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RESEARCH ARTICLE

PREVALENCE OF HEALTH COMPROMISING BEHAVIORS AMONG TERTIARY EDUCATION STUDENTS IN THE ENUGU STATE OF NIGERIA

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Abstract

Health compromising behaviors are detrimental behaviors that have been implicated in increased mortality and morbidity in every society. Although peculiar to all ages, gender, economic and social status. There is a growing indication that risky health behavior is more prevalent in adolescents. Notably, there is no known recent data on health-compromising behavior among adolescents in Enugu state. Thus, the current study examined the prevalence of risky behaviors among tertiary education students in Enugu state. Four hundred and eighty-nine undergraduates pooled from tertiary institutions participated in the study. The participants completed a self-report measure assessing their health-compromising behavior. The result showed physical inactivity 53.7% represented the highest rate of risky behavior identified among the students, followed by alcoholic use with an overall rate of 51.9%. Also, smoking 48.6% and self-medication 43.7% assumed an elevated rate of health risk behavior among the cohort, while unsafe sexual behavior rated 21.4%, and fighting 17% were rated the least prevalent health risky behavior among the students.

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Introduction:-

Over the years, there has been a growing concern about the intercorrelations between health-compromising behaviors among adolescents. Evidence indicates that young people engage in multiple health-compromising behaviors (Ali et al., 2020; AlMakadma & Ramisetty-Mikler, 2015; Curcio et al., 2015; Fulkerson et al., 2004; Govender et al., 2020; Groft et al., 2005; Kaplan et al., 2003; Lapsley et al., 2005; Stang et al., 2005; van Nieuwenhuijzen et al., 2009). Behaviors adopted in adolescence tend to track into adulthood (Kristensen et al., 2006). Health compromising behaviors describe the human actions detrimental to one's health, such as substance abuse, unprotected sex, reckless driving, alcoholism, and lack of exercise. Research has pointed to these behaviors as causes of most chronic diseases, disabilities, and deaths (Danaei et al., 2009; Mokdad et al., 2004; Plessz et al., 2020). Literature abounds that underscores the patterns of health-compromising behaviors in adolescents (Azeredo et al., 2016; Friestad & Klepp, 2006; Keski-Rahkonen et al., 2003; Lastrucci et al., 2021; Lee & Liao, 2021; Loureiro & de Matos, 2014; Neumark-Sztainer et al., 1996; Noël, 2014; Vazsonyi et al., 2006). Behaviors commonly co-occur include excessive drinking, drug use, unprotected sex, and delinquent behavior.

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quality of life (Sun et al., 2021). It might cluster together into a risky lifestyle which influences cognitive performance, emotions, and the overall quality of life (Abdelsalam et al., 2016). The likelihood of adolescents possessing multiple health-compromising behaviors increases throughout development, especially during the teenage years. Thus, experimentation with substances, engaging in physical risks, media exposure, and social conformities are unique sources of adolescents' unhealthy behaviors. Nevertheless, regardless of health promotion campaigns, adolescents continue to engage in high rates of health-compromising behaviors, as described by (Das & Horton, 2012).

Research contends that university students are at high risk of health-risky behaviors that could lead to serious physical complications, social dysfunction, and psychological disturbances (Abdelsalam et al., 2016). Generally, many students enrolled in tertiary institutions in modern-day education are within the adolescent stage of life. These specific populations are vulnerable to potentially harmful activities because of a high propensity for compliance with social norms. Therefore, it is ideal that research continues to establish the patterns and prevalence of this risky behavior within the learning institutions to prevent and manage risky behaviors in adolescents. Perhaps, intimations suggest that numerous types of risky behaviors encompass different aspects of students' lifestyles in the Nigerian context. Behaviors related to alcoholism, unsafe sex, physical fighting, cultism, and smoking are prevalent among students and pose a considerable immediate and longer-term effect on the health and are related to one another.

For example, multiple partnering is associated with unsafe sexual behavior (Ssekamatte et al., 2020) and increased rates of dating violence and sexual abuse. There is a significant concern about the students' level of multi-partnering and sexual behaviors. The probability of engaging in unprotected sexual behaviors is significantly high among the students compared to non-students (Gebreslasie et al., 2017; Shayo & Kalomo, 2019). This is attributed to the pattern of partnering and the consequent sexual outcome. One characteristic of unsafe sexual behavior, for instance, condomless sex, different sexual partners, rape, and so on, is that it is enjoyable to some extent causing the person to want to repeat the behavior. Thus, making it harder for the adolescent to acknowledge the health implications.

