Risk Factors and Their Effect on Young Adolescents' Health and Well-Being

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Abstract

Young adolescents undergo rapid physical, cognitive, social, emotional, and sexual development, including puberty, sexual awareness, gender identity, physiological brain and cognitive growth, complex emotions, and impulse control. Tragically, thousands of adolescents die daily from mostly preventable causes such as violence, sexual health problems including HIV, communicable and noncommunicable diseases, poor nutrition, substance use, and suicide. Many more endure ill health due to these causes. In this article, we describe the risk factors related to bullying, homelessness, mental health, nutrition, sexual health, and substance use disrupting young adolescents' overall health and well-being. We report the prevalence of these risk factors in the United States and internationally, noting the myriad effects of each factor. We also identify intervention and prevention actions that countries, communities, school districts, schools, and individuals can take to reduce or forestall these risk factors for young adolescents. Lastly, we discuss comprehensive school health education/programs and articulate the principal issues that society needs to address to improve the health and well-being of young adolescents.

Introduction

Young adolescents' health and well-being demands the full attention of teachers, families, and community members. They comprise more than 9% of the world's population (~787,000 individuals) and live in communities around the world (United Nations, 2022). Who are young adolescents? Some organizations describe them as youth ages 10–14 (World Health Organization [WHO], 2024a), while others describe them as 10–15-year-olds (Adolescent Success, 2019; Bishop & Harrison, 2021). Whatever the age ranges, these youth are experiencing rapid and significant developmental changes with implications for their health and overall well-being. In this article, we use the term *early adolescence* when referring to the stage of development, and the term *young adolescents* for the young people in this stage of development.

During early adolescence (i.e., the stage of development), young adolescents are transitioning from childhood to adolescence. Physically, they experience growth spurts, puberty, and neural changes in the brain (Patton, 2016). Cognitively, they begin to acquire the capacity for abstract thinking, ideological reasoning, argumentation, and introspection (Brinegar & Caskey, 2022). Social-emotionally, young adolescents develop the ability for interacting with others while regulating their own emotions (Harrison et al., 2019); they have a strong need to belong to a peer group and experiment with new behaviors. Psychologically, they are undergoing identity formation and seeking independence by exploring and experimenting with various roles and social identities (Brinegar & Caskey). During these years, young adolescents are also gaining important health and social knowledge, adopting behaviors, forming beliefs and attitudes, and building a foundation for adulthood (McCarthy et al., 2016).

Young adolescents are a remarkable group of young people. They share common developmental characteristics while possessing individual traits, distinctive experiences, and unique perspectives (Mertens & Caskey, 2023). We acknowledge that early adolescence is generally a healthy time of life (Park et al., 2014); however, we recognize that young adolescents are facing serious health risk factors. Health risk factors can lead to negative short-term and long-term health outcomes (WHO, 2023a).

Risk Factors

According to the WHO (2023a), a risk factor is "an attribute, characteristic or exposure that increases the likelihood of an individual suffering a negative health outcome immediately or in the future" (p. xiv). In this article, we focus on the risk factors related to bullying, homelessness, mental health, nutrition, sexual health, and substance use that challenge young

adolescents' overall health and well-being. First, we explain the risk factor, its prevalence, and effects on youth in the US and internationally. Then, we describe prevention and interventions implications that communities, schools, and individuals can take to reduce or prevent these risk factors for young adolescents. Afterwords, we discuss comprehensive school health education and offer concluding thoughts regarding young adolescent health and well-being.

Bullying

Bullying is defined as:

> Any unwanted aggressive behavior(s) by another youth or group of youths, who are not siblings or current dating partners, which involves an observed or perceived power imbalance, and is repeated multiple times or is highly likely to be repeated. (Centers for Disease Control and Prevention [CDC], 2024)

Bullying is a serious concern for young adolescents worldwide. According to recent data from the CDC (2024) and the National Center for Education Statistics (NCES, 2024), nearly one out of every five students (19%) report being bullied. Students in middle grade levels report significantly higher rates of bullying compared to high school students (~26% vs. 15%) (NCES, 2024). Within the US, reports of bullying are highest in middle level schools (26%) versus high schools (~15%) and 35% of 12-18-year-olds report being bullied or bullying others (Modecki et al., 2014). Female students reported higher rates of being bullied at school (22% vs. 17%) with a higher percentage of female students reporting being the subject of rumors (18% vs. 9%) and being purposefully excluded from activities (7% vs. 4%) (NCES, 2024). Of those students who reported being bullied, 13% were made fun of, called names, or insulted; 13% were the subject of rumors; 5% were pushed, shoved, tripped, or spit on; and 5% were excluded from activities on purpose (NCES, 2024).

While bullying behavior can occur in a variety of locations, 50% of students aged 9 to 12 years old reported they experienced bullying at school and 14% of this age group shared they experienced bullying online (Patchin & Hinduja, 2020). Bullying at school occurred in the following places: the hallway or stairwell (43%), inside the classroom (42%), in the cafeteria (27%), outside on school grounds (22%), online or by text (15%), in the bathroom or locker room (12%), and on the school bus (8%) (NCES, 2024).

Cyberbullying is bullying that takes place over digital devices such as cell phones and computers and includes, but not limited to, text messaging, social media, forums, and online gaming. In a nationally representative sample, Hinduja & Patchin (2021) found that 46% of 13–17 year old middle school and high school students reported having been cyberbullied, with 42% reporting multiple bullying incidents. Reports of cyberbullying are highest among middle school students (33%), followed by high school students (30%), combined schools (20%), and then primary school students (5%) (CDC, 2023a). When students were asked about the specific types of cyberbullying they had experienced, rumors spread online (33%) and mean and hurtful comments (29%) and were the most commonly cited (Hinduja & Patchin). The type of cyberbullying tends to differ by gender with females being more likely to experience cyberbullying compared to males (51% vs 38%). The most significant gender disparities were for instances of someone spreading rumors about them online (38% for females vs 27% for males) and posting mean or hurtful comments online (32% vs 24%) (Hinduja & Patchin). Patchin and Hinduja (2020) also found that young adolescents who were cyberbullied reported that it negatively impacted their feelings about themselves (69%), their friendships (32%), their physical health (13%), and their schoolwork (7%).

The reasons students reported for being bullied included physical appearance, race/ethnicity, gender, sexual orientation, disability, and religion. According to the NCES (2024), 30% of American Indian or Alaskan Native students and those who identified with two or more races were bullied at school, followed by 22% of White students, 17% of Black students, 16% of Hispanic students, and 9% of Asian students. Race-related bullying is significantly associated with negative emotional and physical health effects (Rosenthal et al., 2015). In a more recent national study including a representative sample of nearly 23,000 students between the ages of 13 and 21, Kosciw et al. (2022) found that 68% of LGBTQIA+ students reported feeling unsafe at school; 51% because of their sexual orientation, 43% because of their gender expression, and 40% because of their gender. Seventy-six

percent of LGBTQIA+ students reported being verbally bullied (e.g., called names, threatened) in the past year because of their sexual orientation, gender expression, and/or gender. Over a third of the LGBTQIA+ students (31%) were physically bullied (e.g., shoved or pushed) in the past year because of their sexual orientation, gender expression, and/or gender. Kosciw et al. also found that over 12% of LGBTQIA+ students "reported being physically assaulted (e.g., being punched, kicked, or injured with a weapon) in school during the past year based on their sexual orientation, gender, or gender expression" (pp. 19–20).

