

*Full Length Research Paper*

## **Study of risk factors in adolescence in terms of demographic changes**

**Noshin Tarannum<sup>1\*</sup>, F. M. Shafiqur Rahman<sup>2</sup>, Mehnaz Hossain M.<sup>3</sup>, Fahariaz Tasnim T.<sup>4</sup>,  
Shaila Islam<sup>5</sup>, Nabila Afrin<sup>3</sup>, Noshin Tabassum<sup>6</sup> and Mohammed Abu K. S.<sup>7</sup>**

<sup>1</sup>Armed Forces Medical College, Dhaka, Bangladesh.

<sup>2</sup>Sir Salimullah Medical College Mitford Hospital, Dhaka, Bangladesh.

<sup>3</sup>Ibn Sina Medical College, Dhaka, Bangladesh.

<sup>4</sup>Anwer Khan Modern Medical College, Dhaka, Bangladesh.

<sup>5</sup>ZH Sikder Women's Medical College, Dhaka, Bangladesh.

<sup>6</sup>Cape Breton University, Sydney, Nova Scotia, Canada.

<sup>7</sup>Furness General Hospital, University Hospitals of Morecambe Bay NHS Foundation Trust, Barrow-in-Furness, United Kingdom.

Received 18 August, 2023; Accepted 11 September, 2023

Adolescence is addressed as a life phase where the prospects for health are tremendous and future patterns of adult health are confirmed. Health in youth is the consequence of communications between prenatal and early childhood development and the precise biological, social-role, and demographical changes that accompany puberty, molded by social determinants, risk, and protective factors that affect the uptake of health-related attitudes. The model of adolescence is speedily changing; the average age of onset of adolescence is declining, and the age at which mature social roles are achieved is rising. In this work, several adolescent risk factors have been studied. Statistical data on the preference for drug consumption among adolescents was collected. Surveys were conducted, and data were gathered from ten different regions covering the world's entire demography. The health problems because of drug consumption and the consequences of drug abuse among adolescents were analyzed. The reasons for drug abuse and adolescents' age groups were statistically analyzed. A statistical report establishes the relationship among drug preference, health problems, and crime rates and demonstrates a way to reduce adolescent drug abuse and risk behavior. The report can demonstrate how demographic changes vary the risk factors, abnormal behaviors, and adolescent health problems. Details of the study will provide more information.

**Key words:** Life, attitudes, social, report, behaviors, statistical.

### **INTRODUCTION**

Adolescence is known as a transitional stage of physical and psychological development that usually occurs during the period from puberty to adulthood. It is

witnessed as a period of peak physical health and normal emotional turmoil. Nevertheless, it is also known as a period when many young people are involved in

\*Corresponding author. E-mail: [noshintohfa2@gmail.com](mailto:noshintohfa2@gmail.com).

dangerous behaviors. For example, drug consumption, substance misuse, and unprotected sex can precede immediate and future health-risks (Department of Health, 2004; Millstein et al., 1992). Regarding sensitive security, a range of epidemiological studies (Offer, Howard, and Ostrov, 1991) have found that around 20% of adolescents suggest psychological discomfort in their responses to symptom surveys. A higher percentage of teenagers' report needing assistance with personal, emotional, or behavioral challenges (Barker and Adelman, 1994; Boldero and Fallon, 1995). In first-world countries, the rates of intentional self-harm increased by over a quarter between 1995 and 2020, with the principal reasons for mortality among—young people being accidents and self-destruction (Department of Health, 2004). Parents and friends are considered more likely to provide support than professionals to be named by young people as sources of help and advice (Boldero and Fallon, 1995; Ciarrochi et al., 2002; Friedman, 1991; Harrison and Harrington, 2001; Offer et al., 1991; Oppong-Odisent and Heycock, 1997; Tishby et al., 2001), but there may be medical, social and emotional difficulties which are beyond the scope of parents and friends to solve the issue. In first-world countries, at this moment, there is a drive to deliver specialist services to adolescents that address government goals for minimizing national rates of drug consumption, teenage pregnancy, smoking, substance misuse, sexually transmitted diseases, and suicide among young people. There is also an acknowledgment that adolescence is regarded as a period when the shape of facility use is advanced, which tends to continue during adulthood. If young people have positive premature understandings of retrieving assistance from professionals, they are likely to continue requesting assistance when required throughout their lives (Department of Health, 2004).

Adolescence has been a matter of importance since the mid-20th century. After World War II, most health concepts have centred on the non-appearance of disease and disability (Cooke and Melchart, 2016). Psychology has focused on repairing defects in the diseased model of human functioning (Seligman and Csikzentmihalyi, 2000), concentrating almost specifically on pathology and abandoning the examination of the positive characteristics that make life worth living (Seligman and Csikzentmihalyi, 2000). It is now recognized that the absence of pathology does not necessarily correlate with positive dimensions of health and well-being (Keyes, 2002; Keyes et al. 2003), and psychologists have started to understand well-being as an important research goal and factors that contribute to its promotion (Vazquez, 2019). Positive psychology has recently emerged as a new viewpoint that focuses on the study of well-being, quality of life, strengths, and resources (Delle et al., 2011). Various approaches have emerged in that framework. To be precise, well-being can be understood as an ideal psychological operative and experience

(Ryan and Deci, 2001). More precisely, some theorists defined it as a state branded by high life gratification and the knowledge of high positive affect (Deci et al., 2008), while others fixated on the concept of human potential, ability, and virtue (Ryan and Deci, 2001). Despite this categorization of the theory, the diversity of terminology observed in diverse studies caused some conflict. While this situation has indeed fostered fruitful scientific debate, it has also led to significant uncertainty and theoretical and methodological confusion. On the other hand, these approaches primarily epitomize personal judgments about well-being and only briefly address the social dimension of the individuals' involved (Gomez et al., 2019).

Another primary concern among young adults is drug abuse or drug consumption at the pre-mature stage of life (Freake et al., 2007). Drug abuse remains a major public health problem, with an estimated 70 million people and their families affected by material use disorders and 30 million abusing or dependent on illegal drugs and alcohol (Substance Abuse and Mental Health Services Administration, SAMHSA). According to SAMHSA, approximately 18% of the nation's 12-year-old and older population has used illegal drugs in the past month, and there are nearly 8,000 illegal drug consumers daily. According to Proceedings of the American Thoracic Society (PATS), while the use of illegal drugs among young adults has declined or remained comparatively stable for much of the last decade, the latest survey results show that the use of cannabis (19%) and ecstasy (67%) has increased sharply in the last year among the high school students. The same study predicts that drug use will increase in the coming years as more students adopt attitudes and behaviors that support drug use. Other research findings from 2021, including the Monitoring the Future study, are also alarming as youth cannabis consumption and overall drug consumption are increasing, and attitudes toward cannabis consumption appear to be relaxing (Johnston et al., 2009). Similarly, SAMHSA recently reported a decrease in the proportion of youth who perceived a high risk of regular cannabis consumption and fewer youth reporting drug prevention activities. The increase in youth drug use is concerning because early initiation of drug consumption and increased drug use during adolescence are particularly strong predictors of chronic drug problems and crime in adulthood (Gustavson et al., 2007). STD/HIV (Malow et al., 2001) is among a range of long-term negative consequences of substance abuse and crime (Stenbecka et al., 2007). In addition to the increase in youth substance abuse, substance abuse among older adults is also a demanding concern among element abuse epidemiologists and clinicians (Simoni-Wastila et al., 2006). SAMHSA reported that the prevalence of past years' illicit drug consumption among Americans aged 50 increased from 2.7% in 2012 to 4.6% in 2020. This dramatic increase is due to the aging of the baby boom

generation, which had more lifetime illicit drug consumption than previous allies. The pervasiveness of substance abuse among older adults, particularly prescription drug abuse, is a major concern given the limited knowledge base regarding the effects of substances on the aging brain (Dowling et al., 2008). As the need for treatment exceeds available resources, clinical capacity must be increased to meet the intervention needs predicted by these trends. Only approximately 10% of substance abusers aged 12 and older in need of treatment receive treatment in a specialized substance abuse center (SAMHSA). To aid young people, services are required to attract the young generation to seek assistance in the first place, deliver a service that inspires them to return for additional arrangements, and produce an atmosphere where teenagers feel gifted to disclose to professionals' opinions, spirits, or behaviors which may be putting them at risk.

According to the World Health Organization (WHO), Adolescence is defined as the period between 10-21 years, is an important period when the transition from childhood to adulthood takes place, and the behaviors and lifestyles are shaped (Arnett et al., 2013; Baltes et al., 1987). The whole stage can be divided into 3 stages: Early (10-13), Middle-Early (14-16), Middle-Late, (16-18) and Late (19-21) so, this is the time which has a profound impact on the survival and development of the next generation. Moreover, they are a large and growing segment of the globe and a country's population. Therefore, it is crystal clear how important young adults are for the future world's progress. However, in recent times, many young populations are moving towards drug abuse. If initiative is not taken to control drug abuse among young adolescents, our future will be destroyed sooner or later. Researchers worldwide continue to figure out a way to minimize drug abuse among young adults (Chasteen et al., 2020; Diehl et al., 2014; Giles et al., 2002; Kornadt et al., 2011). For this purpose, we devised an effort to help reduce adolescent drug consumption. In our work, statistical surveys have been conducted (Meisner et al., 2012; Perry et al., 2017; Rodulph et al., 2017; Weiss et al., 2018; Weiss et al., 2019; Weiss et al., 2020). We collected data from among adolescent people of from different continents of the world. We gathered information about preferable drugs among young adults and then figured out why those drugs are preferable. We highlighted the health problems associated with drug abuse.

The consequences of drug consumption have been discussed as well. The emergence of fascination towards crime from drug abuse at an early stage has been studied. We generated a statistical report relating to all these risky behaviors among adolescents. We demonstrated how to solve this issue. Our report will help to reduce drug abuse among adolescents and eventually will assist in reducing the effects of drug abuse. Further study will provide a clearer picture.

## MATERIALS AND METHODS

### Case study

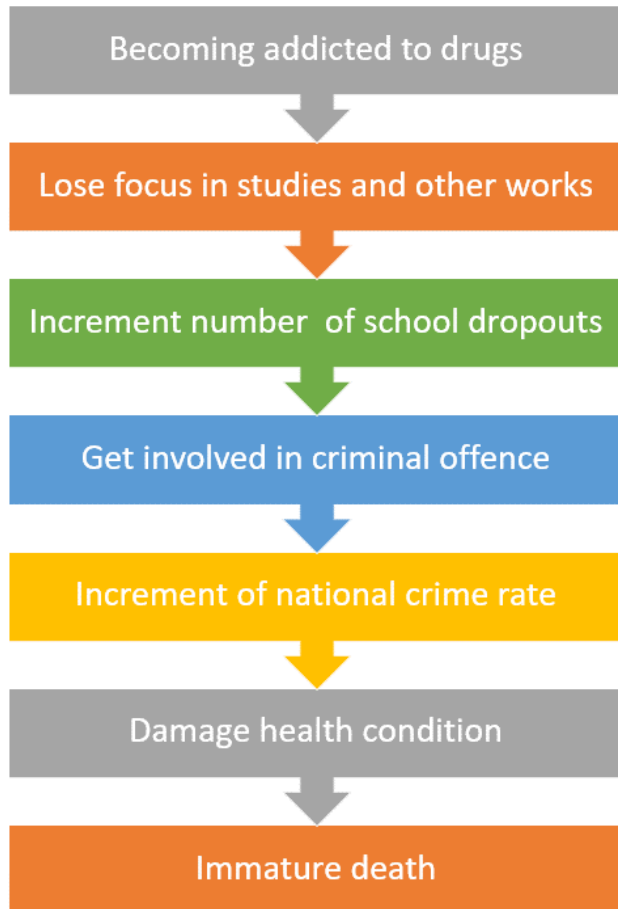
In this work, we devised an idea to reduce the risky behavioral problems among young adolescents. In the past, physiologists and criminologists addressed that youngsters have a much higher tendency than adult ones to try out something new (Asato et al., 2010; Bechtold et al., 2014; Littlefield et al., 2010; Loeber et al., 2014; Luciana et al., 2013). At a young age, they want to explore something new, and, in these regards, they fall into the trap of consuming drugs, and at a certain period, they become addicted to those drugs. Therefore, drug addiction leads to serious crimes, and eventually, they have severe health problems. This drug abuse among adolescents has become a global issue, and if action is not taken immediately to solve the problem, the world's future will be in deep trouble. Our current research proposed an idea to fight against this issue.

In this work, at the very beginning, literature surveys were conducted (Monahan et al., 2009; Ordaz et al., 2013; Pickett et al., 2019; Achterbergh et al., 2020; Backes et al., 2015; Booth, 2016; Bowins, 2015). In all parts of the world, adolescents- both boys and girls- are subjected to risky behaviors. Many do not have the information, strength, or confidence to resist these pressures. Adolescent people experience violence, sexual harassment, and other forms of gender discrimination and are vulnerable to drug/substance abuse, accidents, and hazardous work. Among all these issues, the most common and biggest threat to young adults was found to be drug consumption or substance abuse. It has been witnessed that drug abuse leads to major problems among adolescents and eventually damages the development of the young generation. We addressed that drug abuse is the main reason for risky behaviors among adolescents. We generated a statistical report that will help reduce drug abuse among adolescents.

### Statistical report generation

Our aim in this work is to figure out how to reduce adolescent drug consumption. We studied different types of reports/models/data sheets such as medical, mathematical, simulation, experimental, statistical, economical, engineering, socio economic etc. (Hossain, 2021; Cousens et al., 2011; Pedicelli et al., 2022; Hossain et al., 2020a; Fiorentino et al., 2018; Morshed et al., 2019; Hossain et al., 2020b; Romanenko et al., 2022; Pereira et al., 2019; Hossain et al., 2022a; Lobstein et al., 2019; Quek et al., 2017; Hossain et al., 2022b; Park et al., 2012; Inchley et al., 2020; Masud et al., 2021; Wijnhoven et al., 2014; van Ekris et al., 2016; Hossain, 2020; Waters et al., 2011; Homer et al., 2019; Hossain and Kim, 2020; Rutter et al., 2017; Finegood et al., 2010; Hossain, 2023; Savona et al., 2021; Malik et al., 2013; Idris et al., 2023; Monzani et al., 2019). We tried to figure out what would be the best-suited model/report to represent our investigation. Then, we came up with a statistical report. We generated our model, which will aid in decreasing drug abuse among adolescents. Initially, we studied the consequences of drug consumption among adolescents and developed a flow chart.

This flow chart (Figure 1) shows why drug abuse among young adults needs to be stopped immediately. Our report undoubtedly will help to reduce and eventually stop drug consumption. At the commencement of our report generation, we collected data on drugs preference among-adolescents from ten different regions of the world. Then, we gathered data on the health problems associated with drug consumption at an early age; next, we collected data on the types of crimes adolescents commit due to drug abuse. Histograms have been generated from these collected data to determine the most common preferable drugs, health problem, and crimes young adults commit. Next, we studied the



**Figure 1.** Flow chart of consequences of drug abuse from the adolescents.

reason behind drug consumption by youngsters, and data was collected from the same regions. We also determined the age groups of adolescents based on the collected data, then, developed a pie chart on the reason-consuming drugs, and age group. These pie charts and histograms give us an entire picture of adolescents' drug consumption rate worldwide. We developed relationships among drug consumption, health problems, types of crime committing, reason of drug consumption and age group of adolescents by generating our statistical report. Our report has demonstrated that demographic changes are changing drug preferences among adolescents. In specific areas of the world, if certain drug production rates can be restricted/stopped and risk behaviors, health issues, and other problems among the young generation will be lessened.

