

Risk-Taking Behaviour, Substance Use Pattern and Perceived Severity of Corona-Virus Disease as Correlates of Mental Health Among Secondary School Students in Ibadan

by

Patrick O. Aleje

Department of Educational Psychology

Faculty of Education

Federal University of Education, Zaria

patrick.aleje@gmail.com; 07068218985, 08080581902

Abstract

This study explores the relationships between risk-taking behaviour, substance use patterns, and perceived severity of COVID-19 as correlates of mental health among secondary school students in Ibadan, Nigeria. Utilizing the Health Belief Model (HBM) as a theoretical framework, a cross-sectional design using multiple regression, correlation analysis and T-test; the survey study adopted a stratified random sample of 480 adolescents. The findings reveal significant negative relationships between risk-taking behaviour and perceived severity of COVID-19. Additionally, a positive relationship was found between perceived severity of COVID-19 and mental health. The study also underscores the detrimental impact of substance use on adolescents' well-being, with significant negative relationships observed between substance use and both mental health and risk-taking behaviour. Female students reported higher mental health scores compared to males, potentially due to higher levels of emotional expression and social support. Students in higher classes and those attending private schools reported worse mental health outcomes. Overall, the study provides strong evidence that risk-taking behaviour, substance use, and perceived severity of COVID-19 are significant predictors of mental health outcomes among secondary school students. The high R^2 value indicates that these variables collectively explain a substantial portion of the variance in mental health outcomes, emphasizing the need for targeted strategies to reduce risk-taking behaviours and substance use, and to provide accurate information and psychological support to students during public health crises. These insights are crucial for policymakers, educators, and mental health professionals to develop effective interventions and policies to support the mental well-being of adolescents during and beyond the pandemic.

Key words: Risk-Taking Behaviour, Substance Use, Perceived Severity of Covid-19, Mental Health, Secondary School Students

1. Introduction

The corona-virus disease (COVID-19) pandemic has had unprecedented global impacts, affecting various aspects of life, including the mental health of individuals across different age groups. Adolescents, particularly secondary school students, have been notably affected due to the sudden disruption of their routine, social isolation, and the stress related to academic uncertainties (Lee, 2020). In Nigeria, secondary school students in Ibadan are no exception, experiencing increased anxiety, depression, and other mental health issues during the pandemic (Abdullahi *et al.*, 2021).

Risk-taking behaviour and substance use have been identified as significant correlates of mental health among adolescents. Risk-taking behaviours, including reckless driving, unprotected sex, and skipping school, are often exacerbated by the stress and uncertainty associated with pandemics (Jessor, 2016). Substance use, such as alcohol, tobacco, and drug consumption, has also been reported to increase during crises, further complicating the mental health landscape for adolescents (Degenhardt *et al.*, 2016). The way students view the seriousness of COVID-19 significantly impacts their behaviours. Those who see the virus as a major threat tend to feel more stress and anxiety, affecting their mental health (Brooks *et al.*, 2020). This research seeks to examine how risk-taking behaviour, substance use patterns, and perceptions of COVID-19 severity together influence the mental health of secondary school students in Ibadan. The COVID19 pandemic has impacted the mental health of young people more than other groups because their education, economy, and social lives have been uniquely disrupted compared to older adults. For instance, post-secondary students face several extra challenges due to the pandemic, putting them at high risk of mental health issues. A study of 1,442 health professional students at Sichuan University in China during the pandemic found that 26.6% had clinically significant psychological distress, and 11.1% had probable acute stress reactions.

In a survey of over 7,000 students from Changzhi Medical College in China, 21.3% reported mild anxiety related to the pandemic (Cao *et al.*, 2020). Among 2,530 members of the University of Valladolid in Spain during the early weeks of confinement, 21.34%, 34.19%, and 28.14% of respondents reported moderate to extremely severe anxiety, depression, and stress, respectively. Also, 50.43% of respondents indicated moderate to severe impacts from the outbreak.