In alcoholism, binge drinking combines higher physical fighting and violence (de Carvalho et al., 2018; Svensson & Landberg, 2013). The likelihood of engaging in a violent act such as fighting is usually attributed to drinking. More so, alcohol is the most widely used psychoactive substance globally, and its use remains a significant public health concern (Eze & Uzoege, 2015; Olashore et al., 2018). Alcohol use is a risk factor for several diseases and injuries, including non-communicable conditions (Collaborators, 2018). In furtherance, increased alcohol use is associated with study difficulty (Abikoye et al., 2014). Therefore, continued alcohol use among undergraduates calls for more decisive intervention in contemporary society.

Accordingly, the problem behavior theory contends that physical fighting is a positive predictor of multiple risky behaviors, including possession of dangerous weapons (Pickett et al., 2005). Youth violence in schools is a pervasive and persistent problem in many societies. Students engage in physical fights, experience bullying, threatening weapons, and miss classes due to safety concerns. Furthermore, cultism is undeniably one of the social vices in tertiary institutions. Today's most significant and most embarrassing problem facing tertiary institutions in Nigeria is the renewal of the menace and aggressiveness of cult activities. Cultism is said to be the mother of crimes in tertiary institutions. This phenomenon negatively affects the image of institutions, the learning quality, and the integrity of graduates, including loss of lives.

Indeed, excessive smoking is considered the gateway to other health-compromising behaviors like drug use (Patton et al., 2009). Notwithstanding the well-known adverse effects of smoking on human health (Ho, 2017; Kyriakopoulos et al., 2021; Tanimowo et al., 2014), current smoking rates among adolescents remain at unacceptably high levels, with the initiation of smoking occurring at progressively younger ages. The onset of cigarette addiction occurs primarily among children, at an average age of 12. Significantly, the rates of smoking and drinking have remained at high levels even though major intervention programs to prevent youth from initiating these behaviors have been developed.

Recently, authors have focused on identifying factors that heighten or decrease the risk for engaging in health-compromising behaviors among adolescents in Nigeria (Akanni et al., 2017; Alawode et al., 2021; Udigwe et al., 2014). Accumulated findings have distinguished peer influence (Shuaibu et al., 2020), lower social class and family variables (Olorunsola et al., 2021), socioeconomic status (Olofinbiyi et al., 2019) as factors that put adolescents at greater risk of health-compromising behaviors. The present study examines the prevalence of health-compromising behavior in tertiary institutions in Enugu State, Nigeria. Perhaps, between rates of smoking and drinking and a wide range of life experiences on campus, abuse, violence, adverse life events, and depressive symptoms, there have been

no recent updates about health risky behavior, especially in Enugu state hence the justification for the study. Thus, the present study aims to report the current trend of health-compromising behaviors among tertiary education students in Enugu state.

Method:-

The present study adopted a cross-sectional survey design. The study population comprised students from three higher learning institutions in Enugu State, Nigeria (Enugu State University of Science and Technology, Federal College of Education, and the University of Nigeria). The participants included male-female undergraduates enrolled in various departments in the selected institutions. Demographic information such as age, year of study, parental information, and the department was not included in the study.

Measure:-

Health compromising behavior was assessed using an adapted version of the Youth RiskBehavior Surveillance System (YRBSS) initially developed by the Centers for Disease Control and Prevention (CDC) (1989). The scale was designed to measure health-related risk behaviors, which account for most mortality, morbidity, and social crisis among young people. The YRBSS measures six types of risky health behaviors including, smoking, use of alcohol, and other drug use, unsafe sexual behavior, dietary behaviors, and physical activity. Items in the original scale were modified to fit the current context. The modified 40-item Likert-type instrument is scored in a 5-point response format. The reliability of the scale was ascertained following a pilot study. Observation of the Cronbach's alpha coefficients revealed acceptable levels of internal consistency reliabilities of the instrument, which exceeded the cutoff rules-of-the thumb of .70 as recommended for study purposes (Kaplan & Saccuzzo, 2013).

Procedure:-

Authorization was obtained from the management of the selected institutions. Research assistants were trained for the data collection process. Students were approached between August and November 2021 and asked to participate in the survey. Those who consented were briefed on the purpose of the study, and they were equally informed that participation in the survey was voluntary and that they could withdraw at any point. They also completed the consent form given to them. The questionnaire was administered in a regular classroom setting and took about 20 minutes to complete. The research assistants assisted participants that requested it. In particular, five hundred and twenty-seven (527) questionnaires were administered to the respondents. In all, only 489 copies out of the 527 questionnaires were adequately filled and returned; hence, the remaining 36 were either wrongly filled or unreturned.