#### Data analysis

During our investigation, we gathered plenty of data (Table 1) from various sources (Table 2). We tried our best to make the statistical report as simple as possible. As mentioned before, from the literature survey and our investigation, we identified that drug abuse/consumption by adolescents' leads to all the risk behaviors. So, we examined the root cause and generated our analysis to reduce drug consumption among adolescents and eventually minimize risk behavior. We collected information on the preference

for drugs among young adults. We selected ten major regions of the world: Africa, South Asia, the Middle East, Southeast Asia, Oceania, Western Europe, Eastern Europe, South America, Central America, and North America. Among these regions, we gathered data on preferable drugs from three/four countries or regions. The tree chart displayed (Figure 2) will provide a better idea of the countries' source of our data collection. Once we gathered the data on drug preference among adolescents, we focused on collecting statistics on the consequences of drug consumption, such as health problems, in committing crimes. Next, we accumulated the records of the reason for consuming drugs and studied the age groups of adolescents. The following sections will provide more precise ideas.

## RESULTS AND DISCUSSION

As mentioned earlier, we collected a lot of data from various sources. We compared all the data to come up with a statistical report that can certainly help to reduce risky behavior in adolescent people. We started our data collection on drug preference among young adults. We gathered all the data, compared the results and then decided.

### Analysis of the preference of drug among adolescents

The data collected from several countries of ten different regions helped us to view an overall picture of the drug consumption scenario. At first, we made a list of commonly consumed drugs in the selected regions, and then we gathered the data from several surveys. Next, we normalized all the data, and then converted those into percentages. We normalized all the data, so that we could put all our data under the same graph and see the comparisons. For example, in Figure 3, we In South Asia, among all the drugs consumption, alcohol has the highest percentage (40.16%), whereas in North America, Tobacco is leading the race (33.83%). How did we plot all the data under the same plot? It's simple. First, we made the percentage of individual drugs that were consumed. For example, a survey was done among approximately 1,000 young adults in Bangladesh (South Asia) who consumed different drugs. Among them, 401 young adults preferred alcohol and were addicted to that. We got the percentage of it. Next, another survey was conducted in India among 1,000 adolescents to check who tried LSD. Only one was found among 1,000 candidates. We made the percentage of that amount. Similarly, all the amounts of other separate drugs that adolescents tried were converted into percentage values. A summation of all the individual shares of preferred drugs was made for each region. Then, the total number was normalized to 100. So that, we can find this are the most preferred drugs among the adolescents (Figure 3).

This way, data from other regions were normalized and transformed into percentages to bring all the data under the same graph. Then, the histogram plot was made. It is

**Table 1.** Collected data form ten various regions of the world.

Content		Selected Regions of the World Values in %									
		Africa	South Asia	Middle East	South East Asia	Oceania	Western Europe	Eastern Europe	South America	Central America	North America
Preference of drugs	Cannabis	9.38	16.45	0.76	4.40	5.59	19.65	1.79	6.72	10.31	17.58
	Tobacco	24.98	33.38	16.54	49.40	9.18	17.75	33.48	18.81	14.41	33.83
	Sedative	1.63	2.42	23.43	2.64	1.21	2.75	1.15	5.21	6.09	0.66
	Inhalants	7.50	5.67	0.03	2.65	1.69	12.51	1.52	8.61	12.01	0.63
	Alcohol	39.25	40.16	3.90	24.60	21.64	19.86	51.75	39.52	52.61	29.41
	Pain relievers	5.88	0.49	5.74	2.63	4.74	2.75	3.01	3.01	0.01	9.51
	Stimulants	8.38	0.87	32.55	7.48	17.41	5.92	2.05	12.51	0.03	1.97
	Cocaine	2.63	0.05	0.01	3.52	1.32	7.18	1.03	1.70	0.52	0.58
	LSD	0.13	0.01	4.68	2.62	32.52	4.28	2.39	0.90	0.02	2.79
	Others	0.24	0.50	12.36	0.06	4.70	7.35	1.83	3.01	3.99	3.04
Health problems	Asthma	4.80	4.04	11.30	8.70	10.80	16.04	1.64	17.64	11.24	3.59
	Cancer	7.47	1.16	18.83	21.40	1.10	11.14	0.01	4.60	0.02	2.00
	Malnutrition	4.19	11.09	13.81	23.80	0.65	0.17	16.42	2.30	22.40	2.31
	Behavioral disorder	10.46	8.31	20.71	11.90	32.59	17.82	47.23	19.17	16.70	29.95
	Infectious disease	27.90	22.19	0.22	23.80	20.20	0.10	0.01	4.79	7.10	8.15
	Conduct disorder	0.30	0.01	0.01	0.10	0.01	0.01	0.01	0.01	0.01	0.01
	UTI	0.50	22.18	14.38	0.10	0.80	0.90	0.01	9.21	13.49	12.83
	Sexually transmitted infection	9.23	21.60	9.04	3.17	7.80	24.10	32.10	16.33	6.50	19.68
	Mental disturbance	34.63	9.32	11.41	4.80	25.07	29.50	2.56	25.80	22.14	21.18
	Others	0.52	0.10	0.29	2.23	0.98	0.22	0.01	0.15	0.40	0.30
Types of crimes	Murder	17.40	1.58	0.30	0.20	0.90	0.50	1.01	20.52	21.73	16.44
	Human trafficking	16.61	28.49	27.29	10.49	51.57	6.45	18.35	5.88	10.49	18.75
	Prostitution	31.84	6.85	1.21	56.53	22.92	64.52	42.16	31.34	19.95	3.66
	Robbery	9.66	12.12	4.12	3.21	2.25	1.52	7.81	10.22	9.71	7.92
	Smuggling	4.74	5.60	28.73	3.50	3.02	3.03	5.03	9.56	10.59	21.33
	Drug dealing	11.91	37.46	21.18	3.02	5.15	5.52	4.99	9.02	12.48	17.84
	Gambling	4.21	5.31	9.96	15.14	11.72	12.04	17.09	9.10	9.92	9.67
	Others	3.63	2.59	7.21	7.91	2.47	6.42	3.56	4.36	5.13	4.39
Reason for consuming drugs	Boredom	13.46	47.35	2.37	16.45	7.86	0.83	48.33	16.66	8.53	5.05
	Adventure seeking	14.58	5.30	5.18	1.93	0.63	0.21	4.11	8.03	18.79	4.69
	Broken family	14.29	3.77	0.44	8.71	9.12	20.79	9.89	0.03	19.48	18.87
	Loneliness	13.55	1.30	0.30	12.90	12.58	12.47	9.76	36.52	2.01	5.53

**Table 1.** Cont'd

	Depression	12.80	1.41	6.51	25.33	26.13	13.72	9.14	17.26	14.39	21.51
	Peer pressure	19.48	36.68	49.48	32.36	31.33	20.79	8.12	11.01	13.82	24.29
	Social glorification	9.07	0.01	32.37	0.03	9.43	28.82	7.88	6.84	19.96	16.11
	Others	2.77	4.18	3.36	2.29	2.91	2.37	2.77	3.65	3.02	3.96
Age group	Below 13	15.17	25.15	36.62	26.43	16.54	13.03	25.11	15.15	10.23	9.09
	13-15	39.70	28.02	29.22	29.01	4.57	3.55	4.92	19.91	20.71	12.82
	16-18	36.11	27.90	21.32	31.92	4.43	3.58	5.03	28.29	31.45	36.12
	19-21	9.02	18.93	12.84	12.64	74.46	79.84	64.94	36.65	37.61	41.97

**Table 2.** List of references of collected data of Table 1.

		<b>Selected Regions of the World</b>
<b>Content</b>		<b>Africa, South Asia, Middle East, South East Asia, Oceania, Western Europe, Eastern Europe, South America, Central America, North America</b>
		<b>References</b>
Preference of drugs	Cannabis, tobacco, sedative, inhalants, alcohol, pain relievers, stimulants, cocaine, lsd, others	Monzani et al., 2019; Dumbili et al., 2021; Itanyi et al., 2018; Obadeji et al., 2020; Adamson et al., 2015; Abdulkarim et al., 2005; Peltzer et al., 2018; Obadeji et al., 2020; Moonajilin et al., 2021; Obadeji et al., 2020; Singh et al., 2017; Suwanwela et al., 1986; Shaikh et al., 2018; Momtazi et al., 2007; Al-Hinaai et al., 2021; Jungerman et al., 2009; Opaleye et al., 2013; Ewald et al., 2016; Pinsky et al., 2020; Hinden et al., 2019; Medina-Mora and Gibbs, 2013; Bitancourt et al. 2016; Antunes et al., 2018; Pinsky et al., 2020; CDC, 2023; NIDA, 2023; SAMHSA, 2023; NIH, 2023; Wu et al., 2008; SAMHSA, 2020; Nigeria: Alcohol use among students a rising problem. Movendi International, 2021; Government of South Australia, 2023; ADF, 2023; National Drug Strategy Household Survey, 2023; Owen et al., 2019; EMDCCA, 2023; Estévez-Lamorte et al., 2021; United Nations Office on Drugs and Crime Regional Office, 2021; WHOSIS, 2022. Resendiz Escobar et al., 2017, Janahi et al., 2006, Vazquez et al., 2006, Ensign et al., 2002, Gomez-Lopez et al., 2016, Roncero et al., 2015, Rudolph et al., 2017.
Health Problems	Asthma, cancer, malnutrition, behavioral disorder, cancer, malnutrition, infectious disease, conduct disorder, uti, sexually transmitted infection, mental disturbance, others	To et al., 2012; Adegbehingbe et al., 2005; Adewole et al., 2017; Oyedepo et al., 2020; Odoki et al., 2019; Akokuwebe et al., 2016; Kuranga et al., 2021; Adewole et al., 2017; Obadeji et al., 2020; Kuranga et al., 2021; Hassan et al., 2002; Hossain et al., 2016; Sutradhar et al., 2019; Anam et al., 2022; Khanum et al., 2021; Capps et al., 2015; Mojtabai et al., 2014; World Drug Report, 2022; Minhas, 2023; SAMHSA, 2022; Fatiregun et al., 2020; Wu et al., 2008; UNODC, 2023; UNAIDS, 2023; Oetting et al., 1988; Olanisun et al., 2017; Bener et al., 2006; Miguez et al., 2020; World Health Rankings, 2023; Naushad et al., 2022; STD Rates by Country, 2023; Al-Kaabi et al., 2017; Xiaoshan et al, 2004; Karuppiyah et al., 2021; SingHealth, 2023; Voorberg et al., 2022; Csikszentmihaly, 2023; National Cancer Institute, 2023; Canadian Health Measures Survey, 2019; AAD, 2023; Medscape, 2023; OASH, 2023; Owen et al., 2019; Estévez-Lamorte et al., 2021; Medina-Mora et al., 1989; Ronero et al., 2015.

**Table 2.** Cont'd

Types of crimes	Murder, human trafficking, prostitution, robbery, smuggling, drug dealing, gambling, others	CUMSPH, 2023; Wu et al., 2008; BPDSP, 2019; GRCI, 2023; ISPAC, 2023; UNODC, 2023; Blench Roger, 2014; Horyniak et al., 2016; UNAIDS, 2023; Sharifi et al., 2017; Kennedy et al., 2015; Antunes et al., 2018; Lopez-Mendex et al., 2021; WHO, 2023; The toll of tobacco in Mexico, 2023; INCSR, 2021; PATS, 2023; Lim et al., 2015; Fedele et al., 2022; AIHW, 2021; The Pulse, 2023; Stigma Health Australia, 2021; ABS, 2022; Aha! Swiss Allergy Center, 2022; Federal Statistical Office, 2023; I am Expat, 2023; de Lafforest et al., 2014; Ballas et al., 2017, Rim et al., 2022, Dragomirova et al., 2022, Matricciani et al., 2012, Shavakhobov et al., 2015, Elias et al., 2019, Martins et al., 2018; Schellini et al., 2009; Almeida et al., 2019; Miot et al., 2018; Flores-Mireles et al., 2015; Peder et al., 2020; Bloch et al., 2015; Lopes et al., 2015; Del-Rio et al., 2020; Lozano-Esparza et al., 2020; Varma et al., 2008; Zamora et al., 2021; Paek et al., 2012; Ager et al., 2013; CDC, 2023; NIDA, 2023; SAMSHA, 2023; EMCDDA, 2023; PAHO, 2023; ADF, 2023; Bener et al., 2012; Miguez et al., 2020; Mekonnen et al., 2021.
Reason of consuming drugs	Boredom, adventure seeking, broken family, loneliness, depression, peer pressure, social glorification, others	Sharifi et al., 2017; Kennedy et al., 2015; National Survey on Drug Use and Health, 2007; Escape from quicksand: illicit drug use among youth in southeast Asia, 2023; Schmid-Burgk et al., 2020; National Drug Law Enforcement Agency (Federal Republic of Nigeria). 2019, Olanrewaju et al., 2022; Ahmed et al., 2021; Vohra, 2023; Drug Policy Australia, 2023; Inside Switzerland's Radical Drug Policy Innovation. 2023, Pinsky et al., 2017, Horigian et al., 2021, Mason et al., 2019; Mason and Mennis, 2018; Wang et al., 2022; Mennis et al., 2021; Yangyuen et al., 2020; Goodhines et al., 2020; Marschall-Lévesque et al., 2020; Hards et al., 2022, Bhattacharjee et al., 2023; Grant et al., 2010; Dam et al., 2023; Bakioğlu et al., 2022; Gupta et al., 2010, Busalim et al., 2019, Yoon et al., 2021; Cheng et al., 2020, Cheng et al., 2022; Tullett-Prado et al., 2023; Diep et al., 2021; Canadian Health Measures Survey, 2019; CDC, 2023; NIDA, 2023; SAMSHA, 2023; ADF 2023, PAHO, 2023; EMCDDA, 2023; Naushad et al., 2022.
Age group	Below 13, 13-15, 16-18, 19-21	UNFPA, 2023; Datareportal, 2023; Youth Policy, 2023; Age limits and adolescents, 2023; ACT for Youth Center for Community Action, 2023; Teensavers, 2023; Tarannum et al., 2023; Statistica, 2021; Fabris et al., 2020; Göktaş et al., 2018; Su et al., 2020; Dong et al., 2019; Akbari et al., 2021; Ibrahim et al., 2022, Shan et al., 2021; Gupta et al., 2021; Khademi et al., 2021; CDC, 2023; NIDA, 2023; SAMSHA, 2023; ADF, 2023; PAHO, 2023; UNICEF, 2023; Age limits and adolescents, 2023; UNAIDS, 2023; UNODC, 2023; ISPAC, 2023; GRCI, 2023; BPDSP, 2019; CUMSPH, 2023; AAD, 2023; OASH, 2023, Canadian Health Measures Survey, 2019; Medscape, 2023; ABS, 2023; AIHW, 2021; The Pulse, 2023; World Health Rankings, 2023; QNA, 2021; WHOSIS, 2022; EMCDDA, 2023; Pree release of The Cabin, 2023; INCSR, 2021; World Drug Report, 2022; NDDTC, AIIMS, 2023.