The COVID-19 pandemic has exposed and worsened existing mental health problems among secondary school students. Despite extensive research on COVID-19's physical health impacts, there is a significant gap in understanding its psychological effects, particularly among adolescents in Nigeria. This study addresses the interplay between risk-taking behavior, substance use, and perceived severity of COVID-19 as they relate to mental health among secondary school students in Ibadan. Understanding the relationship between risk-taking behaviour, substance use, perceived severity of COVID-19, and mental health: examining how risk-taking behaviour, substance use patterns, and the perceived severity of COVID-19 are interrelated and impact mental health, this study will provide a comprehensive understanding of the factors contributing to mental health issues among adolescents. This knowledge can inform the development of targeted

interventions to mitigate these behaviours and perceptions, thereby improving the overall well-being of students. Investigating the combined effects of these factors on mental health will offer insights into the complex interplay of various stressors and coping mechanisms among adolescents. Understanding these dynamics will be crucial in designing holistic mental health programs that address multiple aspects of students' lives.

The objectives of the study were to examine the relationship between risk-taking behaviour, pattern of substance use, perceived severity of COVID-19 and mental health among secondary school students in Ibadan, determine the combined effects of risk-taking behaviour, substance use, and perceived severity of COVID-19 on the mental health of these students, Socio-demographic determinants of mental health among adolescents in secondary schools. This study holds significant importance in various dimensions, highlighting its relevance in addressing the mental health challenges faced by secondary school students in Ibadan, especially in the context of the COVID-19 pandemic. The findings of this research will have profound implications for educators, policy-makers, mental health professionals, parents, and the students themselves.

2. Materials and Methods

Research Design

The study utilised a cross-sectional survey design and used sectional instrument for data collection after ascertaining the psychometric information of the scales.

Population of the Study

The target population consists of secondary school students in Ibadan, Oyo State, Nigeria.

Sample and Sampling Technique

A stratified random sampling technique was used to select a representative sample of 480 secondary school students from both public and private schools in Ibadan. The age distribution of the respondents is varied. The largest groups are 17-year-olds, comprising 96 (20.0%), followed by 16-year-olds with 92(19.2%), and 13-year-olds with 84(17.5%), 11-year-olds, 72(15.0%), while 19-year-olds, has only 4 (0.8%). In total, the respondents aged 11 to 17 make up 93.3% of the sample, with the remaining 6.7% aged 18 to 19. The gender distribution is skewed towards males, who constitute 288(60.0%), while females make up 192 (40.0%). Most respondents attend public schools, accounting for 384 respondents (80.0%), while 96 respondents (20.0%) attend private schools. Christians, 264 (55.0%),Islam 180(37.5%), while 36 respondents (7.5%) follow traditional religions.

Measures

This questionnaire consists of five sections:

Section A explored the demographic information of the participants in the study such as age, gender, class, type of school and religion. Section B of the questionnaire assessed the risk-taking behavior of respondents. It was structured on a 5 point scale of

strongly disagree, disagree, neutral, agree and strongly agree. High score indicate high level of risk-taking behaviour among the respondents while low score indicate low level of risk-taking behaviour. Section C of the questionnaire measured substance use among the respondents, this was adapted from the Substance use screening scale (SUSS), developed by Moore and Mears in 2003, is a 10-item scale designed to assess substance use pattern and related issues. It is structured on a 4 point scale of never, rarely, sometimes and very often respectively. It has a reliability coefficient =0.76. High score indicate high level of substance use while low score indicate low level of substance use. Section D is the Perceived Severity of Covid scale, was a 15 item questionnaire adapted from Burrow, (2018), it has an internal consistency =0.68. It is designed to measure the severity of Covid19. It is structured on a 5 point scale of not at all, rarely, sometimes, often and always representing 1, 2, 3, 4 and 5 respectively. High score on the scale implies high severity of Covid19 disease while low score implies low severity of Covid19 disease. Section E is the Mental Health Inventory (MHI) was a 15 item scale adapted from Veit & Ware, (1983) to assess mental health status. It is structured on a 5 point scale of strongly disagree, disagree, neutral, agree and strongly agree respectively. It yielded a reliability coefficient =0.83. High score means a high level of mental health while low score means low level of mental health.

Validity and Reliability

The questionnaire was subjected to content and construct validity. Reliability of the instrument was ascertained using Cronbach's alpha, with a threshold of 0.7 for acceptable reliability (Nunnally, 1978).