Adolescent students with disabilities have experienced high incidences of bullying. According to Rose and Gage (2017), students with specific learning disabilities, autism spectrum disorder, emotional and behavior disorders, other health impairments, and speech or language impairments report greater rates of victimization than their peers without disabilities longitudinally and their victimization remains consistent over time. Researchers have also found that students with disabilities were more worried about school safety and being injured or harassed by other peers compared to students without a disability (Saylor & Leach, 2009).

Bullying behavior also has a detrimental effect on students who are bystanders to the bullying of others. Observing bullying is associated with adverse mental health outcomes (Rivers et al., 2009). Even students who have observed but not participated in bullying behavior report significantly more feelings of helplessness and less sense of connectedness and support from responsible adults than students who have not witnessed bullying behavior (CDC, 2014).

According to UNESCO—the United Nations Educational, Scientific and Cultural Organization (2023)—nearly one-third of young adolescents worldwide report having recently experienced bullying. UNESCO reported that "the new data show that bullying affects children everywhere, across all regions and countries of different income levels" (para. 1). The UNESCO data also found that low socioeconomic status is a main factor in youth bullying within wealthy countries and immigrant-born youth in wealthy countries are more likely to be bullied than locally-born youth. Globally, the UNESCO data highlighted three significant findings:

- Boys experience slightly higher rates (32%) of bullying than girls (28%) overall, but in countries where bullying is most pervasive, girls are more vulnerable.
- Low socioeconomic status is the main predictor of whether young teens in wealthy countries will experience bullying in schools; and
- Immigrant youth in wealthy countries are more likely to experience bullying in schools than locally-born youth. (para. 10)

Consequences

Various studies have examined the short and long-term effects of bullying. The CDC (2023b) reported that students who experience bullying are at increased risk for depression, anxiety, sleep difficulties, lower academic achievement, and dropping out of school. They also found that students who are both targets of bullying and engage in bullying behavior are at greater risk for both mental health and behavior problems than students who only bully or are only bullied (CDC). Bullied students indicated that bullying had a negative effect on how they feel about themselves (28%), their relationships with friends and family (18%), their schoolwork (17%), and physical health (12%) (NCES, 2024).

Suicide is the third leading cause of death for middle and high school age youth (CDC, 2023b). There is a strong association between bullying and suicide-related behaviors, but this relationship is often mediated by other factors, including depression, violent behavior, and substance abuse (Reed et al., 2015). Students who report frequently bullying others and students who report being frequently bullied are at increased risk for suicide-related behavior. Additionally, in a meta-analysis study, Gini and Espelage (2014) found that students facing peer victimization are over two times more likely to have suicide ideation and two and a half times more likely to attempt suicide than students not facing victimization. More recently, the CDC reported that LGBQT+ students were nearly four times as likely as their heterosexual peers to attempt suicide during the past year, with more than 2 in 10 reporting this experience (CDC).

The CDC has warned that the false notion that suicide is a natural response to being bullied has the dangerous potential to normalize the

response and thus create copycat behavior among youth.

Implications for Prevention and Intervention

The research on bullying interventions and/or prevention programs is somewhat mixed (Ayers et al., 2012). In a meta-analysis of 44 evaluations, McCallion and Feder (2013) found that school-based bullying prevention programs decrease bullying by up to 25%. Their research identified characteristics of school-based bullying programs that may help reduce bullying, primarily the intensity and duration of a program and the number of program elements. Additionally, they found other factors to be important to the effectiveness of the programs, including parent training, parent meetings, firm disciplinary methods, classroom rules, classroom management, and improved playground supervision.

In their recent study, Kosciw et al. (2022) recommend the need for (a) providing student access to appropriate and accurate information regarding LGBTQIA+ history and events; (b) supporting student clubs, such as Gay-Straight Alliances/Gender and Sexuality Alliances (GSAs) that provide support for LGBTQIA+ students; (c) providing professional development for school staff to improve rates of intervention and increase the number of supportive teachers and other staff available to students; (d) ensuring that school policies and practices, such as those related to dress codes and school dances, do not discriminate against LGBTQIA+ students; (e) enacting school policies that provide all students equal access to school facilities and activities and specify appropriate educational practices to support these students; and (f) adopting and implementing comprehensive bullying/harassment policies.

Homelessness

The definition of homeless youth varies across state and federal agencies and leading national organizations and can include runaways, throwaways, street youth, systems youth, transient but connected, high risk and low risk (National Conference of State Legislatures, 2023). These terms reflect the diversity of experiences and backgrounds among homeless youth who often do not fit into a single category. The federal definition of homeless in the US is derived from the McKinney-Vento Homeless Education Assistance Improvements Act (2001) and subsequently amended as part of the Every Student Succeeds Act (2015). It defines homeless children and youths as individuals who lack a fixed, regular, and adequate nighttime residence (McKinney-Vento Homeless Education Assistance Improvements Act).

Youth homelessness is a national concern. It is estimated that over 3,000 unaccompanied children (under the age of 18) are homeless, sleeping outside, in cars, or some other undesirable location (National Alliance to End Homelessness, 2024) on a daily basis. Socioeconomic status, education level, gender and sexual identity, peer groups, family dynamics are examples of factors that may be related to youth running away or becoming homeless (National Clearinghouse on Homeless Youth & Families, n.d.). According to the National Conference of State Legislatures (2023):

> Each year, an estimated 4.2 million youth and young adults experience homelessness in the United States, 700,000 of which are unaccompanied minors—meaning they are not part of a family or accompanied by a parent or guardian. These estimates indicate that approximately one in 10 adults ages 18 to 25, and one in 30 youth ages 13 to 17 will experience homelessness each year. (para. 1)

Through its Voices of Youth Count initiative, Chapin Hall at the University of Chicago (2021) conducted a comprehensive multiyear study of youth homelessness. Their findings concerning homeless adolescents were quite disconcerting:

- At least one in 30 adolescents ages 13–17, experience some form of homelessness unaccompanied by a parent or guardian over the course of a year,
- 29% of homeless youth report having substance misuse problems,
- 69% of homeless youth report mental health problems,
- 50% of homeless youth have been in the juvenile justice system, in jail or detention,
- 62% of LGBTQIA+ youth report being physically harmed while experiencing homelessness while 47% of non-

> LGBTQIA+ youth reported being physically harmed while homeless, and More than 40% of surveyed youth experienced more than one episode of homelessness during the year, with 73% experiencing an episode longer than one month.

