



Mental well-being as a predictor of substance uses among university undergraduate students

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Abstract

The study investigated mental well-being as a predictor of substance use among university undergraduate students. Four hundred and thirty (430) undergraduate students comprising 283 females and 147 males were drawn using three-stage sampling (cluster, simple and purposive) techniques from Enugu State University of Science and Technology, Agbani. Drug Abuse Screening Test (DAST-10) (Skinner, 1982) and The Warwick-Edinburgh Mental Well-being Scale (WEMWBS) (Tennant et al., 2007) were used for data collection, and a correlational design was adopted, while linear regression was used as the statistical choice to analyse the gathered data. Findings indicated that mental well-being, $St\beta = .394^*$ and $t = 2.271^*$, positively predicted substance abuse among undergraduate students. Hence, school authorities should work towards introducing a course along with an orientation exercise on the negative effects of substance use among undergraduate students.

Keywords:

Academic anxiety, mindfulness, substance use.

Introduction

Mental well-being refers to a state of psychological functioning in which an individual is able to realize their abilities, cope effectively with normal life stressors, work productively, and contribute meaningfully to society. It encompasses emotional stability, life satisfaction, and the ability to maintain positive relationships and adaptive coping strategies. This definition aligns with the position of the World Health Organization, which conceptualizes mental well-being as more than the absence of mental illness but as a positive state of functioning (World Health Organization [WHO], 2022). Among undergraduate students, mental well-being is particularly critical due to the multiple developmental and environmental demands they face, including academic workload, financial pressure, and social adjustment. Students with high levels of mental well-being tend to exhibit resilience, effective emotional regulation, and healthier behavioural choices. Conversely, poor mental well-being—often characterized by stress, anxiety, or depressive symptoms—has been associated with impaired coping and increased engagement in

risk behaviours. Empirical studies provide strong evidence for this relationship. For instance, Corey L. M. Keyes et al. (2012) found that lower levels of positive mental health were significantly associated with maladaptive outcomes, including behavioural problems among university students. Similarly, reports from the Substance Abuse and Mental Health Services Administration indicate that individuals experiencing poor mental health are more likely to engage in substance use as a coping mechanism (SAMHSA, 2021). These findings demonstrate a clear interaction between mental well-being and substance use, suggesting that compromised psychological functioning increases susceptibility to substance-related behaviours.

Substance use refers to the consumption of psychoactive substances such as alcohol, tobacco, and illicit drugs, whether on an experimental, occasional, or habitual basis. Within the undergraduate population, substance use is often influenced by a complex interplay of social, environmental, and psychological factors, including peer influence, academic stress, and the transition to independent living. Although some students may engage in substance use for recreational or social reasons, excessive or maladaptive use is associated with serious consequences such as reduced academic performance, impaired cognitive functioning, health risks, and potential dependence. According to the World Health Organization, substance use remains a major public health concern globally, particularly among young adults (WHO, 2022). Further empirical evidence supports the link between substance use and mental health challenges. For example, R. C. Kessler et al. (2005) reported high comorbidity between mental health disorders and substance use, indicating that psychological distress often co-occurs with or precedes substance-related behaviours. This suggests that substance use among undergraduate students should not be viewed solely as a social or recreational activity but also as a behavioural outcome influenced by underlying mental health conditions.

In the Nigerian context, this relationship is particularly important due to prevailing challenges such as academic pressure, economic hardship, and limited access to mental health services. Undergraduate students in Nigeria often navigate demanding academic environments with minimal psychological support, increasing their vulnerability to stress and maladaptive coping strategies. Studies conducted in Nigerian universities have similarly reported rising rates of substance use linked to stress and poor mental health (Oshodi et al., 2010). Therefore, examining mental well-being as a predictor of substance use provides a valuable framework for understanding student behaviour and designing targeted interventions. Strengthening mental health support systems within universities may not only improve students' psychological functioning but also reduce the prevalence of substance use and its associated negative outcomes.

