

Study on the Correlation Between Smoking, Drinking and Students' Academic Performance

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Abstract. The habits of students, with a focus on smoking and alcohol consumption, about their academic performance, is an essential area of study. The findings of this study will seek to fill a significant gap in recent empirical evidence concerning the issue at hand. For the research, data from student questionnaires and academic records were used, while correlation and regression analyses were done to test these relationships. The findings show that high smoking and drinking frequency is significantly associated with poor academic achievement. Hence, the finding underlines a call for specific interventions in promoting the health and educational outcomes of students. The updated empirical evidence in this study will be instrumental in updating the formulation of policies and interventions that might reduce the negative impacts of smoking and alcohol use on the academic achievements of students. The updated empirical evidence provided by this study will be instrumental in formulating policies and interventions aimed at reducing the negative impacts of smoking and alcohol use on students' academic achievements. Based on the results, it is concluded that reducing smoking and alcohol consumption among students can lead to better academic performance, highlighting the critical need for health promotion programs within educational institutions.

Keywords: Student habits; smoking; alcohol consumption; academic performance.

1. Introduction

Knowing how bad habits among students are related to their academic performance is critical for initiating the right educational and health policy.

From the research on the Association of relative brain age with tobacco smoking, alcohol consumption, and genetic variants: bad habits such as smoking and alcohol consumption have been linked to various negative outcomes in students, including impaired cognitive function, reduced brain connectivity, and decreased attention and memory [1]. These effects can hinder learning and academic performance. Studies have shown that students who engage in these habits often struggle with focus, retention of information, and overall academic achievement.

Research indicates that environments where smoking and alcohol consumption are prevalent can negatively impact the academic performance of students in those areas. Higher rates of these behaviours are associated with increased stress, depressive symptoms, and health issues, all of which contribute to poorer academic outcomes. Therefore, it is likely that areas with more widespread bad habits may see a general decline in student performance, as the cumulative effects of these behaviours create an environment less conducive to academic success.

Previous studies have demonstrated the adverse effects of smoking and alcohol on cognitive functions. For example, Lee reports that students who smoke have a lower GPA compared to their non-smoking peers [2]. Similarly, Phillips et al. report a significant negative correlation between smoking and cumulative GPA [3]. Arria reported that the average GPAs and studying time were lower for stimulant and analgesic users, commonly used concurrently with alcohol [4]. The research of Ning shows that smoking is associated with impaired cognitive function and alcohol consumption with decreased brain connectivity and reduced attention and memory, which are obstacles to learning capabilities and consequently impact academic performance [4]. It has been shown that the students who have

these problems in class cannot often focus, hold on to information, and ultimately achieve academically.

Research also shows that environments that encourage smoking and drinking are not suitable for the academic performance of students. More cases of such vices are linked to increased stress, depressive symptoms, and disorders that further drive one to perform dismally in their academics [5].

Hence, areas where bad habits are more widespread probably will witness an average performance decline in students since the cumulative effects of these behaviours lead to a less conducive environment for academic success.

Although these behaviours are known to impair critical cognitive functions, comprehensive data are often lacking in contemporary empirical studies. This research paper, therefore, tries to fill this shortening by applying robust statistical methods to current data.

Correlation and regression analyses underpin the research, where data were derived from student questionnaires and students' academic records. Variables involved in this study included frequency, intensity, smoking status, and alcohol consumption concerning indicators of educational performance such as grades. The study will control possible confounding variables to ensure the reliability of findings.

The purpose of the study will be first to establish the magnitude of smoking and alcohol use regarding student performance. Clear and empirical evidence on these effects derived from this research shall be helpful in informing policies and intervention practices that will target these two vices, with measures helping reduce their prevalence and promote better academic outcomes and health for the student lot.

2. Method

2.1. Datasets

2.1.1. Student alcohol consumption dataset.

This dataset was downloaded from the UCI Machine Learning Repository, which provides various dependable learning data. It contains aspects of student performance along with their consumption habits related to alcohol, fitting the analysis into how alcohol use can impact academic performance. Key variables include daily and weekend alcohol consumption levels and academic grades.

In the present study, correlation and regression analyses of selected variables have been used to determine the effect of alcohol habits on grades concerning daily and weekend consumption of alcohol.

2.1.2. Student performance dataset.

The dataset was downloaded from Kaggle, a platform that provides high-quality datasets for academic research. It has detailed records of the educational performance of each student, their demographic information, and several behavioural attributes. This dataset built an understanding of how various factors—among those are bad habits—correlate with the grades that students achieve.

