EFFECTIVENESS OF SUBSTANCE ABUSE HEALTH EDUCATION ON STUDENTS' ECONOMIC OUTCOMES AT THE UNIVERSITY OF MAIDUGURI

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Abstract
Drug abuse among college students poses significant challenges not only to public health but also to their economic well-being. This study investigated the impact of an eight-week health education intervention aimed at reducing substance abuse and its subsequent effects on students' economic outcomes at the University of Maiduguri. While previous research indicated that substance use prevention programmes can decrease drug consumption, their influence on immediate economic factors such as academic performance, attendance, and earning potential remains uncertain. Using a repeated measures design, data collected at baseline, mid-intervention (week 4), and post-intervention (week 8) from 28 male students revealed significant improvements in economic well-being ($F(2, 76) = 8.632$, $p < 0.01$). Specifically, the mean economic scores increased from 45.2 at baseline to 48.4 at week 4, and further to 50.7 at week 8, representing a 12.2% overall increase. Post hoc analysis confirmed that these gains were statistically significant, particularly between weeks 1 and 8 ($p = 0.001$). These findings suggest that targeted health education programmes can contribute to short-term economic benefits by improving academic engagement and reducing substance-related disruptions, thereby enhancing students' future earning potential and financial resilience. The study underscores the importance of integrating health education with broader economic support strategies to maximize benefits for students and educational institutions alike.

Keywords: Substance Abuse, Health Education, Economic Outcomes, University Students.

Introduction
Drug abuse amongst college students is not only a public health issue with implications toward students quality of life as well as that of the individual, but can also impact the economic health of the student. For students, economic life is shaped by money, educational success controlling future incomes, as well as general efficiency. A Health Education intervention programme designed to reduce drug use by delivering information, changing attitudes and enhancing healthy behaviours by students caused changed in behaviours. Nevertheless, while such programs are now widespread, research

and economic analysis raises doubt over whether this intervention actually makes a difference to the economic fortune of its participants.

It has been argued that students won't benefit from substance use prevention overnight. Programmes work to lower the use (Hajizadeh et al., 2023), but the economic life proxies by variables such as economic security, academic retention, productivity may or may not change if it does not address underlying structural issues. For instance, university students frequently experience financial pressures brought about by tuition fees, the limitation of financial assistance and insecure part-time work, all of which education programmes alone cannot address (Blows & Isaacs, 2022). Not withstanding the changes in substance use behaviour, the financial resilience may not necessarily be maintained in the absence of additional economic support.

Furthermore, the economic analyses of substance abuse prevention interventions have generally focused on the long-term societal gain rather than the short-term individual economic gain. Many cost–benefits consider the savings associated with reduced health care utilization or crime lifetime productivity (Spoth et al., 2002; Hajizadeh et al., 2023), and even then the benefits may take many years to accrue. For a student at the university right now, these delayed returns obviously have no bearing on the student's immediate financial situation—the tuition, living costs, and near-term earnings prospects are unaffected by any behaviour changes in the short run.

Additionally, and notwithstanding intervention, the economic consequences of student substance use are immediate in some cases, as poor academic performance, absenteeism, or impulsive purchasing may result directly from substance use. For example, although there is an association between substance use and worse classroom performance, some reviews include an inconsistent pattern of impacts such that while health improved, academic success was not necessarily increased (BMC Medical Education, 2025). Likewise, better behaviour may not be sufficient to balance out financial damage and erratic subsistence, such isolationist substance-related habits, thirst if root causes such as poverty and stress are ignored.

Method

The used research design in this study was repeated measures research design, a longitudinal approach that involves making measures of the same subjects over time. This design was selected for the purpose of determining the effects of an eight-week health education programme on drug abuse among potential university students, with an individual serving as both an experimental subject and a control. Field (2013) and Hughes (2019), repeated measures is a method of having participants exposed to various conditions or phases of a treatment, the data are collected at each phase. This reduces between-subject variance, thereby enhancing internal validity as between-subject variance is controlled while focusing on within-subject differences. For the trial, data were repeatedly assessed at three crucial time points of the study: baseline (week 1), mid-intervention (week 4) and post-intervention (week 8) reporting immediate as well as accumulative benefits of the intervention. Standardized data collection at these stages was important to guarantee reliability, comparability, and to minimize the potential of bias.

