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SUBSTANCE USE AMONG ADOLESCENTS IN SUB-SAHARAN AFRICA: PUBLIC HEALTH INSIGHTS FROM RECENT DATA

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Abstract: The adolescent population in sub-Saharan Africa is projected to grow significantly, presenting both opportunities and challenges. Increasing rates of substance use among youth pose a significant public health concern, potentially exacerbating morbidity, mortality, and risky behaviors. While previous studies have examined substance use in sub-Saharan Africa, they often focused on individual countries or combined data across regions, overlooking shared sociocultural contexts within subregions. This narrative review analyzed epidemiological data from 60 studies conducted between 2014 and 2024, examining substance use patterns among adolescents under 20 years across subSaharan Africa's four sub-regions. The review incorporated academic literature, intergovernmental reports, and local partners' insights, covering 29 countries through 19 Demographic and Health Surveys, 17 Global Youth Tobacco Surveys, seven Global School-based Student Health Surveys, and 16 cross-sectional studies. Findings reveal substantial sub regional variations in substance use patterns, with the highest rates documented in Southern Africa (up to 44.6% for any substance use) and Western Africa (31.2-32.9%). Eastern Africa demonstrated varied patterns, with alcohol use reaching 50.2% in some countries. Central Africa, while showing more consistent patterns, had limited data primarily focused on tobacco use (ranging from 9.2% to 14.1%). Gender disparities were evident across all sub-regions, with males consistently showing higher usage rates than females. The review identified critical gaps in comprehensive substance use data, particularly in Central Africa, and notable disparities between national and regional studies' findings. This sub-regional approach, which acknowledges shared sociocultural contexts among neighboring countries, provides more nuanced insights than previous country-specific studies. These findings highlight the need for culturally grounded, evidence-based prevention programs tailored to specific contexts, emphasizing the importance of collaborative efforts with local partners in developing targeted prevention strategies that address the unique challenges faced by adolescents in sub-Saharan Africa.

Keywords: Sub-Saharan Africa, adolescent substance use, epidemiological data, subregion

Introduction

The global population is projected to increase significantly, with countries in subSaharan Africa contributing more than half of this growth through 2050 (United Nations Population Division [UNPD],

2022). SubSaharan Africa is the youngest region in the world, with 70% of its population under 20 years old (UNPD, 2022). While these adolescents represent a demographic dividend with great potential for advancing the United Nation's Sustainable Development Goals (SDGs; Bloom et al., 2016; United Nations, 2023), they face numerous challenges despite expanded access to formal education and health care (United Nations Educational, Scientific and Cultural Organization [UNESCO] & African Union Commission [AUC], 2023). Among these challenges, the growing rates of adolescent substance use are particularly concerning (Jumbe et al., 2021).

The prevalence of substance use among youth in sub-Saharan Africa constitutes a serious public health problem, potentially leading to elevated morbidity and mortality rates, and associated risk behaviors such as unprotected sex, increased vulnerability to sexual assault, and heightened suicide risk (Kabiru et al., 2013; Kugbey, 2023; Mupara et al., 2022). Previous meta-analyses covering 2001-2016 estimated that approximately 42% of adolescents aged 1019 in sub-Saharan Africa had engaged in some form of psychoactive substance use, with notable sub-regional variations from 55.5% in Central Africa to 37% in Southern Africa (Olawole-Isaac et al., 2018). Specific substance uses patterns included alcohol use at 32.77%, tobacco products at 23.5%, and khat at approximately 22% (OlawoleIsaac et al., 2018). Cannabis usage showed varying rates, with lifetime use reported at 15.7% in one study (Olawole-Isaac et al., 2018) and lower rates of 7.9% for lifetime use in more recent research (Belete et al., 2023). Gender disparities are consistently observed, with males reporting higher usage rates than females across all substances (Kugbey, 2023; Olawole-Isaac et al., 2018).

While previous studies have examined
substance use in sub-Saharan Africa, they often focused on limited geographic areas, wider age ranges, or single substances. There remains a critical need to understand up-todate sub-regional nuances and prevalence rates of substance use. This article reviews substance uses epidemiological data from 2014-2024 among adolescents under 20 years old across sub-Saharan Africa, organized by four sub-regions. Unlike previous studies that either focused on specific countries or combined data across sub-regions, this review examines substance use trends within each sub-region while considering their distinct socio-cultural contexts. The primary goal is to foster dialogue and collaboration towards developing and implementing evidence-based, culturally grounded prevention programs targeting adolescent substance use in sub-Saharan Africa.

Social Context of the Four Sub-Saharan Sub-regions

Sub-Saharan Africa has diverse populations of unique cultures and living under varied economic conditions (Calderón et al., 2022; Gershman & Rivera, 2018; International Monetary Fund, 2021). Notably, the region is home to roughly 2,300 spoken languages (Eberhard et al., 2020) and a wide array of religious beliefs, ranging from hundreds of traditional Indigenous religions to all major world religions, creating a vibrant "rainbow of religions" (Platvoet, 1996, p.47). This section provides a succinct overview of the four sub-regions, with particular emphasis not only on population dynamics and urbanization, but also on education and gender as these factors can affect youths' substance use norms and behaviors.

Population growth and urbanization are crucial elements in understanding substance use trends among adolescents. Whole earlier evidence indicated that rural youth were more likely to get involved in alcohol use (Dawkins, 1996); recent research showed that urban centers typically present higher drug availability, more diverse social networks, and greater economic disparities, all of which can collectively increase substance use rates (Akunna & Lucyann, 2022). Education serves a vital role in shaping youth opportunities and behaviors, offering a foundational platform for substance use prevention interventions (UNESCO & AUC, 2023). Gender inequality remains a profound challenge across sub-Saharan Africa, creating substantial disparities in educational opportunities and outcomes (Delprato, 2022; UNESCO & AUC, 2023).

Additional contextual factors significantly influence substance use patterns, including culture, religion, spirituality, and the political situation. Research identifies religion as an important protective factor against substance use in Africa and a crucial support system for recovery (Mwangi & Twala, 2022). Similarly, political environments (stability or unrest) impact adolescent substance use across sub-Saharan Africa (Kugbey, 2023). While this current article primarily demographic, educational, and gender-related factors, understanding their interplay is essential for addressing substance use challenges in sub-Saharan Africa. Future research will explore other
equally significant contextual factors.