The problem with youth homelessness appears to be getting slightly better in recent years. According to the National Center for Homeless Education (2021), the number of unaccompanied homeless students increased by 25% between the school year 2014–2015 and 2016–2017. However, the number of students experiencing homelessness decreased by nearly 15% between school year's 2017–18 and 2019–20 (National Center for Homeless Education). Despite these recent decreases, there has been an average annual increase of 5% in the number of students experiencing homelessness since the 2004–05 school year. It is estimated that 6% to 7% of youth run away from home each year, more than 1.5 million children and adolescents annually (Chen et al., 2012). The National Runaway Switchboard's (2010) report, *Why They Run*, reported the reasons cited by youth for leaving home include family dynamics; physical, sexual, verbal, and other types of abuse; and economic issues at home. The study also found that almost half of the youth interviewed said they were forced out of their homes. More recent data from the National Runaway Safeline (2021) support the findings from the earlier *Why They Run* report, citing conflict with rules, problems with parents or siblings, blended family, divorce or custody issues, death of a family member, and teen parenting as reasons for youth running away from home. Youth homelessness is almost as common in rural areas as urban areas. The Voices of Youth Count initiative (Chapin Hall, 2021) findings indicated that 9% of youth in rural counties reported experiencing homelessness and the prevalence for urban youth was 10%.

Currently, an estimated 100 million homeless children live in the streets around the world (WomenAid International, n.d.). As reported in the 2021 OECD Questionnaire on Affordable and Social Housing (Organisation for Economic Co-operation and Development [OECD], 2020), some OECD countries (36 member countries in Europe, Asia-Pacific, and North and South America) report a rise in youth homelessness. Among countries for which data are available over time, youth homelessness increased in the Netherlands (more than doubled from 2010–2018), New Zealand (increased 30% from 2006-2018), and Australia (increased 20% from 2011–2016) (OECD, 2020); however, the homelessness rate dropped among youth in Canada (by 17% from 2011–2016) and Finland (by 25% from 2010–2018). We find that these data, while providing an alarming perspective on the status of youth homelessness, are limited to the 36 OECD countries and not representative of the situation worldwide. Additional data and research are needed to further address this international concern.

Consequences

According to the National Conference of State Legislatures (2023), youth homelessness can lead to or exacerbate many risk factors including mental illness, substance use and abuse, expectant and parenting youth, criminal activity, and victimization. Moreover, youth who have experienced homelessness generally have much higher rates of early death than their stably housed peers. Suicide is the leading cause of death for unaccompanied youth without shelter (National Conference of State Legislatures, 2023). Children who experience homelessness are also more likely to experience homelessness in adulthood. Approximately 1.1 million children had a young parent experiencing homelessness. Therefore, the experience of homelessness potentially impacts both current and future generations. The *Voices of Youth Count* from Chapin Hall (2021) found that 44% of young women between the ages of 18 and 25 are pregnant or a parent, while 18% of young men between the ages of 18 and 25 have a pregnant partner or are a parent. According to the National Sexual Violence Resource Center (2019), one in three teens on the street will be lured into prostitution within 48 hours of leaving home.

Implications for Prevention and Intervention

As noted above, the reasons for youth homelessness include family dynamics, abusive situations, and home economic issues and include youth who are unaccompanied by families or caregivers. Due to the range of issues, situations, and the inability to track homeless youth, there is a paucity of research on this critical, but growing, world problem.

In a meta-analysis of research and evaluation studies from multiple online databases, Morton et al. (2020) found mixed results, including the need for more rigorous research on shelter, housing, and outreach models. Their findings suggested that a small number of studies showed reductions in youth homelessness, few evaluations showed effectiveness in preventing homelessness, and most evaluations measured counseling and short-term well-being outcomes (Morton et al.). Additionally, they found that there is little evidence on program effects for specific subpopulations (e.g., according to race, ethnicity, sexual orientation, gender identity) or contexts (e.g., rural, urban).

Mental Health

Mental health is an important part of young adolescents' overall health and well-being. It affects how they think, feel, and act and it impacts how children handle stress, relate to others, and make healthy choices. Similar to other health services, many of today's youth require mental health and social services to help them navigate the developmental challenges and highs and lows of the adolescent years. Early adolescence is a crucial period for developing and maintaining social and emotional habits important for mental well-being, including adopting healthy sleep patterns; engaging in regular exercise; developing coping, problem-solving, and interpersonal skills; and learning to manage emotions. Supportive environments in the family, at school and in the wider community are also important. Mental health issues currently facing today's youth include, but are not limited to, depression, anxiety, eating disorders, trauma, risk-taking behaviors, self-harm, and suicide.

Prior to the COVID-19 pandemic, the U.S. Surgeon General (2021) reported that 20% of school age children (9–17 years) were diagnosed with mental health problems requiring appropriate mental health services and of the 7.7 million children with treatable mental health disorder, about half did not receive adequate treatment (Whitney & Peterson, 2019). According to the World Health Organization (2024e), globally, one in seven 10–19-year-olds has experienced a mental disorder; depression, anxiety and behavioral disorders are the leading causes of illness and disability among adolescents. In addition, the American College of Obstetricians and Gynecologists (2017) made the following recommendations and conclusions:

- At least one in five youth aged 9–17 years currently has a diagnosable mental health disorder, such as depression or anxiety, which causes some degree of impairment; one in 10 has a disorder that causes significant impairment.
- The most common mental illnesses in adolescents are anxiety, mood, attention, and behavior disorders.
- Suicide is the second leading cause of death in young people aged 15–24 years.
- Adolescents with mental illness often engage in acting-out behavior or substance use, which increase their risk of unsafe sexual behavior that may result in pregnancy or sexually transmitted infections. (para. 2)

Since the COVID pandemic, rates of mental health ssues have increased among youth, including symptoms of anxiety, depression, and other mental health disorders (U.S. Surgeon General, 2021.). Recent research including international youth found that symptoms of depression and anxiety doubled during the pandemic, with 25% of youth experiencing depressive symptoms and 20% experiencing anxiety symptoms (Racine et al., 2021). Negative emotions or behaviors such as impulsivity and irritability—associated with conditions such as ADHD—appear to have moderately increased (Sharma et al., 2021). It is also disconcerting that in 2021 emergency room visits for suspected suicide attempts were 51% higher for adolescent girls and 4% higher for adolescent boys compared to 2019 (Yard et al., 2021)

Mental health problems are on the rise among adolescents and young adults. According to a recent study (Twenge et al., 2019), utilizing over 200,000 adolescents aged 12 to 17 from 2005 through 2017, rates of mood disorders and suicide-related outcomes have increased significantly over the last decade among adolescents, particularly impacting females. The Pew Research Center found that adolescents in the US are aware of the rise of mental health issues with most reporting anxiety and depression as a major problem, and one that is more prominent than bullying, drug addiction, and poverty (Horowitz & Graf, 2019).