Result:-

Table 1 shows the prevalence rate of the six high health-compromising behaviors peculiar to university students. As shown in the table, the result showed that physical inactivity 53.7% represented the highest rate of risky behavior identified among the students, followed by alcoholic use with an overall rate of 51.9%. Also, smoking 48.6% and self-medication 43.7% assumed an elevated rate of health risk behavior among the cohort, while unsafe sexual behavior 21.4% and fighting 17% were rated the least prevalent health risky behavior among the students.

Table 1:- Table showing the percentage distribution of the prevalence of health-compromising behaviors.

HCB	N	male	female
Smoking	48.6%	36.5%	12.1%
Alcoholism	51.9%	33.6%	18.3%
Self-medication	43.7%	24.3%	19.4%
Physical inactivity	53.7%	12.6%	41.1%
Unsafe sex	21.4%	9.6%	11.8%
Fighting	17%	11.1%	5.9%

Discussion:-

The current study investigated the prevalence of health-compromising behaviors in a sample of undergraduates in Enugu state, Nigeria. The result indicated that the rate of smoking among the cohorts, 48.6% assumes a high percentage of risky health behavior. The trend is more peculiar: the male students 36.5% compared to the female undergraduates

12.1%. Similar studies have reported an increased prevalence of smoking in Enugu state (Amorha et al., 2017) and other parts of the country in recent times (Chima et al., 2021; Owopetu et al., 2020). The result collaborates the findings of (Emerole et al., 2013), which reported more male smokers 88(25%) than female smokers 7(2%). The incidence of smoking among young people is of more significant concern in that the associated health implication is made chiefly manifest in later adulthood. Thus, the finding reiterates the need to further action relative to controlling the prevalence of smoking in the institutions of higher learning.

Similarly, the result found that alcohol consumption was among the highest health risky behavior prevalent among the cohorts at 51.9%. It was found that the current alcohol consumption commonplace among the students was higher among the male 33.6% than the female 18.3%. The finding is similar to previous studies in Nigeria (Ajayi et al., 2019; Asagba et al., 2021). For example, a similar study conducted in Enugu state (Anusiem et al., 2020) reported a higher percentage of alcohol consumption (42.4%), with the female students consuming less than the males. However, the study was conducted among teenagers. Notably, the rate of alcohol consumption in this study is lower than in some studies (Chikere & Mayowa, 2011). The difference may be attributed to many factors, including peer conformity and social compliance.

More so, it was found that the prevalence rate of self-medication, 43.7% showed that most of the respondents have practiced or still practicing self-medication. This finding appears to align with previous literature (Esan et al., 2018; Khalid et al., 2019; Onwuchuluba et al., 2018; Osemene & Lamikanra, 2012), suggesting that the practice of self-medication is persistent among university undergraduates in Nigeria. As such, it could be said that undergraduates are more exposed to the dangers of non-prescribed drugs. However, the present finding indicates that males are more likely to engage in self-medication (24.3%) than their female counterparts (19.4%). This probable cause of the high rate of self-medication among the school residents could be attributed to the findings of (Auta et al., 2012), which posits that the prevalence of medicine storage in students' rooms leads to the practice of self-medication. Indeed, having leftover drugs, probably remains of the previous prescription, could motivate a person to continue with the drugs in response to health symptoms.

Also, the trend of physical inactivity among young people has attracted huge research attention in recent decades (Azian et al., 2020; Ziaei et al., 2020). The present result established a higher rate of physical inactivity among the undergraduates (53.7%), with the females recording the highest rate of sedentary lifestyle 41.1% than the males 12.6%. Thus, indicating that the female undergraduates are more predisposed to physical inactivity and low-level exercise participation. The result suggests a higher rate of physical inactivity than previously reported in similar studies (Odunaiya et al., 2010). The finding reveals the need to engage the undergraduates in exercising behavior and expose them to the risks of a sedentary lifestyle.

Furthermore, unsafe sexual behavior and fighting are health risk behaviors found to be least prevalent among the cohorts. However, a higher prevalence of dangerous sexual risk behaviors was observed among females, 11.8%, than males, 9.6%. Thus, more females than males reported using condoms and multiple partnering at last sexual intercourse. The result is aligned with a previous study conducted in Enugu state (Okafor & Obi, 2005), which found a higher rate of females in multiple partnering. Although the exact reason for engaging in unsafe sex varies, affection, difficulty negotiating condom use with a partner, perceived trust, and use of contraceptive methods have been cited as barriers to condom use in females (Bauman & Berman, 2005).