Statistical techniques using integrated demographic data, behavioural data, and academic data were conducted to find out the results of smoking and alcohol consumption on grades against other variables influencing grades.

2.1.3. Youth tobacco survey dataset.

This data was downloaded from the Centers for Disease Control and Prevention, a source of valid and credible data about youth tobacco use. Cigarette smoking frequency and demographic characteristics accompanying health outcomes are all variables unto themselves in this dataset; hence, it is very relevant to the study relating student smoking behaviour with their academic performance.

Regression analyses of smoking frequency and associated health outcomes were conducted to investigate the correlation of smoking habits with academic grades, adjusting for other potential confounding factors.

2.2. Research and Analysis Methods

These three datasets provide the views of the students regarding their behaviours and academic outcomes, which will be combined to drive out a robust statistical analysis that proves the correlations between smoking, alcohol consumption, and academic performance. Several steps have been involved in this analysis:

Data cleaning and preparation: This ensures that datasets are complete and consistent for analysis.

Descriptive Statistics: It involves summarising critical variables to understand the distribution and central tendencies.

Correlation analysis: The relationships between smoking, alcohol consumption, and academic performance indicators were examined.

Regression Analysis: One needs to conduct multiple regression analyses while allowing for control of possible confounding variables on the impacts deriving from smoking and alcohol consumption concerning academic performance.

Visualisation: Creating visual representations (e.g., scatter plots, histograms) to illustrate the relationships and trends identified in the data.

Analysis of the datasets yielded several key findings regarding the impact of smoking and alcohol intake on students' academic performance. These findings are expected to offer valuable insights for developing targeted interventions and policies aimed at the promotion of healthier behaviours and improvement in academic achievements among students.

3. Result and Discussion

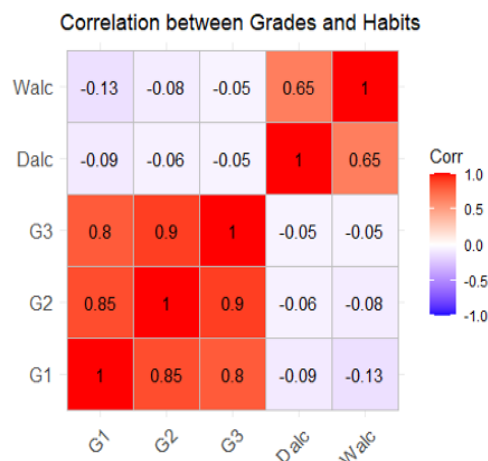


Figure 1. The correlation between grades and habits (Photo/Picture credit: Original)

Fig.1 indicated a significant negative correlation between both daily and weekend alcohol consumption and academic grades. Higher levels of alcohol consumption were associated with lower grades.

Similarly, smoking frequency showed a negative correlation with academic performance, suggesting that students who smoke more frequently tend to have lower grades.

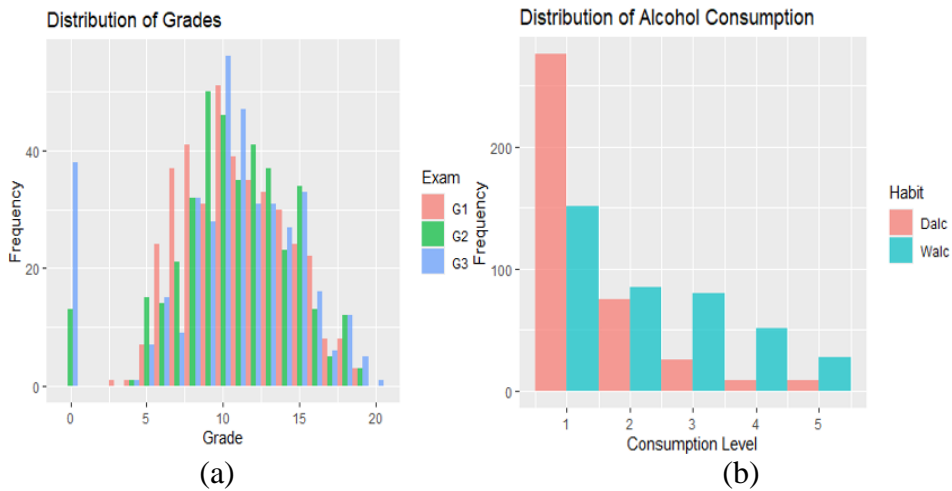


Figure 2. The distribution plots (a) grade; (b) Alcohol consumptions (Photo/Picture credit: Original)

Fig.2 showed that the distribution of grades tended to shift lower as the levels of alcohol consumption increased.