Data Collection and Analysis

Data were collected through self-administered questionnaires distributed among participants using stratified random sampling technique. To analyze the data, we used both descriptive statistics (like mean and standard deviation) and inferential statistics (such as correlation analysis and multiple regression). We used the Statistical Package for the Social Sciences (SPSS) for this.

Ethical Considerations

The researcher obtained ethical approval from the institutional review board. Participants and their guardians gave informed consent. The researcher ensured that participants' confidentiality and anonymity were maintained throughout the study.

3. Results and Discussion

Hypothesis One

There will be a significant relationship between risk-taking behaviour, pattern of substance use, perceived severity of COVID-19, and mental health among secondary school students in Ibadan. This was tested using correlation analysis and the results are presented in Table2.

Table 2: Summary of Zero-Order correlation showing relationship among risk-taking behaviour, substance use pattern, perceived severity of covid-19 and mental health among secondary school students.

Variable	1	2	3	4	Mean()	SD
1.Risktaking	1	.110*	-.762**	-.351**	16.60	1.86
2. Substance Use		1	.044	-.251**	32.60	3.14
3. Perceived severity of COVID			1	.848**	48.80	3.77
4. Mental Health				1	47.60	4.37

* $p < .05$, ** $p < .01$

Table 2 shows that the correlation coefficient between risk-taking behaviour and substance use ($r = .110$, $p < .05$). This indicates a weak significant positive relationship, while the correlation coefficient between risk-taking behaviour and perceived severity of COVID-19 ($r = -.762$, $p < .01$). This indicates a strong negative relationship, suggesting that students who perceive COVID-19 as more severe tend to engage in less risk-taking behaviour. Further, results revealed that the correlation coefficient between risk-taking behaviour and mental health ($r = -.351$, $p < .01$). This indicates a moderate negative relationship, meaning that higher levels of risk-taking behaviour are linked to poorer mental health. However, the correlation coefficient between substance use and perceived severity of COVID-19 ($r = .044$, $p > .05$ ns). This suggests no meaningful relationship between substance use patterns and the perceived severity of COVID-19 among the students. Therefore, given the significant relationships observed in the correlation analysis, the hypothesis is confirmed.

Hypothesis Two

Risk-taking behaviour, substance use, and perceived severity of COVID-19 collectively and independently significantly affect the mental health of secondary school students in Ibadan. This hypothesis was tested using multiple regression analysis and the results are presented in Table 3.

Table 3: Regression Analysis Showing Psychological Predictors of Mental Health among In-School Adolescents

Independent var(s)	Beta	T	Sig.	R	R ²	F	P
Risk-taking Behaviour	-.754	-636.473	.000				
Substance Use	-.272	-354.370	.000	.799	.638	574.92	.000
Perceived severity of Covid	-.411	-196.330	.000				

Dependent Variable: Mental Health

As presented in Table 3; Collective Influence (R, R², F, P):

The R value of .799 indicates a strong correlation between the combined predictors (risk-taking behaviour, substance use, and perceived severity of COVID-19) and mental health. The R² value of .638 suggests that approximately 63.8% of the variance in mental health among the students can be explained by these three predictors.

This high percentage indicates a substantial collective impact on mental health. The F-value of 574.92 and the corresponding p-value of .000 indicates that the overall regression model is statistically significant. This confirms that the combination of risk-taking behaviour, substance use, and perceived severity of COVID-19 is a significant predictor of mental health outcomes. And all the independent variables had significant influence on mental health. Thus, this hypothesis is confirmed and accepted.

Hypothesis three

Socio-demographic factors significantly determine the mental health of adolescents in secondary schools in Ibadan. This hypothesis was tested using multiple regression analysis and the results are presented in Table 4.1 and 4.2.

Table 4: Regression Analysis Showing Socio-Demographic Predictors of Mental Health among In-School Adolescents

Independent var(s)	Beta	T	Sig.	R	R²	F	P
Age of the Respondents	.126	1.338	.182	.659	.434	72.795	.000
Gender of the Respondents	.370	5.800	.000				
Class of the Respondents	-.650	-7.368	.000				
Type of School	-.119	-2.400	.017				
Religion of the Respondents	-.115	-2.192	.029				

Dependent variable: Mental Health

As shown in Table 4, the standardized coefficient (Beta) for age is .126, with a t-value of 1.338 and a significance level (Sig.) of .182. This indicates that age has a positive but not statistically significant impact on mental health.