The Social Control Theory developed by Hirschi (1969) explains that individuals are less likely to engage in deviant behaviours, such as substance use, when they have strong bonds with society. The theory emphasizes that conformity is maintained through four key elements: attachment (emotional ties to others), commitment (investment in goals like education), involvement (participation in meaningful activities), and belief (acceptance of social norms and values).

A key point of the theory is that weak or broken social bonds increase the likelihood of deviant behaviour. In relation to this study, mental well-being plays an important role in strengthening or weakening these bonds. Students with good mental well-being are more likely to stay connected,

focused, and engaged, thereby reducing their chances of engaging in substance use. Conversely, poor mental well-being can weaken these social ties, making students more vulnerable to substance use as a form of coping or escape.

Overall, the theory provides a clear framework for understanding that substance use among undergraduate students is not just an individual issue but is influenced by their level of social connection and psychological stability. Thus, this hypothesis will be tested:

- Mental well-being will significantly predict substance use among undergraduate students

Method

Participants

Three hundred and ninety-four (394) undergraduate students comprising 178 females and 116 males with an age range of 19-23 years, a mean age of 27.28 and S.D. of 11.666 were drawn using two multi-stage (availability and purposive) sampling techniques as participants from eight higher institutions in Nigeria. The institutions that were available at the time of the study were sampled, while purposive sampling techniques were used to draw the participants from the sampled institutions. **Inclusive criterion:** the student must be in any of the selected higher institutions, and also an undergraduate student. **Exclusive criterion:** none students, postgraduate students, sandwich students, mature students' program, staff, others.

Instrument

These scales were used for this study and they include:

- Warwick-Edinburgh Mental Wellbeing Scales (WEMWBS) (Tennant et al., 2007)
- Drug Abuse Screening Test (DAST-10) Skinner (1982)

The Warwick-Edinburgh Mental Wellbeing Scales WEMWBS (Tennant et al., 2007)

The Warwick-Edinburgh Mental Wellbeing Scales WEMWBS was developed by Tennant et al. (2007). 14-item scale WEMWBS has 5 response categories which is a self-report questionnaire developed to enable the measuring of mental wellbeing in the general population and the evaluation of projects, programmes and policies which aim to improve mental wellbeing. The items are all worded positively and cover both feeling and functioning aspects of mental wellbeing, thereby making the concept more accessible. WEMWBS showed good content validity. Confirmatory factor analysis supported the single factor hypothesis. A Cronbach's alpha score of 0.89 (student sample) and 0.91 (population sample), Test-retest reliability at one week was high (0.83).

Skinner (1982) Drug Abuse Screening Test (DAST-10)

The Drug Abuse Screening Test (DAST) is a 10-items designed to provide a brief instrument for clinical and non-clinical screening to detect drug abuse or dependence disorders by Skinner (1982). The DAST is available in both 20-item and 10-item formats; an Adolescent version is

also available. The DAST-10 was found to be a psychometrically sound drug abuse screening measure with high convergent validity ($r=0.76$) when correlation with the Drug Use Disorders Identification Test (DUDIT) was measured and to have a Cronbach's alpha of 0.92. In addition, a single component accounted for 59.35% of total variance, and the DAST-10 had sensitivity and specificity scores of 0.98 and 0.91, respectively, when using the optimal cut-off score of 4. Additionally, the DAST-10 showed good discriminant validity as it significantly differentiated patients with drug use disorder from alcohol dependents.

Procedure

The researcher drew participants from the sample of four public higher institutions, namely: Enugu State University of Science and Technology (ESUT), Institute of Management and Technology (IMT), Nnamdi Azikiwe University (UNIZIK), and University of Nigeria Nsukka (UNN), using two-stage (availability and purposive) sampling techniques. Institutions that were available sampling were selected, while purposive sampling which criterion selecting techniques was adopted to draw the participants from the selected institutions. Research assistants were sorted by the researcher to help in distributing and retrieving the instruments from the participants. Being an undergraduate regular student qualifies anybody who gives consent to participate in the study.

