The Hidden Epidemic: Uncovering the Roots of Drug Addiction in Student Populations

Aban, Angelo P.
College of Computing and Multimedia Study
Camarines Norte State College
Talisay, Philippines
angeloaban14@gmail.com

Baclao, Jaypee
College of Computing and Multimedia Study
Camarines Norte State College
Labo, Philippines
baclaojaypee02@gmail.com

Marmol, Samantha Mae
College of Computing and Multimedia Study
Camarines Norte State College
Basud, Philippines
samanthamaemarmol1113@gmail.com

I. INTRODUCTION

STUDENT drug addiction is a complex issue with far-reaching consequences, including deteriorating mental and physical health, poor academic performance, strained relationships, and, in some cases, criminal activities [2]. The onset of drug use among students can be triggered by a variety of factors such as peer pressure, academic stress, family problems, and the desire to escape from emotional pain or boredom [3].

Understanding the root causes and long-term impacts of drug addiction among students is critical to developing effective prevention and intervention strategies [4]. Substance abuse in educational settings not only hampers personal growth but also places a strain on institutional resources and affects the overall learning environment [1]. Schools and universities are now actively seeking to combat this issue through awareness programs, counseling, and collaborations with healthcare professionals [3]. Early identification and support for at-risk students are crucial in curbing this issue and promoting healthier, drug-free lifestyles [2].

In this paper, the researchers aim to determine the possible causes of drug use among students by examining various factors that may lead to substance abuse. Our research will explore both internal and external influences contributing to this behavior, with the goal of providing valuable insights for prevention and intervention strategies. By analyzing these complex factors, the researchers hope to uncover the underlying reasons for drug use in the student population and potentially inform more effective approaches to address this critical issue.

This study aims to address one key problems related to drug use among students:

1. What is the most influencing factor that affects the student to continue and withdraw to use drugs in educational settings?

In conclusion, this research seeks to shed light on the multifaceted nature of drug use among students, examining the intricate interplay of factors that contribute to this behavior. By identifying the most significant influences, we aim to provide a foundation for developing targeted interventions and support systems. Our findings may prove invaluable for educators, policymakers, and healthcare professionals in their efforts to combat substance abuse and promote healthier lifestyles among the student population.

III. METHODOLOGY

The researcher will use a **quantitative approach**, analyzing the raw "Student Drug Addiction Dataset 2024" from Kaggle. This dataset includes binary ("yes" or "no") responses across various columns, each representing a factor that may contribute to drug addiction.

A. Data Collection

The raw data, sourced from Kaggle, is provided by the National Institute on Drug Abuse (NIDA) and the Australian Institute of Health and Welfare (AIHW). It is part of the National Survey on Drug Use and Health (NSDUH). This dataset consists of responses from 50,343 college students. Each entry captures individual answers on various health-related factors. The dataset reflects a wide range of responses, giving insights into college students' behaviors and attitudes. This large sample size ensures a robust representation of student perspectives across different factors.

B. Data Cleaning

The mode, or the value that appears the most frequently in each factor or column, will be used to clean the data that has been gathered. For categorical data, the mode offers a trustworthy indicator of central tendency, which makes it appropriate for dealing with missing values. We will use the mode from each column that has missing values to fill in the blank cells. By using this method, data consistency is maintained and gaps are filled with the most representative option. We can prevent adding extreme or odd values to the dataset by employing the mode. In the end, this approach contributes to preserving the data's integrity and analytical usability.

C. Tools and Technologies

Data processing for this study will be handled by Python, with a particular emphasis on determining the mode for every column in order to clean and standardize the data. Important Python libraries will help with this procedure:

- **Pandas** will help organize and structure the data, making it easy to identify and replace missing values with the mode for each column.
- **NumPy** will support efficient calculations, aiding in the handling of large datasets and simplifying the mode calculations.
- **SciPy** may be used for additional statistical operations, ensuring an accurate representation of common values across the dataset.
- **Matplotlib** and **Seaborn** will be used to visualize the distribution of modes across columns, creating clear graphs to highlight the most common values in each factor.