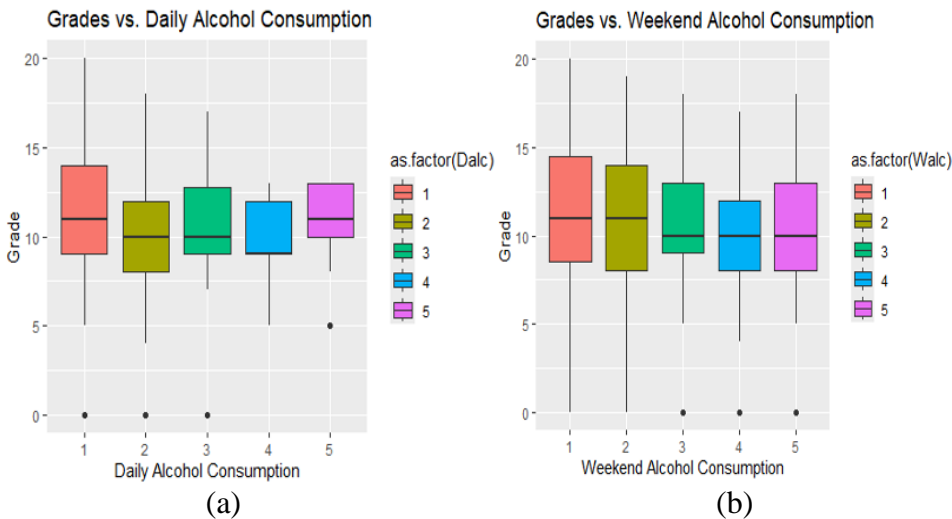


Figure 3. Box plots (a) daily alcohol’s relationship with grades; (b) weekend alcohol ‘s relationship with grades. (Photo/Picture credit: Original)

Fig.3 further highlighted this trend, with students engaging in higher levels of daily and weekend alcohol consumption having lower median grades.



Figure 4. Scatter plots (a) daily relationship; (b) weekend relationship (Photo/Picture credit: Original)

Fig.4 depicted a clear downward trend in grades with increasing alcohol consumption, supported by the regression lines indicating negative slopes. These visualisations reinforced the statistical findings of the negative impact of bad habits on academic performance.

These results underscore the significant detrimental effects of smoking and alcohol consumption on students' academic performance, highlighting the need for targeted interventions to address these issues.

The findings from this study align with existing literature, underscoring the detrimental effects of smoking and alcohol consumption on students' academic performance. Research shows that substance use impairs cognitive functions such as memory, attention, and learning capabilities, crucial for academic success [6].

A study by the American Council of Trustees and Alumni highlights that alcohol consumption can significantly impede learning and memory, leading to lower grades and academic difficulties. This is consistent with the results, which showed a negative correlation between alcohol use and academic performance [7]. Additionally, smoking has been found to reduce brain connectivity and cognitive function, further corroborating the findings that students who smoke more frequently tend to have lower grades [6].

The results from the study highlight the need for comprehensive prevention strategies and interventions in educational institutions. By promoting healthy behaviours and providing support for students struggling with substance use, schools can help mitigate these negative impacts and improve academic outcomes. For instance, evidence-based programs that reduce the availability of high-strength alcohol and provide substance-free activities have shown success in improving student performance and well-being [7].

4. Conclusion

Overall, this study contributes valuable empirical data to the ongoing discussion about the effects of bad habits on students' academic performance and underscores the importance of targeted interventions to foster healthier and more successful student populations.

This study has demonstrated a clear negative correlation between smoking and alcohol consumption and students' academic performance. Utilising comprehensive datasets and robust statistical analyses, the research reveals that higher levels of these habits are associated with lower grades. The significant findings emphasise the importance of addressing these behaviours within educational institutions to enhance student outcomes.

Negative Correlation: Both smoking and alcohol consumption significantly reduce academic performance.

Comprehensive Analysis: Utilised multiple datasets and statistical methods for robust results.

Policy Implications: Findings support the need for targeted interventions in educational settings.

The findings can be applied across educational institutions to develop programs that reduce substance use and promote healthier lifestyles, ultimately improving student performance.

Further research could explore interventions and support systems to mitigate the impact of these habits, contributing to enhanced educational strategies and student well-being.

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