Similarly, the prevalence of violent behavior was rated low among the females, 5.9%, and high among the males 11.7%. Consistent with a previous study (Peltzer & Pengpid, 2014), more males than females engage in physical fighting. Indeed, Owoaje and Ndubusi (2010) reported that more males (54.9%) had been involved in physical fights compared to females (39.4%). Violence in adolescents poses a substantial risk to health and well-being and may facilitate mortality among young people. Thus, the present study underscored the incidence of health-compromising behavior in Enugu State and attributed the increased prevalence of smoking and alcoholism to social outcomes facilitated by social stress, compliance to peer pressure, conformity to situational standards, and modeling. Also, physical inactivity among females may be occasioned by an age-related factor. The young females may perceive themselves as young and, as such, do not find a reason to stress the body. In particular, the observed health-compromising behaviors among the cohorts are primarily sustained due to inadequate enlightenment programs and exposure to related risk outcomes.

Limitations, strengths, and future directions

The cross-sectional survey adopted and the self-reported health-compromising behaviors were limitations of the paper. Due to the cross-sectional design, the causality of health compromising behaviors could not be established. Although social-desirability trait and recall bias may have affected self-report data, the multiple data collection approach may be one of the effective ways to obtain reliable information from undergraduates. In addition, the instrument of data collection did not define risky health behaviors in adolescents. It is uncertain if the interpretation of risky behaviors was uniform across all adolescents. Despite these limitations, the results of this report may be generalized to adolescents in Enugu State because those surveyed composed a representative sample of public tertiary institutions in the state. The findings of this study have crucial implications for school health educators and other health professionals who work to promote positive, healthy behavior and prevent other negative behaviors among school students. The preventive interventions in schools should include but not be limited to providing adolescents with skills and support to enhance positive change in their behaviors. The study recommends that experts and counselors working with undergraduate populations consider a regular survey of health risk behaviors among undergraduate cohorts. Also, prevention programs should be designed to curtail the prevalence of risky behavior in tertiary institutions.

Conclusion:-

This study is meant to study the prevalence of health-compromising behaviors among tertiary education students. Four hundred and eighty-nine undergraduates were recruited for the study. The analysis of the percentage scores demonstrates a high prevalence of health-compromising behaviors among the cohorts. Physical inactivity and alcohol consumption was the highest risky behavior prevalent in the tertiary institutions in Enugu State. More so, smoking and self-medication were among the health risk behaviors found in an elevated state. In contrast, unsafe sexual behavior and physical fighting were the minor health-compromising behaviors among the cohorts. Although the causes and patterns of these health risk behaviors were not ascertained, the study provided evidence of a high prevalence of health-compromising behavior among the undergraduates in tertiary institutions in Enugu State.

References:-

1. Abdelsalam, E. A., Oraby, E. E. A., & Safaa, A. (2016). Health risky behaviors among University Students: Prevalence and effect of health education program. *The Egyptian Journal of Community Medicine*, 34(4).
2. Abikoye, G. E., Eze, C. U., & Uchendu, I. U. (2014). Co-occurrence of substance use and study difficulty among university students. *Psychological Studies*, 59(4). <https://doi.org/10.1007/s12646-014-0265-7>
3. Ajayi, A. I., Owolabi, E. O., & Olajire, O. O. (2019). Alcohol use among Nigerian university students: Prevalence, correlates and frequency of use. *BMC Public Health*, 19(1). <https://doi.org/10.1186/s12889-019-7104-7>
4. Akanni, O. O., Koleoso, O. N., Olashore, A. A., Adayonfo, E. O., Osundina, A. F., & Ayilara, O. O. (2017). Gender and other risk factors associated with risky behaviors among Nigerian adolescents. *Journal of Adolescence*, 57. <https://doi.org/10.1016/j.adolescence.2017.03.002>
5. Alawode, O. A., Ogunwemimo, H., Bolorunduro, M.-E., & Awoleye, A. F. (2021). Age at sexual debut and multiple sexual partnerships among adolescents in Nigeria: An assessment of the mediating role of the knowledge of sexually transmitted infections. *Adolescents*, 1(4). <https://doi.org/10.3390/adolescents1040032>
6. Ali Abdallah, M., Lavinia Braiar, S., & Yousif Hammad, A. (2020). Studies on male adolescent health-risk behaviors in East Kassala Locality - Kassala State, Sudan. *Asian Journal of Medicine and Health*. <https://doi.org/10.9734/ajmah/2020/v18i530206>
7. AlMakadma, A. S., & Ramisetty-Mikler, S. (2015). Student, school, parent connectedness, and school risk behaviors of adolescents in Saudi Arabia. *International Journal of Pediatrics and Adolescent Medicine*, 2(3–4). <https://doi.org/10.1016/j.ijpam.2015.09.004>
8. Amorha, K. C., Jiburu, E. M., Nduka, S. O., & Okonta, M. J. (2017). Cigarette smoking prevalence and awareness amongst undergraduate students of the University of Nigeria, Nsukka. *Journal of Basic and Clinical Pharmacy (JBCP)*, 8(4).
9. Anusiem, C. A., Eze, O. U., Chidimma Eze, E., Anusiem, C. A., Ikele, I., & Okorie, P. C. (2020). Prevalence of alcohol and tobacco use among adolescent students at Enugu Nigeria. *IOSR Journal of Pharmacy and Biological Sciences (IOSR-JPBS)* e-ISSN, 15(2).
10. Asagba, R. B., Agberotimi, S. F., & Olaseni, A. O. (2021). Prevalence and psychological correlates of alcohol use among Nigerian university students. *Journal of Substance Use*, 26(6). <https://doi.org/10.1080/14659891.2021.1875067>
11. Auta, A., Banwat, S. B., Sariem, C. N., Shalkur, D., Nasara, B., & Atuluku, M. O. (2012). Medicines in pharmacy students' residence and self-medication practices. In *Journal of Young Pharmacists* (Vol. 4, Issue 2). <https://doi.org/10.4103/0975-1483.96627>