According to the WHO (2024e), multiple factors can determine mental health outcomes for adolescents:

> The more risk factors adolescents are exposed to, the greater the potential impact on their mental health. Factors that can contribute to stress during adolescence include exposure to adversity, pressure to conform with peers and exploration of identity. Media influence and gender norms can exacerbate the disparity between an adolescent's lived reality and their perceptions or aspirations for the future. Other important determinants include the quality of their home life and relationships with peers. Violence (especially sexual violence and bullying), harsh parenting and severe and socioeconomic problems are recognized risks to mental health. (para. 5)

Demographic characteristics also play a factor in levels of mental health issues. During adolescence, girls have a much higher prevalence of depression and eating disorders (Sander et al., 2021) and engage more in unprecedented levels of suicidal thoughts and suicide attempts than boys (CDC, 2023b). Boys experience more problems with anger, engage in high-risk behaviors, and death by suicide more frequently than girls. In general, adolescent girls are more prone to symptoms that are directed inwardly, while adolescent boys are more prone to act out. Additionally, transgender and gender nonconforming youth are more likely to experience mental health disorders, including anxiety, depression, and attention deficit disorders compared to their cisgender counterparts (Vance & Rosenthal, 2018).

Consequences

Youth from low-income households are at increased risk for mental health disorders. Twenty-one percent of low-income children and youth ages 6 to 17 have mental health disorders and 57% come from households with incomes at or below the federal poverty level (Howell, 2004). Youth of color experience disparities in prevalence and treatment for mental health issues. Eighty-eight percent of Latino children and youth have unmet mental health needs, compared to 77% for African Americans and 76% for White children and youth (Kataoka et al., 2002). Ringel and Sturm (2001) found that 31% of White children and youth receive mental health services compared to only 13% of children of color. Youth with disabilities experience issues of mental health at higher rates than their peers without disabilities. Youth with learning disabilities have increased risk for severe depression and suicide (Huntington & Bender, 1993) and youth with physical disabilities, such as cerebral palsy and spina bifida, have increased risk for severe depression (Steele et al., 1996).

To exacerbate the problem, the CDC (2023b) reported that some mental health conditions are likely to occur together. For example, having another disorder is most common in children with depression: about 3 in 4 children aged 3–17 years with depression also have anxiety (74%) and almost 1 in 2 have behavior problems (47%) (Ghandour et al., 2018). In addition, for children with anxiety, more than 1 in 3 also have behavior problems (38%) and about 1 in 3 also have depression (32%).

Worldwide, young adolescent mental health is of great concern. Globally, one in seven 10–19-year-olds experiences a mental disorder (WHO, 2024e), and many other mental health issues remain underdiagnosed and undertreated (Kessler et al., 2007). According to the WHO (2024e):

- Globally, depression and anxiety are among the leading causes of illness and disability among adolescents,
- Suicide is among the leading causes of death in people aged 15–19 years,
- Half of all mental health conditions start by 14 years of age, but most cases are undetected and untreated,
- Violence, poverty, stigma, exclusion, and living in humanitarian and fragile settings can increase the risk of developing mental health problems, and
- The consequences of not addressing adolescent mental health conditions extend to adulthood, impairing both physical and mental health and limiting opportunities to lead fulfilling lives as adults.

Data on mental health among adolescents, especially in low- and middle-income countries, is urgently needed. The current data used to

estimate the prevalence of adolescent mental disorders are based on a handful of studies, often using small and non-representative samples, thereby providing an incomplete picture of worldwide adolescent health (Erskine et al., 2017). The mental health situation among adolescents could be more dire than current estimates suggest.

Implications for Prevention and Intervention

As early adolescence is a time when symptoms of specific disorders become more apparent, there are three important steps in getting adolescents the care they need: (a) providing universal mental health screenings; (b) providing education to teachers, parents, and other adults working with this age group about the early signs of mental health concerns; and (c) after receiving a psychosocial assessment, providing adolescents with access to specialized services that have shown to be effective (Mental Health America, 2021). In a meta-analysis of 158 studies, Skeen et al. (2019) identified universally delivered interventions which improved adolescent mental health and reduced risk behavior. Of the seven components with consistent findings of effectiveness, three components had significant effects over multiple outcomes: interpersonal skills, emotional regulation, and alcohol and drug education.

Prevention and early intervention programs for young adolescents need to consider the unique challenges of this transitional period. Many universal prevention programs focus on managing high-risk behaviors, like substance abuse, which can be linked to later mental health. The *Botvin LifeSkills Training* is a school-based classroom intervention to reduce the risks of alcohol, tobacco, drug abuse, and violence by targeting social and psychological factors associated with the initiation of risky behaviors. This classroom intervention is an example of a middle school curriculum that reinforces self-esteem and resilience to social pressures and has demonstrated decreased substance use in adolescents (Botvin LifeSkills Training, n.d.). Lastly, Colizzi et al. (2020) conclude that:

> It would be unrealistic to consider promotion and prevention in mental health responsibility of mental health professionals alone. Integrated and multidisciplinary services are needed to increase the range of possible interventions and limit the risk of poor long-term outcome, with also potential benefits in terms of healthcare system costs. (para. 4)

Nutrition

Good nutrition is necessary for human growth and development, particularly for young adolescents who experience rapid physical growth and pubertal developmental changes during early adolescence. Young adolescents require food rich in nutrients to support their physiological changes. In addition, they need to acquire healthy eating habits and attitudes as a basis for adulthood (Das et al., 2017; McCarthy et al., 2016). However, an overview of adolescents' dietary habits shows that they do not consume adequate amounts of fruits and vegetables and overconsume fast foods and sweetened beverages or soda (ALjaraedah et al., 2019).

In the US, the National Health and Nutrition Examination Survey (NHANES) has assessed the health and nutritional practices of youth and adults using a combination of interviews and physical examinations (CDC, 2017). Key findings from the 2015–2018 NHANES showed children (2–11 years) and adolescents' (12–19 years) consumption of fruit (~75%) and vegetables (91%); on a given day, though the percentages of fruit consumption declined by age to approximately 64% for adolescents (Wambogo & Ogden, 2020). Regarding fruit, vegetable, and legume consumption, the KIDMED questionnaire reported that adolescents (10–19 years) fell below nutritional recommendations (Rosi et al., 2019).

Other research reports also related to the prevalence of adolescents' fast-food intake. For instance, data from the 2015-2018 NHANES indicated that on any given day 36% of children and adolescents consumed fast food with adolescents from all race groups consuming higher percentages of fast food than children (Fryar & Ogden, 2020). Subsequently, data from the 2017-March 2020 NHANES showed that obesity percentages increased from 20.7% for children to 22.2% for adolescents (Stierman et al., 2021). A recent meta-analysis also associated fast food consumption with weight-related health outcomes for children and adolescents (Jiang et al., 2022).

Breakfast consumption has been another indicator of adequate nutrition. Findings from the 2015–2018 NHANES showed that percentages of breakfast consumption declined by age—from 96% of children to 73% for adolescents (Terry & Ahluwalia, 2020). Adolescents' breakfast consumption also varied by race with only 67% of non-Hispanic Black youth reporting eating breakfast (Terry & Ahluwalia). The American Academy of Pediatrics (2019) linked breakfast consumption to better nutrition and healthy body weight as well as improved memory, test scores, and attention spans. Yet, adolescents most often skip breakfast (Kupka et al., 2020).