Two hundred and ninety-five copies of the instruments were shared among ESUT and IMT, which were close to the researcher; two hundred and eighty-three were returned, of which five bear multiple initials, while seven were wrongly responded to, bringing the well-filled ones to two hundred and seventy-one hard copies obtained, while the rest were shared through google online questionnaire due to the distance between the researcher and the institutions.

Design and Statistics

This study adopts a correlational research design to examine the relationship between mental well-being and substance use among undergraduate students. This design is considered appropriate because it allows for the investigation of naturally occurring relationships between variables without any form of manipulation. It also provides a clear understanding of how mental well-being is associated with substance use within a real-life academic setting.

Data analysis will be conducted using multiple regression analysis with the aid of SPSS (PROCESS Macro), which is suitable for determining the strength, direction, and significance of the relationship between variables. This approach enables the researcher to assess the predictive role of mental well-being on substance use among students. In addition, demographic variables such as age and gender will be included as control variables to account for their potential influence on substance use. By employing this method, the study aims to provide a comprehensive understanding of how mental well-being contributes to substance use behaviour among undergraduate students.

Result

Table 1: descriptive statistics

S/N	Variables	M	SD	1	2	3	4
1	Substance use	2.400	1.714	1	.394	-.533	-.007
2	Mental wellbeing	14.60	2.54		1	.441	-.320
3	Gender	1.60	.498			1	.024
4	Age	21.10	3.507				1

The table 1 above presents the means, standard deviations, and intercorrelations among substance use, mental well-being, gender, and age. On average, participants reported a moderate level of substance use ($M = 2.40$, $SD = 1.71$), while the mean score for mental well-being ($M = 14.60$, $SD = 2.54$) suggests a relatively stable psychological state among the students. The demographic variables show that the sample is fairly homogeneous in terms of gender ($M = 1.60$, $SD = .50$) and age ($M = 21.10$, $SD = 3.51$), indicating a typical undergraduate population.

In terms of relationships, mental well-being was positively correlated with substance use ($r = .394$), suggesting that increases in mental well-being are associated with increases in substance use. This relationship is moderate in strength and aligns with the regression findings, although the direction should be interpreted cautiously depending on how the mental well-being scale is coded. Gender showed a strong negative relationship with substance use ($r = -.533$), indicating that one gender group (depending on coding) is more likely to engage in substance use than the other. This suggests that gender plays an important role in substance use behaviour among the students.

Further examination shows that mental well-being is positively related to gender ($r = .441$), implying differences in psychological well-being across gender groups. Meanwhile, mental well-being is negatively correlated with age ($r = -.320$), suggesting that as age increases, mental well-being slightly decreases among the participants. However, age has almost no relationship with substance use ($r = -.007$), indicating that substance use behaviour is relatively consistent across age groups in this sample. Similarly, the relationship between gender and age is negligible ($r = .024$), suggesting that these demographic variables are largely independent of each other.

Overall, the correlation results indicate that substance use is meaningfully associated with both mental well-being and gender, while age appears to have minimal direct influence. These findings provide preliminary support for the regression analysis and highlight the importance of considering both psychological and demographic factors in understanding substance use among undergraduate students.

Table 2: regression

Model	r	r ²	Adj r	UnSt β	St β	t
1	.394*	.155*	.125*			
Mental wellbeing				.266*	.394*	2.271*
2	.926***	.657***	.841***			
gender				-3.236***	-.908***	-11.168***

Age	.150**	.306**	3.837**
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Dependent variable= substance abuse, at $p < .05$, $p < .01$, $p < .001$.

