By implementing a well-designed, evidence-based adolescent health program now, the two nations can ensure that their youthful populations grow into a healthy, capable workforce

that can sustain economic growth and social progress. The scientific evidence and the situational analysis presented here strongly support moving in this direction. With collaborative effort and sustained commitment, Central Asia can serve as a model for how to successfully champion adolescent health – securing not just healthier youths, but healthier societies for years to come.

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