To gather international data regarding the behavioral health risk and protective factors of school-attending adolescents (13–17 years), the WHO in collaboration with the CDC, the United Nations Children's Fund (UNICEF), UNESCO, and the Joint United Nations Programme on HIV and AIDS (UNAIDS) developed the Global School-based Student Health Survey (GSHS, see WHO, 2023c). Researchers analyzed GSHS data to gather evidence about adolescent nutrition across the globe (Beal et al., 2019; Fan & Zhang, 2020; Kupka et al., 2020; Li et al., 2020). For example, Beal et al. examined 72 studies about adolescent fruit and vegetable consumption (N = 254,135). They found that 34.5% of adolescents ate fruit less than once a day, and 20.6% ate vegetables less than once per day. Beal et al. also examined 64 studies about adolescent carbonated soft drinks and fast-food consumption (N = 241,991). They determined that 42.8% of adolescents drank carbonated soft drinks at least once per day, and 46.1% consumed fast food at least once per week. Beal et al. noted considerable variation in fruit, vegetable, carbonated soft drink, and fast-food consumption by country concluding that adolescents "generally consume unhealthy diets, low in fruits and vegetables and high in carbonated soft drinks" (p. 456).

Using GSHS data, Fan and Zhang (2020) studied the dietary habits of adolescents (12–15 years) in low- and middle-income countries (LMICs) (N = 145,021). They reported the concurrence of low fruit and vegetable consumption and high carbonated soft drink consumption by adolescents. Despite wide variance by country, Fan and Zhang determined that poor dietary habits are frequent among adolescents. Similarly, Li et al. (2020) looked at the prevalence of adolescents' (12–15 years) fast-food consumption in LMICs (N = 153,496) finding that adolescents consumed fast food 2.3 times per week. Li et al. suggested that globalization and modernization increased adolescents' access to fast-food chain restaurants. Also drawing on GSHS data, Kupta et al. (2020) reported on poor adolescents' dietary habits (e.g., snacking, breakfast skipping) and concluded that adolescents' diets are inadequate to meet the nutritional demands for growth and development.

Consequences

Because adolescence is a time of rapid physical development, good nutrition is essential to fuel increases in bone mass and skeletal growth ALjaraedah et al., 2019). Factors influencing adolescent nutrition include their family, sociocultural, and economic environments (WHO, 2018a), so consumption of nutrient-rich food varies widely. Most adolescents are unaware of the long-term "consequences of their eating patterns or unhealthy dietary practices" (ALjaraedah et al., p. 4), practices that can lead to malnutrition (ALjaraedah et al.; WHO).

Malnutrition encompasses three broad conditions: undernutrition, micronutrient deficiency, and overweight, obesity, or diet-related noncommunicable diseases (WHO, 2018a, 2024d). Forms of *undernutrition* are wasting (low weight-for-height), stunting (low height-for-age), and underweight (low weight-for-age) (WHO, 2018a, 2024da). The causes of adolescent undernutrition include poverty, poor maternal nutrition, or recurring illness (WHO, 2018a). Undernutrition during adolescence limits physical and cognitive potential and exacerbates vulnerability to disease and death (WHO,2018a).

Micronutrient deficiency is particularly concerning because the requirement for micronutrients (e.g., minerals, vitamins) increases during early adolescence (Lassi et al., 2017). Adolescents do not typically meet the recommended levels of iron, calcium, iron, vitamin D, and zinc (American Academy of Pediatrics, 2016). Research confirms that adolescent girls consume less calcium than they need to develop bone mass and reduce the risk of osteoporosis and bone fracture later in life (ALjaraedah et al., 2019). Adolescent girls also tend not to consume enough iron-rich foods causing iron deficiency anemia that leads to

fatigue and reduced physical ability (WHO, 2018a).

Obesity or being overweight is "abnormal or excessive fat accumulation that may impair health" (WHO, 2021, para. 2). Globally, the prevalence of children and adolescents being overweight or obese is rising (Ogden et al., 2018; WHO, 2024f). Obesity during adolescence is concerning because "adolescents who are obese are likely to remain obese as adults" (ALjaraedah et al., 2019, p. 3). The consequences of obesity and being overweight include serious risks for noncommunicable diseases including diabetes, heart disease, stroke, and some cancers (Lassi et al., 2017; WHO, 2024f).

In addition to malnutrition, eating disorders (i.e., anorexia nervosa, bulimia nervosa, binge eating) tend to emerge during adolescence. These obsessive eating disorders negatively impact adolescents' health and often co-exist with anxiety, depression, and/or substance misuse (WHO, 2018a).

Implications for Prevention and Intervention

Because adolescents typically *underconsume* fruits and vegetables and *overconsume* fast foods and sugar-sweetened beverages, adolescence is an opportune time to influence their dietary practices (Beal et al., 2019). Nutrition is essential for adolescents' growth and development, so it is important to invest in adolescent health and well-being (WHO, 2018a).

Nutritional guidelines for adolescents outline healthy dietary practices and recommend the consumption of nutrient-rich food (e.g., American Academy of Pediatrics, 2016; Healthdirect Australia, 2022; WHO, 2018a). According to Lassi et al. (2017), most guidelines recommend the consumption of the five food groups (i.e., fruits, vegetables, grains, protein foods, dairy) and the reduction of food or drinks with high levels of fat, salt, or sugar. Research also suggests implementing context-specific policies and programs and developing creative interventions to influence adolescents' dietary practices (e.g., Beal et al., 2019; Fan & Zhang, 2020; Li et al., 2020).

Evidence-based interventions need to focus on three ecological levels: structural, organizational, and interpersonal (WHO, 2017). At the structural level, interventions include developing nutrient profiles and nutrient labeling systems, reducing the affordability of unhealthy food/beverages, and addressing the marketing of unhealthy food/beverages. At the organizational level, interventions include initiating nutritional literacy campaigns, providing healthy food environments in schools and public institutions, improving access to healthy food, and raising awareness of adolescent obesity. At the interpersonal level, interventions include offering guidance on healthy diets (i.e., daily dietary requirements) and access to weight management interventions.

Sexual Health

Understanding sexual health begins with a working definition of sexual health. According to the WHO (2024g):

> Sexual health is a state of physical, emotional, mental, and social well-being in relation to sexuality; it is not merely the absence of disease, dysfunction, or infirmity. Sexual health requires a positive and respectful approach to sexuality… (para. 1)

Sexual and reproductive health is especially important for young adolescents (10–14 years) when most are experiencing puberty (WHO, 2024g) or sexual maturity. As adolescents mature, they develop their sexual identities and may begin to engage in sexual relationships (WHO, 2017), so they need access to accurate and clear information about their sexual health and well-being. Without this unambiguous information, sexually active adolescents are at greater risk of unwanted pregnancy and sexually transmitted infections (STIs).