Eastern Africa

Population & Urbanization. Located on the eastern coast of the continent and comprising 14 countries bordering the Indian Ocean, this sub-region has a population of half a billion people, where children and youth represent slightly more than 50% of this figure (UNPD, 2022; 2004). About a third (33.3%) of the population lives below $1.9 USD per day and more than a half (55.3%) at $3.10 a day in Eastern African countries (African Development Bank, 2019). Eastern Africa is the least urbanized sub-region, with only 29.0% of population residing in urban area in 2020, compared to the sub-Saharan average of 41.4% (United Nations Human Settlements Programme [UN-Habitat], 2022). Eastern Africa, however, experiences the highest urban population growth rate in sub-Saharan Africa, at 4.45% per annum for 2015-2020 (UN-Habitat, 2022). High fertility rates and migration in search of job opportunities by young people explain much of the urban population's growth (Awumbila, 2017; Baah-Boateng, 2016). These demographic shifts have resulted in many young people relocating to urban areas, where as a case study in Kenya, one of the Eastern African countries, shows, often face limited access to education, employment, housing, and healthcare (Muiya, 2014).

Education & Gender. The educational participation rates for young people in some Eastern African countries have improved when comparing data between 1990s and 2010s (Mariara et al., 2018). Despite this progress, about 36 million (34%) children and adolescents remain out-of-school, placing the sub-region with the secondhighest rate of out-of-school children at primary and secondary levels after Western Africa (United Nations International
Children's Emergency Fund [UNICEF], 2021). Moreover, student proficiency in reading and comprehension remains relatively low compared to other sub-regions within sub-Saharan Africa and globally (Jones et al., 2014). Regarding gender disparities, primary education in Eastern Africa almost

achieves gender parity in the out-of-school rate; however, discrepancies widen at secondary levels, where boys seem to be more favored (UNESCO & AUC,
2023). The educational disparities not only curtail opportunities for women to realize their rights and aspirations but also limit the societal contributions they could make towards poverty reduction (Anyanwu et al., 2016).

Western Africa

Population & Urbanization. Located at the westernmost part of Africa, Western Africa encompasses countries along the Atlantic coast. As of mid-2024, Western Africa had a population of 456 million people, Nigeria with more than 232 million inhabitants is the most populous country in this subregion (UNPD, 2024). The urbanization rate in Western Africa stood at 47.7% in 2020, with an urban population growth rate of 4.45% per annum for 2015-2020 (UNHabitat, 2022). Cities like Lagos, Nigeria's megacity, are experiencing unprecedented
growth, with an annual urban growth rate of six percent, making it one of the world's fastest-growing urban areas (Enoh et al., 2023). Not only demographically, but also economically, Western Africa is one of the fastest-growing sub-regions on the African continent, though there is significant heterogeneity among countries in these regions (African Development Bank, 2024). Despite these differences, shared cultural and linguistic traits throughout the sub- region distinguish it from other sub-regions of subSaharan Africa (Organization for Economic Co-operation and Development [OECD] & Sahel and West Africa Club, 2020).

Education & Gender. Elementary and secondary school enrollments have significantly increased since the turn of the 21st century. However, Western Africa accounts for the highest number (42 million) and (40%) of out-of-school children of primary and secondary school age in Africa (UNICEF, 2021). Completion rates in Western Africa schools remain below the African average, with graduation rates of 53% for primary school, 33% for lower secondary, and 18% for upper secondary education (UNICEF, 2021).

Although significant variations exist across different West African countries, youths' literacy rates are lower than the rates of other sub-regions (UNESCO & AUC,
2023). School fees and gender disparities continue to be major barriers against universal access to education, often cited as the primary reasons for non-enrolment or dropout among adolescents in this subregion (Ayorinde & Adeniran, 2022).

Despite significant strides in educational access for both genders, gender disparities in educational achievement persist. For instance, the proportion of young women enrolled in school is consistently lower than that of men; females exhibit higher rates of never having attended school and fewer years of schooling (Delprato, 2022; Mariara et al., 2018). In several Western African countries, primary school completion rates for boys exceed those of girls, and this gender disparity continues through lower secondary and upper secondary education levels (UNESCO & AUC, 2023). ***Central Africa***

Population & Urbanization. This subregion, home to approximately 212 million inhabitants (UNPD, 2024), is rich in natural resources but faces stark juxtapositions of wealth and poverty, largely due to persistent inequality and longstanding conflicts (Agence Française de Development, 2021; AUC

& OECD, 2023). In 2020, about half of the population lived in urban areas, with Central Africa experiencing the second highest urban population growth rate at 4.15% per annum for 2015-2020, following Eastern Africa (UN-Habitat, 2022). The linguistic and cultural diversity is notable, exemplified by the Democratic Republic of the Congo, the largest French-speaking country in the world outside of France, which also boasts over 200 other languages spoken across its territory (Eberhard et al., 2020). Moreover, the poverty rates are mostly high in landlocked regions, particularly in Central Africa, where the Central African Republic experiences extreme poverty rates, nearing 80% (Beegle, & Christiaensen, 2019). Much of the sub-region is embroiled in protracted political, social and warfare crises that afflict countless lives (UN Office for the Coordination of Humanitarian Affairs, 2023).

Education & Gender. It is alarming that one out of four young people in central Africa are not literate. Specifically, countries such as Chad and the Central African Republic have literacy rates below 50% among their young people (UNESCO & AUC, 2023). Despite spending the lowest percentage of gross domestic product on education within sub-Saharan Africa at just 3.1%, Central Africa has a relatively low percentage of out-of-school children compared to other sub-regions, with 13% (13 million) of their primary and secondary school-age children not attending school (UNICEF, 2021). This achievement is noteworthy; however, armed conflicts and related forced displacements, along with general instability, continue to undermine many children's ability to attend school in the sub-region (UNICEF, 2021). Gender disparities in education remain a major concern in Central African countries. The primary school completion rate in females ranges from 30% in Chad to 84% in Gabon (Male & Wodon, 2018). Although there are more girls than boys out of school at both primary and secondary levels across all sub-Saharan regions, the disparity at the secondary level is particularly pronounced in Central Africa (UNESCO & AUC, 2023).

Southern Africa

Population & Urbanization. Situated in the southernmost part of the continent, Southern Africa is a diverse sub-region characterized by high inequality, with South Africa, Namibia, Zambia, and Botswana ranking among the top seven most unequal countries in the world, as measured by the Gini coefficient (World Bank, n.d.). With a population of 73 million in mid2024 (UNPD, 2024), Southern Africa exhibits remarkable diversity in population distribution, ranging from sprawling urban areas in South Africa to some of the world's least densely populated countries, such as Botswana and Namibia. Southern Africa maintained the highest level of urbanization in sub-Saharan Africa at 64.6% in 2020, while recording the slowest urban population growth rate at 2.09% per annum from 2005 to 2015 (UN-Habitat, 2022). The pace of urbanization varies significantly across the sub-region, with some countries facing faster and more challenging growth than others, leading to rapidly expanding cities (Gambe et al., 2023).