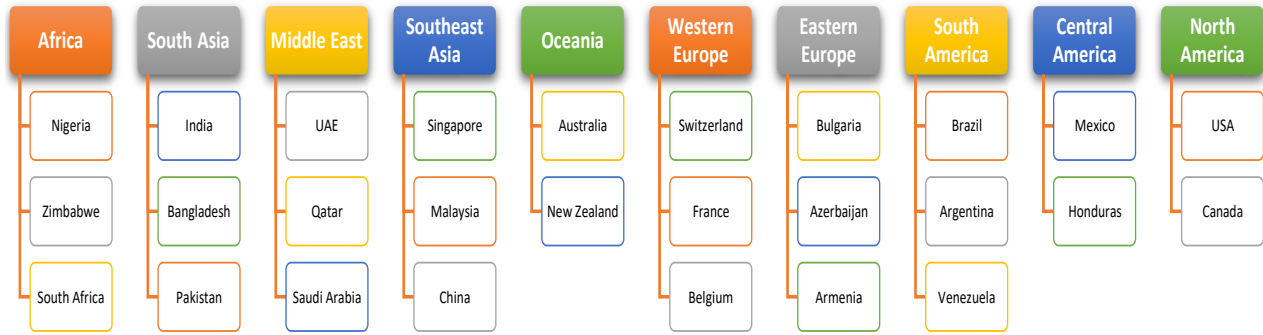
to be noticed that the most preferred drug is dissimilar in different continents. For example, alcohol is preferred in Africa, South Asia, Eastern and Western Europe, South and Central America. In comparison, Tobacco is popular among adolescents in Southeast Asia and North America. It's because of demographic changes. From our gathered information (WEF, 2023), It was found, in most Middle Eastern countries, consuming alcohol in public is prohibited. Adolescents in

Middle Eastern countries shifted towards other drugs, such as Stimulants and Sedatives. Whereas, in other continents, Alcohol consumption among adults is higher in comparison, especially in Western countries, Alcohol is easily available. Even though, Alcohol and Cannabis consumption are strictly prohibited for people below 21 in most countries. But Easy access to these drugs has attracted young adults to try those drugs. From our data analysis, government officials and law

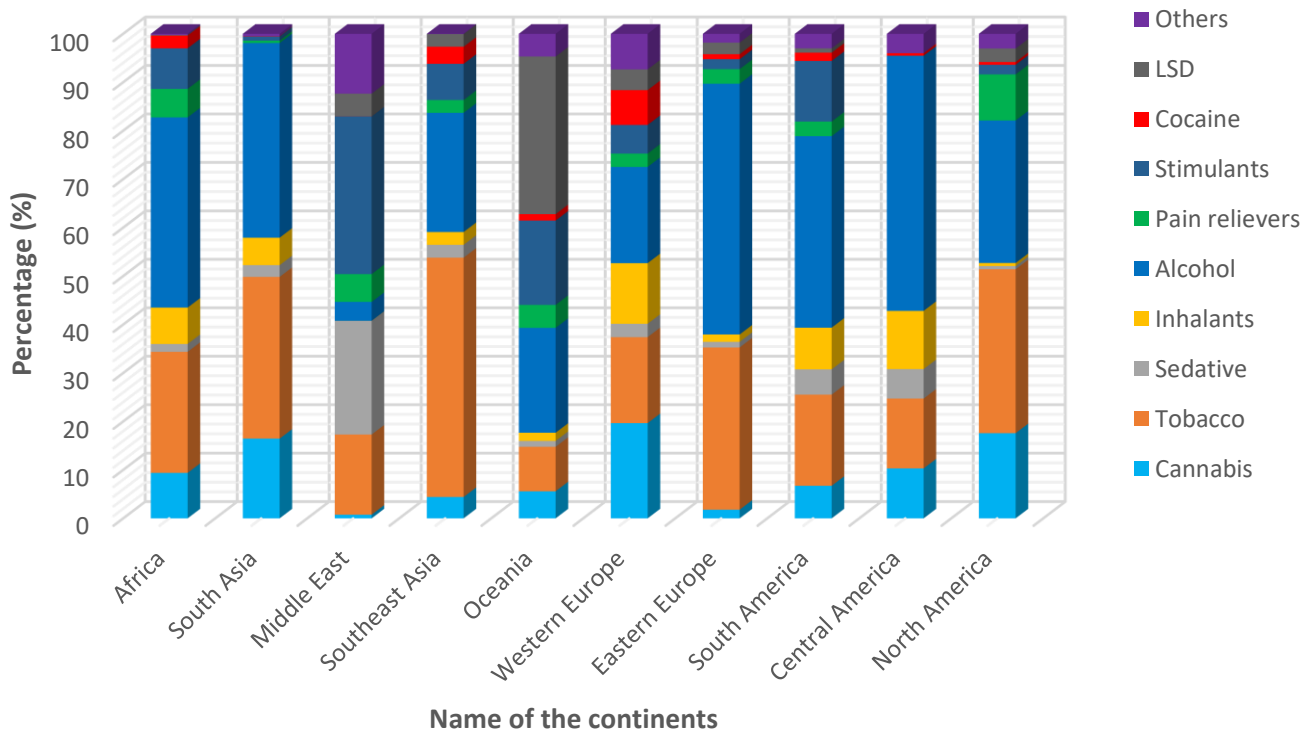
enforcement of the countries in the continent can get information and become aware of the type and amount of drug consumption adolescents consume.

**Study of health problems associated with drug abuse**

In this segment, we explored the health problems



**Figure 2.** Data source tree chart of continents and respective countries.



**Figure 3.** Drug preference among adolescents in different continents.

among the young group of people. We focused on the health issues adolescents' face by consuming drugs during their growing age. Like the previous section, we collected data from the same countries on the same continents and studied how types of diseases differ among adolescents with demographic changes. This time, data has been presented in more detail. From our study, we figured out that diseases such as Asthma, Cancer, Malnutrition, Behavioral disorders, Infectious disease, conduct disorder, Urinary Tract Infections (UTI), sexually transmitted infections, and mental disturbance are most common in the of entire world regardless of

male and female. So, we demonstrated a histogram chart of these human diseases on ten continents.

In the previous section, we selected ten different regions of the world where surveys of drug preference among adolescents have been conducted. Then, the data we collected were converted into percentages and then normalized by the total summation of the percentage, and then multiplied by 100% so that we could set all the data under the same chart. In Figure 4, we found out Mental disturbance is most common among the adolescent group of people in Africa; whereas, in South Asia, infectious disease is leading the race. On the other hand,



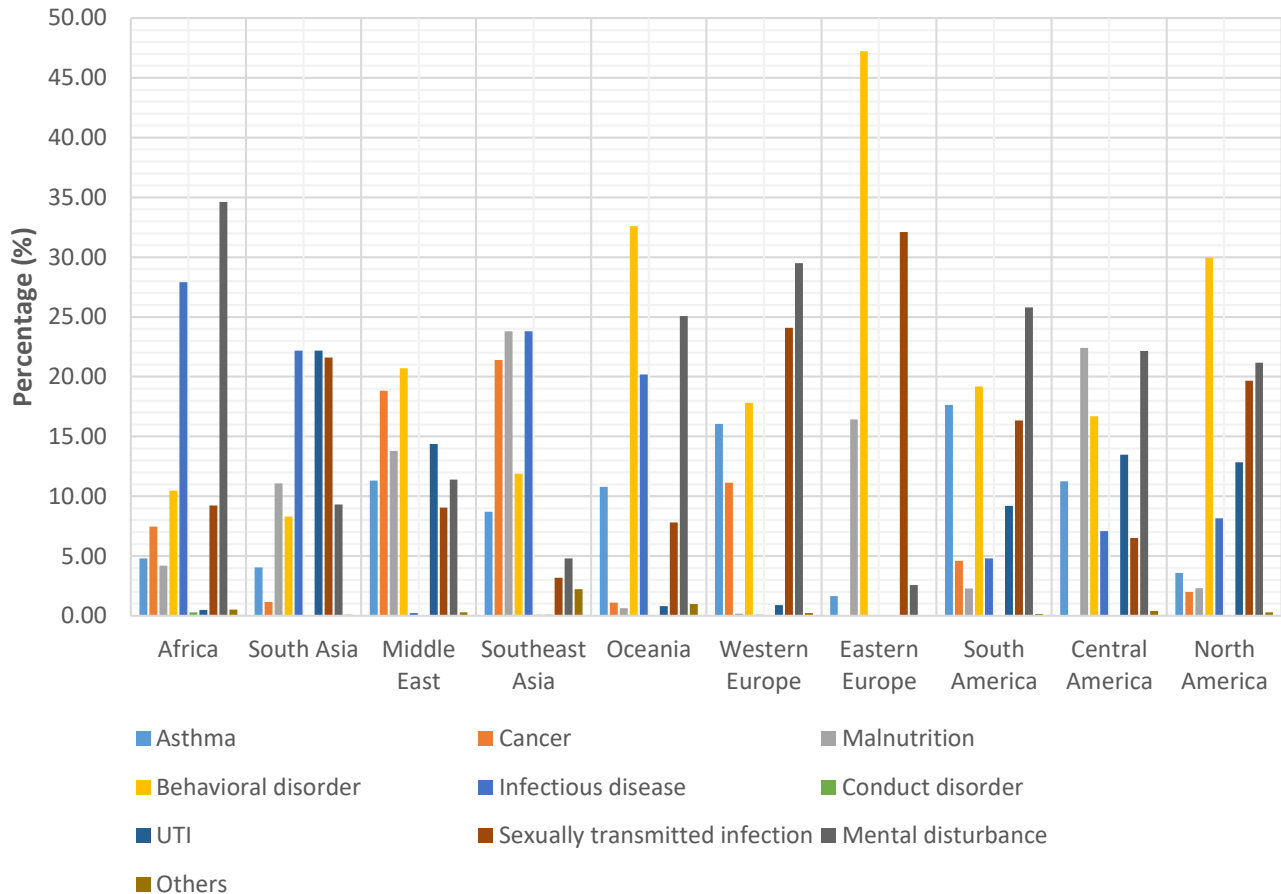


Figure 4. Health Problems associated with drug abuse among adolescents.

in Eastern Europe, Behavioral disorder is common among young people. In the case of data collection from Africa the survey was conducted in 1,000 young adolescents. In contrast, the case survey was conducted in Bangladesh, India, and Pakistan among 1000 people in South Asia. To compare the data from both regions, the actual number has been converted to percentage, and the percentage summation of the disease from each region has been done; then normalized the entire percentage to 100, so that the comparison of data can be precisely demonstrated. Our study clearly shows how health problems differ with demographic changes. Our histogram chart shows that mental disturbance is the most common form of health problems among adolescents in Africa. On the other hand, if we check the data of South Asia, we see infectious diseases (Cholera, Measles, Influenza, Tuberculosis, Hepatitis etc.) is the most general type of health problem, followed by UTI. According to economists' reports (UNICEF, 2023, UNFPA, 2023, WEF, 2023) most of the poor countries in the world are situated in Africa and South Asia. The adolescents of poor countries do not earn very little compared to the young people of first-world countries,

and they invest their little earnings in drug consumption. They cannot afford a better lifestyle such as proper housing, food, and medication. As a result, infectious disease, mental disturbance, and Malnutrition are comparatively higher among the adolescents of the countries of these two regions.

Whereas, if we check the data of Oceania and North America, where first world countries are located, the common health problem is Behavioral disorders. In the countries of those regions, young people usually earn handsome money and spend most of their money on consuming alcohol, cannabis, and other toxic drugs (Figure 3, drug preference data). Hence, they possess abnormality in activities and suffer from Behavioral disorders from the early stages of their life. Our statistical data demonstrates how health problems change with changes in demography and adolescent drug preference.

#### Investigation of the types of crime adolescents commit because of drug abusing

In this section, we focused on young adults committing

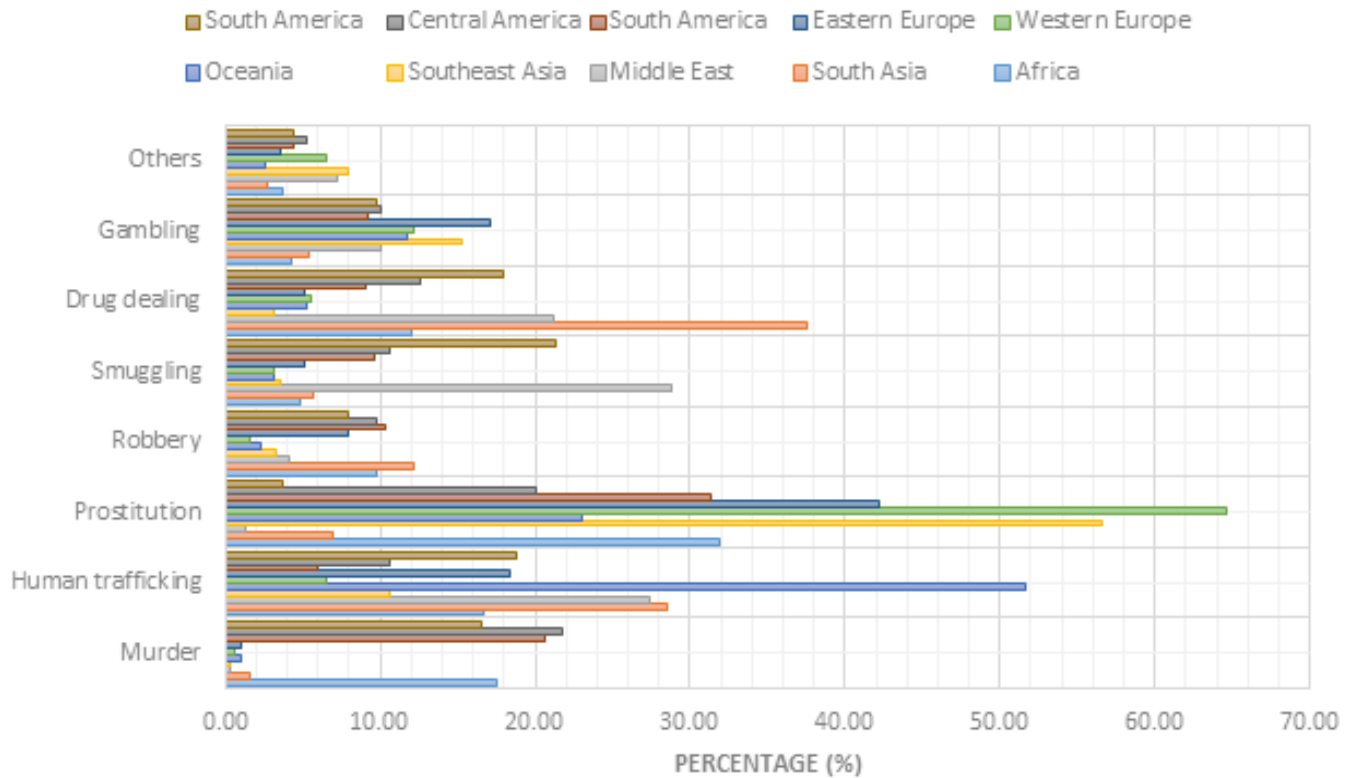


Figure 5. Types of crimes committed by adolescents.

crimes due to drug consumption. First, we accumulated data on the types of crimes adolescents usually execute to arrange money or drugs. Among all the crimes, murder, human trafficking, prostitution, robbery, smuggling, drug dealing, gambling etc. are highly committed by both male and female adolescents. To get a clear picture of what is happening worldwide, just like the previous two sections, we collected numbers of those ten regions previously used for studying drug preference and health problems identification. Likewise, in the previous methods, the data were converted from integer to percentage and then for each region total percentages of crimes committed were calculated. Then, the data were normalized to 100% to make comparisons among each continent. For example, In South Asia, a survey has been conducted among 1000 adolescents in Bangladesh. Bangladesh represented entire South Asia here in this survey. Then, the numbers were converted into percentages. It is seen (Figure 5) that Murder has been committed by 1.58% of the adolescents, 28.49% have been involved in human trafficking, and 6.85% have been engaged in prostitution to arrange money to purchase their preferred drugs. Similarly, 12.12% in robbery, 5.60% in smuggling, 37.46% in drug dealing, 5.31% in gambling, and 2.59% have been involved in other types of crimes. The summation of all these crime rates is 100%. Figure 5 exhibits the vertical histogram of crime rate in ten

regions.