12. Azeredo, C. M., Levy, R. B., Peres, M. F. T., Menezes, P. R., & Araya, R. (2016). Patterns of health-related behaviors among adolescents: A cross-sectional study based on the National Survey of School Health Brazil 2012. *BMJ Open*, 6(11). <https://doi.org/10.1136/bmjopen-2016-011571>
13. Azian, N., Zaki, M., Wong, I., Shahida, N., Aziz, A., Sallehuddin, S. M., & Salleh, R. (2020). Factors associated with physical inactivity among adolescents in Malaysia: Findings from adolescent's nutrition survey (Ans 2017). *International Journal of Public Health and Clinical Sciences*, 7(4).
14. Bauman, L. J., & Berman, R. (2005). Adolescent relationships and condom use: Trust, love, and commitment. *AIDS and Behavior*, 9(2). <https://doi.org/10.1007/s10461-005-3902-2>
15. Chikere, E. I., & Mayowa, M. O. (2011). Prevalence and perceived health effect of alcohol use among male undergraduate students in Owerri, South-East Nigeria: A descriptive cross-sectional study. *BMC Public Health*, 11. <https://doi.org/10.1186/1471-2458-11-118>
16. Chima, U. I., Japheth, C. D., Oghenevwede, A. O., & Vivian, C. N. (2021). The prevalence, knowledge of health effects and attitude towards smoking among undergraduates in a Nigerian University. *Journal of Public Health and Epidemiology*, 13(1). <https://doi.org/10.5897/jphe2020.1272>
17. Collaborators, G. B. D. 2016 A. (2018). Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the G. *The Lancet*, 392(10152).
18. Curcio, A. L., Knott, V. E., & Mak, A. S. (2015). Why do young people engage in delinquency and problem drinking? Views from adolescents and stakeholders. *Australian Psychologist*, 50(5). <https://doi.org/10.1111/ap.12118>
19. Danaei, G., Ding, E. L., Mozaffarian, D., Taylor, B., Rehman, J., Murray, C. J. L., & Ezzati, M. (2009). The preventable causes of death in the United States: Comparative risk assessment of dietary, lifestyle, and metabolic risk factors. *PLoS Medicine*, 6(4). <https://doi.org/10.1371/journal.pmed.1000058>
20. Das, P., & Horton, R. (2012). Rethinking our approach to physical activity. In *The Lancet* (Vol. 380, Issue 9838). [https://doi.org/10.1016/S0140-6736\(12\)61024-1](https://doi.org/10.1016/S0140-6736(12)61024-1)
21. de Carvalho, A. P., da Franca, C., & de Menezes, V. A. (2018). Physical violence and alcohol drinking consumption among teenagers. *Journal of Human Growth and Development*, 28(3). <https://doi.org/10.7322/jhgd.152172>
22. Emerole, C., Chineke, H., Diwe, K., & Onubeze, D. (2013). The prevalence of smoking among undergraduates of Imo State University Owerri, SouthEastern Nigeria. *Nigerian Journal of General Practice*, 11(2).
23. Esan, D. T., Fasoro, A. A., Odesanya, O. E., Esan, T. O., Ojo, E. F., & Faeji, C. O. (2018). Assessment of self-medication practices and its associated factors among undergraduates of a private University in Nigeria. *Journal of Environmental and Public Health*, 2018. <https://doi.org/10.1155/2018/5439079>
24. Eze, C. U., & Uzoeghe, U. I. (2015). Alcohol use among full-time students of the University of Abuja. *International Journal of Emergency Mental Health*, 17(1).
25. Friestad, C., & Klepp, K. I. (2006). Socioeconomic status and health behavior patterns through adolescence: Results from a prospective cohort study in Norway. *European Journal of Public Health*, 16(1). <https://doi.org/10.1093/eurpub/cki051>
26. Fulkerson, J. A., Sherwood, N. E., Perry, C. L., Neumark-Sztainer, D., & Story, M. (2004). Depressive symptoms and adolescent eating and health behaviors: A multifaceted view in a population-based sample. *Preventive Medicine*, 38(6). <https://doi.org/10.1016/j.ypmed.2003.12.028>
27. Gebresllasie, F., Tsadik, M., & Berhane, E. (2017). Potential predictors of risky sexual behavior among private college students in Mekelle City, North Ethiopia. *Pan African Medical Journal*, 28. <https://doi.org/10.11604/pamj.2017.28.151.5370>
28. Govender, D., Naidoo, S., & Taylor, M. (2020). "My partner was not fond of using condoms, and I was not on contraception": Understanding adolescent mothers' perspectives of sexual risk behavior in KwaZulu-Natal, South Africa. *BMC Public Health*, 20(1). <https://doi.org/10.1186/s12889-020-08474-2>
29. Groft, J. N., Hagen, B., Miller, N. K., Cooper, N., & Brown, S. (2005). Adolescent health: a rural community's approach. *Rural and Remote Health*, 5(2). <https://doi.org/10.22605/rrh366>
30. Ho, S. tung. (2017). Adverse effects of smoking on outcomes of orthopedic surgery. In *Journal of Orthopaedics, Trauma, and Rehabilitation* (Vol. 23). <https://doi.org/10.1016/j.jotr.2017.04.001>
31. Kaplan, C. P., Zabkiewicz, D., McPhee, S. J., Nguyen, T., Gregorich, S. E., Disogra, C., Hilton, J. F., & Jenkins, C. (2003). Health-compromising behaviors among Vietnamese adolescents: The role of education and extracurricular activities. *Journal of Adolescent Health*, 32(5). [https://doi.org/10.1016/S1054-139X\(03\)00019-3](https://doi.org/10.1016/S1054-139X(03)00019-3)
32. Keski-Rahkonen, A., Kaprio, J., Rissanen, A., Virkkunen, M., & Rose, R. J. (2003). Breakfast skipping and health-compromising behaviors in adolescents and adults. *European Journal of Clinical Nutrition*, 57(7). <https://doi.org/10.1038/sj.ejcn.1601618>