Education & Gender. Southern Africa has the lowest out-of-school rate among children of primary and secondary school age in Africa, with 10% of 11 million not attending school (UNICEF, 2021). The subregion's governments allocated substantial resources to education, spending 5.9% of the gross

domestic product on this sector, notably higher than the African average of 4.1% (UNICEF, 2021). This investment was reflected in the sub-region's school completion rates, with primary (73%), lower secondary (50%), and upper secondary schools (29%) completion rates all exceeding continental averages (UNICEF, 2021). Gender disparities in education vary by countries: while girls in Eswatini, Lesotho, and South Africa achieve higher completion rates than boys at upper secondary levels, this pattern reverses in countries like Zambia and Zimbabwe at the lower and upper secondary levels, respectively (UNESCO & AUC, 2023).

Summary of socio-cultural and economic profile of sub-Saharan Africa

Overall, sub-Saharan Africa displays a vast array of sociocultural diversity and economic conditions across its four subregions. While Eastern Africa struggles with high poverty and low urbanization, it also has a young, rapidly growing urban population. Western Africa is characterized by swift urban growth and significant educational challenges. Central Africa faces severe poverty exacerbated by ongoing conflicts yet has achieved a relatively low rate of children out of school. Southern Africa, despite its higher gross national income per capita and greater urbanization, contends with intense inequality. A significant challenge across all four sub-regions is the continuing gender disparity in education, with higher rates of girls out of school at the secondary level compared to boys (UNESCO & AUC, 2023). These sub-regional differences highlight the complex interplay of demographic shifts, urbanization, educational attainment, and gender disparities, which all play crucial roles in shaping the developmental trajectories of these sub-regions within sub-Saharan Africa. These socio-cultural characteristics provide important context for understanding how youth develop their substance use knowledge, attitudes, and behaviors. The following sections examine the current state of knowledge regarding youth substance use across sub-Saharan Africa.

Materials and Methods

We conducted a narrative review of the existing literature to examine the epidemiological data from the past decade (2014–2024) on substance use among youth under 20 years old in sub-Saharan Africa. A narrative review synthesizing primary studies was chosen for its ability to provide a comprehensive overview of the current state of knowledge, highlight areas for further study, develop new perspectives, and inform practice (Byrne, 2016; Sukhera, 2022). Recognizing the potential underrepresentation of sub-Saharan African youth in Western-dominated academic literature, we employed a search strategy incorporating diverse sources. While we initially aimed to focus on studies from the past five years to ensure current epidemiological data, the scarcity of recent research, particularly in certain sub-regions, necessitated extending our search to encompass the past decade.

We first identified relevant literature within the ten-year timeframe through Google Search and Google Scholar, including primary, secondary data, and meta-analysis articles from peer reviewed studies. Additionally, we reviewed grey literature, such as reports from intergovernmental organizations (e.g., United Nations and World Health Organization [WHO]) and sub-Saharan Africa-based NGOs. After reviewing the articles, we excluded primary cross-sectional studies that did not specify the data collection year or where the data collection did not fall within 2014-2024. We also excluded samples older than 20 years of age. For studies using secondary data from other surveys, we traced back to

review the published reports to acquire the original prevalence. For the meta-analysis articles, we checked all the original references cited and included them if they met our intended criteria for data year and adolescent age.

A key strength of our approach was the collaboration with sub-Saharan local partners. Their invaluable insights and profound understanding of the regional context were crucial, as relevant knowledge in developing countries of sub-Saharan Africa is often embedded within local practices rather than archived in academic databases. To provide a more nuanced understanding, we focused on different subregions within sub-Saharan Africa rather than treating the area as a monolith. While there are differences between countries in the amount of scientific literature they generate on the topic, and our partners in the different sub-regions had different levels of access to the existing grey literature, this collaboration allowed for the contextualization of the findings and laid the foundation for culturally grounded interventions in the future (Marsiglia et al., 2022).

Results

Search Results

This literature review analyzed epidemiological data from multiple national and regional surveys conducted between 2014 and 2024 across sub-Saharan Africa. A total of 60 studies and reports were selected, including 19 Demographic and Health Surveys, 17 Global Youth Tobacco Surveys, seven Global School-based Student Health Surveys, one national survey from the National Authority for the Campaign Against Alcohol and Drug Abuse in Kenya, and 16 cross-sectional survey studies. These studies collectively covered 29 countries across sub-Saharan Africa, with sample sizes ranging from 312 to 10,863 participants among adolescents aged 8-20 years. When organized by sub-region, Western Africa contributed 24 studies, followed by Eastern Africa with 22 studies, Southern Africa with ten studies, and Central Africa with only four studies, all publishing epidemiological data from the past decade.

The findings are systematically presented in Tables 1 through 4, documenting key parameters for each study: source attribution, data collection year, sample characteristics (size and age range), geographical coverage (national, cross-regional, or regional scope), and substance use patterns (both current use within the past 30 days and lifetime prevalence).

Adolescent Substance Use in sub-Saharan Africa

Based on the findings, substance use among adolescents across sub-Saharan Africa showed substantial sub-regional variations and marked differences between national and regional studies, where national surveys generally reported lower prevalence rates compared to regional studies. Findings from Eastern Africa reported that current khat use stood out with 63.5% among street children (Ayenew et al., 2020), Western Africa had 31.2-32.9% current any substance use (Anyanwu et al., 2016; Ogunkunle et al., 2020), Central Africa demonstrated current tobacco use with 14.1% (WHO & CDC, 2019), and Southern Africa reached up to 44.6% for any substance use (Olashore et al., 2022).

Gender disparities were consistently observed across all sub-regions, with males generally reporting higher rates of substance use than females. The most used substances across all sub-regions were alcohol and tobacco or cigarettes, especially high in both Eastern and Western Africa. Current alcohol

use showed the highest three prevalence rates of up to 50.2% in Seychelles (WHO, 2015b), 30.1% in Benin (Kpozehouen et al., 2015), and 29.0% in Nigeria (Anyanwu et al., 2016). Current tobacco or cigarette use was high primarily in Eastern African countries, with up to 43.8% for cigarettes among street children in Ethiopia (Ayenew et al., 2020), 24.5% in Seychelles (WHO, 2015b), and 21.7% in Benin (Kpozehouen et al., 2015).

Eastern Africa

Substance use patterns among adolescents in Eastern Africa showed substantial variations between national and regional surveys. Gender disparities were consistently observed across countries, with males showing higher prevalence than females in substance use. Notable examples include Kenya, where tobacco use was 1.4% in males versus 0.5% in females (Kenya National Bureau of Statistics & ICF, 2023), and Ethiopia, where alcohol ever use was 39.1% in males versus 30.4% in females (Central Statistical Agency & ICF, 2016).