In this way, the crime rate of the other nine regions has been calculated. It has been witnessed that the variation of crimes is comparatively less in the regions where first-world countries are located. Most adolescents are engaged in similar types of crimes. For example, in Western Europe, adolescents are involved in prostitution (64.52%), In North America, adolescents mostly engage in (21.33%) smuggling. It is because, in some European countries, even though prostitution is illegal, law enforcement is flexible. Therefore, young people take this comparatively easy route to make instant money to purchase drugs. In the North America, especially in the United States, gun law is very flexible, and, in some parts of North America, especially in the United States, guns are readily available, and anyone can purchase them easily. Therefore, young people are leaning towards easy money-making by smuggling and murdering. On the other hand, In South Asian and African countries, the variation of crimes is higher. Adolescents are committing various crimes.

Our statistical report demonstrates what must be done to eradicate the crime rate. If law enforcers become stricter in South Asia and the African region, strong laws will be imposed against prostitution in Western Europe. Gun laws become strict in the United States and other North American countries, so the adolescent crime rate

### Africa

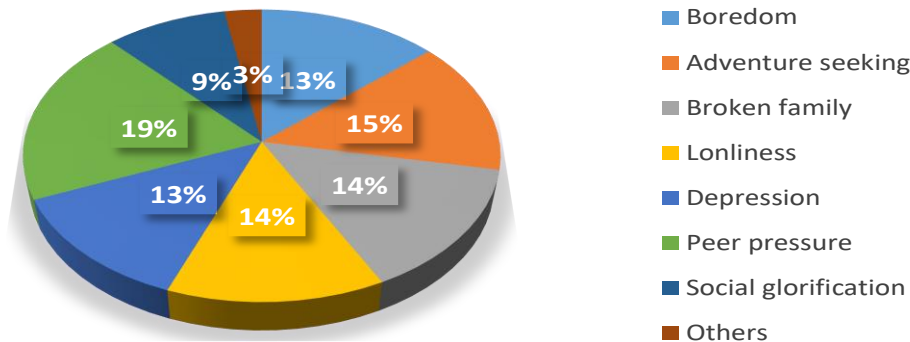


Figure 6a. Pie Chart of reason of drug consumption in Africa.

### South Asia

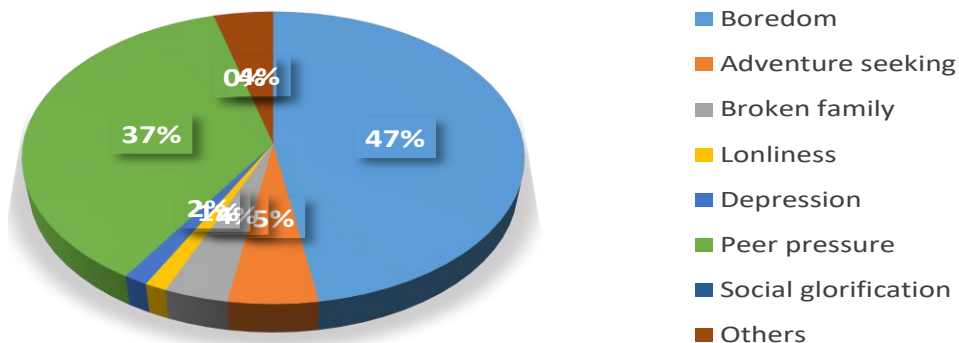


Figure 6b. Pie Chart of reason of drug consumption in South Asia.

will drop drastically.

#### Reason of drug consumption among adolescents

In this section, we studied why adolescents consume drugs and gradually become addicted. In the beginning, common reasons behind drug abuse by the growing number of young people have been identified. Unsurprisingly, the reasons behind drug consumption are also expected in all regions, such as boredom, adventure-seeking, broken families, loneliness, depression, peer pressure, and social glorification. However, when we converted the numbers into percentages, the data was represented in pie charts. It is observed that in most regions, Peer pressure is the main reason young adults consume drugs. Figure 6a shows that in Africa, about 19.48% of adolescents are addicted to drugs because of Peer pressure. At the same time, 14.58% of young adults

take drugs to seek adventure in life. Due to the complexity, frustration, and depression in life adolescents in the countries in the region of third-world countries are more addicted to drugs. In Figure 6(b), Boredom and Peer pressure are the leading reasons in South Asia. Due to a lack of knowledge of the dire consequences and the scarcity of entertainment, young people get addicted to drugs daily.

On the other hand, in the first world countries where plenty of entertainment sources are available, young people don't take drugs because of lack of entertainment. However, In North America and Western European regions where first-world countries are located, adolescents are addicted to drugs because of being stuck in the broken families, loneliness, etc. The numbers are higher in these regions than in Africa and South Asia. The pie chart makes it clear that the reason for drug consumption differs due to demographic changes. Due to a lack of knowledge of the bad dire consequences and

## Middle East

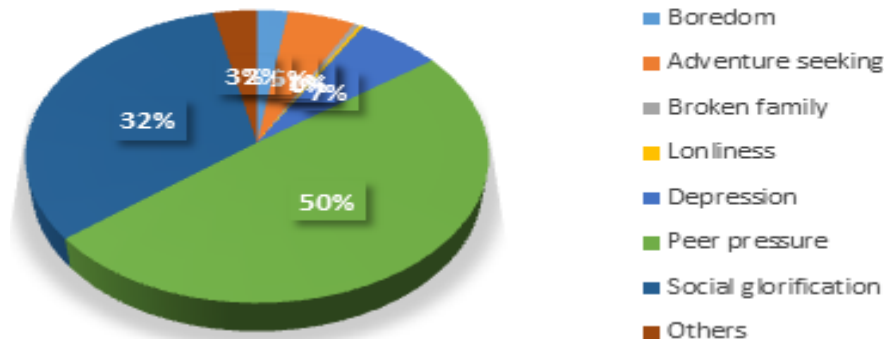


Figure 6c. Pie Chart of reason of drug consumption in Middle East.

## Southeast Asia

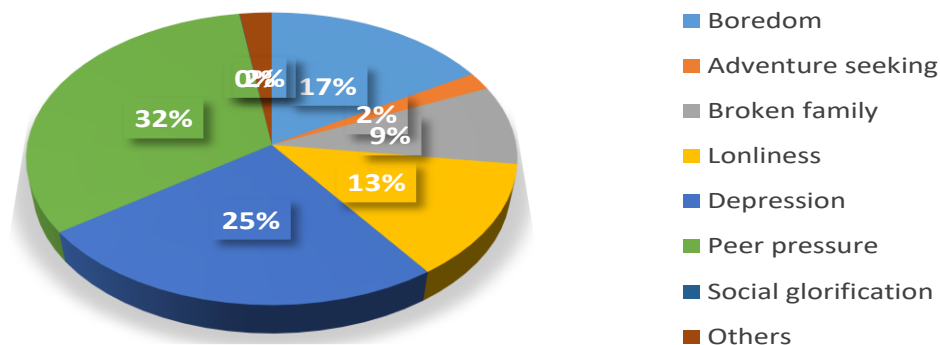


Figure 6d. Pie Chart of reason of drug consumption in Southeast Asia.

the scarcity of entertainment, young people get addicted to drugs daily. If the source of entertainment, awareness of drug abuse can be increased in the regions of third world countries and loneliness, breaking of the family can be decreased in first world countries, drug consumption will be lowered significantly. Our investigation suggests that. It also identified, Peer pressure as a common reason for consuming drugs. From our report, Organizations such as the WHO can create awareness among the countries to find a way to reduce Peer pressure from adolescents.

### Age group among adolescents

As we discussed earlier, in the growing age, young people are branded as adolescents. A group of people under specific periods falls under the category of adolescents, in this study, we did a literature survey to figure out the population of which age group falls inside

adolescents. From our study (WHO, 2023; Fabris et al., 2020; Gökteş et al., 2018; Su et al., 2020; Dong et al., 2019; Akbari et al., 2021; Shan et al., 2021; Gupta et al., 2021; Khademi et al., 2021; UNICEF, 2023; Age limits and adolescents, 2023; UNAIDS, 2023; UNODC, 2023; ISPAC, 2023; GRCI, 2023; BPDSP, 2019; CUMSPH, 2023; AAD, 2023; OASH, 2023; World Health Rankings, 2023; WHOSIS, 2022; EMCDDA, 2023) we witnessed that adolescents can be divided into four categories such people whose age is just below 13, people aged between 13 to 15, youngsters between 16 to 18 and young adults whose age is between 19 to 21. People above 21 are considered adults, and youngsters below 12 are considered as children (Age Limits and Adolescents, 2023; WHO, 2023). After defining the age group, we started collecting data from the countries of our selected ten regions, and we converted the numbers into percentages and then normalized them so that all the gathered data could be compared among each other. We represented all the collected data in the pie chart. In

### Oceania

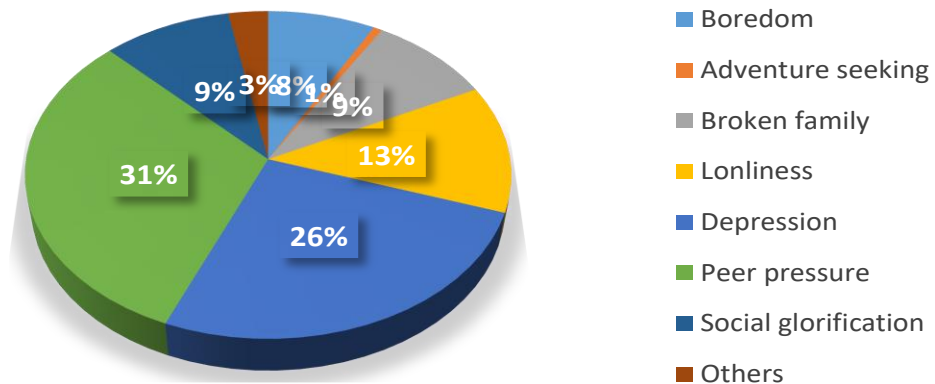


Figure 6e. Pie Chart of reason of drug consumption in Oceania.

### Western Europe

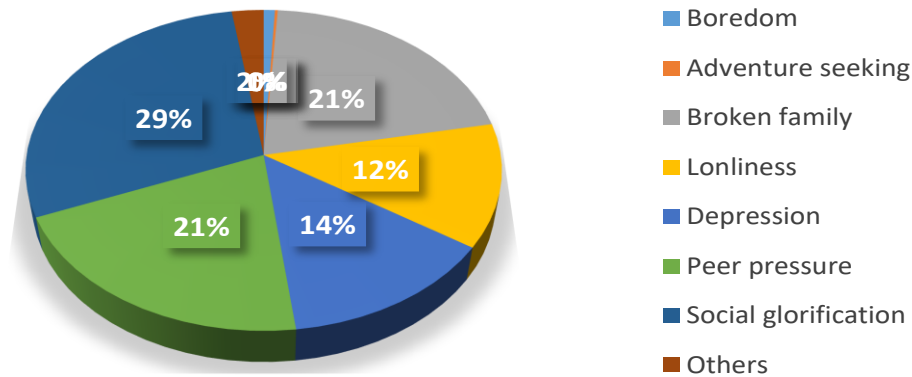


Figure 6f. Pie Chart of reason of drug consumption in Western Europe.

### Eastern Europe

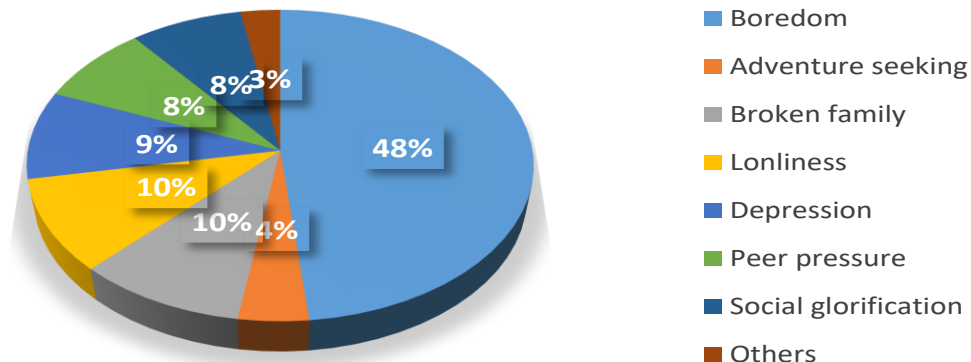


Figure 6g. Pie Chart of reason of drug consumption in Eastern Europe.

### South America

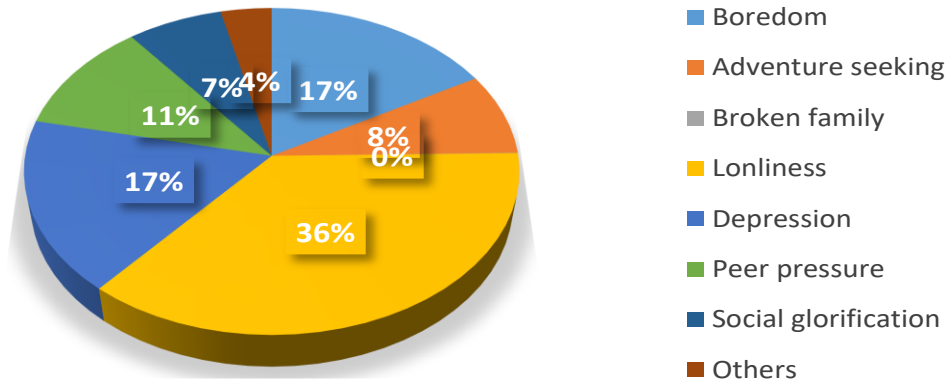


Figure 6h. Pie Chart of reason of drug consumption in South America.

### Central America

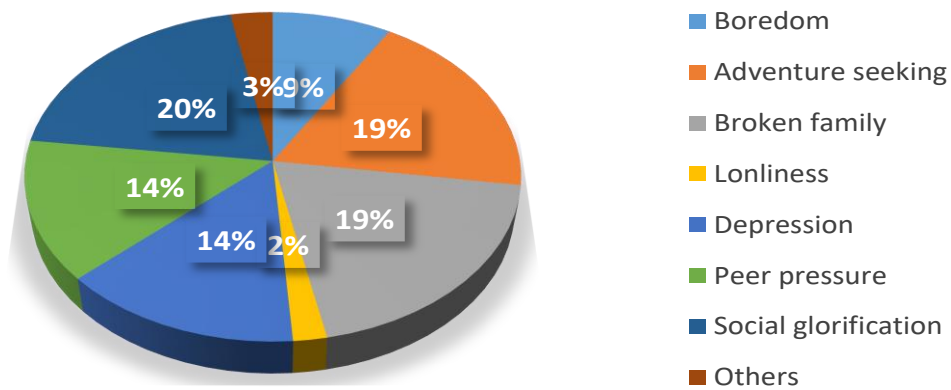


Figure 6i. Pie Chart of reason of drug consumption in Central America.