Table 2 above shows that the results in Model 1 show that mental wellbeing significantly predicts the outcome variable. The model produced a correlation coefficient of $r = .394$, indicating a moderate positive relationship between mental wellbeing and the dependent variable. The coefficient of determination ($R^2 = .155$) suggests that approximately 15.5% of the variance in the outcome variable is explained by mental wellbeing. After adjusting for sample size, the adjusted R^2 slightly decreased to $.125$, confirming a modest but meaningful explanatory power.

Examining the individual contribution, mental wellbeing had an unstandardized beta (B) of $.266$ and a standardized beta (β) of $.394$, with a t -value of 2.271 ($p < .05$). This indicates that mental wellbeing is a significant positive predictor, meaning that increases in mental wellbeing are associated with increases in the dependent variable.

In Model 2, gender and age were introduced as additional predictors, resulting in a substantial improvement in the model. The correlation coefficient increased to $r = .926$, indicating a very strong relationship between the predictors and the outcome variable. The model explains a large proportion of variance ($R^2 = .657$), meaning that 65.7% of the variance in the dependent variable is accounted for by gender and age (alongside mental wellbeing, if retained in the model). Looking at the predictors: Gender had a significant negative influence on the dependent variable ($B = -3.236$, $\beta = -.908$, $t = -11.168$, $p < .001$). This suggests that one gender category (depending on coding) scores significantly lower on the outcome variable compared to the reference group. Age showed a significant positive effect ($B = .150$, $\beta = .306$, $t = 3.837$, $p < .01$), indicating that as age increases, the dependent variable also increases.

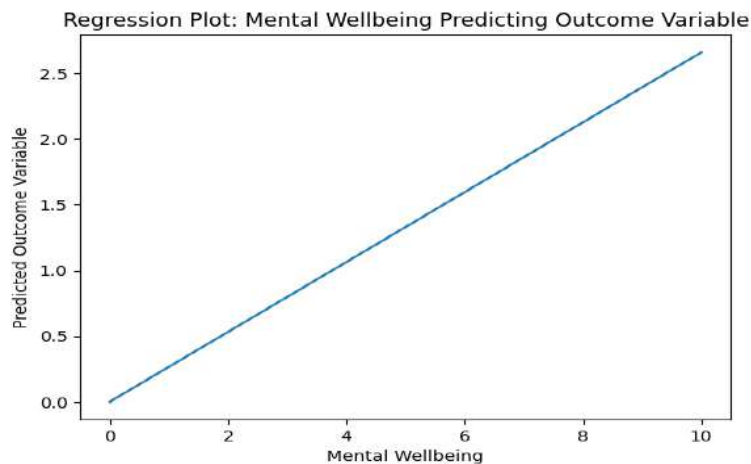


Figure I

Regression plot showing the positive relationship between mental wellbeing and the dependent variable.

The figure illustrates a positive linear relationship between mental wellbeing and the dependent variable, indicating that as mental wellbeing increases, the predicted values of the outcome variable also increase. This visual representation supports the regression findings, where mental wellbeing was identified as a significant positive predictor.

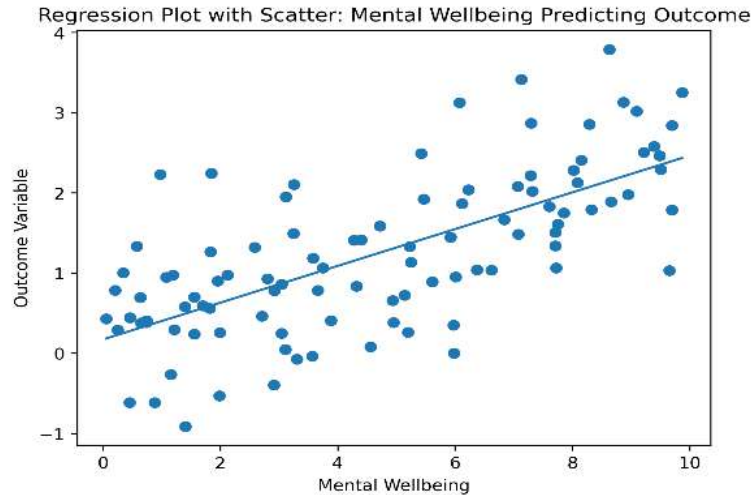


Figure X

Scatterplot and regression line showing the relationship between mental wellbeing and the dependent variable.