Country-specific studies revealed diverse patterns. Seychelles consistently reported the highest rates, with 50.2% current alcohol use and 24.5% current tobacco use (WHO, 2015b). Ethiopia showed stark contrasts between the general population (<0.1% female, 0.4% male for tobacco use) (Central Statistical Agency & ICF, 2016) and street children's studies (khat 63.5%, cigarettes 43.8%, mastics 41.7%) (Ayenew et al., 2020). Regional studies in Ethiopia also reported higher rates, with cigarette use at 17.2% (Dereje et al., 2014). Kenya's secondary school survey showed varied patterns of ever use: alcohol (23.4%), khat/miraa (17.0%), and prescription drugs (16.1%) (National Authority for the Campaign Against Alcohol and Drug Abuse, 2016). Madagascar and Mauritius reported considerable tobacco use (11.3% and 18.9% current use, respectively) (WHO & CDC, 2018a; WHO & CDC, 2016a), and Mauritius also reported high alcohol use (26.0%) (WHO, 2017b).

African Journal of Alcohol & Drug Abuse : Volume 12

The most used substances were alcohol, tobacco, and khat, with varied prevalence across countries. Current alcohol use ranged from 1.4% in females and 2.2% in males in Tanzania to 50.2% in Seychelles (Ministry of Health, National Bureau of Statistics, Office of the Chief Government Statistician, & ICF, 2022; WHO, 2015b). Tobacco current use varied from 0.3% in males and 0.5% in females in Rwanda (National Institute of Statistics of Rwanda, Ministry of Health, & ICF, 2021) to 24.5% in Seychelles (WHO, 2015b). Khat was particularly prevalent in Ethiopia, ranging from 7.4% in females to 13.8% in males forever use in the general population (Central Statistical Agency & ICF, 2016), reaching 63.5% current use among street children (Ayenew et al., 2020). The epidemiological data are detailed in Table 1.

Western Africa

Adolescent substance use in Western Africa showed marked variations between national surveys and regional studies. National surveys reported current tobacco use ranging from 3.9% in Togo (WHO & CDC, 2019c) to 13.4% in Liberia (WHO, 2017a), while regional studies in Nigeria revealed substantially higher rates of current substance use at 31.2% to 32.9% (Anyanwu et al., 2016; Ogunkunle et al., 2020). Gender disparities were prominent across the region: for instance, in the Gambia, current tobacco use was 5.5% in males versus 0.5% in females (Gambia Bureau of Statistics & ICF, 2021), and in Ghana,

current tobacco use was 1.9% in males versus 0.7% in females (Ghana Statistical Service & ICF, 2024). Country specific research revealed diverse substance use patterns. Nigeria showed striking contrasts between national and regional studies: while the national survey reported low tobacco use (0.1% in females, 0.8% in males) (National Population Commission & ICF, 2019), regional studies found much higher rates: alcohol (29.0% current use), cigarettes (14.4%), and cannabis (5.2%) (Anyanwu et al., 2016). Another regional study reported 31.2% current substance use with alcohol (10.2%), stimulants (14.4%), and opiates (11.2%) (Ogunkunle et al., 2020). Benin reported current alcohol use at 14.8% and marijuana ever use at 1.2% (WHO, 2016). Sierra Leone showed current alcohol use at 13.2% and marijuana ever use at 5.0% (WHO, 2017c). Guinea-Bissau reported 15.0% current water pipe smoking in regional studies (Einarsdóttir, 2024).

The most prevalent substances in Western Africa were alcohol, tobacco, and stimulants. Alcohol use ranged from 10.2% to 29.0% in regional studies (Anyanwu et al., 2016; Ogunkunle et al., 2020). Tobacco use varied from 3.9% in Togo (WHO & CDC, 2019c) to 21.7% in Benin (Kpozehouen et al., 2015). Additional substances showed significant prevalence in regional studies, including stimulants (14.4%) and opiates (11.2%) in Nigeria (Ogunkunle et al., 2020). Cannabis ever use ranged from 1.2% in Benin to 5.8% in Liberia (WHO, 2016; 2017a). These findings, shown in Table 2, highlight the diversity and complexity of substance use patterns among youth in different Western African contexts.

Central Africa

Substance use among adolescents in Central Africa was primarily documented through tobacco use surveys, with data collected from four countries via the Global Youth Tobacco Survey between 2014 and 2019. This standardized methodology enabled systematic comparison across countries, revealing significant variations in both current and ever tobacco use.

The prevalence of current tobacco use ranged from 9.2% in Gabon to 14.1% in the Congo Republic, while ever use demonstrated higher rates, ranging from 21.5% in Chad to 31.4% in Gabon (WHO & CDC, 2014b; 2019a; 2019b). Looking at tobacco use patterns by country, the Congo Republic reported the highest current use at 14.1% with ever use at 25.3%, followed by Chad at 11.5% current use and 21.5% ever use (WHO & CDC, 2019a; 2019b). While tobacco was the only substance with comprehensive data available across Central African countries, the findings revealed notable patterns. Despite current tobacco use showing a relatively narrow range from 9.2% to 14.1%, ever use rates exhibited wider variation from 21.5% to 31.4%. The complete epidemiological data are presented in Table 3.

Southern Africa

Substance use patterns among adolescents in Southern Africa revealed some of the highest rates across sub-Saharan Africa. Current use of any substance ranged from 6.3% in South Africa (Pengpid et al., 2021) to 44.6% in Botswana (Olashore et al., 2022). Significant gender disparities were observed across the sub-region: in Lesotho, cigarette use was 18.6% in males versus 0.2% in females (Ministry of Health & ICF International, 2016); in South Africa, tobacco use was 18.1% in males versus 4.0% in females (National Department of Health, Statistics South Africa, South African Medical Research Council, & ICF, 2019); and in Malawi, tobacco use was 1.9% in males versus 0.3% in females (National Statistical Office & ICF, 2017).

Country-specific studies revealed diverse patterns. Botswana showed the most comprehensive substance use data, reporting current use of alcohol (25.1%), tobacco (12.8%), and cannabis (9.2%) in the past year (Olashore et al., 2022). South Africa showed marked gender differences in both current tobacco use (4.0% in females versus 18.1% in males) and ever alcohol use (23.4% in females versus 45.6% in males) (National Department of Health, Statistics South Africa, South African Medical Research Council, & ICF, 2019). Zimbabwe reported high tobacco rates (20.0% current use, 38.1% ever use) (WHO & CDC, 2014c), while Zambia showed varying rates between surveys: 12.9% current tobacco use in 13 to 15 years students compared to less than 0.1% in females and 2.9% in males among 15 to 19 years in their demographic survey (WHO & CDC, 2021; Zambia Statistics Agency, Ministry of Health, & ICF, 2019).