33. Khalid, G. M., Jatau, A. I., Ibrahim, U. I., Dungus, F. M., Shitu, Z., Sha'aban, A., & Burji, S. L. (2019). Antibiotics self-medication among undergraduate pharmacy students in Northern Nigeria. *Medicine Access @ Point of Care*, 3. <https://doi.org/10.1177/2399202619846847>
34. Kristensen, P. L., Wedderkopp, N., Møller, N. C., Andersen, L. B., Bai, C. N., & Froberg, K. (2006). Tracking and prevalence of cardiovascular disease risk factors across socioeconomic classes: A longitudinal substudy of the European Youth Heart Study. *BMC Public Health*, 6. <https://doi.org/10.1186/1471-2458-6-20>
35. Kyriakopoulos, C., Gogali, A., Chronis, C., & Kostikas, K. (2021). A direct adverse effect of smoking. *Respiratory Medicine Case Reports*, 33. <https://doi.org/10.1016/j.rmcr.2021.101438>
36. Lapsley, D. K., Aalsma, M. C., & Felsher, B. L. H. (2005). Invulnerability and risk behavior in early adolescence. *Research in Child Development*.
37. Lastrucci, V., Innocenti, F., Lorini, C., Berti, A., Silvestri, C., Lazzeretti, M., Voller, F., & Bonaccorsi, G. (2021). Profiles of risky driving behaviors in adolescent drivers: A cluster analysis of a representative sample from Tuscany region (Italy). *International Journal of Environmental Research and Public Health*, 18(12). <https://doi.org/10.3390/ijerph18126362>
38. Lee, C. K., & Liao, L. L. (2021). Feasibility of intervention program to prevent adolescent health-compromising behaviors. *Journal of School Nursing*. <https://doi.org/10.1177/10598405211046198>
39. Loureiro, N., & de Matos, M. G. (2014). Associations between health-compromising behaviors and sleep patterns in Portuguese adolescents. *Studies in Sociology of Science*, 5(2).
40. Mokdad, A. H., Marks, J. S., Stroup, D. F., & Gerberding, J. L. (2004). Actual causes of death in the United States, 2000. In *Journal of the American Medical Association* (Vol. 291, Issue 10). <https://doi.org/10.1001/jama.291.10.1238>
41. Neumark-Sztainer, D., Story, M., French, S., Cassuto, N., Jacobs, D. R., & Resnick, M. D. (1996). Patterns of health-compromising behaviors among Minnesota adolescents: Sociodemographic variations. *American Journal of Public Health*, 86(11). <https://doi.org/10.2105/AJPH.86.11.1599>
42. Noël, X. (2014). Why adolescents are at risk of misusing alcohol and gambling. *Alcohol and Alcoholism*, 49(2). <https://doi.org/10.1093/alcalc/agt161>
43. Odunaiya, N., Ayodele, O., & Oguntibeju, O. (2010). Physical activity levels of senior secondary school students in Ibadan, Niveles de Actividad Física de los Estudiantes de la Escuela Secundaria Preuniversitaria en Ibadan, Nigeria Occidental. *West Indian Medical Journal*, 59(5).