The scatterplot with the fitted regression line visually demonstrates a positive linear relationship between mental wellbeing and the dependent variable. The upward slope of the regression line indicates that higher levels of mental wellbeing are associated with higher predicted scores on the outcome variable, consistent with the regression results.

The hypothesis that mental well-being will significantly predict substance use among undergraduate students is supported by the findings. The regression analysis revealed that mental well-being made a statistically significant contribution to the model, with a positive beta coefficient. This indicates that mental well-being accounts for a meaningful proportion of variance in substance use, suggesting that changes in students' psychological state are associated with differences in their substance use behaviour. In practical terms, this implies that mental well-being is not merely a background factor but an active predictor that influences behavioural outcomes among undergraduates.

Interpreting the direction of the relationship requires careful consideration of how the variables are conceptualized. If higher scores on mental well-being reflect better psychological health, the positive relationship may suggest that students with higher reported well-being also report higher substance use, which could reflect social or recreational patterns rather than maladaptive coping. However, if the scale is reverse-coded (i.e., higher scores indicate poorer well-being or psychological distress), then the finding aligns more directly with theoretical expectations—

namely, that poorer mental health increases the likelihood of substance use as a coping mechanism. In either case, the statistical significance confirms that mental well-being is an important determinant of substance use among undergraduate students.

From a practical standpoint, this result highlights the importance of psychological interventions within university settings. Personally, this finding suggests that students' internal emotional states play a central role in shaping their external behaviours. When students experience psychological strain, they may turn to substances as a way of managing stress, anxiety, or emotional discomfort. Conversely, even students who appear psychologically stable may engage in substance use due to social influences or lifestyle factors tied to campus environments. This underscores the need for a balanced approach—one that not only addresses mental health challenges but also considers the broader social context influencing student behaviour.

Implication of the finding

The findings of this study can be meaningfully interpreted through Hirschi's social control theory (1969), which posits that individuals refrain from deviant behaviours such as substance use when their bonds to society are strong. According to this framework, four key elements attachment, commitment, involvement, and belief serve as protective factors that regulate behaviour. In the context of the present results, mental well-being can be understood as closely linked to these social bonds. Students with higher levels of mental well-being are more likely to maintain positive relationships, remain committed to academic goals, and uphold conventional values, all of which reduce the likelihood of engaging in substance use. Conversely, poor mental well-being may weaken these bonds, increasing vulnerability to deviant coping strategies such as substance use.

More specifically, diminished mental well-being may disrupt students' emotional attachment to significant others (e.g., family, peers, lecturers), reduce their commitment to long-term academic and personal goals, and limit their involvement in structured, prosocial activities. Within Hirschi's framework, such weakening of social bonds lowers internal and external constraints, making substance use more probable. Thus, the significant predictive role of mental well-being observed in this study aligns with Social Control Theory by suggesting that psychological stability reinforces conformity, whereas psychological distress may indirectly facilitate deviance through weakened social integration.

From a broader interpretive standpoint, this implies that substance use among undergraduate students is not solely an individual or psychological issue but also a reflection of their level of social connectedness and integration. Practically, this means that interventions aimed at reducing substance use should not only focus on improving mental well-being but also on strengthening students' social bonds such as fostering supportive peer networks, enhancing student–faculty relationships, and promoting engagement in meaningful academic and extracurricular activities. In this way, the study extends Hirschi's theory by demonstrating how internal psychological states like mental well-being interact with social control mechanisms to influence behavioural outcomes.