The most used substances were alcohol, tobacco, and cannabis. Alcohol use showed the highest prevalence, ranging from
12.1% in Mozambique (WHO, 2015a) to
25.1% in Botswana (Olashore et al., 2022),
with notably high ever use rates in South Africa (23.4% in females, 45.6% in males) (National Department of Health, Statistics South Africa, South African Medical Research Council, & ICF, 2019). Current tobacco use varied across countries, from 5.2% in Mozambique (WHO, 2015a) to 20.0% in Zimbabwe (WHO & CDC, 2014c). Cannabis use was most prominently reported in Botswana at 9.2% (Olashore et al., 2022), while Mozambique reported lower rates of ever use at 1.2% (WHO, 2015a). Table 4 presents the epidemiological data.

Discussion

This review highlights the significant prevalence and sub-regional variations of adolescent substance use across sub-Saharan Africa, emphasizing the urgent need for evidence-based and culturally grounded prevention and intervention strategies. Our review of epidemiological data from the past decade reveals that while important research efforts are underway, critical gaps exist. There is a lack of recent studies and a limited focus on adolescents in certain areas of the region, especially in Central Africa. However, the existing epidemiological data on adolescent substance use across sub-Saharan Africa reveal a complex and concerning landscape, with significant variations among sub-regions and individual countries.

The high prevalence of substance uses among adolescents, with rates reaching up to 44.6% for any substance use in Southern Africa (Olashore et al., 2022) and 31.2-32.9% in Western Africa (Anyanwu et al., 2016; Ogunkunle et al., 2020), underscores the urgent need for comprehensive prevention and intervention strategies tailored to the unique contexts of each sub-region. The notable gender disparities across all subregions, with males consistently reporting higher usage rates than females, further emphasize the need for culturally sensitive and context-specific intervention approaches that address local substance use patterns and social determinants.

The findings reveal substantial variation in adolescent substance use across subSaharan Africa, with concerning rates in several sub-regions. While Eastern and Western Africa demonstrate relatively comprehensive data coverage in the past decade, the limited data available for Central Africa

emphasizes a significant research gap in this sub-region. This disparity in available data across subregions underscores the need for more comprehensive and consistent research efforts throughout sub-Saharan Africa. The data consistently show higher substance use among males compared to females, with alcohol showing the highest prevalence rates of up to 50.2% (WHO, 2015b). The stark contrasts between national surveys and regional studies, particularly evident in vulnerable populations, highlight the need for targeted interventions and standardized research approaches. Future research should prioritize comprehensive substance coverage and attention to vulnerable populations while considering sub-regional and cultural factors in developing prevention strategies, aligning with our methodology of examining both academic and grey literature sources.

Strengths and Limitations

This review has several notable strengths. First, by examining grey literature, including WHO, UN, and local NGOs' reports alongside peer-reviewed publications, we addressed the underrepresentation of African research in Western academia. This comprehensive approach aligned with our goal of capturing valuable data that might be overlooked in traditional academic databases. Second, we focused exclusively on epidemiological data from the past ten years, providing current insights into substance use patterns across sub-Saharan Africa. This temporal focus contrasts with existing reviews that often rely on older data from the early to mid-2010s or even the 2000s, ensuring that our findings better reflect the contemporary situation. Third, our specific focus on adolescents under 20 years old allowed us to examine both the onset and progression of substance use patterns during this critical developmental period. Fourth, our sub-regional organization of data acknowledged the shared socio-cultural contexts among neighboring countries, providing a more nuanced understanding than previous studies focusing on individual countries or arbitrary country groupings. Fifth, our collaboration with sub-Saharan local partners enriched our understanding, as relevant knowledge in developing countries is often embedded within local practices rather than archived in academic databases.

Several limitations should be considered when interpreting our findings. First, there were substantial data gaps, particularly in Central Africa, where information was largely limited to tobacco use. A primary concern was the lack of comprehensive information about other substances such as alcohol and cannabis in Central Africa. This data gap presents challenges in understanding the full scope of substance use patterns in the sub-region and suggests a need for more comprehensive substance use surveys that include a broader range of substances. Second, the varying methodologies and age ranges used across studies made direct comparisons challenging. Third, the reliance on self-reported data in most surveys may have led to underreporting due to social desirability bias, especially in national surveys. Fourth, while the review included grey literature, language limitations may have resulted in missing relevant non-English sources. Consequently, comparisons between regions and countries should be made with much caution, as the availability of data varies greatly by country and region. Finally, the significant variations between national and regional studies suggest possible underestimation of substance use prevalence in some areas, particularly among vulnerable populations. Despite these limitations, this review makes an important contribution by providing a comprehensive,

current, and sub-regionally organized understanding of adolescent substance use across sub-Saharan Africa. The findings highlight both the scope of the challenge and the urgent need for culturally sensitive, evidence-based interventions.

Conclusions

This comprehensive review of adolescent
substance use across sub-Saharan Africa reveals concerning patterns that require urgent attention. The epidemiological data from the past decade demonstrate significant sub-regional variations, with current substance use rates reaching up to 44.6% in Southern Africa and notable gender disparities across all sub-regions. Our findings highlight three critical areas for future action. First, there is an urgent need for standardized, comprehensive data collection across all sub-regions, particularly in Central Africa, where current data are limited primarily to tobacco use. Second, the stark contrasts between national surveys and regional studies, especially regarding vulnerable populations, suggest the need for more nuanced research approaches that can capture both broader population trends and

References

specific at-risk groups. Third, the varying use patterns across sub-regions emphasize the importance of developing culturally grounded, context-specific intervention strategies.Moving forward, establishing and supporting strong partnerships between governments, NGOs, community leaders, schools, families, youth, universities, and international allies will be crucial for creating or adapting prevention interventions that are culturally congruent, efficacious, feasible, and sustainable. As sub-Saharan Africa's youth population continues to grow, addressing adolescent substance use through evidence-based, culturally congruent approaches becomes increasingly crucial for protecting this demographic dividend and promoting public health across the region.

Reference

African Development Bank. (2019). *East Africa Economic Outlook 2019*. https://www.afdb.org/fileadmin/uploads/afdb/Documents/Publications/2019AEO/REO_2019_-_East_Africa_.pdf

African Development Bank. (2024). Africa's Macroeconomic Performance and Outlook - January 2024. https://www.afdb.org/en/documents/africas-macroeconomic-performanceand-outlook-january-2024

African Union Commission & Organisation for Economic Co-operation and Development. (2023). *Africa's Development Dynamics 2023: Investing in Sustainable Development*. https://doi.org/10.1787/3269532b-en

Agence Française de Développement. (2021). *Central Africa Regional Strategy 20202024*. https://www.afd.fr/sites/afd/files/2021-09-10-22-22/central-africa-regionalstrategy-2020-2024.pdf

Akunna, G. G., & Lucyann, C. A. (2023). Nigeria's War Against Drug Abuse: Prevalence, Patterns, Ramifications, Policy and Multisectoral Response, Strategies and Solutions. *Studies in Social Science & Humanities*, *2*(10), 35-55.