In the US, researchers analyzed national data sets to assess adolescents' sexual behaviors. Based on analysis of NHANES data, Liu et al. (2015) found that among 14-year-olds, approximately 13% of females and 13% of males reported having sex. Among adolescents (14–19 years), 39% of females and 49% of males reported having at least two partners in the prior year. Liu et al. also noted that the proportion of adolescents having sex increased with age. Magnusson et al. (2019) analyzed data from The National Longitudinal Study of Adolescent to Adult Health (Add Health) of students in grades 7–12 and found that approximately 17% of adolescents reported having intercourse sex before 15 years of age. They suggested that

young adolescents' low self-control could partially explain early sexual debut (i.e., intercourse before 15 years) and later risky sexual behavior. Research has confirmed that young adolescents engaging in early sexual behavior are particularly vulnerable to STIs and unintended pregnancy (Coakley et al., 2017; Magnusson et al.). Cai et al. (2018) investigate young adolescents' (11–15 years) early sexual debut (i.e., having sex for the very first time before age 13) and their participation in specific sexual risk-taking behaviors (e.g., drinking or taking drugs at the time of first sexual intercourse). Young adolescents reported having sexual intercourse at ages 11 (4%), 12 (8%), 13 (15%), 14 (25%) and 15 (39%). Cai et al. also found that early sexual debut was positively correlated with sexual risk-taking behaviors. More recently, Reis et al. (2023) reported a strong association between early sexual intercourse and other risk factors (e.g., adolescent and parental substance use).

Researchers also noted another risky sexual behavior, sexting (i.e., electronic transmission of sexual pictures or messages), as being "associated with sexual activity among adolescents" (Bogner et al., 2023, p. 517). In a longitudinal study of young adolescents (12–14 years) with behavioral or emotional issues, Bogner et al. found that youth who reported sexting at the beginning of the study were more likely to report their sexual activity at the one-year follow-up.

Younger adolescents have had less information than older adolescents about the health risks related to sexual behavior (Boislard et al., 2016). To assess adolescents' sexual behavior and associated health risks, researchers examined global data sets. For instance, Smith et al. (2019b) examined the GHSH data of adolescents (12–15 years) (n = 34,674) to study the relationship among the prevalence of sexual intercourse, leisure time sedentary behavior (e.g., watching television, playing computer games, talking with friends), and alcohol use. They found that alcohol or drug use, low parental involvement, loneliness, and depressive symptoms were more frequent among those who had sexual intercourse and were more sedentary. In a later study, Smith et al. (2020) drew on GHSH data to assess the sexual behavior of adolescents (12–15 years) from 38 LMICs. They found behavior varied widely with 17% of boys and 10% of girls reporting sexual intercourse, 56% of boys and 44% of girls reporting multiple sexual partners, and 43% of boys and 41% of girls reporting non-use of condoms during their last sexual intercourse.

Consequences

Younger adolescents' early sexual behavior puts them at an increased risk for STIs (Coakley et al., 2017; Magnusson et al., 2019). According to Shannon and Klausner (2018), STIs are a growing epidemic: 10 million new STI cases occur among youth (15–24 years), and 29% of adolescent females (14–19 years) have HPV (human papillomavirus). The most prevalent STI is HSV (herpes simplex virus), and HPV is a common STI with cases of chlamydia, gonorrhea, and syphilis increasing for female and male adolescents (15–24 years) (CDC, 2019b). HIV surveillance indicates that young people (13–24 years) accounted for 19% of new HIV cases in the US (CDC, 2023a). Because HIV is a progressive deterioration of the immune system, it has devastating global consequences. HIV and AIDS (acquired immunodeficiency syndrome) have continued to have a detrimental impact on adolescents around the world—with 40,000 new cases in 2022 (UNICEF, 2023).

Unintended pregnancy among adolescents is another consequence of early sexual behavior. According to the WHO (2024b), adolescent pregnancies are "higher among those with less education or of low economic status" (para. 1) with approximately 21 million adolescent girls (15–19 years) in developing countries becoming pregnant every year. Adolescent pregnancy is associated with serious health, social, and economic outcomes (UNESCO, 2018b; WHO). The dire nature of unintended pregnancies prompts many adolescent girls to undergo unsafe abortions (UNESCO) or legal abortions (Kortsmit et al., 2020). In fact, recent estimates indicate that 55% of unintended pregnancies among adolescent girls (15–19) years end in abortions (WHO, 2024b).

Sexual violence and gender-based violence (GBV) puts too many adolescents at risk. Globally, adolescent girls (15–19) and adolescent boys are the victims of sexual violence during adolescence; young adolescent girls (10–14) also experience incidences of sexual violence (UNICEF, 2014). According to UNICEF (2014), "Around 120 million girls worldwide (slightly more than 1 in 10) have experienced forced intercourse or other forced sexual acts at some point in their lives" (p. 4). Gender non-

conforming youth experience GBV violence in their schools and communities. At the middle school level, gender non-conforming youth do not typically have access to school resources such as gay–straight alliances nor experience inclusive policies (Kosciw et al. 2022).

Implications for Prevention and Intervention

> Globally, adolescents benefit from comprehensive sexuality education (CSE), which intends to: …adolescents with knowledge, skills, attitudes, and values that will empower them to realize their health, well-being and dignity; develop respectful social and sexual relationships; consider how their choices affect their own well-being and that of others; and understand and ensure the protection of their rights throughout their lives. (WHO, 2018b, p. 5)

According to UNESCO (2024) "Comprehensive sexuality education (CSE) is a curriculum-based process of teaching and learning about the cognitive, emotional, physical and social aspects of sexuality" (p. 16). Whether offered in formal or informal settings, CSE needs to be scientifically accurate, incremental, developmentally appropriate, culturally relevant, and based on a human rights perspective (UNESCO, 2018b). CSE also needs to encompass self-confidence, self-expression, sexual health, and the ability to think critically and make informed decisions (WHO, 2017).

Adolescents benefit from both CSE programs and interpersonal interventions. Research confirms that CSE can contribute to delaying sexual intercourse, decreasing the frequency of sexual intercourse and the number of sexual partners, reducing risk-taking behavior (e.g., unprotected sex), and increasing contraception use (UNESCO, 2018b). According to a recent meta-analysis of CSE programs, "sexuality education is most effective when begun early and before sexual activity begins (Goldfarb & Lieberman, 2021, p. 22). At the interpersonal level, research shows that parent–youth communication and family-level interventions play a key role in reducing risky sexual behaviors (Coakley et al., 2017). Not only do parents need accurate information about sexual health, but they also need to engage in conversations about sexual health with their children before they become sexually active.

Substance Use

Young adolescents are using substances that are detrimental to their overall health and well-being. Data from the National Survey on Drug Use and Health found that the overall substance use (i.e., tobacco, alcohol, illicit drugs) among adolescents (12–17 years) in the US was 13.7% in the last month (Substance Abuse and Mental Health Services Administration [SAMHSA], 2022a). Adolescents' tobacco use includes 3.1% smoking cigarettes daily and 6.9% vaping in the past month. Adolescents' use of alcohol includes 6.8% drinking any alcohol and 3.2% binge drinking alcohol (4–5 drinks on the same occasion in one day) in the past month. Adolescents' illicit drug use includes 6.4% using marijuana in the past month. Adolescents' use of illicit drugs *in the past year* varied by substance, with 11.5 % using marijuana, less than 1% using cocaine or methamphetamines, and 2.5% misusing prescription drugs.