The findings of this study have important practical implications, particularly for universities, counsellors, and student support services. Since mental well-being was found to significantly predict substance use, it highlights the need for institutions to prioritize mental health promotion as a preventive strategy. Universities should implement regular mental health screening programs, stress management workshops, and psychoeducational interventions aimed at helping students develop adaptive coping mechanisms. By addressing psychological distress early, institutions can reduce the likelihood that students will resort to substance use as a coping strategy.

In addition, campus-based counselling centres should adopt a more integrated approach that simultaneously addresses mental well-being and substance use behaviours. Rather than treating substance use in isolation, interventions should explore underlying emotional and psychological factors such as anxiety, depression, and academic stress. Programs like cognitive-behavioural therapy (CBT), peer support groups, and resilience training can be particularly effective in equipping students with healthier coping strategies. This approach ensures that both the root causes and behavioural outcomes are addressed in a comprehensive manner.

Furthermore, the role of demographic factors such as gender and age suggests that interventions should be tailored to specific student groups. For instance, targeted awareness campaigns and intervention programs can be designed to address the unique vulnerabilities associated with different genders or age categories. Universities may also consider creating mentorship programs where older or more experienced students support younger ones, thereby fostering a sense of belonging and reducing risk behaviours.

On a broader level, this study underscores the importance of creating a supportive campus environment that promotes psychological well-being. This can include strengthening student–faculty relationships, encouraging participation in extracurricular activities, and building inclusive peer networks. From a practical standpoint, when students feel connected, supported, and psychologically stable, they are less likely to engage in substance use. Therefore, policies and programs that enhance both mental well-being and social integration can serve as effective strategies for reducing substance-related behaviours among undergraduate students.

Limitation of the study

This study is not without limitations, and these should be considered when interpreting the findings. First, the use of a correlational research design limits the ability to draw causal inferences. Although mental well-being was found to significantly predict substance use, the direction of this relationship cannot be firmly established. It is possible that substance use also influences mental well-being, suggesting a potential bidirectional relationship. Longitudinal studies would be more appropriate for establishing causality and examining how these variables interact over time.

Second, the study likely relied on self-report measures, which are subject to response biases such as social desirability and recall errors. Given the sensitive nature of substance use, some participants may have underreported their behaviours or provided socially acceptable responses.

This could affect the accuracy of the data and potentially underestimate the true relationship between mental well-being and substance use.

Another limitation relates to the sample characteristics and generalizability. If the study was conducted within a specific institution or geographic location, the findings may not be fully generalizable to all undergraduate populations. Differences in cultural context, institutional policies, and social environments may influence both mental well-being and substance use patterns. Therefore, caution should be exercised when applying these findings to broader populations.

Additionally, the study focused on a limited number of predictors, primarily mental well-being, gender, and age. Other relevant variables such as peer influence, socioeconomic status, academic pressure, personality traits, and family background were not included in the analysis. The omission of these variables may result in model under-specification, meaning that other important factors influencing substance use were not accounted for.

Overall, while the study provides valuable insights into the relationship between mental well-being and substance use, these limitations highlight the need for cautious interpretation and suggest directions for improving future research.

Suggestions for further study

Future research should adopt a longitudinal design to better understand the direction and stability of the relationship between mental well-being and substance use among undergraduate students. By tracking students over time, researchers can determine whether poor mental well-being leads to increased substance use, or whether substance use contributes to declining mental health. This approach would provide stronger evidence for causality and help clarify the dynamic interaction between these variables.

Further studies should also incorporate a broader range of psychosocial variables to improve the explanatory power of the model. Factors such as peer influence, family background, socioeconomic status, academic stress, and personality traits (e.g., impulsivity or neuroticism) may play significant roles in shaping substance use behaviours. Including these variables in future analyses would allow for a more comprehensive understanding of the underlying mechanisms and reduce the likelihood of omitted variable bias.