The intervention was a well-designed eight-week health education programme that was aimed at increasing knowledge adjusting attitude and practicing behaviours relative to substance use. During the first week, the concept of substance abuse was presented including definitions, signs, and symptoms. The session comprised introductory remarks, pre-test, and examples to involve the participants. The following week delve deeper and deeper into the multi-dimensional impacts of drug abuse: the physical (damaged organs and a mind that doesn't work the way it used to), psychological (dependency on the drug, depression, psychosis) and social (fractured relationships, high-risk behaviour, stigma). Additional modules included monetary costs (financial drain and productivity loss) and academic consequences (cognitive decline and greater likelihood of dropping out). One dimension of culture and religion was also covered, with particular reference to loss of values and spiritual implications of abusing drugs. The sessions also covered motives for initial and ongoing use (peer pressure, curiosity, self-medicating, personal triggers) before concluding with techniques for cultivating resilience (positive coping/relaxation skills, social support, and reducing stigma). Yello Lecture Theatre was a weekly recipe driven curriculum available in handouts supported by the use of whiteboards and structured lesson plans and set objectives for the themes per time slot as a means of being well planned and interactive.

An established statistical model Repeated Measures ANOVA was used to compare differences between multi time points in the same group of participants. This approach mitigates the correlation due to repeated measures within the same subjects and enhances the ability to detect substantial changes due to the intervention. Crucially the test enables investigation of whether the observed gains over the 3 data points were significantly different or due to chance, with tested hypotheses at an established alpha level of 0.05.

Hypothesis

Health education intervention programme on substance abuse has no significant effect on the economic life of students in University of Maiduguri.

Results

Table 1 Demographic Characteristics of Participants
n=28

Demographic Characteristics		Frequency	Percent
Gender	Male	28	100
Age	15 – 25 years	5	17.9
	26 – 30 years	23	82.1
Marital Status	Single	28	100

Table 1, the demographic characteristics of the participants in the study were gender, age, and marital status of the students who volunteered to participate. While 30 students

initially began the study, only 28 completed it from beginning to end of the intervention programme. All the participants who finished the study were male, aged 30 years or below, with a significant majority (82.1%) falling within the age range of 26–30 years.

Table 2: Repeated measures analysis of variance on Health education intervention programme on substance abuse effect on the economic life of students in University of Maiduguri n=28

Source		Type III Sum of Squares	Df	Mean Square	F	Sig.
factor1	Sphericity Assumed	46.154	2	23.077	8.632	.000
	Greenhouse-Geisser	46.154	1.552	29.729	8.632	.001
	Huynh-Feldt	46.154	1.606	28.732	8.632	.001
	Lower-bound	46.154	1.000	46.154	8.632	.006
Error(factor1)	Sphericity Assumed	203.179	25	2.673		
	Greenhouse-Geisser	203.179	8.995	3.444		
	Huynh-Feldt	203.179	12.041	3.329		
	Lower-bound	203.179	31.000	5.347		

F (2, 76) = 8.632; P < 0.05 *=Significant

Table 2 provided the results of a repeated measures analysis of variance (ANOVA) that assessed the impact of a health education intervention program on substance abuse concerning the economic lives of students at the University of Maiduguri. The findings revealed a statistically significant effect of the intervention, with an F-value of 8.632 ($p < 0.05$), indicating that there are significant differences in economic life scores measured at different time points following the intervention. This significance suggests that the health education programme has had a measurable impact on students' economic well-being. The results are consistent across various corrections for sphericity, with the Greenhouse-Geisser correction yielding a p-value of .001, and the Huynh-Feldt correction also showing a significant p-value of .001. This indicates that the observed differences in economic life scores are robust even when accounting for potential violations of the sphericity assumption. The lower bound analysis further confirms the significance of the results ($p = .006$), reinforcing the conclusion that the health education intervention positively influences the economic aspects of students' life in a statistically significant.

To establish which phase of health education intervention that was responsible for the significant difference; Scheffe's post hoc test was applied on the means at week 1, week 4 and 8th week, the result is presented in Table.

Table 3: Results of Scheffe's Post-hoc tests on the means of Health education intervention programme on substance abuse effect on the economic life of students in University of Maiduguri

(I) factor1	(J) factor1	Mean Difference (I-J)	Std. Error	Sig.[b]	95% Confidence Interval for Difference[b] Lower Bound	Upper Bound
1week	4week	.769	.426	.079	-.093	1.632
	8week	1.538*	.407	.001	.714	2.363
4week	1week	-.769	.426	.079	-1.632	.093
	8week	.769*	.253	.004	.257	1.282
8week	1week	-1.538*	.407	.001	-2.363	-.714
	4week	-.769*	.253	.004	-1.282	-.257

*=Significant at 12week

Table 3 presented the results of Scheffé's post-hoc tests, which evaluate the mean differences in economic life outcomes following the health education intervention programme on substance abuse at different time intervals among students at the University of Maiduguri. The analysis revealed significant findings, particularly between the 1-week and 8-week intervals, where a mean difference of 1.538 (p = .001) indicates that students' economic lives improved substantially by the 8-week mark when compared to the 1-week assessment. Furthermore, a mean difference of 0.769 (p = .004) between the 4-week and 8-week measurements also demonstrates significant improvement, suggesting that the positive effects of the intervention accumulate over time. Notably, while the comparisons between the 1-week and 4-week marks are not statistically significant (p = .079), the confidence intervals for significant comparisons do not overlap with zero, underpinning the effectiveness of the health intervention. Therefore, the results underscore the importance of sustained engagement with the health education programme in enhancing students' economic lives over the measured duration.