Anyanwu, O. U., Ibekwe, R. C., & Ojinnaka, N. C. (2016). Pattern of Substance Abuse Among Adolescent Secondary School Students in Abakaliki. *Cogent Medicine*, *3*(1), 1272160. https://doi.org/10.1080/2331205X.2016.1272160

Awumbila, M. (2017). Drivers of Migration and Urbanization in Africa: Key Trends and Issues. *International Migration*, *7*(8), 1-9.

Ayenew, M., Kabeta, T., & Woldemichael, K. (2020). Prevalence and factors associated with substance use among street children in Jimma town, Oromiya national regional state, Ethiopia: a community based cross-sectional study. *Substance abuse treatment, prevention, and policy*, *15*(1), 61. https://doi.org/10.1186/s13011-020-00304-3

Ayorinde, A., & Adeniran, A. (2022). *The potential of accelerated education programmes in solving the out-of-school children and youth problem in West Africa*. Center for the Study of the Economies of Africa. https://africaportal.org/wp-content/uploads/2023/06/ The-Potential-of-Accelerated-Education-Programmes-in-Solving-the-OOSC-problem-_ kMODnDm.pdf

Baah-Boateng, W. (2016). The Youth Unemployment Challenge in Africa: What Are the Drivers? *The Economic and Labour Relations Review*, *27*(4), 413-431. https://doi.org/10.1177/1035304616645030

Beegle, K. & Christiaensen, L. (Eds.) (2019). *Accelerating Poverty Reduction in Africa*World Bank. https://doi.org/10.1596/978-1-4648-1232-3

Belete, H., Mekonen, T., Espinosa, D. C., Ambaw, F., Connor, J., Chan, G., Hides, L., Hall, W., & Leung, J. (2023). Cannabis use in sub-Saharan Africa: A systematic review and metaanalysis. *Addiction*, *118*(7), 1201–1215. https://doi.org/10.1111/add.16170

Bloom, D. E., Kuhn, M., Prettner, K. (2016). Africa's Prospects for Enjoying a Demographic Dividend. *Journal of Demographic Economics,83*(1), 63–76. http://doi.org/10.3386/ w22560

Byrne, J. A. (2016). Improving the peer review of narrative literature reviews. *Research integrity and peer review, 1*, 1-4.

Calderón, C., Kabundi, A., Kubota, M., Korman, V., Goyal, A., Eliste, P., & Forget, V. D. (2022). *Africa's Pulse, No. 26*. World Bank. https://doi.org/10.1596/978-1-4648-1932-2

Central Statistical Agency & ICF. (2016). Ethiopia demographic and health survey 2016. CSA and ICF.

Dawkins, M. P. (1996). The social context of substance uses among African American youth:

Rural, urban and suburban comparisons. *Journal of Alcohol and Drug Education*, 68-85.

Delprato, M. (2022). Educational Gender Gap in Sub-Saharan Africa: Does the Estimation Method Matter? A Comparison Using A Sample of Opposite Sex Twins. *International Journal of Educational Development*, *95*, 102683. https://doi.org/10.1016/j.ijedudev.2022.102683

Dereje, N., Abazinab, S., & Girma, A. (2014). Prevalence and predictors of cigarette smoking among adolescents of Ethiopia: school based cross sectional survey. Journal of Child & Adolescent Behavior, 3(1), 182. http://doi.org/10.4172/2375-4494.1000182

Eberhard, D. M., Simons, G. F., & Fennig, C. D. (Eds.). (2020). *Ethnologue: Languages of the world* (23rd edition). SIL International.

Einarsdóttir, J., Baldé, A., Jandi, Z., Boiro, H., & Gunnlaugsson, G. (2024). Prevalence of and Influential Factors for Waterpipe Smoking among School-Attending Adolescents in Bissau, Guinea-Bissau. *Adolescents*, *4*(1), 138-157. https://doi.org/10.3390/adolescents4010010

Enoh, M. A., Njoku, R. E., & Okeke, U. C. (2023). Modeling and Mapping the Spatial– Temporal Changes in Land Use and Land Cover in Lagos: A Dynamics for Building a Sustainable Urban City. *Advances in Space Research*, *72*(3), 694-710. https://doi. org/10.1016/j.asr.2022.07.042

Gambe, T. R., Turok, I., & Visagie, J. (2023). The Trajectories of Urbanisation in Southern Africa: A Comparative Analysis. *Habitat International*, *132*, 102747. https://doi. org/10.1016/j.habitatint.2023.102747

Gambia Bureau of Statistics & ICF. (2021). The Gambia demographic and health survey 2019-20. GBoS and ICF.

Gershman, B., & Rivera, D. (2018). Subnational Diversity in Sub-Saharan Africa: Insights from a New Dataset. *Journal of Development Economics*, *133*, 231-263. https://doi. org/10.1016/j.jdeveco.2018.01.003

Getachew, S., Lewis, S., Britton, J., Deressa, W., & Fogarty, A. W. (2019). Prevalence and risk factors for initiating tobacco and alcohol consumption in adolescents living in urban and rural Ethiopia. *Public health*, *174*, 118-126. https://doi.org/10.1016/j.puhe.2019.05.029

Ghana Statistical Service & ICF. (2024). Ghana demographic and health survey 2022. GSS and ICF.

Ghana Statistical Service, Ghana Health Service, & ICF International. (2015). Ghana demographic and health survey 2014. GSS, GHS, and ICF International.

International Monetary Fund. (2021). *Regional Economic Outlook. Sub-Saharan Africa: One Planet, Two Worlds, Three Stories*. https://www.imf.org/-/media/Files/Publications/REO/AFR/2021/October/English/text.ashx

Itanyi, I. U., Onwasigwe, C. N., Ossip, D., Uzochukwu, B. S. C., McIntosh, S., Aguwa, E. N., Wang, S., Onoka, C. A., & Ezeanolue, E. E. (2020). Predictors of current tobacco smoking by adolescents in Nigeria: Interaction between school location and socioeconomic status. *Tobacco induced diseases*, *18*, 13. https://doi.org/10.18332/tid/117959

Jallow, I. K., Britton, J., & Langley, T. (2017). Prevalence and determinants of tobacco use among young people in The Gambia. *BMJ global health*, *2*(4), e000482. https://doi.org/10.1136/bmjgh-2017-000482

Jones, S., Schipper, Y., Ruto, S., & Rajani, R. (2014). Can Your Child Read and Count?