44. Okafor, I. I., & Obi, S. N. (2005). Sexual risk behavior among undergraduate students in Enugu, Nigeria. *Journal of Obstetrics and Gynecology*, 25(6). <https://doi.org/10.1080/01443610500239511>
45. Olashore, A. A., Ogunwobi, O., Totego, E., & Opondo, P. R. (2018). Psychoactive substance uses among first-year students in a Botswana University: Pattern and demographic correlates. *BMC Psychiatry*, 18(1). <https://doi.org/10.1186/s12888-018-1844-2>
46. Olofinbiyi, S. A., Mkhize, S., Dlamini, S., Maluleke, W., & Olofinbiyi, O. B. (2019). The social dimension of risk behaviors among adolescent prostitutes: Insight from South-Western Nigeria. *Cogent Social Sciences*, 5(1). <https://doi.org/10.1080/23311886.2019.1565616>
47. Olorunsola, A., Muyibi, S., Irabor, A., Adetunji, A., Ismail, W., & Ogunniyan, T. (2021). Pattern and predictors of sexual behavior among adolescents in Ibadan, South West, Nigeria. *Archives of Community Medicine and Public Health*. <https://doi.org/10.17352/2455-5479.000158>
48. Onwuchuluba, E., Isa, J., Ogbonna, B. O., Soremekun, R., Amagba, C., & Idoko, L. (2018). Prevalence of cancer among women in a tertiary teaching hospital in Lagos southwest Nigeria: A pharmacoepidemiological and evidence-based survey. *Value in Health*, 21. <https://doi.org/10.1016/j.jval.2018.09.294>
49. Osemene, K. P., & Lamikanra, A. (2012). A study of the prevalence of self-medication practice among university students in southwestern Nigeria. *Tropical Journal of Pharmaceutical Research*, 11(4). <https://doi.org/10.4314/tjpr.v11i4.21>
50. Owoaje, E. T., & Ndubusi, N. M. (2010). Peer youth physical violence among secondary schools' students in southwest Nigeria. *Injury Prevention*, 16(Supplement 1). <https://doi.org/10.1136/ip.2010.029215.610>
51. Owopetu, O. F., Adebayo, A. M., & Popoola, O. A. (2020). Tobacco uses among undergraduates in South-Western Nigeria: A cross-sectional study. *International Journal of Mental Health and Addiction*. <https://doi.org/10.1007/s11469-020-00397-8>
52. Patton, G. C., Coffey, C., Sawyer, S. M., Viner, R. M., Haller, D. M., Bose, K., Vos, T., Ferguson, J., & Mathers, C. D. (2009). Global patterns of mortality in young people: a systematic analysis of population health data. *The Lancet*, 374(9693). [https://doi.org/10.1016/S0140-6736\(09\)60741-8](https://doi.org/10.1016/S0140-6736(09)60741-8)
53. Peltzer, K., & Pengpid, S. (2014). Correlates of physical fighting among university students in 25 low and middle income and emerging economy countries. *Mediterranean Journal of Social Sciences*, 5(27).