For the gender of the respondents, the standardized coefficient (Beta) is .370, with a t-value of 5.800 and a significance level (Sig.) of .000. This shows that gender has a significant positive impact on mental health, suggesting that males and females may experience different mental health outcomes. Regarding the class of the respondents, the standardized coefficient (Beta) is -.650, with a t-value of -7.368 and a significance level (Sig.) of .000. This indicates a significant negative impact on mental health, implying that students in higher classes may experience worse mental health outcomes. The type of school has a standardized coefficient (Beta) of -.119, with a t-value of -2.400 and a significance level (Sig.) of .017. This signifies a significant negative impact on mental health, suggesting that attending a public or private school influences mental health differently. For the religion of the respondents, the standardized coefficient (Beta) is -.115, with a t-value of -2.192 and a significance level (Sig.) of .029. This indicates a significant negative impact on mental health, suggesting that religious affiliation plays a role in the mental health of students. Overall, the model explains 43.4% of the variance in mental health ($R^2 = .434$), indicating that these socio-demographic factors collectively have a moderate impact on mental health. The F-value of 72.795 and the associated significance level (P) of .000 confirm that the model is statistically significant. Further analysis is

required to explain the gender difference in mental health as it was significant in the initial regression analysis. See Table 4.2.

Table 4.2: T-Test Summary Table Showing Gender Influence on Mental Health among In-School Adolescents in Ibadan

Gender	N	Mean	SD	t-value	Sig
Male	288	46.00	2.95	-10.989	.000
Female	192	50.00	5.01		

In Table 4.2, an independent samples t-test was conducted to compare the mental health scores between male and female secondary school students in Ibadan. Male students have a mean mental health score of 46.00 (SD = 2.95), while female students have a higher mean score of 50.00 (SD = 5.01). This indicates that female students report higher mental health scores compared to male students. The t-value for the comparison is -10.989, with a significance level (Sig. 2-tailed) of .000. This result is highly significant, indicating that the difference in mental health scores between male and female students is statistically significant. Thus, the results show a significant gender difference in mental health among secondary school students, with female students reporting higher mental health scores than their male counterparts, confirming the hypothesis.

This study has found that current findings have significant implications for understanding the interplay between psychological, behavioural, and socio-demographic factors in adolescent mental health. Hypothesis one which states that there will be a significant relationship between risk-taking behaviour, pattern of substance use, perceived severity of COVID-19, and mental health among secondary school students in Ibadan was tested using zero order correlation. The results revealed a strong negative relationship between risk-taking behaviour and perceived severity of COVID-19 suggests that students who recognize the serious implications of the pandemic are less likely to engage in risky behaviours, highlighting the importance of public health education in reducing such behaviours during global health crises (Brooks et al., 2020). The positive relationship between perceived severity of COVID-19 and mental health indicates that awareness and acknowledgement of the pandemic's severity might lead to better mental health outcomes through more cautious and health-conscious behaviour.

Discourse, the significant negative relationships between substance use and both mental health and risk-taking behaviour underscore the detrimental impact of substance use on adolescents' well-being. Interventions aimed at reducing substance use and promoting healthy coping mechanisms are essential for improving mental health outcomes among secondary school students. Additionally, fostering awareness about the severity of public health crises like COVID-19 could indirectly benefit mental health by reducing engagement in harmful behaviours.

Hypothesis two which states that risk-taking behaviour, substance use and perceived severity of COVID-19 will collectively and independently significantly affect the mental health of secondary school students in Ibadan was analysed using multiple regression analysis. The findings provide strong evidence that risk-taking behaviour, substance use, and perceived severity of COVID-19 are significant predictors of mental

health outcomes among secondary school students in Ibadan. The high R^2 value indicates that these variables collectively explain a substantial portion of the variance in mental health outcomes, with risk-taking behaviour being the strongest predictor. This highlights the need for targeted strategies to reduce risk-taking behaviours and substance use among students (Mahmood *et al.*, 2020). Given the strong negative associations, it is crucial for policy-makers, educators, and mental health professionals to develop targeted strategies to reduce risk-taking behaviours and substance use among students. Additionally, efforts should be made to mitigate the psychological impact of COVID-19 by providing accurate information and support to students.