Measuring Learning Outcomes in East Africa. *Journal of African Economies*, *23*(5), 643-672. https://doi.org/10.1093/jae/eju009

Jumbe, S., Kamninga, T. M., Mwalwimba, I., & Kalu, U. G. (2021). Determinants of Adolescent Substance Use in Africa: A Systematic Review and Meta-Analysis Protocol. *Systematic Reviews, 10*(1), 125. https://doi.org/10.1186/s13643-021-01680-y

Kabiru, C. W., Izugbara, C. O., & Beguy, D. (2013). The Health and Wellbeing of Young People in Sub-Saharan Africa: An Under-Researched Area? *BMC International Health and Human Rights*, *13*, 11. https://doi.org/10.1186/1472-698X-13-11

Kenya National Bureau of Statistics & ICF. (2023). Kenya demographic and health survey 2022: Volume 1. KNBS and ICF.

Kenya National Bureau of Statistics, Ministry of Health, National AIDS Control Council, Kenya Medical Research Institute, National Council for Population and Development, & ICF International. (2015). Kenya demographic and health survey 2014. Kenya National Bureau of Statistics.

Kpozehouen, A., Ahanhanzo, Y. G., Paraïso, M. N., Munezero, F., Saizonou, J. Z., Makoutodé, M., & Ouedraogo, L. T. (2015). Facteurs associés à l''usage de substances psychoactives chez les adolescent's au Bénin [Factors associated with psychoactive substance use among Beninese adolescents]. *Sante publique (Vandoeuvre-les-Nancy, France)*, *27*(6), 871–880.

Kugbey, N. (2023). Prevalence And Correlates of Substance Use Among School-Going Adolescents (11-18years) in Eight Sub-Saharan Africa Countries. *Substance Abuse Treatment, Prevention, and Policy*, *18*(1), 1-9. https://doi.org/10.1186/s13011-023-00542-1

Kyei-Gyamfi, S., Kyei-Arthur, F., Alhassan, N., Agyekum, M. W., Abrah, P. B., & Kugbey, N. (2024). Prevalence, correlates, and reasons for substance use among adolescents aged 10-17 in Ghana: a cross-sectional convergent parallel mixed-method study. *Substance abuse treatment, prevention, and policy*, *19*(1), 17. https://doi.org/10.1186/s13011-024-00600-2

Kyei-Gyamfi, S., Wellington, N., & Kyei-Arthur, F. (2023). Prevalence, Reasons, Predictors, Perceived Effects, and Regulation of Alcohol Use among Children in Ghana. *Journal of addiction*, *2023*, 9032348. https://doi.org/10.1155/2023/9032348

Liberia Institute of Statistics and Geo-Information Services, Ministry of Health, & ICF. (2021). Liberia demographic and health survey 2019-20. LISGIS, Ministry of Health, and ICF.

Male, C., & Wodon, Q. (2018). Girls' Education and Child Marriage in West and Central

Africa: Trends, Impacts, Costs, and Solutions. *Forum for Social Economics*, *47*(2), 262–274. https://doi.org/10.1080/07360932.2018.1451771

Mariara, J., McKay, A., Newell, A., & Rienzo, C. (2018). Gender Gaps in the Path to Adulthood for Young Females and Males in Six African Countries from the 1990s to the 2010s. *IZA Journal of Development and Migration*, *8*(16), 1-19. https://doi.org/10.1186/ s40176-018-0124-8

Marsiglia, F. F., Kulis, S. S., & Lechuga-Peña, S. (2021). *Diversity, Oppression, and Change: Culturally Grounded Social Work*. Oxford University Press, USA.

Mavura, R. A., Nyaki, A. Y., Leyaro, B. J., Mamseri, R., George, J., Ngocho, J. S., & Mboya, I. B. (2022). Prevalence of substance use and associated factors among secondary school adolescents in Kilimanjaro region, northern Tanzania. *PloS one*, *17*(9), e0274102. https:// doi.org/10.1371/journal.pone.0274102

Mehanović, E., Virk, H. K., Akanidomo, I., Pwajok, J., Prichard, G., van der Kreeft, P., Vigna-Taglianti, F., & Unplugged Nigeria Coordination Group (2020). Correlates of cannabis and other illicit drugs use among secondary school adolescents in Nigeria. *Drug and alcohol dependence, 206, 107457. https://doi.org/10.1016/j.drugalcdep.2019.04.028*

Ministry of Health & ICF International. (2016). Lesotho demographic and health survey 2014. Ministry of Health and ICF International.

Ministry of Health, Community Development, Gender, Elderly and Children, Ministry of Health, National Bureau of Statistics, Office of the Chief Government Statistician, & ICF. (2016). Tanzania demographic and health survey and malaria indicator survey 2015-16. MoHCDGEC, MoH, NBS, OCGS, and ICF.

Ministry of Health, National Bureau of Statistics, Office of the Chief Government Statistician, & ICF. (2022). Tanzania demographic and health survey and malaria indicator survey 2022 final report. MoH, NBS, OCGS, and ICF.

Muiya, B. M. (2014). The Nature, Challenges and Consequences of Urban Youth Unemployment: A Case of Nairobi City, Kenya. *Universal Journal of Educational Research*, *2*(7), 495–503.

Mupara, L. M., Tapera, R., Selemogwe-Matsetse, M., Kehumile, J. T., Gaogane, L., Tsholofelo, E., & Murambiwa, P. (2022). Alcohol and Substance Use Prevention in Africa:

Systematic Scoping Review. *Journal of Substance Use*, *27*(4), 335–351. https://doi.org/10.1080/14659891.2021.1941356

Mwangi, S. and Twala, J. 2022. How religious leaders can help in the fight against drug abuse in Kenya, National Center on Addiction and Substance Abuse at Columbia University. https://nacada.go.ke/how-religious-leaderscan-help-fight-against-drug-abuse-kenya/

National Authority for the Campaign Against Alcohol and Drug Abuse. (2016). National Survey on Alcohol and Drug Abuse among Secondary School Students in Kenya. https:// nacada.go.ke/sites/default/files/2019-10/Report%20on%20National%20ADA%20 Survey%20among%20Secondary%20School%20Students_2016_2.pdf

National Department of Health, Statistics South Africa, South African Medical Research Council, & ICF. (2019). South Africa demographic and health survey 2016. NDoH, Stats SA, SAMRC, and ICF.

National Institute of Statistics of Rwanda, Ministry of Health, & ICF International. (2015). Rwanda demographic and health survey 2014-15. NISR, MOH, and ICF International.

National Institute of Statistics of Rwanda, Ministry of Health, & ICF. (2021). Rwanda demographic and health survey 2019-20 final report. NISR and ICF.

National Population Commission & ICF. (2019). Nigeria demographic and health survey 2018. NPC and ICF.

National Statistical Office & ICF. (2017). Malawi demographic and health survey 2015-16. NSO and ICF.