These tools ensure that data cleaning is efficient, consistent, and effectively communicated through visual representation.

D.Data Analysis

Collected data will be processed and analyzed using Python to produce meaningful statistical insights into the factors associated with student drug use, as understanding these underlying causes is essential for developing successful prevention strategies

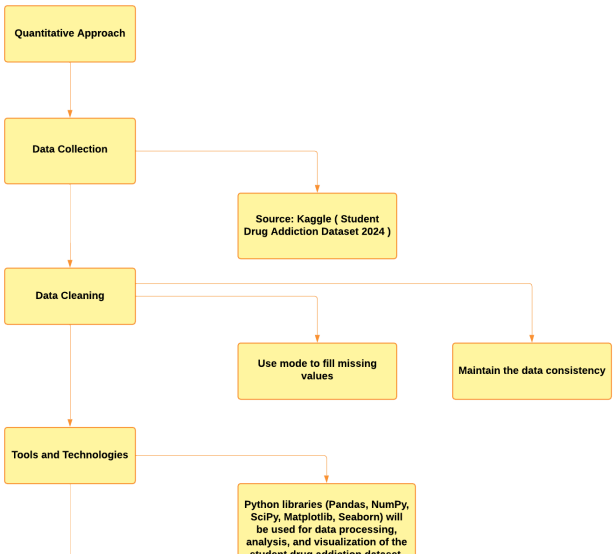

Figure 1. Diagram

Figure 1 shows the main steps in analyzing the Student Drug Addiction Dataset 2024.

IV. RELATED LITERATURE

Student drug use has become a significant and growing problem in educational institutions today. Many college students are using drugs, and this trend is causing concern among educators, parents, and health professionals. A comprehensive study conducted by researchers Ashley A. Dennhardt and James G. Murphy in 2013 revealed some alarming statistics that highlight the extent of this issue [1]. According to their findings, approximately one-third of college students reported using marijuana within the past year. This high percentage indicates that marijuana use is widespread among the student population. Even more worrying, between 11% and 17% of students admitted to using other illegal drugs during the same period. These substances could include anything from cocaine and ecstasy to prescription drugs used without a doctor's approval. Perhaps the most concerning statistic from this study is that about 5% of students reported using drugs almost every day. This frequent use suggests that a significant number of students may be developing drug dependencies or addictions, which could have severe long-term consequences for their health, academic performance, and future prospects.

Research has consistently shown that drug use in adolescents and young adults is influenced by a complex interplay of personal, social, and environmental factors [2]. Students from low-income backgrounds or disadvantaged neighborhoods may be at higher risk due to increased exposure to drugs and fewer resources for positive activities. Weak family bonds, communication struggles, or a family history of substance abuse can contribute significantly to the likelihood of drug use. Peer influence plays a crucial role, as adolescents with friends who use drugs are much more likely to experiment themselves. Many students overestimate how much their peers are using drugs, leading to a false perception that normalizes drug use. Personal factors such as risk-taking tendencies, impulsivity, and mental health issues like depression or anxiety can drive students to self-medicate with drugs. Emotional challenges, including chronic loneliness, can be powerful motivators for substance use as students seek relief or a sense of belonging. Environmental factors such as negative life events, academic pressures, and the high-stress atmosphere of competitive educational

institutions can push students towards drugs as a coping mechanism. Easy access to drugs, whether through friends, on-campus dealers, or online sources, further exacerbates the problem. The combination of these factors creates a complex landscape where students may turn to drugs to fit in, escape problems, or find acceptance, highlighting the need for comprehensive prevention and support strategies.