Hypothesis three which states that socio-demographic factors will significantly determine the mental health of adolescents in secondary schools in Ibadan was tested using multiple regression analysis. Regarding age, the regression analysis shows a positive but not statistically significant impact on mental health. While older adolescents might face increased academic and social pressures, potentially affecting mental health negatively, they might also develop better coping mechanisms and resilience over time, explaining the non-significant positive impact observed (Compas *et al.*, 2017).

The significant positive impact of gender on mental health indicates notable differences between male and female students. The t-test results highlight that female students report higher mental health scores compared to males, inconsistent with research suggesting adolescent girls are more likely to report higher levels of anxiety and depression, yet also exhibit higher levels of emotional expression and social support, contributing to better mental health scores. Differences could also be attributed to varying societal expectations and gender roles influencing how mental health issues are experienced and reported. Also, the negative impact of class on mental health implies that students in higher classes may experience worse mental health outcomes due to increased academic pressure, higher expectations, and stress related to future educational and career prospects. This finding underscores the need for targeted mental health support for students in higher classes to help them manage these additional stresses effectively. The type of school attended by students (public vs. private) also significantly impacts mental health, suggesting that the school environment plays a crucial role in students' mental health. Private schools, despite more resources and better student-teacher ratios, may come with higher academic pressures and expectations from parents, negatively impacting mental health. Conversely, public schools might face challenges such as larger class sizes and fewer resources, affecting the overall school climate and student well-being. Lastly, the significant negative impact of religion on mental health suggests that religious affiliation influences students' mental health. While religious involvement can provide social support, a sense of community, and coping mechanisms, it can also impose strict moral expectations and stress related to religious adherence.

4. Conclusion and Recommendations

The study findings underscore the complex interplay between behavioural-psychological, perceptual, and socio-demographic factors in shaping the mental health of

secondary school students. Interventions targeting these areas, particularly focusing on reducing risk-taking behaviours and substance use, enhancing awareness about the severity of health crises, and addressing socio-demographic disparities, are crucial for improving adolescent mental health outcomes in Ibadan.

There is a significant relationship between risk-taking behaviour, pattern of substance use, perceived severity of COVID-19, and mental health among secondary school students in Ibadan. The correlation analysis supported this hypothesis, revealing significant relationships among the variables. Risk-taking behaviour was positively associated with substance use, negatively associated with perceived severity of COVID-19, and negatively associated with mental health. Substance use did not have a significant relationship with the perceived severity of COVID-19 but had a significant negative relationship with mental health. Perceived severity of COVID-19 was positively related to mental health. These results suggest that higher risk-taking behaviours and substance use are linked to poorer mental health, while recognizing the severity of COVID-19 is associated with better mental health. Therefore, it is demonstrating that risk-taking behaviour, substance use, and perceived severity of COVID-19 are significant predictors of mental health outcomes among secondary school students in Ibadan. Further, the multiple regression analysis revealed that gender, class, type of school, and religion significantly impacted mental health, while age did not have a statistically significant independent effect. Gender had a significant positive impact, with females reporting higher mental health scores using t-test. Class and type of school had significant negative impacts, indicating that students in higher classes and those attending public schools might experience worse mental health. Religion also had a significant negative impact on mental health.

To enhance the mental health of secondary school students in Ibadan, the study recommends integrating comprehensive mental health education into school curricula to raise awareness about mental health issues, risk-taking behaviours, and substance use, promoting healthy lifestyle choices through campaigns and collaboration with health professionals, and enhancing public health education about crises like COVID-19 to reduce risk-taking behaviours. Targeted interventions for high-risk students, policies addressing socio-demographic disparities, and gender-specific mental health programs are essential. Engaging parents and communities, ensuring access to professional mental health services in schools, conducting regular mental health assessments, and fostering a supportive school environment will create a healthier atmosphere for students, ultimately improving their mental health outcomes.

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