### North America

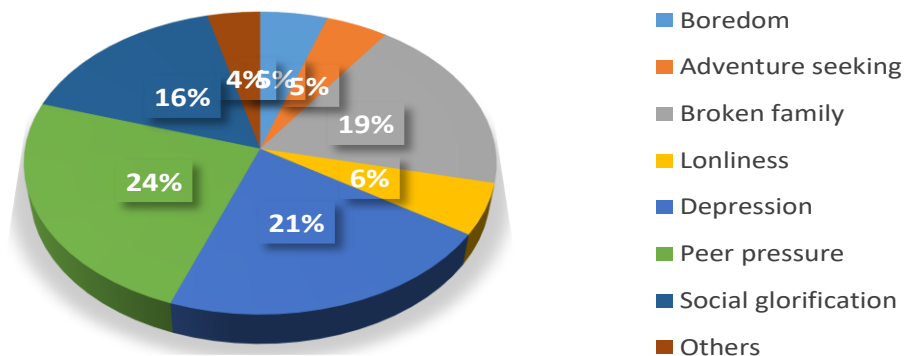
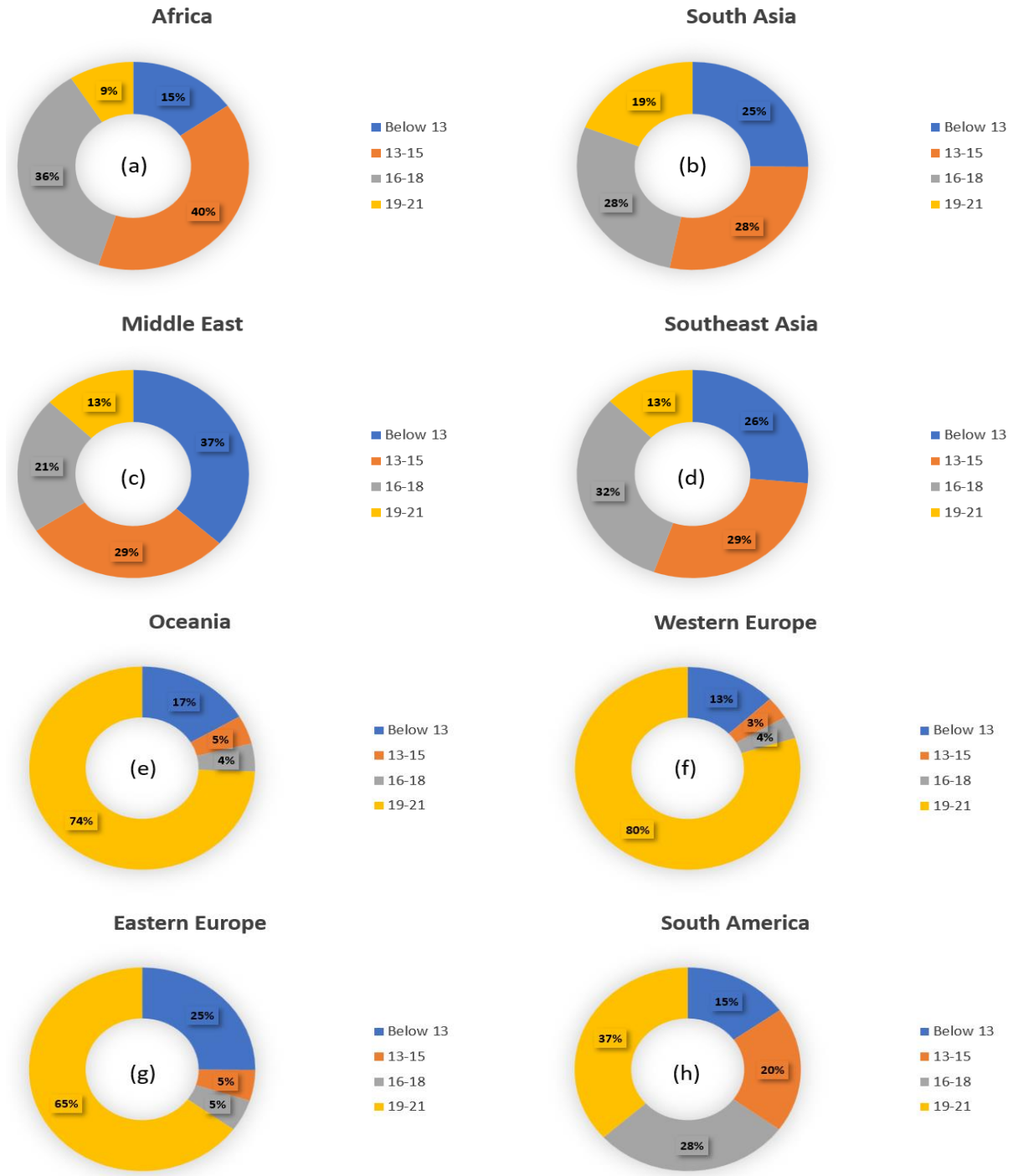


Figure 6j. Pie Chart of reason of drug consumption in North America.



**Figure 7.** Age group pie chart of (a) Africa (b) South Asia (c) Middle East (d) Southeast Asia (e) Oceania (f) Western Europe (g) Eastern Europe (h) South America (i) Central America (j) North America.

Figure 7, the collected data from ten targeted regions has been presented in ten individual pie charts respectively. In this case, numbers vary significantly. In Africa and South Asia, adolescents aged between 13-15 commit a major percentage of crimes. In the Middle East, young adults below 13 commit most of the crimes.

Whereas in Southeast Asia, adolescents aged between 16 and 18 commit most crimes. In other selected regions such as Oceania, Western Europe, Eastern Europe, South America, Central America, and North America, the dominant candidates involved in drug abuse fall under the 19-21 age group.

It is seen that the children of African and South Asian countries are branded as economically neglected compared to the children of first-world countries such as Western Europe and North America. Also, because of poverty, children of poor countries under 13 are forced to work by their parents. To make quick money, these kids get involved in drug dealing and consume drugs alone; whereas, in first-world countries, children are provided with better facilities. But, when they reach their pick of adolescence, especially in their late adolescence, due to different circumstances they get involved in drug abuse. These issues need to be taken care of. Our investigation suggests, if parents, teachers, and guardians of the youngsters of this age group become more aware of the whereabouts of their kids, school governing bodies, law enforcement, and child welfare associations come up with innovative ideas to engage youngsters in sports, cultural programs, extracurricular activities, and the authorities of especially 3rd world countries emphasis more on providing child education and regularly monitors the mental health of the young adults. Adolescent people can be stopped from getting addicted to drugs.

Our statistical report here certainly paves the way to reducing adolescent drug abuse. Our study first showed which harmful drugs youngsters are mostly taking, and then the subsequent analysis depicts the scenario of major health problems of the adolescents due to drug abuse, 3rd observation exhibits the types of crimes youngsters are committing to arrange money for their preferred drugs. Then, the pie charts give you, idea of the percentiles of the reason for consuming drugs and age group. Gender discrimination has been deliberately avoided here because it is a global concern regardless of gender.

## Conclusion

In this work, the risk factors and behaviors among adolescents have been studied. A statistical report has been generated which can help reduce drug abuse among adolescents. Ten regions of the world have been selected, covering the world's demography. The first study deals with drug preference among adolescents in different areas, and the numbers have been converted to percentile so that a comparison can be made. Our investigation here exhibits, the choice of drugs varies with the change of demography, and it also shows how the preference of drugs can have an impact on health problems, types of crimes committed, reason for consuming drugs, and age groups of adolescents. If the production of the most preferred types of drugs can be minimized in certain regions of the world, drug abuse can be reduced significantly. Our model helps analyze the data and indicates which types of drug production, import, and supply should be stopped in which part of the world. A country's progress relies upon the development of the youngsters. However, drug abuse at a very early

age blocks the mental growth of adolescents. Suppose it cannot be reduced or stopped immediately, the development of the world technology economy. In that case, health will be in considerable danger, and future generations will be at massive risk of becoming autistic. Thus, our study and own generated statistical report comes as a rescue to minimize drug abuse among adolescents and eventually reduce the risk behavior of the youngsters, which has become an important issue to be resolved in the topmost nations of the world.

## CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

## REFERENCES

- AAD (2023). American Academy of Dermatology Association. Available at: <https://www.aad.org/member/clinical-quality/clinical-care/>
- Abdulkarim A, Mokuolu O, Adeniyi A (2005). Drug use among adolescents in Ilorin, Nigeria. *Tropical Doctor* 35(4):225-258.
- ABS (2022). Australian Bureau of Statistics. Available at: <https://www.abs.gov.au/>
- ABS (2023). Australian Bureau of Statistics. Available at: <https://www.abs.gov.au/>
- Achterbergh L, Pitman A, Birken M, Pearce E, Sno H, Johnson S (2020). The experience of loneliness among young people with depression: A qualitative meta-synthesis of the literature. *BMC Psychiatry* 20(1):415.
- ACT for Youth Center for Community Action (2023). Available at: <https://actforyouth.net/adolescence/demographics/>
- Adamson T, Ogunlesi A, Morakinyo O, Akinhanmi A, Onifade P (2015). Descriptive National Survey of Substance Use in Nigeria. *Journal of Addiction Research and Therapy* 6:234.
- Adegbehingbe B, Oladehinde M, Majemgbasan T, Onakpoya H, Osagiede E (2005). Screening of Adolescents for Eye Diseases in Nigerian High Schools. *Ghana Medical Journal* 39(4):138-142.
- ADF (2023). Alcohol and Drug Foundation. Available at: <https://adf.org.au/drug-facts/lsd/>
- Age limits and adolescents (2023). *Pediatric Child Health*, 8(9):577-8.
- Ager A (2013). Annual research review: Resilience and child well-being-public policy implications. *Journal of Child Psychology and Psychiatry* 54(4):488-500.
- Aha! Swiss Allergy Center (2022). Available at: <https://www.aha.ch/>
- Ahmed S, Chowdhury S, Rana A, Rahman A, Chowdhury A (2021). Drug abuse in Bangladesh: Knowledge, attitude, and perceptions of secondary school students. Available at: <https://dSPACE.bracu.ac.bd/>
- AIHW (2021). Australian Institute of Health and Welfare. Available at: <https://www.aihw.gov.au/>
- Akbari M, Seydavi M, Palmieri S, Mansueto G, Caselli G, Spada M (2021). Fear of missing out (FoMO) and internet use: A comprehensive systematic review and meta-analysis. *Journal of Behavioral Addictions* 10(4):879-900.
- Akokuwebe M, Daini B, Falayi E, Oyejade O (2016). Knowledge and attitude of sexually transmitted diseases among adolescents in Ikeji-Arakeji, Osun State, in South-Western Nigeria. *African Journal of Medicine and Medical Science* 45(3):281-289.
- Almeida G, Nunes M (2019). Sleep characteristics in Brazilian children and adolescents: a population-based study. *Sleep Medicine* 1:100007.
- Al-Hinaai H, Al-Busaidi I, Al Farsi B, Al Saidi Y (2021). The Prevalence of Substance Misuse and its Effects among Omani College Students: A Cross-sectional Study. *Oman Medical Journal* 36(1):224.
- Al-Kaabi N, Selim N, Singh R, Almadahki H, Salem M (2017). Prevalence and Determinants of Depression among Qatari Adolescents in Secondary Schools. *Family Medicine and Medical*