- <https://doi.org/10.5901/mjss.2014.v5n27p916>
54. Pickett, W., Craig, W., Harel, Y., Cunningham, J., Simpson, K., Molcho, M., Mazur, J., Dostaler, S., Overpeck, M. D., & Currie, C. E. (2005). A cross-national study of fighting and weapon carrying as determinants of adolescent injury. *Pediatrics*, 116(6). <https://doi.org/10.1542/peds.2005-0607>
 55. Plessz, M., Ezdi, S., Airagnes, G., Parizot, I., Ribet, C., Goldberg, M., Zins, M., & Meneton, P. (2020). Association between unemployment and the co-occurrence and clustering of common risky health behaviors: Findings from the Constances cohort. *PLoS ONE*, 15(5). <https://doi.org/10.1371/journal.pone.0232262>
 56. Shayo, F. K., & Kalomo, M. H. (2019). Prevalence and correlates of sexual intercourse among sexually active in-school adolescents: An analysis of five sub-Saharan African countries for adolescents' sexual health policy implications. *BMC Public Health*, 19(1). <https://doi.org/10.1186/s12889-019-7632-1>
 57. Shuaibu, H. O., Haliza, A. R., Samah, A. A., & Zulkefli, N. A. M. (2020). Psychoactive substance uses among Nigerian secondary school students: A review of current literature. *Pertanika Journal of Social Sciences and Humanities*, 28(4). <https://doi.org/10.47836/PJSSH.28.4.36>
 58. Ssekamatte, T., Tetui, M., Kibira, S. P. S., Isunju, J. B., Mugambe, R. K., Nabiwemba, E., Wafula, S. T., Buregyeya, E., & Bukonya, J. N. (2020). Multiple sexual partnerships and associated factors among young psychoactive substance- users in informal settlements in Kampala, Uganda. *PLoS ONE*, 15(10 October). <https://doi.org/10.1371/journal.pone.0239323>
 59. Stang, J., Story, M., & Koss, R. (2005). Promoting healthy eating and physical activity behaviors. *Guidelines for Adolescent Nutrition Services*, 2005.
 60. Sun, Y., Li, X., Xu, L., Ma, Z., Yang, Y., Yin, T., Gao, Z., Gong, X., Li, L., Liu, Q., Tang, X., & Liu, J. (2021). Health-related risky behaviors in Chinese adolescents with autism: a cross-sectional study. *Child and Adolescent Psychiatry and Mental Health*, 15(1). <https://doi.org/10.1186/s13034-021-00390-6>
 61. Svensson, J., & Landberg, J. (2013). Is youth violence temporally related to alcohol? A time-series analysis of binge drinking, youth violence, and total alcohol consumption in Sweden. *Alcohol and Alcoholism*, 48(5). <https://doi.org/10.1093/alcalc/agt035>
 62. Tanimowo, M. O., Tanimowo, E. O., & Oloyede, T. (2014). Youth smoking in South-Western Nigeria: awareness of anti-smoking efforts, and the adverse health effects of cigarette smoking. *International Journal of Medical and Applied Sciences*, 3(1).
 63. Udigwe, I. B., Adogu, P. O., Nwabueze, A. S., Adinma, E. D., Ubajaka, C. F., & Onwasigwe, C. (2014). Factors influencing sexual behavior among female adolescents in Onitsha, Nigeria. *Open Journal of Obstetrics and Gynecology*, 04(16). <https://doi.org/10.4236/ojog.2014.416139>
 64. van Nieuwenhuijzen, M., Junger, M., Velderman, M. K., Wiefferink, K. H., Paulussen, T. W. G. M., Hox, J., & Reijneveld, S. A. (2009). Clustering health-compromising behavior and delinquency in adolescents and adults in the Dutch population. *Preventive Medicine*, 48(6). <https://doi.org/10.1016/j.ypmed.2009.04.008>
 65. Vazsonyi, A. T., Trejos-Castillo, E., & Huang, L. (2006). Risky sexual behaviors, alcohol use, and drug use: A comparison of Eastern and Western European adolescents. *Journal of Adolescent Health*, 39(5). <https://doi.org/10.1016/j.jadohealth.2006.05.008>
 66. Ziaei, R., Mohammadi, R., Dastgiri, S., Baybordi, E., Rahimi, V. A., Sadeghi-Bazargani, H., & Viitasara, E. (2020). The prevalence and correlates of physical activity/inactivity and sedentary behavior among high-school adolescents in Iran: a cross-sectional study. *Journal of Public Health (Germany)*. <https://doi.org/10.1007/s10389-020-01392-y>