A major concern has been the increasing use of e-cigarettes (i.e., vaping devices) by young adolescents (Johnston et al., 2019). Drawing on data from the National Youth Tobacco Survey, a national survey of U.S. middle and high school students, Gentzke et al. (2022) found that 11.3% of middle school students reported having ever used tobacco (e.g., cigarettes, e-cigarettes) with 4% reporting current use of tobacco. "Among middle school students, e-cigarettes were the most commonly used tobacco product (2.8%)" (Gentzke et. al., 2022, p. 7).

Other major concerns have been the lack of awareness regarding the health risks associated with substance use and the influences of peer, sibling, or adult substance use. The SAMHSA (2022b) measured adolescents' (12–17 years) perception of "great risk of harm" for substance use and reported that "younger adolescents aged 12 or 13 tended to have lower perceptions of the risk of harm compared with older adolescents or adults" (p. 28). Similarly, 16.6% of adolescents reported that intermittent use of e-cigarettes caused little or no harm (Gentzke et. al., 2022). In a recent longitudinal study, Schuler et al. (2018) examined the associations between adolescent substance use (i.e., cigarette, alcohol, marijuana) and the perceived substance use by a best friend, sibling, and important adult (typically a parent). They found that adolescent smoking, alcohol use, and marijuana use were positively associated with perceived best friend,

older sibling, and adult using tobacco, alcohol, or marijuana.

Around the world, adolescents' substance use (i.e., tobacco, alcohol, illicit drugs) is a major concern (WHO, 2024a). According to the WHO, 1 in 10 adolescents (13–15 years) use tobacco, though these numbers are higher in some areas. Adolescent e-cigarette use is increasing despite its significant health risks for young people (WHO). Most alarming is adolescent alcohol consumption with more than 25% of adolescents (15–19 years) drinking alcohol and nearly 14% engaging in heavy episodic drinking (WHO). Another concern is adolescents' use of illicit drugs. Cannabis (marijuana) is the most often used psychoactive drug among adolescents (15–16 years) with nearly 5% reporting its use (WHO).

Research has confirmed the global prevalence of substance use by adolescents. Based on Global Youth Tobacco Surveys data from 143 countries, Ma et al. (2021) determined the prevalence of young adolescents' tobacco use: approximately 11% of boys and 6% of girls reported smoking cigarettes. The prevalence of using other tobacco products (e.g., e-cigarettes, chewing tobacco) was similar with approximately 11% of boys and 7% of girls using these products at least once in the past 30 days. In another study of adolescent substance use, *Monitoring the Future,* researchers gathered and analyzed data from a nationally representative sample of 308 public and private schools in the US (Johnston et al., 2023). Of the 8th graders (n = 9,899) completing the survey, Johnston et al. found that about 10% reported any marijuana use, 7% reported using marijuana in the past year, and 4% reported using marijuana in the past month. Eighth-grade students' alcohol use was more widespread: 22% reported any alcohol use, and 7% reported being a "current (past 30-day) drinker (Johnston et al., p. 37).

Consequences

Substance use has detrimental effects and interferes with the health and well-being of people, families, and communities. During adolescence, substance use diminishes fitness and increases risks for non-communicable diseases; it also impacts adolescents' cognitive development and abilities (Patton et al., 2016). According to the WHO (2024a), "Alcohol and drug use in children and adolescents is associated with neurocognitive alterations which can lead to behavioural, emotional, social and academic problems in later life" (para. 10). Research verifies that substance use negatively affects adolescents' academic performance (Huỳnh et al., 2019). Research also links adolescents' substance use with risky sexual behaviors (e.g., Smith et al., 2019a).

Nicotine exposure from cigarettes, and e-cigarettes in particular, has adverse health effects including "addiction, priming for use of other addictive substances, reduced impulse control, deficits in attention and cognition, and mood disorders" (U.S. Department of Health and Human Services, 2016, p. vii). The consequences of using e-cigarettes include short-term effects (e.g., cough, headache, throat irritation, nausea) and long-term effects (e.g., heart disease, vascular disease, respiratory problems); research also suggests a link between adolescents' e-cigarette use and asthma diagnosis (Roh et al., 2023).

Adolescents' alcohol and drug use has a significant impact on their health and overall well-being. According to SAMHSA (2022a), underage alcohol consumption has the following likely consequences: (a) drug use; (b) poor academic performance; (c) injury or death; (d) risky sexual behavior (e.g., unprotected sex); (e) poor decision making; and (f) health problems (e.g., anxiety and depression). Other possible dangers of underage drinking such as social problems (e.g., fighting), legal problems (e.g., DUI citation), physical problems (e.g., hangover, alcohol poisoning), as well as increased risk of suicide and homicide (CDC, 2022). According to Spear (2018), the consequences of adolescent alcohol exposure relate to deficits in verbal learning, visuospatial processing, memory, and attention. As to adolescent illicit drug use, consequences include the possibility of developing a substance use disorder (i.e., uncontrolled substance use) or a fatal overdose of illicit drugs (e.g., fentanyl) (see SAMHSA, 2022b).

Implications for Prevention and Intervention

Early adolescence is an optimal time for initiating or continuing conversations about substance use including smoking, vaping, and consuming alcohol (Clark et al., 2020). During

adolescence, young people often develop lifelong habits (Clark et al.) and form social networks that influence their substance use (Schuler et al., 2019). Given that adolescents' cigarette, alcohol, and marijuana use is positively associated with use (or perceived use) by friends and family members (Schuler et al.), middle schools, as well as high schools, seem ideal for providing prevention and intervention programs. Prevention programs can address young adolescents' lack of awareness and perceptions of others regarding substance use.

Prevention and intervention regarding young adolescent substance use is a critical and worldwide priority. According to the WHO (2023a):

> Attention should be given to preventing the initiation of alcohol and drug use among children and adolescents, to helping them quit substance use and to reducing its negative consequences, while addressing the special needs of this group. (p. 82)

Interventions for adolescents' alcohol and drug use need to occur at the (a) structural and environmental (e.g., preventing sales and advertisements of alcohol), (b) organizational (e.g., keeping students in school, supplying educational opportunities), (c) community (e.g., offering alcohol-free events, parenting programs), and (d) individual (e.g., providing personal and social skills education) levels. Because alcohol consumption "is deeply embedded in the social landscape of many societies" (WHO, 2023b, p. 6), more attention needs to be given to the prevention of drinking initiation among adolescents (WHO). Further, given the highly addictive nature of nicotine, the WHO (2023a) also recommends interventions such as banning tobacco advertisements, creating smoke-free environments, and providing tobacco prevention programming.