- Science Research 6:219.
- Anam M, Akter S, Hossain F, Bonny S, Akter J, Zhang C, Rahman M, Mian M (2022). Association of sleep duration and sleep quality with overweight/obesity among adolescents of Bangladesh: a multilevel analysis. *BMC Public Health* 22(1):374.
- Antunes H, Rivadeneira-Guerrero M, Goulart B, Oenning N (2018). Familiar factors and illicit drug use among Brazilian adolescents: An analysis of the Brazilian National Survey of School Health. *Cadernos de Saúde Pública* 34(12).
- Arnett J, Trzesniewski K, Donnellan M (2013). The dangers of generational myth-making: Rejoinder to Twenge. *Emerging Adulthood* 1:17–20.
- Asato M, Terwilliger R, Woo J, Luna B (2010). White matter development in adolescence: A DTI study. *Cerebral Cortex* 20:2122–2131.
- Backes E, Bonnie R (2019). The promise of adolescence: Realizing opportunity for all youth. National Academies Press (US). Available at: <https://nap.nationalacademies.org/read/25388/chapter/1>
- Bakioğlu F, Deniz M, Griffiths M, Pakpour A (2022). Adaptation and validation of the Online-Fear of Missing Out Inventory into Turkish and the association with social media addiction, smartphone addiction, and life satisfaction. *BMC Psychology* 10(1):154.
- Ballas D, Dorling D, Hennig B (2017). *The Human Atlas of Europe*. Bristol: Policy Press, p. 66.
- Baltes P (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. *Developmental Psychology* 23:611–626.
- Barker L, Adelman H (1994). Mental health and help-seeking among ethnic minority adolescents. *Journal of Adolescence* 17:251–263.
- Bechtold J, Cauffman E (2014). Tried as an adult, housed as a juvenile: A tale of youth from two courts incarcerated together. *Law and Human Behavior* 38(2):126–138.
- Bener A, Al-Mahdi H (2012). Internet Use and Television Viewing in Children and its Association with Vision Loss: A Major Public Health Problem. *Journal of Public Health in Africa* 3(1):16.
- Bernaras E, Jaureguizar J, Garaigordobil M (2019). Child and adolescent depression: A review of theories, evaluation instruments, prevention programs, and treatments. *Frontiers in Psychology* 10:543.
- Bhattacharjee A, Williams J, Meyerhoff J, Kumar H, Mariakakis A, Kornfield R (2023). Investigating the Role of Context in the Delivery of Text Messages for Supporting Psychological Wellbeing. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* P 494.
- Bitancourt T, Tissot M, Fidalgo T, Galduróz J, Silveira Filho D (2016). Factors associated with illicit drugs' lifetime and frequent/heavy use among students results from a population survey. *Psychiatry Research* 237:290–295.
- Blench, Roger (2014). *An Atlas of Nigerian Languages*. Oxford: Kay Williamson Educational Foundation. Available at: <https://www.africabib.org/rec.php?RID=404061931>
- Bloch K, Szklo M, Kuschnir M, Abreu G, Barufaldi L, Klein C (2015). The Study of Cardiovascular Risk in Adolescents – ERICA: rationale, design and sample characteristics of a national survey examining cardiovascular risk factor profile in Brazilian adolescents. *BMC Public Health* 15(1):94.
- Boldero J, Fallon B (1995). Adolescent help-seeking: What do they get help for and from whom? *Journal of Adolescence* 18:193–209.
- Booth A (2016). Searching for qualitative research for inclusion in systematic reviews: A structured methodological review. *Systematic Reviews* 5(1):74.
- Bowins B (2015). Depression: Discrete or continuous? *Psychopathology* 48(2):69–78.
- BPDSP (2019). Bangladesh Police Discipline Security Progress. Available at: [https://www.police.gov.bd/en/crime\\_statistic/year/2019](https://www.police.gov.bd/en/crime_statistic/year/2019)
- Busalim A, Masrom M, Zakaria W (2019). The impact of Facebook Addiction and self-esteem on students' academic performance: A multi-group analysis. *Computers and Education* 142:103651.
- Canadian Health Measures Survey (2019). Available at: [https://www150.statcan.gc.ca/n1/daily-quotidien/201214/dq201214d\\_eng.htm](https://www150.statcan.gc.ca/n1/daily-quotidien/201214/dq201214d_eng.htm)
- Capps R, Newland K, Fratzke S, Groves S, Auclair G, Fix M (2015). The Integration Outcomes of U.S. refugees: Successes and Challenges Migration Policy Institute, Washington DC, USA.
- CDC (2023). Centers for Disease Control and Prevention. Available at: <https://www.cdc.gov/marijuana/data-statistics.htm>
- Chasteen A, Horhota M, Crumley-Branyon J (2021). Overlooked and Underestimated: Experiences of Ageism in Young, Middle-Aged, and Older Adults. *The journals of gerontology. Series B, Psychological Sciences, and Social Sciences* 76(7):1323–1328.
- Cheng C, Ebrahimi O, Luk J (2022). Heterogeneity of Prevalence of Social Media Addiction Across Multiple Classification Schemes: Latent Profile Analysis. *Journal of Medical Internet Research* 24(1):27000.
- Cheng C, Lau Y, Luk J (2020). Social Capital-Accrual, Escape-From-Self, and Time-Displacement Effects of Internet Use During the COVID-19 Stay-at-Home Period: Prospective, Quantitative Survey Study. *Journal of Medical Internet Research* 22(12):22740.
- Ciarrochi J, Deane F, Wilson C, Rickwood D (2002). Adolescents who need help the most are the least likely to seek it: The relationship between low emotional competence and low intention to seek help British. *Journal of Guidance and Counselling* 30(2):173–188.
- Cooke P, Melchert T, Connor K (2016). Measuring Well-Being: A Review of Instruments. *Counseling Psychology* 44:730–757.
- Cousens S, Hargreaves J, Bonell C (2011). Alternatives to randomisation in the evaluation of public-health interventions: statistical analysis and causal inference. *Journal of Epidemiology and Community Health* 65:576–581.
- Csikszentmihalyi M (2023). Adolescence. *Encyclopedia Britannica*. Available at: <https://www.britannica.com/science/adolescence/>
- CUMSPH (2023). Columbia University Mailman School of Public Health. Available at: <https://www.publhealth.columbia.edu/news/new-study-estimates-over-5-5-million-u-s-adults-use-hallucinogens>
- Dam V, Dao N, Nguyen D, Vu T, Boyer L, Auquier P, Fond G, Ho R, Ho C, Zhang M (2023). Quality of life and mental health of adolescents: Relationships with social media addiction, Fear of Missing out, and stress associated with neglect and negative reactions by online peers. *PLoS One* 18(6):0286766.
- Datareportal (2023). Available at: <https://datareportal.com/>
- de Lafforest S, Magnier A, Vallée M, Bey E, Le Goux C, Saint F, Thereby A, Zahar J, Sotto A, Bruyere F, Grammatico-Guillon L (2014). FURTIHF: French urinary tract infections in healthcare facilities – five-year historic cohort. *Journal of Hospital Infection* 116:29–36.
- Deci L, Ryan M (2008). Self-determination Theory: A Macrotheory of Human Motivation, Development, and Health. *Canadian Psychology* 49:182–185.
- Delle Fave A, Brdar I, Freire T, Vella-Brodrick D, Wissing M (2011). The Eudaimonic and Hedonic Components of Happiness: Qualitative and Quantitative Findings. *Social Indicators Research* 100:185–207.
- Del-Rio-Navarro B, Navarrete-Rodríguez E, Berber A, Reyes-Noriega N, García-Marcos L (2020). Grupo GAN México, Grupo ISAAC México. The burden of asthma in an inner-city area: A historical review 10 years after Isaac. *World Allergy Organ Journal* 13(1):100092.
- Department of Health (2004). *National service framework for children, young people and maternity services: Core standards* DH Publications, London. Available at: <https://www.gov.uk/government/publications/national-service-framework-children-young-people-and-maternity-services>
- Diehl M, Wahl H, Barrett A, Brothers A, Miche M, Montepare J, Wurm S (2014). Awareness of aging: Theoretical considerations on an emerging concept. *Developmental Review* 34:93–113.
- Diep P, Phuong V, Chinh N, Diem N, Kim Bao G (2021). Health Science Students' Use of Social Media for Educational Purposes: A Sample from a Medical University in Hanoi, Vietnam. *Health services insights* 14:11786329211013549.
- Dong G, Wang Z, Wang Y, Du X, Potenza M (2019). Gender-related functional connectivity and craving during gaming and immediate abstinence during a mandatory break: Implications for development and progression of internet gaming disorder. *Progress in Neuro-Psychopharmacology and Biological Psychiatry* 88:1–10.
- Dowling G, Weiss S, Candon T (2008). Drugs of abuse and the aging brain. *Neuropsychopharmacology* 33(2):209–218.

- Dragomirova M, Antonova A, Stoykova S, Mihova G, Grigorova D (2022). Myopia in Bulgarian school children: prevalence, risk factors, and health care coverage. *BMC Ophthalmology* 22(1):248.
- Drug Policy Australia (2023). Available at: <https://www.drugpolicy.org.au/>
- Dumbili E, Hanewinkel R, Degge H, Ezekwe E, Nnaji M (2021). Cannabis Use Motivations: a Study of Young Adults in Nigeria. *Drugs: Education Prevention and Policy* 28:585-594.
- Elias B, Silva J, Mais L, Warkentin S, Konstanyer T, Solé D (2019). Factors Associated with Asthma in Brazilian Adolescents: National Adolescent School-Based Health Survey (PENSE-2012). *Revista Paulista de Pediatria* 37(4):406-413.
- EMCDDA (2023). European Monitoring Centre for Drugs and Drug Addiction. Available at: [https://www.emcdda.europa.eu/index\\_en](https://www.emcdda.europa.eu/index_en)
- Ensign J, Panke A (2002). Barriers and bridges to care: Voices of homeless female adolescent youth in Seattle, Washington, USA. *Journal of Advanced Nursing*, 37(2):166-172.
- Escape from quicksand: illicit drug use among youth in Southeast Asia (2023). *The Lancet Regional Health - Southeast Asia*, 10: 100175.
- Estévez-Lamorte N, Foster S, Gmel G, Mohler-Kuo M (2021). Routes of Administration of Illicit Drugs among Young Swiss Men: Their Prevalence and Associated Socio-Demographic Characteristics and Adverse Outcomes. *International Journal of Environmental Research and Public Health* 18(21):11158.
- Ewald D, Sumner S (2016). Blood type biochemistry and human disease. *Wiley Interdisciplinary Review Systems Biology Medicine* 8(6):517-535.
- Fabris M, Marengo D, Longobardi C, Settanni M (2020). Investigating the links between fear of missing out, social media addiction, and emotional symptoms in adolescence: The role of stress associated with neglect and negative reactions on social media. *Addictive Behaviors* 106:106364.
- Fatiregun O, Bakare O, Ayeni S, Oyerinde A, Sowunmi A, Popoola A, Salako O, Alabi A, Joseph A (2020). 10-Year Mortality Pattern Among Cancer Patients in Lagos State University Teaching Hospital, Ikeja, Lagos. *Frontiers in Oncology* 30(10):573036.
- Fedele D, Thomas J, Elizabeth M, McQuaid, Gurka M, Berg C, Prabhakaran S (2022). AIM2ACT: Randomized controlled trial protocol for a mobile health intervention for early adolescents with asthma. *Contemporary Clinical Trials* 123:107011.
- Federal Statistical Office (2023). Available at: <https://www.bfs.admin.ch/>
- Finegood D, Merth T, Rutter H (2010). Implications of the foresight obesity system map for solutions to childhood obesity. *Obesity (Silver Spring)* 18(n1s):S13-S16.
- Florentino T, Marini M, Succurro E, Andreozzi F, Perticone M, Hribal M (2018). One-hour postload hyperglycemia: implications for prediction and prevention of type 2 diabetes. *Journal of Clinical Endocrinology and Metabolism* 103(9):3131-3143.
- Flores-Mireles A, Walker J, Caparon M (2015). Urinary tract infections: epidemiology, mechanisms of infection and treatment options. *Nature Reviews Microbiology* 13:269-84.
- Freaker H, Barley V, Kent G (2007). Adolescents' views of helping professionals: A review of the literature. *Journal of Adolescence* 30(4):639-653.
- Friedman I (1991). Areas of concern and sources of advice for Israeli adolescents. *Adolescence* 26(104):967-976.
- Giles H, Ballard D, McCann R (2002). Perceptions of Intergenerational Communication across Cultures: An Italian Case. *Perceptual and Motor Skills* 95(2):583-591.
- Göktaş S, Aygar H, Akbulut Zencirci S, Önsüz M, Alaiye M, Metintas S (2018). Problematic internet use questionnaire-short form-6 (PIUQ-SF 6): a validity and reliability study in Turkey. *International Journal of Research in Medical Sciences* 6:2354.
- Gómez-López M, Viejo C, Ortega-Ruiz R (2016). Well-Being and Romantic Relationships: A Systematic Review in Adolescence and Emerging Adulthood. *International Journal of Environmental Resources and Public Health* 16:2415.
- Goodhines P, Desalu J, Zaso M, Gellis L, Park A (2020). Sleep Problems and Drinking Frequency among Urban Multiracial and Monoracial Adolescents: Role of Discrimination Experiences and Negative Mood. *Journal of Youth and Adolescence* 49(10):2109-2123.
- Government of South Australia (2023). Available at: <https://www.sahealth.sa.gov.au/>
- Grant J, Potenza M, Weinstein A, Gorelick D (2010). Introduction to behavioral addictions. *The American Journal of Drug and Alcohol Abuse* 36(5):233-241.
- GRCI (2023). Global Organized Crime Index. Available at: [https://ocindex.net/rankings/human\\_smuggling?f=rankingsandview=List](https://ocindex.net/rankings/human_smuggling?f=rankingsandview=List)
- Gupta M, Sharma A (2021). Fear of missing out: A brief overview of origin, theoretical underpinnings, and relationship with mental health. *World Journal of Clinical Cases* 9(19):4881-4889.
- Gustavson C, Stahlberg O, Sjdin A, Forsman A, Nilsson T, Anckarster H (2007). Age at onset of substance abuse: A crucial covariate of psychopathic traits and aggression in adult offenders. *Psychiatry Research* 153(2):195-198.
- Hards E, Loades M, Higson-Sweeney N, Shafran R, Serafimova T, Bridgen A, Reynolds S, Crawley E, Chatburn E, Linney C, McManus M, Borwick C (2022). Loneliness and mental health in children and adolescents with pre-existing mental health problems: A rapid systematic review. *British Journal of Clinical Psychology* 61(2):313-334.
- Harrison L, Harrington R (2001). Adolescents' bereavement experiences: Prevalence, association with depressive symptoms and use of services. *Journal of Adolescence* 24:159-169.
- Hassan M, Kabir A, Mahmud A, Rahman F, Hossain M, Bennoor K, Amin M, Rahman M (2002). Self-reported asthma symptoms in children and adults of Bangladesh: findings of the National Asthma Prevalence Study. *International Journal of Epidemiology* 31(2):483-488.
- Hinden L, Avner M, Stepensky P, Or R, Almogi-Hazan O (2019). Lymphocyte counts may predict a good response to mesenchymal stromal cells therapy in graft versus host disease patients. *PLoS ONE* 14(6):0217572.
- Homer J (2019). Best practices in system dynamics modeling, revisited: a practitioner's view. *System Dynamics (Rev)* 35(2):177-181.
- Horigian V, Schmidt R, Feaster D (2021). Loneliness, Mental Health, and Substance Use among US Young Adults during COVID-19. *Journal of Psychoactive Drugs* 53(1):1-9.
- Horyniak D, Melo J, Farrell R, Ojeda V, Strathdee S (2016). Epidemiology of substance use among forced migrants. *A Global Systematic Review*. *PLoS One* 11(7).
- Hossain A (2020). Development of a physics-based mathematical model of microparticle silicon based lithium half cells. Available at: [http://www.dissertations.wsu.edu/Thesis/Fall2020/A\\_Hossain\\_12142\\_0.pdf](http://www.dissertations.wsu.edu/Thesis/Fall2020/A_Hossain_12142_0.pdf)
- Hossain A (2021). Development of a mathematical model to study the impact of state of charge dependent exchange current density on the generated voltage hysteresis of silicon anode-based lithium half cells. *Journal of Mechanical Engineering Research* 12(1):37-48.
- Hossain A (2023). A mathematical model development to investigate the impact of key parameters on the generated voltage hysteresis of silicon anode based lithium half cells. *International Journal of Physical Sciences* 18(1):38-52.
- Hossain A, Cha Y, Song M, Kim S (2020a). Side reaction correction and non-linear exchange current density for mathematical modeling of silicon anode based lithium-ion batteries. Available at: <https://www.vancouver.wsu.edu/research-showcase/research-showcase-gallery-poster-2207>
- Hossain A, Kim S (2020). Development of a physics-based mathematical model to analyze the limitations of microparticle silicon based lithium half cells. IMECE Technical Presentation. Website accessed on July 29, 2023: [https://www.researchgate.net/profile/AI-Mustasin-Abir-Hossain/publication/346031457\\_Development\\_of\\_a\\_Physics-Based\\_Mathematical\\_Model\\_to\\_Analyze\\_the\\_Limitations\\_of\\_Microparticle\\_Silicon\\_Based\\_Lithium\\_Half\\_Cells\\_IMECE\\_Technical\\_Presentation/links/5fb76235a6fdcc6cc64f1b46/Development-of-a-Physics-Based-Mathematical-Model-to-Analyze-the-Limitations-of-Microparticle-Silicon-Based-Lithium-Half-Cells-IMECE-Technical-Presentation.pdf](https://www.researchgate.net/profile/AI-Mustasin-Abir-Hossain/publication/346031457_Development_of_a_Physics-Based_Mathematical_Model_to_Analyze_the_Limitations_of_Microparticle_Silicon_Based_Lithium_Half_Cells_IMECE_Technical_Presentation/links/5fb76235a6fdcc6cc64f1b46/Development-of-a-Physics-Based-Mathematical-Model-to-Analyze-the-Limitations-of-Microparticle-Silicon-Based-Lithium-Half-Cells-IMECE-Technical-Presentation.pdf)
- Hossain A, Masud N, Ali M (2022a). Comprehensive cost analysis of electrochemical performance in microbial fuel cells. *Microbial Fuel*