The motivations behind student drug use are diverse and can vary significantly depending on individual circumstances and cultural contexts. A comprehensive survey conducted among postgraduate students in Agra, India, identified three primary motivations for drug use: stress relief, the pursuit of enjoyment or pleasure, and the desire for social acceptance [3]. These findings highlight the complex interplay between individual psychological needs and societal pressures that can drive substance use. Many students turn to drugs as a way to cope with the intense stress of academic life, believing that certain substances can help them relax or improve their focus and productivity. The pursuit of enjoyment is another common motivation, with some students using drugs to enhance their social experiences or to feel a sense of euphoria. The desire for social acceptance can be particularly strong in university settings, where students may feel pressure to conform to perceived norms or to fit in with certain social groups. Another study, carried out at Yazd University, found that students primarily used drugs as a means of alleviating what researchers termed "spiritual stress" - a profound sense of existential anxiety or lack of purpose that many young adults experience [4]. This study also emphasized the difficulty many students face in resisting peer pressure, often finding themselves unable to refuse drug-related suggestions from their peers. This highlights the importance of developing strong self-esteem and assertiveness skills in young people to help them resist negative influences. Additional research has identified self-enhancement as a key motivator for drug use among students. This can include the desire to improve cognitive performance, particularly in competitive academic environments where students feel pressure to outperform their peers. Some students may turn to stimulants or other drugs in the belief that these substances will help them study longer, focus better, or enhance their creativity. Social affiliation, or the need to bond with a particular group, is another significant motivator. In some social circles, drug use may be seen as a bonding activity or a rite of passage, making it difficult for students who want to fit in to abstain. Stress management remains a consistent theme across various studies, with many students reporting that they use drugs to cope with academic pressures, financial worries, or personal problems.

Interestingly, the prevalence and patterns of drug use among students exhibit notable variations based on factors such as gender and field of study. These differences highlight the need for tailored prevention and intervention strategies that take into account the specific risk factors and motivations associated with different student demographics. The study conducted in Agra, India, revealed a stark gender disparity in drug use patterns. It found that approximately 74% of male students reported drug use, compared to about 26% of female students [3]. This significant difference could be attributed to various factors, including societal norms, peer group dynamics, and differing stress coping mechanisms between genders. Moreover, the types of substances favored showed gender-specific trends. Male students were more inclined to use alcohol, barbiturates (a type of depressant drug), and cannabis. This preference might be related to social expectations or the perceived effects of these substances. On the other hand, female students demonstrated a higher likelihood of using painkillers. This could potentially be linked to higher rates of chronic pain conditions among women or different patterns of self-medication. Another study, focusing specifically on cognitive-enhancing drug use, found higher rates among male students (about 24%) compared to their female counterparts (about 17%) [5]. This disparity might reflect different academic pressures or attitudes towards performance enhancement between genders. Notably, this research also uncovered an intriguing correlation between drug use and academic disciplines. The highest prevalence of cognitive-enhancing drug use was observed among students in sports-related fields. This could be due to the intense competitive nature of sports programs, where physical and mental performance are heavily emphasized. Students in these fields might feel greater pressure to seek any possible advantage, leading them to experiment with substances they believe will enhance their cognitive abilities or physical performance.

According to the comprehensive 2015 National Survey on Drug Use and Health (NSDUH) and [6], a detailed analysis of substance use patterns among students and young adults revealed significant trends in both illicit and legal drug consumption. The survey, which provides crucial insights into the landscape of substance use in the United States, identified the following as the most commonly used illicit drugs among this demographic:

A. Licit Drugs

- Alcohol: The most widely consumed substance, with prevalence ranging from 66.34% to 97.3% among students
- Tobacco: The second most used drug among medical students, with prevalence varying from 20% to 54%.