While adolescents can benefit from substance use prevention and intervention programming, the evidence of the effectiveness of these programs warrants consideration. According to Stockings et al.'s (2016) systematic review of prevention and early intervention programs, approaches to addressing adolescent substance include universal prevention and population interventions (i.e., structural, school-based, family-based) and early intervention and harm reduction inventions (e.g., selective prevention, screening, and brief intervention). Structural interventions (e.g., taxation, laws, advertising restrictions) are effective approaches for adolescents' alcohol and tobacco use (Stockings et al.). The effectiveness of school-based prevention programs varies; many report changes in adolescents' attitudes and knowledge about substance use, though not in actual substance use (Stockings et al.). A recent study reveals another option for prevention programs: a hybrid digital approach (Griffin et al., 2022) that combines e-learning modules and in-person class sessions. As indicated by Griffin et al., middle school students participating in a hybrid substance abuse prevention program (i.e., *Life Skills Training*) not only report changes in attitudes and knowledge, but also report less cigarette smoking as well as less e-cigarette, alcohol, and marijuana use than their peers.

Discussion

Given the range and extent of health risk factors facing young adolescents, the urgency for providing a comprehensive approach to health and well-being has never been greater. Families, schools, and communities need to prioritize young adolescents' health and well-being by working collectively to build and sustain comprehensive school health education programs to support youth. A comprehensive school health education program is a planned sequential curriculum for addressing the physical, social, and emotional dimensions of health (National Center for Health Education [NCHE], n.d.). In a planned sequential curriculum, each lesson and/or activity builds upon the last one with the goal of motivating and assisting "students to maintain and improve their health, enabling students to develop the skills and attitudes necessary for health-related problem solving and informed decision making" (NCHE, n.d., para. 4). Certainly, today's young adolescents warrant this type of school-wide approach to promoting their overall health and well-being.

We argue that middle schools are ideal places for comprehensive health education programming because schools are where young adolescents come together on a regular basis. Middle schools can design and provide a sequential curriculum that extends over multiple years to support young adolescents' healthy development and well-being. A comprehensive school health education program includes not only a planned curriculum but also a broad spectrum of

activities and services which take place in schools and their surrounding communities. Such activities and services can help young adolescents improve their personal health, develop their potential, and establish productive and satisfying relationships in their present and future lives (Mertens & Caskey, 2023). According to the National Center for Health Education (NCHE, n.d.), comprehensive school health education needs to address a range of health issues and concerns, including mental and emotional health, family life and health, growth and development, nutrition, personal health, substance use and abuse, disease prevention and control, safety and first aid, consumer health, and community and environmental health management. To design and implement comprehensive school health education, programs require schools to invest time, energy, and resources to develop the curriculum, select a school health coordinator, provide professional development about health topics, and involve families and communities (NCHE, n.d.).

What are the benefits of comprehensive health education for students? According to NCHE (n.d.), students:

- gain health knowledge and life skills to distinguish between wellness behaviors and risk behaviors.
- recognize the difference between healthy relationships and destructive relationships.
- acquire decision-making skills to evaluate options before taking action.
- develop resistance skills for saying "No" when pressured to take part in risky behaviors.
- feel empowered as critical thinkers, problem solvers, responsible and self-directed learners, and effective communicators.

We contend that middle schools are the best sites for providing comprehensive school health education because young adolescent students will reap substantial and long-lasting benefits.

Conclusion

During early adolescence, young adolescents experience rapid physical, cognitive, social-emotional, and psychological development (Brinegar & Caskey, 2022) including puberty, sexual awareness, gender identity, increased physiological brain and cognitive development, new and complex sensations, emotions, and social pressures. Unfortunately, too many adolescents, approximately 2,400 adolescents die every day from largely preventable causes (WHO, 2023d). These youth also "suffer a high burden of disease from preventable causes" such as unintentional injuries, violence, sexual reproductive health issues, communicable diseases, poor nutrition, substance use, mental health, substance use and self-harm (WHO, 2023a, p. 14). Certainly, adolescents warrant and have a fundamental right to health and well-being (WHO, 2023d). Given this fundamental right, we call upon schools, school districts, communities, state and national organizations to respond immediately by focusing on the health risk factors, such as bullying, homelessness, mental health, nutrition, sexual health, and substance use, that young adolescents face. We also call upon middle schools to invest in teachers and their professional development to stay abreast of the most pressing health issues confronting students in their schools and communities.

In the US, many adolescents have difficulty accessing physical and mental health care as well as human services they need to thrive and live healthy lives (U.S. Department of Health and Human Services, 2023). Social determinants affect adolescents' overall health and well-being. According to the U.S. Department of Health and Human Services (n.d.), social determinants are the conditions of the environments in which people live and grow. "Significant differences in social determinants of health exist between racial and ethnic groups, which can contribute to poor health outcomes and health disparities" (U.S. Department of Health and Human Services, 2023, p. 6).

Recently, the U.S. Department of Health and Human Service, Office of Population Affairs (2023) released *Take Action for Adolescents,* a call for action to advance adolescent health and well-being. The "call" identifies eight goals beginning with Goal 1: Eliminate disparities to advance health equity" (p. 6). The intent of this goal is to advance social justice and health equity for all adolescents including those "from racial and ethnic minority groups, women and girls, people with disabilities, people who are LGBTQIA+, people living in rural geographic locations, and people with lower incomes (p. 7).

The challenges to eliminating disparities for adolescents include limited access to health care, inadequate health care insurance, and mistrust of health services due to previous negative experiences. Importantly, the call lists specific actions for policy makers, health care and human service providers and organizations, and youth-serving professionals and organizations. We urge school and community leaders to work alongside policy makers, local health care providers, and youth organizations to enact these actions.

Globally, national and local governments need to work together to identify, prioritize, and enact measures to respond to adolescents' health and well-being challenges. For young adolescents, the most prevalent and preventable causes of death are diarrheal diseases, lower respiratory infections, and HIV/AIDs along with road injury and drowning (WHO, 2023a).

We agree that "…adolescence demands special attention in national development policies, programmes and plans" (WHO, 2023a, p. xvi). Thus, we call on schools to embrace the WHO's Global School Health Initiative to "mobilize and strengthen health promotion and education activities at the local, national, regional and global levels" (WHO, 2024c, para. 1). This initiative centers on developing health promoting schools that work continually and intentionally to provide healthy settings for learning.

Last year, the WHO in collaboration with United Nations agencies released the second edition of *Global Accelerated Action for the Health of Adolescents (AA-HA!): Guidance to support country implementation* (WHO, 2023a) to advance evidence-based solutions for "accelerating" actions in support of health and well-being of the world's 1.2 billion adolescents. This guide is a practical tool for governments (national and subnational) to use for designing and implementing health and well-being programs for adolescents in their countries. In addition, the guide outlines key principles for engaging adolescents as much as possible in monitoring, evaluating, and researching health programs. We applaud efforts that not only tap the voices of adolescents, but also actively engage them as co-evaluators of programs and advocates for their own health and well-being (UNESCO, 2018a). This entails involving adolescents in the research, discussion, and decision-making processes and ensuring they have a voice about their health issues and concerns (Inchley et al., 2020). Their future depends on our collective efforts.

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