- Cells: Emerging Trends in Electrochemical Applications. IOP Publications 350(1):13.
- Hossain A, Masud N, Roy S, Ali M (2022b). Investigation of voltage storage capacity for the variation of electrode materials in microbial fuel cells with experimentation and mathematical modelling. *International Journal of Water Resources and Environmental Engineering* 14(4):97-109.
- Hossain A, Masud N, Yasin M, Ali M (2020b). Analysis of the performance of microbial fuel cell as a potential energy storage device. *Proceedings of International Exchange and Innovation Conference on Engineering and Sciences (IEICES)* 6:149-155.
- Hossain M, Begum M, Mian M, Ferdous S, Kabir S, Sarker H, Karim S, Choudhury S, Khan A, Khan Z, Karim-Kos H (2016). Epidemiology of childhood and adolescent cancer in Bangladesh, 2001-2014. *BMC Cancer* 16:104.
- I am Expat (2023). Available at: <https://www.iamexpat.ch/>
- Ibrahim M, Yaqoob A, Ahmed A (2022). Microbial fuel cells: emerging trends in electrochemical applications. IOP Publications. Available at: <https://iopscience.iop.org/book/edit/978-0-7503-4791-4-22>
- Idris M, Al-Zaqri N, Warad I, Hossain A, Masud N, Ali M (2023). Impact of Commercial Sugar as a Substrate in Single-Chamber Microbial Fuel Cells to Improve the Energy Production with Bioremediation of Metals. *International Journal of Chemical Engineering Article ID 9741246*: 9 p.
- Inchley J, Currie D, Budisavljevic S (2020). Spotlight on adolescent health and well-being. Findings from the 2017/2018 Health Behaviour in School-aged Children (HBSC) survey in Europe and Canada. Available at: [https://www.researchgate.net/publication/342674634\\_FINDINGS\\_FROM\\_THE\\_20172018\\_HEALTH\\_BEHAVIOUR\\_IN\\_SCHOOL-AGED\\_CHILDREN\\_HBSC\\_SURVEY\\_IN\\_EUROPE\\_AND\\_CANADA\\_INTERNATIONAL\\_REPORT\\_VOLUME\\_1\\_KEY\\_FINDINGS\\_Spotlight\\_on\\_adolescent\\_health\\_and\\_well-being\\_Spotlight](https://www.researchgate.net/publication/342674634_FINDINGS_FROM_THE_20172018_HEALTH_BEHAVIOUR_IN_SCHOOL-AGED_CHILDREN_HBSC_SURVEY_IN_EUROPE_AND_CANADA_INTERNATIONAL_REPORT_VOLUME_1_KEY_FINDINGS_Spotlight_on_adolescent_health_and_well-being_Spotlight)
- INCSR (2021). International Narcotics Control Strategy Report. Available at: <https://www.state.gov/2021-international-narcotics-control-strategy-report/>
- Inside Switzerland's Radical Drug Policy Innovation (2023). Stanford Social Innovation Review. Available at: [https://ssir.org/articles/entry/inside\\_switzerlands\\_radical\\_drug\\_policy\\_innovation#](https://ssir.org/articles/entry/inside_switzerlands_radical_drug_policy_innovation#)
- ISPAC (2023). International Scientific and Professional Advisory Council of the United Nations Crime Prevention and Criminal Justice Program. Available at: <http://ispac.cnpds.org/links.html>
- Itanyi I, Onwasigwe C, McIntosh S (2018). Disparities in tobacco use by adolescents in southeast, Nigeria using Global Youth Tobacco Survey (GYTS) approach. *BMC Public Health* 18:317.
- Janahi I, Bener A, Bush A (2006). Prevalence of Asthma among Qatari Schoolchildren: International Study of Asthma and Allergies in Childhood. Qatar. *Pediatric pulmonology* 41:80-86.
- Johnston L, O'Malley P, Bachman J (2009). National survey results on drug use from the Monitoring the Future study. Rockville, MD: National Institute on Drug Abuse. Available at: <https://nida.nih.gov/research-topics/trends-statistics/monitoring-future>
- Jungerman FS, Menezes PR, Pinsky I, Zaleski M, Caetano R, Laranjeira R (2009). Prevalence of cannabis use in Brazil: Data from the I Brazilian National Alcohol Survey (BNAS). *Addictive behaviors*, 35(3):190-193.
- Karuppiyah V, Wong L, Tay V, Ge X, Kang L (2021). School-based programme to address childhood myopia in Singapore. *Singapore Medical Journal* 62(2):63-68.
- Kennedy S, Kidd M, McDonald J, Biddle N (2015). The healthy immigrant effect: patterns and evidence from four countries *Journal of International Migration and Integration* 16:317-332.
- Keyes M (2002). The Mental Health Continuum: From Languishing to Flourishing in Life. *Journal of Health Society Behavior* 43:207-222.
- Keyes M, Waterman M (2003). Dimensions of Well-Being, and Mental Health in Adulthood. In *Crosscurrents in Contemporary Psychology Well-Being: Positive Development Across the Life Course*; Bornstein, M.H., Davidson. Lawrence Erlbaum Associates Publishers: Mahwah, NJ, USA pp. 477-497.
- Khademi M, Vaziri-Harami R, Shams J (2021). Prevalence of Mental Health Problems and Its Associated Factors Among Recovered COVID-19 Patients During the Pandemic: A Single-Center Study. *Frontiers in Psychiatry* 12:602244.
- Khanum H (2021). Fungal skin diseases and related factors in outpatients of three Tertiary Care Hospitals of Dhaka, an Urban City of Bangladesh: Cross-sectional study. *Biomedical Journal of Scientific and Technical Research* 39(1).
- Kornadt A, Rothermund K (2011). Contexts of aging: Assessing evaluative age stereotypes in different life domains. *The journals of gerontology. Series B, Psychological sciences, and social sciences* 66:547-556.
- Kuranga A, Yussuf A (2021). Psychiatric morbidity amongst adolescents in a Nigerian juvenile correctional facility. *South African Journal of Psychiatry* 27:1590.
- Lim C, Ong S, Chin C, Fung D (2015). Child and adolescent psychiatry services in Singapore. *Child and Adolescent Psychiatry and Mental Health*, 9:7
- Littlefield A, Sher K, Steinley D (2010). Developmental trajectories of impulsivity and their association with alcohol use and related outcomes during emerging and young adulthood. *Alcoholism: Clinical and Experimental Research* 34(4):1409-1416.
- Lobstein T, Jackson-Leach R (2016). Planning for the worst: estimates of obesity and comorbidities in school-age children in 2025. *Pediatric Obesity* 11(5):321-325.
- Loeber R, Farrington D (2014). Age-crime curve. In G. Bruinsma and D. Weisburd (Eds.), *Encyclopedia of Criminology and Criminal Justice*: 12-18. New York: Springer. Available at: <https://nij.ojp.gov/topics/articles/youth-justice-involvement-young-adult-offending>
- Lopes C, Moraes C, Junger W, Werneck G, Ponce de Leon A, Faerstein E (2015). Direct and indirect exposure to violence and psychological distress among civil servants in Rio de Janeiro, Brazil: a prospective cohort study. *BMC Psychiatry* 15(1):109.
- López-Méndez M, Ospina-Escobar A, Iskandar R, Alarid-Escudero F (2021). Age-specific rates of onset of cannabis use in Mexico. *Addiction Behavior* 122:107038.
- Lozano-Esparza S, Stern D, Hernández-Ávila J, Morales-Carmona E, Mohar A, Lajous M (2020). Evaluation of Mexico's low cancer mortality using two national death registries. *Salud Publica Mexico* 62(2):181-185
- Luciana M (2013). Adolescent brain development in normality and psychopathology. *Developmental Psychopathology* 25(4):1325-1345.
- Malik V, Pan A, Willett W, Hu F (2013). Sugar-sweetened beverages and weight gain in children and adults: a systematic review and meta-analysis. *The American Journal of Clinical Nutrition* 98(4):1084-1102.
- Malow M, Devieux J, Jennings J, Lucenko B, Kalichman S (2001). Substance abusing adolescents at varying levels of HIV risk: Psychosocial characteristics, drug use and sexual behavior. *Journal of Substance Abuse Treatment* 13(1-2):103-117.
- Marschall-Lévesque S, Castellanos-Ryan N, Vitaro F, Séguin J (2014). Moderators of the association between peer and target adolescent substance use. *Addictive Behaviors*, 39(1):48-70.
- Martins H, Balmant N, de Paula Silva N, Santos M, Reis R, de Camargo B (2018). Who cares for adolescents and young adults with cancer in Brazil? *Jornal de Pediatria* 94(4):440-445.
- Mason M, Mennis J (2018). Young Urban Adolescents' Activity Spaces, Close Peers, and the Risk of Cannabis Use: A Social-Spatial Longitudinal Analysis. *Substance Use and Misuse* 53(12):2032-2042.
- Mason M, Mennis J, Russell M, Moore M, Brown A (2019). Adolescent Depression and Substance Use: the Protective Role of Prosocial Peer Behavior. *Journal of Abnormal Child Psychology* 47(6):1065-1074.
- Masud N, Hossain A, Moresalein M, Ali M (2021). Performance Evaluation of Microbial Fuel Cell with Food Waste Solution as a Potential Energy Storage Medium. *Proceedings of International Exchange and Innovation Conference on Engineering and Sciences* 7:96-102.
- Matricciani L, Olds T, Petkov J (2012). In search of lost sleep: secular trends in the sleep time of school-aged children and adolescents. *Sleep Medical Reviews* 16:203-211
- Medina-Mora M, Gibbs S (2013). Implications of science for illicit drug use policies for adolescents in low- and middle-income countries. *Journal of Adolescent Health* 52(2):S33-35.

- Medina-Mora M, Tapia C, Rascón M, Solache G, Otero B, Lazcano F, Mariño M (1989). Situación epidemiológica del abuso de drogas en México [Epidemiological status of drug abuse in Mexico]. *Bol Oficina Sanit Panam* 6:475-84.
- Medscape (2023). Available at: <https://emedicine.medscape.com/>
- Meisner B (2012). A meta-analysis of positive and negative age stereotype priming effects on behavior among older adults. *The journals of gerontology. Series B, Psychological Sciences, and Social Sciences* 67(1):13-17.
- Mekonnen G, Debeb S, Getaw N, Kifle Z (2021). Self-Reported Sedative Drug Use Among Students Attending at University of Gondar, Gondar, Northwest, Ethiopia: A Cross-Sectional Study. *Substance Abuse and Rehabilitation* 12:49-57.
- Mennis J, Li X, Meenar M, Coatsworth J, McKeon T, Mason M (2021). Residential Greenspace and Urban Adolescent Substance Use: Exploring Interactive Effects with Peer Network Health, Sex, and Executive Function. *International Journal of Environmental Research and Public Health* 18(4):1611.
- Miguez M, Bueno D, Perez C (2020). Disparities in Sleep Health among Adolescents: The Role of Sex, Age, and Migration. *Sleep Disorders* 5316364.
- Millstein S, Irwin C, Adler N, Cohn L, Dolcini S (1992). Health-risk behaviors and health concerns among young adolescents. *Pediatrics* 3: 422-428.
- Minhas A (2023). India: Alcohol consumption by age 2021. Statista. Available at: <https://www.statista.com/statistics/1137432/india-alcohol-consumption-by-age-group/>
- Miot H, Penna G, Ramos A, Penna M, Schmidt S, Luz F, Sousa M, Palma S (2018). José Antonio Sanches Junior, Sociedade Brasileira de Dermatologia. Profile of dermatological consultations in Brazil. *Anais Brasileiros de Dermatologia* 93(6):916-928.
- Mojtabai R, Chen L, Kaufmann C, Crum R (2014). Comparing barriers to mental health treatment and substance use disorder treatment among individuals with comorbid major depression and substance use disorders. *Journal of Substance Abuse Treatment* 46(2):268-273.
- Momtazi S, Rawson R (2010). Substance abuse among Iranian high school students. *Current Opinion on Psychiatry* 23(3):221-6.
- Monahan K, Steinberg L, Cauffman E, Mulvey E (2009). Trajectories of antisocial behavior and psychosocial maturity from adolescence to young adulthood. *Developmental Psychology* 45(6):1654-1668.
- Monzani A, Ricotti R, Caputo M (2019). A systematic review of the association of skipping breakfast with weight and cardiometabolic risk factors in children and adolescents. What should we better investigate in the future? *Nutrients* 11(2):387.
- Moonajilin M, Kamal M, Mamun F, Safiq M, Hosen I, Manzar M, Mamun M (2021). Substance use behavior and its lifestyle-related risk factors in Bangladeshi high school-going adolescents: An exploratory study. *PLoS One* 16(7):0254926.
- Morshed A, Kasman M, Heuberger B, Hammond R, Hovmand P (2019). A systematic review of system dynamics and agent-based obesity models: evaluating obesity as part of the global syndemic. *Pediatric Obesity* 20(S2):161-178.
- National Cancer Institute (2023). Available at: <https://seer.cancer.gov/staffacts/html/aya.html>
- National Drug Law Enforcement Agency (Federal Republic of Nigeria) (2019). Available at: <https://ndlea.gov.ng/files/2019%20ANNUAL%20REPORT.pdf>
- National Drug Strategy Household Survey (2023). Available at: <https://www.addictionhelp.com/addiction/australian-statistics/>
- National Survey on Drug Use and Health (2007). United States Department of Health and Human Services. Substance Abuse and Mental Health Services Administration. Office of Applied Studies. Inter-university Consortium for Political and Social Research. Available at: <https://www.icpsr.umich.edu/index.html>
- Naushad V, Purayil N, Wilson G, Chandra P, Joseph P, Khalil Z, Zahid M, Kayakkool M, Shaik N, Ayari B, Chalihadan S, Elmagboul E, Doiphode S (2022). Epidemiology of urinary tract infection in adults caused by extended-spectrum beta-lactamase (ESBL)-producing Enterobacteriaceae - a case-control study from Qatar. *International Journal for Infectious Diseases Regions* 3:278-286
- NDTDC, AIIMS, (2023). Submits report "magnitude of substance use in India" to M/O social justice and empowerment. Available at: <https://pib.gov.in/Pressreleaseshare.aspx?PRID=1565001>
- NIDA (2023). National Institute on Drug Abuse. Available at: <https://nida.nih.gov/publications/research-reports/tobacco-nicotine-e-cigarettes/>
- Nigeria: Alcohol use among students a rising problem. Movendi International (2021). Website accessed on February 22, 2021: <https://movendi.ngo/news/2021/02/22/nigeria-alcohol-use-among-students-a-risingproblem/>
- OASH (2023). Office of Population Affairs. Available at: <https://opa.hhs.gov/adolescent-health/>
- Obadeji A, Kumolalo B, Oluwole L, Ajiboye A, Dada M, Ebeyi R (2020). Substance Use among Adolescent High School Students in Nigeria and Its Relationship with Psychosocial Factors. *Journal of Research in Health Science* 20(2):00480.
- Obadeji A, Kumolalo F, Lateef O, Ajiboye A, Dada M, Ebeyi R (2020). Substance Use among Adolescent High School Students in Nigeria and Its Relationship with Psychosocial Factors. *Journal of Research in Health Sciences* 20:480.
- Odoki M, Almustapha Aliero A, Tibyangye J, Nyabayo Maniga J, Wampande E, Drago Kato C, Agwu E, Bazira J (2019). Prevalence of Bacterial Urinary Tract Infections and Associated Factors among Patients Attending Hospitals in Bushenyi District, Uganda. *International Journal of Microbiology* pp. 4246780
- Oetting E, Edwards R, Ruth, Beauvais B (1988). Social and psychological factors underlying inhalant abuse. *NIDA Research Monograph* 85:172-203.
- Offer D, Howard K, Ostrov E (1991). To whom do adolescents turn for help? Differences between disturbed and no-disturbed adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry* 30(4):623-630.
- Olanisun A (2017). Pattern of Sleep Disorders among Patients in a Nigerian Family Practice Population. *Annual of Medical Health Scientific Research* 7:23-31.
- Olanrewaju J, Hamzat E, Enya J, Udekwu M, Osuoya Q, Bamidele R, Feyisike O, Johnson B, Olanrewaju I, Owolabi J (2022). An assessment of drug and substance abuse prevalence: a cross-sectional study among undergraduates in selected southwestern universities in Nigeria. *Journal of International Medical Research* 50(10):3000605221130039.
- Opaleye E, Noto A, Sanchez Z (2013). Nonprescribed use of tranquilizers or sedatives by adolescents: a Brazilian national survey. *BMC Public Health* 13:499.
- Oppong-Disent A, Heycock E (1997). Adolescent health services—Through their eyes. *Archives of Disease in Childhood* 77:115-119.
- Ordaz S, Foran W, Velanova K, Luna B (2013). Longitudinal growth curves of brain function underlying inhibitory control through adolescence. *The Journal of Neuroscience* 33(46):18109-18124.
- Owen A, Maulida S, Zomer E (2019). Productivity burden of smoking in Australia: a life table modelling study. *Tobacco Control*, 28:297-304.
- Oyedepo J, Katibi O, Adedoyin O (2020). Cutaneous disorders of adolescence among Nigerian secondary school students. *Pan African Medical Journal* 36:36.
- Paek S, Koriakos A, Saxton-Daniels S, Pandya A (2012). Skin diseases in rural Yucatan, Mexico. *International Journal on Dermatology* 51(7):823-828.
- PAHO (2017). Pan American Health Organization. Available at: <https://www.paho.org/adolescent-health-report-2018/>
- Park M, Falconer C, Viner R, Kinra S (2012). The impact of childhood obesity on morbidity and mortality in adulthood: a systematic review. *Obesity (Rev)* 13(11):985-1000
- PATS. (2023). The Partnership/MetLife Foundation Attitude Tracking Study. Washington, DC: The Partnership for a Drug Free America (PFDA). Available at: <https://drugfree.org/>
- Peder L, da Silva C, Nascimento B, Malizan J, Madeira H, Horvath J, Silva E, Teixeira J (2020). Prevalence of Sexually Transmitted Infections and Risk Factors Among Young People in a Public Health Center in Brazil: A Cross-Sectional Study. *Journal of Pediatric and Adolescent Gynecology* 33(4):354-362.
- Pedicelli S, Fintini D, Ravà L, Inzaghi E, Deodati A, Spreghini M (2022). Prevalence of prediabetes in children and adolescents by class of obesity. *Pediatric Obesity* 17(7):12900.
- Peltzer K, Phaswana-Mafuya N. Drug use among youth and adults in a