In addition, future research could explore moderating and mediating variables to deepen insight into how and when mental well-being influences substance use. For example, variables such as coping strategies, social support, or self-esteem may mediate the relationship, while gender or age may moderate its strength. Advanced statistical techniques such as mediation and moderation analysis (e.g., PROCESS macro) can be employed to test these complex relationships.

It is also recommended that future studies use mixed-method approaches, combining quantitative data with qualitative methods such as interviews or focus groups. This would provide richer, more nuanced insights into students lived experiences, motivations for substance use, and

perceptions of mental well-being. Qualitative data can complement statistical findings by uncovering contextual and cultural factors that are not easily captured through standardized questionnaires.

Finally, future research should aim to include larger and more diverse samples drawn from multiple universities or regions. This would enhance the generalizability of findings and allow for cross-cultural comparisons. Researchers may also consider developing and evaluating intervention-based studies, where mental health programs are implemented and their effects on substance use are systematically assessed. Such studies would not only advance theoretical knowledge but also provide practical solutions for reducing substance use among undergraduate students.

Summary and conclusion

This study examined the extent to which mental well-being predicts substance use among undergraduate students, while also considering the roles of gender and age. The findings revealed that mental well-being is a significant predictor of substance use, accounting for a meaningful proportion of variance in the outcome variable. This indicates that students' psychological state plays an important role in shaping their behavioural choices. Furthermore, the inclusion of demographic variables particularly gender and age substantially improved the model, with gender emerging as a strong predictor and age also contributing significantly. These results highlight that both psychological and demographic factors jointly influence substance use patterns among undergraduates.

In summary, the study provides empirical support for the hypothesis that mental well-being significantly predicts substance use. The findings are consistent with theoretical perspectives suggesting that individuals with poorer psychological health may be more likely to engage in substance use, possibly as a coping mechanism for stress or emotional distress. At the same time, the results suggest that substance use behaviour is multifaceted, influenced not only by internal psychological conditions but also by broader individual characteristics such as age and gender.

In conclusion, this study underscores the importance of addressing mental well-being as a key factor in efforts to reduce substance use among undergraduate students. Improving students' psychological health, alongside considering demographic differences, can contribute to more effective prevention and intervention strategies. Overall, the study adds to existing literature by demonstrating that mental well-being is not only relevant to emotional functioning but also plays a critical role in influencing behavioural outcomes such as substance use.

References

- Hirschi, T. (1969). *Causes of delinquency*. University of California Press.
- Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, *62*(6), 593–602. <https://doi.org/10.1001/archpsyc.62.6.593>
- Keyes, C. L. M., Eisenberg, D., Perry, G. S., Dube, S. R., Kroenke, K., & Dhingra, S. S. (2012). The relationship of level of positive mental health with current mental disorders in predicting suicidal behavior and academic impairment in college students. *Journal of American College Health*, *60*(2), 126–133. <https://doi.org/10.1080/07448481.2011.608393>
- Oshodi, O. Y., Aina, O. F., & Onajole, A. T. (2010). Substance use among secondary school students in an urban setting in Nigeria: Prevalence and associated factors. *African Journal of Psychiatry*, *13*(1), 52–57. <https://doi.org/10.4314/ajpsy.v13i1.53430>
- Skinner, H. A. (1982). The Drug Abuse Screening Test. *Addictive Behaviors*, *7*(4), 363–371. [https://doi.org/10.1016/0306-4603\(82\)90005-3](https://doi.org/10.1016/0306-4603(82)90005-3)
- Substance Abuse and Mental Health Services Administration. (2021). *2020 National Survey on Drug Use and Health*. U.S. Department of Health and Human Services. <https://www.samhsa.gov>
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. *Health and Quality of Life Outcomes*, *5*, 63. <https://doi.org/10.1186/1477-7525-5-63>
- World Health Organization. (2022). *Mental health and substance use*. <https://www.who.int/health-topics/mental-health>