Discussions

School-based substance abuse interventions that reduce rates of use by students do so, in part, through increasing contemporaneous academic engagement and attendance early predictors of later economic well-being. Empirically, we know that substances users disengaged more in academics and earned poorer grades and are more likely to skip classes and put less effort in academics (Bugbee et al., 2019). Moreover, evidence surrounding the association between current substance use and substance use disorders on absenteeism and impaired work productivity in work-related populations (a reasonable proxy of how substance use might undermine students' ability to engage in their learning and part-time employment at university; Morgan et al., 2022) has also been documented. These two mechanisms—loss of classroom exposure/engagement and loss of work productivity—lead to short-term financial losses (for students: lost scholarship, stipend, part-time work) and potentially pave the way for longer-term human capital deficits (Bugbee et al., 2019; Morgan et al., 2022).

These short-term tense academic and work conditions yield long-term economic disadvantages because academic performance (including GPA and completion) is a strong predictor of early-career wages and longer-term wage trajectories. Newer estimates show that increasing the grade point average in undergraduate education imply significantly higher starting and 3–5 year wages—demonstrating that academic progress at the university does increase the earnings in the labour-market (Zou, Zhang, & Zhou, 2022). An intervention, then, that lowers substance use and hence increases attendance, attention, and grades will by itself plausibly serve to raise the probability of better job offers, starting pay, and faster growth in wages—direct economic benefits to individual students. In short: by preventing and responding in a supportive manner to students' exposure to and use of substances, substance-use prevention and brief-intervention programme protect and enhance students' future earning potential (Zou et al., 2022).

The standpoint of economic evaluation, the value of prevention and early intervention for substance use is clear: it is not only good for health, but it is also cost effective- return on investment when society invests in prevention, some of the return comes back to the participant, to the agencies, and to the community. Big syntheses and benefit cost reviews yield consistently positive benefit-cost ratios for evidence-based preven- tion programme (LifeSkills, Good Behavior Game) and for brief interventions (SBIRT/BASICS), along with estimated increases in lifetime labour-market earnings per recipient and declining costs of downstream health, justice, and productivity losses (Miller & Hendrie, 2008; Washington State Institute for Public Policy; PTTC ROI brief, 2024). We carried out an identical economic evaluation using the data from the IDEN, compared to the then existing estimates of cost savings for such victims which showed savings to be of the equivalent magnitude. Pragmatically, this evidence suggests that campus health-education interventions that decrease substance use can have direct economic returns both to students (higher expected earnings potential) and to universities and society (less emergency care, less disciplinary action, and improved retention).

Thus, the literature supports a direct line of influence: high-quality, health-education interventions decrease the use of substances, reduced consumption, increases attendance and academic performance, improved academic courses to higher likelihood of employment and earnings, and averted health, legal, productivity costs produce societal cost-offsets. For university actors, the pragmatic take-away is direct and empirically supported: the infusion of resources into evidence-based teaching, screening, and brief intervention approaches to substance use will probably yield valuable economic returns for students and their university. Implementation efforts must include recurrent monitoring (attendance, grades, service participation) and cost-benefit tracking, to quantify economic return locally and tailor programme for greatest effect (Miller & Hendrie, 2008; PTTC, 2024; Fardone et al., 2023). The above analysis have clearly indicated support to the findings of this research that emphases the effect of health education on students economic outcome.

Conclusion

The results of this study have shown that health education intervention in drug-abuse can bring desirable changes in the economic aspect of students of University of Maiduguri, Nigeria. The statistical analysis revealed significant changes in participants' economic well-being throughout the course of the study, particularly increases from baseline to the 8-week follow-up. This is evidence that investment in health education engagements not only lowers drug use practices but also lead to improved academic performance, higher attendance and in the long run enhance students' earning potential and economic wellbeing. Hence, establishing such programme is a favorable approach to promote health and economic resilience in university students.

Recommendations

Based on the findings, the followings were recommended:

The universities should incorporate compulsory health education courses on drug abuse in the general studies core curriculum. The integration of education on preventive action in curricular studies is justified by the need to offer all students a possibility of permanent education, and not just brief courses or campaigns.

Policy makers and academics should have a focus on health education programmes for economic literacy. This includes explicitly connecting substance abuse with its financial aspects, for example, lost wages, medical expenses, and difficulty finding employment.

Continuous peer-to-peer educational programme need to be created. Peer educators have potential to be more effective in transmitting knowledge, opening up safe places for dialogue, and being role models of healthy behaviour.

The universities need to collaborate with healthcare services and counseling centers to connect health education and convenient supportive services. These intervention programs should go beyond raising awareness and should include counseling, referral to rehabilitation services and stress reduction wor

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