- population-based survey in South Africa. *South African Journal of Psychiatry* 24:1139.
- Pereira M, Padez C, Nogueira H (2019). Describing studies on childhood obesity determinants by Socio-Ecological Model level: a scoping review to identify gaps and provide guidance for future research. *International Journal of Obesity* 43(10):1883- 1890.
- Perry E, Golom F, Catenacci L, Ingraham M, Covais E, Molina J (2017). Talkin' 'bout your generation: The impact of applicant age and generation on hiring-related perceptions and outcomes. *Work, Aging and Retirement* 3:186-199.
- Pickett J, Chiricos, T (2012). Controlling other people's children: Racialized views of delinquency and whites' punitive attitudes toward juvenile offenders. *Criminology* 50:673-710.
- Pinsky I, Bernal C, Vuolo L, Neighbors C (2017). Introducing care management to Brazil's alcohol and substance use disorder population. *Brazilian Journal of Psychiatry* 40(3):320-32.
- Pinsky I, Sanches M, Zaleski M, Laranjeira R, Caetano R (2010). Patterns of alcohol use among Brazilian adolescents. *Revista Brasileira de Psiquiatria* 32(3):242-249.
- Press release of The Cabin (2023). Chiang Mai, Thailand. Available at: <https://www.thecabinchiangmai.com/>
- QNA (2021). Qatar National Agency. Available at: <https://www.qna.org.qa/en>
- Quek Y, Tam W, Zhang M, Ho R (2017). Exploring the association between childhood and adolescent obesity and depression: a meta-analysis. *Obesity reviews* 18(7):742-754.
- Rim C, Lee W, Musaev B, Volichevich T, Pazlitdinovich Z, Lee H, Nigmatovich T, Rim J (2022). Consortium of Republican Specialized Scientific Practical-Medical Center of Oncology and Radiology and South Korean Oncology Advisory Group. Comparison of Breast Cancer and Cervical Cancer in Uzbekistan and Korea: The First Report of The Uzbekistan-Korea Oncology Consortium. *Medicina (Kaunas)* 58(10):1428
- Romanenko E, Homer J, Fisman A, Rutter H, Lien N (2022). Assessing policies to reduce adolescent overweight and obesity: Insights from a system dynamics model using data from the Health Behavior in school-aged children study. *Obesity Reviews* 24(S1).
- Roncero C, Egido A, Rodríguez-Cintas L, Pérez-Pazos J, Collazos F, Casas M (2015). Substance Use among Medical Students: A Literature Review 1988- 2013. *Actas Esp Psiquiatr* 43(3):109-121.
- Rudolph C, Zacher H (2017). Considering generations from a lifespan developmental perspective. *Work, Aging and Retirement* 3:113-129.
- Rutter H, Bes-Rastrollo M, De Henauw S (2017). Balancing upstream and downstream measures to tackle the obesity epidemic: a position statement from the European Association for the Study of Obesity. *Obesity Facts* 10(1):61- 63.
- Ryan M, Deci L (2001). On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annual Review of Psychology* 52:141-166.
- SAMHSA (2023). Substance Abuse and Mental Health Services Administration. Available at: <https://www.samhsa.gov/data/>
- SAMHSA (2022). Summary of findings from the 2021 National Household Survey on Drug Use and Health. Rockville, MD: SAMHSA. Available at: <https://www.samhsa.gov/>
- Savona N, Macauley T, Aguiar A (2021). Identifying the views of adolescents in five European countries on the drivers of obesity using group model building. *European Journal of Public Health*, 31(2):391-396.
- Schellini S, Durkin S, Hoyama E, Hirai F, Cordeiro R, Casson R, Selva D, Padovani C (2009). Prevalence and causes of visual impairment in a Brazilian population: the Botucatu Eye Study. *BMC Ophthalmology* 9:8.
- Schmid-Burgk J, Gao L, Li D, Gardner Z, Strecker J, Lash B, Zhang F (2020). Highly Parallel Profiling of Cas9 Variant Specificity. *Molecular Cell* 78(4):794-800.
- Seligman M, Csikszentmihalyi M (2000). Positive Psychology: An Introduction. *American Psychology* 55:5-14.
- Shaikh J (2018). Prevalence of Substance Abuse among the School Students in Al-Dhahirah Governorate, Sultanate of Oman. *Madridge Journal of Nursing* P 3.
- Shan X, Ou Y, Ding Y, Yan H, Chen J, Zhao J (2021). Associations Between Internet Addiction and Gender, Anxiety, Coping Styles and Acceptance in University Freshmen in South China. *Frontiers in Psychiatry* 12:558080
- Sharifi H, Karamouzian M, Baneshi M, Shokoohi M, Haghdoost A, McFarland W, Mirzazadeh A (2017). Population size estimation of female sex workers in Iran: Synthesis of methods and results. *PLoS One* 12(8).
- Shavakhobov S, Makhmudov A (2015). The prevalence of sexual disorders in Tashkent (Uzbekistan). *Translational Andrology and Urology*. AB042.
- Simoni-Wastila L, Yang K (2006). Psychoactive drug abuse in older adults. *The American Journal of Geriatric Pharmacotherapy* 4(4):380-394.
- Singh M, Bala N, Garg P, Bansal S, Bumrah S, Attri A (2017). Substance abuse in Children and adolescent: A Retrospective Study. *Journal of International Medical Research (Rev)* 5(3):352-356.
- SingHealth (2023). Available at: <https://www.singhealth.com.sg/>
- Statistica (2021). Available at: <https://www.statista.com/statistics/1121317/age-distribution-of-population-in-nigeria-by-gender/>
- STD Rates by Country (2023). Available at: <https://wisevoter.com/country-rankings/std-rates-by-country/>
- Stenbecka M, Stattin H (2007). Adolescent use of illicit drugs and adult offending: A Swedish longitudinal study. *Drug and Alcohol Review* 26(4):397-403.
- Stigma Health Australia (2021). Available at: <https://www.stigmahealth.com/>
- Su W, Han X, Yu H, Wu Y, Potenza M (2020). Do men become addicted to internet gaming and women to social media? A meta-analysis examining gender-related differences in specific internet addiction. *Computers in Human Behavior* 113:106480
- Sutradhar I, Gayen P, Hasan M, Das Gupta R, Roy T, Sarker M (2019). Eye diseases: The neglected health condition among urban slum population of Dhaka, Bangladesh. *BMC Ophthalmology* Suwanwela C, Poshychinda V (1986). Drug abuse in Asia. *Bulletin on Narcotics* 38(1-2):41-53.
- Tarannum N, Hossain A, Ahmed R, Mouri M, Zahid I, Tabassum N, Sarker M (2023). Quantitative analysis on the negative effects of smartphone addictions. *Journal of Public Health and Epidemiology* 15(4).
- Teensavers (2023). Available at: <https://www.teensavers.com/post/>
- The Pulse (2023). Available at: <https://thepulse.org.au/>
- The toll of tobacco in Mexico (2023). Campaign for Tobacco-Free Kids. (n.d.). Available at: <https://www.tobaccofreekids.org/problem/toll-global/latin-america/mexico>
- Tishby O, Turel M, Gumpel O, Pinus U (2001). Help-seeking attitudes among Israeli adolescents. *Adolescence* 36(142):249-264.
- To T, Stanojevic S, Moores G, Gershon A, Bateman E, Cruz A, Boulet L (2012). Global asthma prevalence in adults: findings from the crosssectional world health survey. *BMC Public Health* 19(12):204.
- Tullett-Prado D, Stavropoulos V, Gomez R, Doley J (2023). Social media use and abuse: Different profiles of users and their associations with addictive behaviours. *Addictive Behaviors Reports* 17:100479
- UNAIDS (2023). The Joint United Nations Program. Available at: <https://unaids.org/en>
- UNFPA (2023). United Nations Population Funds. Available at: <https://www.unfpa.org/>
- UNICEF (2023). United Nations Children's Fund. Available at: <https://www.unicef.org/>
- United Nations Office on Drugs and Crime Regional Office (2021). Available at: <https://www.unodc.org/documents/regional/>
- UNODC (2023). United Nations Office on Drugs and Crime. Available at: <https://www.unodc.org/>
- van Ekris E, Altenburg T, Singh A, Proper K, Heymans M, Chinapaw M (2016). An evidence-update on the prospective relationship between childhood sedentary behaviour and biomedical health indicators: a systematic review and meta-analysis. *Obesity (Rev)* 17(9):833-849.
- Varma R, Mohanty S, Deneen J, Wu J, Azen S (2008). LALES Group. Burden and predictors of undetected eye disease in Mexican Americans: the Los Angeles Latino Eye Study of Medical Care 46(5):497-506
- Vázquez C (2006). La Psicología Positiva en Perspectiva. *Pap. Psic.*

- 27:3-13. Available at: <http://www.papelesdelsicologo.es/pdf/1278.pdf>
- Vohra A (2023). Saudi Arabia Is the Middle East's Drug Capital. Foreign Policy. Available at: <https://foreignpolicy.com/2021/12/20/saudi-arabia-is-the-middle-east-drug-capital/>
- Voorberg A, Loman L, Schuttelaar M (2022). Prevalence and Severity of Hand Eczema in the Dutch General Population: A Cross-sectional, Questionnaire Study within the Lifelines Cohort Study. *Acta Dermatovenerologica* 102:adv00626
- Wang Z, Chen J (2022). Influence of Parent-Child Conflict on Psychological Distress among Chinese Adolescents: Moderating Effects of School Connectedness and Neighborhood Disorder. *International Journal of Environmental Research and Public Health* 19(15):9397.
- Waters E, de Silva-Sanigorski A, Burford B (2011). Interventions for preventing obesity in children. *Cochrane Database System* (Rev, 12:CD001871).
- WEF (2023). The World Economic Forum. Available at: <https://www.weforum.org/>
- Weiss D, Kornadt A (2018). Age-stereotype internalization and dissociation: Contradictory processes or two sides of the same coin? *Current Directions in Psychological Science* 27:477-483.
- Weiss D, Perry E (2020). Implications of generational and age metastereotypes for older adults at work: The role of agency, stereotype threat, and job search self-efficacy. *Work, Aging and Retirement*, 6: 15–27.
- Weiss D, Weiss M (2019). Why people feel younger: Motivational and social-cognitive mechanisms of the subjective age bias and its implications for work and organizations. *Work, Aging and Retirement* 5:273–280.
- World Health Organization (WHO) (2022). Geneva, Switzerland. Available at: <https://www.who.int/news/item/20-05-2022-world-health-statistics-2022>
- World Health Organization (WHO) (2023). Available at: <https://www.who.int/en/news-room/fact-sheets/detail/adolescents-health-risks-and-solutions>
- WHOSIS (2022). World Health Organization Statistical Information System. Available at: <https://web.archive.org/web/20081211143334/>
- Wijnhoven T, van Raaij J, Spinelli A (2014). WHO European Childhood Obesity Surveillance Initiative: body mass index and level of overweight among 6–9-year-old children from school year 2007/2008 to school year 2009/2010. *BMC Public Health* 14(1):806-816.
- World Drug Report (2022). United Nations Office on Drugs and Crime. Available at: <https://www.unodc.org/unodc/en/data-and-analysis/world-drug-report-2022.html>
- World Health Rankings (2023). Available at: <https://www.worldlifeexpectancy.com/qatar-skin-disease>
- Wu L, Ringwalt C, Mannelli P, Patkar A (2008). Prescription pain reliever abuse and dependence among adolescents: a nationally representative study. *Journal of the American Academy of Child and Adolescent Psychiatry* 47(9):1020-1029.
- Xiaoshan W, Tan T, Shek L, Chng S, Hia C, Ong N, Ma S, Lee B, Wah G, Goh D (2004). The prevalence of asthma and allergies in Singapore; data from two ISAAC surveys seven years apart. *Archives of Disease in Childhood* 89:423-426
- Yangyuen S, Songklang S, Mahaweerawat U, Mahaweerawat C (2020). The Perceived Neighborhood Crime and Hazardous Alcohol Use among Youth in University of the Northeastern Thailand Context. *Journal of Research in Health Sciences* 20(4):00493.
- Yoon S, Wee S, Lee V, Lin J, Thumboo J (2021). Patterns of use and perceived value of social media for population health among population health stakeholders: a cross-sectional web-based survey. *BMC Public Health*, 21(1):1312
- Youth Policy (2023). Available at: <https://www.youthpolicy.org/>
- Zamora A, Arboleda-Merino L, Tellez Rojo Solis M, O'Brien L, Torres-Olascoaga L, Peterson K, Banker M, Fossee E, Song P, Taylor K, Cantoral A, Roberts E, Jansen E (2021). Sleep Difficulties among Mexican Adolescents: Subjective and Objective Assessments of Sleep. *Behavioral Sleep Medicine*, 20:1-15.