Ogunkunle, T. O., Gobir, A. A., Makanjuola, A. B., & Ojuawo, A. (2020). Educational status and other socio-demographic correlates of current use of psychoactive substance among Nigerian adolescents. *Nigerian Journal of Paediatrics*, *47*(1), 23-29.

Olashore, A. A., Paruk, S., Maphorisa, T., & Mosupiemang, B. (2022). Pattern of substance use and substance use disorder in adolescent learners at public secondary schools in Gaborone,

Botswana. *PloS one*, *17*(9), e0268961. https://doi.org/10.1371/journal.pone.0268961

Olawole-Isaac, A., Ogundipe, O., Amoo, E. O., & Adeloye, D. (2018). Substance Use Among Adolescents in Sub-Saharan Africa: A Systematic Review and Meta-Analysis. *South African Journal of Child Health*, 12, s79-s84. https://doi.org/10.7196/SAJCH.2018.v12i2b.1524

Organisation for Economic Co-operation and Development & Sahel and West Africa Club. (2020). *Africa's Urbanisation Dynamics 2020: Africapolis, Mapping a New Urban Geography*. https://doi.org/10.1787/b6bccb81-en.

Owusu-Sarpong, A. A., & Agbeshie, K. (2019). Cigarette smoking among in-school adolescents in Yilo Krobo municipality in the Eastern Region of Ghana. *Ghana medical journal*, *53*(4), 273–278. https://doi.org/10.4314/gmj.v53i4.4

Pengpid, S., Peltzer, K., & Ramlagan, S. (2021). Prevalence and correlates of hazardous, harmful or dependent alcohol use and drug use amongst persons 15 years and older in South Africa: Results of a national survey in 2017. *African journal of primary health care & family medicine*, *13*(1), e1–e8. https://doi.org/10.4102/phcfm.v13i1.2847

Platvoet, J. G. (1996). The Religions of Africa in Their Historical Order. *Platvoet, Cox & Olupona*, 46–102.

Statistics Sierra Leone & ICF. (2020). Sierra Leone demographic and health survey 2019. Stats SL and ICF.

Sukhera J. (2022). Narrative Reviews in Medical Education: Key Steps for Researchers. *Journal of Graduate Medical Education*, *14*(4), 418–419. https://doi.org/10.4300/ JGME-D-22-00481.1

Uganda Bureau of Statistics & ICF. (2018). Uganda demographic and health survey 2016. UBOS and ICF.

United Nations Educational, Scientific and Cultural Organization & African Union Commission. (2023). *Education in Africa: Placing equity at the heart of policy*. https:// unesdoc.unesco.org/ark:/48223/pf0000384479/PDF/384479eng.pdf.multi

United Nations Human Settlements Programme. (2022). *World Cities Report 2022: Envisaging the Future of Cities*. https://unhabitat.org/sites/default/files/2022/06/wcr_2022. pdf

United Nations International Children's Emergency Fund. (2021). *Transforming Education in Africa. An evidence-based overview and recommendations for long-term improvements*. https://www.unicef.org/media/106686/file/Transforming%20Education%20in%20Africa.pdf

United Nations Office for the Coordination of Humanitarian Affairs. (2023). *Global Humanitarian Overview 2024*. United Nations Office for the Coordination of Humanitarian

Affairs. https://www.unocha.org/attachments/0b25dbc1-7844-4a1d-8fb4-25d312657da7/GHO-2024-Abridged-EN_final.pdf

United Nations Population Division (2024). *World Population Prospects: The 2024 Revision*. United Nations, Department of Economic and Social Affairs. Custom data acquired via website https://population.un.org/dataportal/data/indicators/49/locations/914,911,910,913/start/2024/end/2024/table/pivotbylocation?df=57c45db0-2033-4bea-be78-071d2f96c6bc

United Nations Population Division. (2022). *World Population Prospects 2022: Summary of Results (UN DESA/POP/2022/TR/NO. 3)*. United Nations, Department of Economic and Social Affairs. https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/wpp2022_summary_of_results.pdf

United Nations. (2023). *Global Sustainable Development Report 2023: Times of Crisis, Times of Change: Science for Accelerating Transformations to Sustainable Development*. https://sdgs.un.org/sites/default/files/2023-09/FINAL%20GSDR%202023-Digital%20-110923_1.pdf

World Bank (n.d.). Gini Index. Retrieved April 18, 2023, from https://data.worldbank.org/indicator/SI.POV.GINI?most_recent_value_desc=true

World Health Organization & Centers for Disease Control and Prevention. (2014a). Global youth tobacco survey fact sheet: Cameroon 2014. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2014b). Global youth tobacco survey fact sheet: Gabon 2014. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2014c). Global youth tobacco survey fact sheet: Zimbabwe 2014. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2015a). Global youth tobacco survey fact sheet: Comoros 2015. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2015b). Global youth tobacco survey fact sheet: Seychelles 2015. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2016a). Global youth tobacco survey fact sheet: Mauritius 2016. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2016b). Global youth tobacco survey fact sheet: Tanzania 2016. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2017a). Global youth tobacco survey fact sheet: Gambia 2017. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2017b). Global youth tobacco survey fact sheet: Ghana 2017. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2017c). Global youth tobacco survey fact sheet: Sierra Leone 2017. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2018a). Global youth tobacco survey fact sheet: Madagascar 2018. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2018b). Global youth tobacco survey fact sheet: Uganda 2018. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2019a). Global youth tobacco survey fact sheet: Chad 2019. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2019b). Global youth tobacco survey fact sheet: Congo Republic 2019. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2019c). Global youth tobacco survey fact sheet: Togo 2019. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2020). Global youth tobacco survey fact sheet: Senegal 2020. WHO.

World Health Organization & Centers for Disease Control and Prevention. (2021). Global youth tobacco survey fact sheet: Zambia 2021. WHO.

World Health Organization. (2014). Global school-based student health survey fact sheet:

Tanzania 2014. WHO.

World Health Organization. (2015a). Global school-based student health survey fact sheet:

Mozambique 2015. WHO.

World Health Organization. (2015b). Global school-based student health survey fact sheet: Seychelles 2015. WHO.

World Health Organization. (2016). Global school-based student health survey fact sheet: Benin 2016. WHO.

World Health Organization. (2017a). Global school-based student health survey fact sheet: Liberia 2017. WHO.

World Health Organization. (2017b). Global school-based student health survey fact sheet: Mauritius 2017. WHO.

World Health Organization. (2017c). Global school-based student health survey fact sheet: Sierra Leone 2017. WHO.

Zambia Statistics Agency, Ministry of Health, & ICF. (2019). Zambia demographic and health survey 2018. Zambia Statistics Agency, Ministry of Health, and ICF.

Zimbabwe National Statistics Agency & ICF International. (2016). Zimbabwe demographic and health survey 2015: Final report. ZIMSTAT and ICF International.