B. Illicit Drugs

- Marijuana: Leading with 2.6 million new users in 2015. Among students, consumption prevalence was estimated between 10% to 31%.
- Hallucinogens: 1.2 million new users in 2015
- Inhalants: 18.4% of students reported use
- Cocaine: 3.4% of students reported use

C. Prescription Drugs

- Tranquilizers: The NSDUH reported 1.4 million new misusers in 2015. Among students, 24.2% reported use
- Stimulants: 1.3 million new misusers in 2015 according to NSDUH. 23% of students reported using methylphenidate without a prescription
- Pain relievers: 2.1 million new misusers in 2015
- Antidepressants: 11.4% prevalence of use among medical students

Drug use among students can have severe health implications, both short-term and long-term. Short-term risks include impaired judgment leading to accidents or injuries, overdose, and acute health crises. Long-term consequences may involve damage to vital organs such as the liver, heart, and brain. Physical health consequences include increased risk of cardiovascular diseases, respiratory problems, and a weakened immune system [7]. Mental health is also affected, with higher rates of depression and anxiety, and an increased risk of developing substance use disorders [8]. Additionally, students under the influence of drugs may engage in risky behaviors such as unprotected sexual activity or driving under the influence, further jeopardizing their health and safety.

The impact of drug use extends beyond health, affecting various aspects of a student's life. Academically, it can lead to decreased cognitive function, lower grades, and increased likelihood of dropping out [9]. Studies have shown that marijuana use, in particular, can affect working memory, learning, and information processing, which are crucial for academic success [10]-[12]. The misuse of prescription drugs is also a concern, with 23% of students reporting using methylphenidate without a prescription [13]. Socially and behaviorally, drug use can result in strained relationships with family and friends, increased risk-taking behaviors, and legal problems due to possession or use of illegal substances [14]. These effects can have long-lasting consequences on a student's academic career and future prospects, emphasizing the importance of early intervention and prevention strategies in addressing substance abuse issues among the student population.

Addressing the complex issue of student drug use necessitates a multi-faceted and nuanced approach that goes beyond simplistic solutions or punitive measures. One key strategy is implementing measures to reduce drug accessibility on and around campuses. This could involve stricter security measures, collaborations with local law enforcement, and efforts to identify and address sources of drug distribution. However, it's crucial that these measures are implemented in a way that doesn't criminalize students or create an atmosphere of mistrust. Enhancing comprehensive drug risk education programs is another vital component of any effective strategy. These programs should go beyond traditional scare tactics to provide accurate, science-based information about the effects and risks of various substances. Education should also focus on developing critical thinking skills that enable students to make informed decisions and resist peer pressure. Improving methods for managing and mitigating academic stress is equally important. This could include offering stress management workshops, promoting healthy study habits, and ensuring that mental health resources are readily available and destigmatized. Universities might also consider reviewing their academic policies to ensure they're not inadvertently creating excessive stress that drives students towards substance use.

It is crucial to recognize and bolster protective factors that can help students resist the allure of drug use. These protective elements include fostering strong religious or spiritual convictions for those to whom this is relevant. While respecting diverse beliefs, institutions can provide spaces and opportunities for students to explore and deepen their spiritual lives, which can provide a sense of purpose and community that counters the appeal of drug use. Cultivating supportive and communicative family environments is another key protective factor. Universities can play a role in this by offering family education programs or facilitating better communication between students and their families. Promoting overall health awareness and wellness practices is also vital. This could involve offering fitness classes, nutrition education, and

mindfulness training, all of which can provide healthy alternatives to drug use for stress relief and social bonding.

Furthermore, there is a pressing need to focus on building resilience in young people and fostering supportive relationships both within the family unit and in peer groups. Resilience-building programs can help students develop the emotional tools to cope with adversity without turning to substances. These might include training in emotional regulation, problem-solving skills, and positive self-talk. Creating opportunities for positive peer interactions and mentorship can also be beneficial. Peer support groups, led by trained student mentors, can provide a safe space for students to discuss their challenges and learn from each other's experiences. This approach recognizes that effective prevention is not just about saying "no" to drugs, but about creating a holistic environment that supports healthy choices and provides alternative coping mechanisms for life's challenges.

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