



THE RELATIONSHIP OF INTERNET USAGE WITH ALCOHOL DRINKING AND DRUG ABUSE: A CASE OF MALAYSIAN UNIVERSITY STUDENTS

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Abstract

Malaysia ranks as the 10th largest consumer of alcohol; it holds the 71st position in terms of per capita cigarette consumption, averaging 646 cigarettes smoked by each adult annually. The primary aim of this research was to examine the connections between the purpose of Internet usage, attitudes towards the Internet, drug abuse, and alcohol consumption. This quantitative study utilized a survey design by employing a questionnaire. The study sample consisted of 440 individuals from the University Putra Malaysia. The selection of students was done through stratified random sampling. The majority of the participants were Muslims, constituting 69% of the sample, followed by Buddhists at 19.1%. Christianity and Hinduism represented the minority religions. The majority of respondents were pursuing undergraduate studies. Concerning income, less than half of the participants (30%) reported earning between 2100 to 3000 Malaysian Ringgits (RM) per month, with the remainder earning 1000 to 2000 RM per month. The association between Internet usage purpose and alcohol consumption or drug abuse did not show significance. While there was no correlation between attitude towards the Internet and alcohol consumption, a significant relationship was found with drug abuse. Analysis of Variance (ANOVA) results indicated significant mean differences in religion concerning alcohol usage, whereas such differences were not observed for drug usage. The findings regarding the relationship between level of education, income and drug and alcohol consumption revealed no disparities in both alcohol and drug usage across different levels of education and income.

Keyword: Attitudes toward Internet, Purpose of using Internet, Level of education, Alcohol consumption, Drug abuse



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Introduction

Alcohol consumption remains a critical public health issue, exerting wide-ranging detrimental effects on physical and psychological well-being. Beyond the well-documented outcomes such as liver cirrhosis and injuries related to motor vehicle accidents, empirical research underscores that alcohol use is associated with over 60 health conditions (Brown et al., 2024; Freeman, 2014; Nutfilloevich & Akhrorovna, 2024). Globally, alcohol is responsible for approximately 3 million deaths annually (Babor et al., 2022), reflecting its far-reaching and persistent consequences. In Malaysia, alcohol consumption is not only a health concern but also a robust economic sector. The Alcoholic Drinks market is projected to generate US\$897.3 million in 2024 through retail outlets such as supermarkets and convenience stores, with an anticipated compound annual growth rate (CAGR) of 6.26% from 2024 to 2028 (Statista, 2024).

Carlsberg AS, a Danish brewing corporation, holds a dominant position in the Malaysian alcohol industry, regarded as a pivotal and lucrative market in the Asia-Pacific region. The company has committed US\$20 million to expanding its production infrastructure, thereby increasing output by 25% to a capacity of 125 million liters per annum. Holding a commanding 65% market share (Institute of Alcohol Studies, 2017), Carlsberg has also executed strategic advertising campaigns worth US\$2 million (approximately RM7 million), targeting youth demographics. These initiatives included leveraging newspaper advertisements, distributing promotional materials such as movie tickets for “Rush Hour 2,” and orchestrating competitions with significant monetary prizes, which collectively attracted more than 9,000 participants (Institute of Alcohol Studies, 2017).

Among college and university students, alcohol use presents alarming patterns of abuse, often linked to multiple adverse outcomes including compromised academic performance, engagement in high-risk behaviors, and health-related consequences (Cheah et al., 2019). Alcohol use among this demographic is also associated with dangerous driving behaviors, including speeding and the non-use of seatbelts (Dong et al., 2024; Lau et al., 2024; O’Brien et al., 2006; van der Wath et al., 2024). In response to such challenges, Malaysia has implemented the Alcohol Screening, Brief Intervention, and Referral to Treatment (SBIRT) program, incorporating the Alcohol Use Disorders Identification Test (AUDIT) to identify problematic drinking behaviors (Mohd Hatta et al., 2013). A study by Ismail et al. (2022) focusing on Malaysian youth aged 15 to 40 revealed that 22.4% had used drugs or substances at least once in their lifetime, with 12.9% identified as current users. Additionally, 19.9% had previously used tobacco products, with 11.5% continuing use at the time of the survey. Although only 4.9% had ever consumed alcohol, 3.5% were active drinkers. Importantly, Kim et al. (2010) found a strong correlation between Internet addiction and elevated rates of alcohol consumption and tobacco use, suggesting a complex interplay between digital engagement and substance use behaviors.

Globally, substance use constitutes a major public health challenge, especially among university students, where its impact on cognitive performance, learning outcomes, and educational attainment is considerable (Bitar et al., 2024; Paul et al., 2024; Tadese et al., 2022). According to the United Nations Office on Drugs and Crime (UNODC, 2023), an estimated 296 million individuals—equating to 5.8% of the global population aged 15–64—used drugs at least once in 2021. This marks a 23% increase from 240 million in 2011, largely attributed to population growth. Cannabis remains the most widely used illicit substance, with 219 million users (4.3% of global adults). While men still constitute the majority of cannabis users (70%), the number of female users is steadily rising. Use of other substances also persists: 36 million reported using amphetamines, 22 million used cocaine, and 20 million consumed ecstasy-type stimulants in 2021. Notably, women comprise a significant proportion of users of amphetamine-type stimulants (45%) and non-medical pharmaceutical products (up to 49%), whereas men dominate use of opiates (75%) and cocaine (73%). Alarmingly, around 60 million individuals engaged in non-medical opioid use, including 31.5 million who used opiates such as heroin (UNODC, 2023).

In Malaysia, the National Anti-Drugs Agency (NADA), operating under the Ministry of Home Affairs, plays a central role in combatting drug abuse. Recent data indicate that among identified drug users, 17,268 were male and 937 females. Bumiputera individuals constituted the majority (15,928), followed by those of Indian descent (1,099). Age-wise, the highest incidence was recorded among those aged over 40 (4,683 cases), followed by the 25–29 (3,594) and 30–34 (3,274) age groups. Education levels among users showed that most had completed secondary school (13,714), while 1,765 had completed only primary education. Methamphetamine, particularly its crystalline form, emerged as the most commonly used substance (11,171 cases), followed by other amphetamine-type stimulants (4,166 cases). Interestingly, a significant proportion of users were employed, either full-time (11,586) or part-time (4,328), contradicting assumptions that drug dependency is confined to the unemployed (Government of Malaysia, 2023).

A notable shift in drug consumption patterns was observed in Malaysia starting in 2018, with the dominance of opiate-based substances (e.g., heroin and morphine) giving way to amphetamine-type stimulants (ATS), especially methamphetamine (Government of Malaysia, 2023). In that year alone, 18,205 individuals spanning the 15–40 age range were recorded as drug dependents, with those aged 19–39 comprising 72.9% of this population. Although overall drug dependency cases dropped slightly in 2018 compared to 2017, relapse rates increased by 4.2%. The proliferation of methamphetamine and heroin use, coupled with increased activity by international drug trafficking syndicates (IDTS), has intensified the drug crisis. The Ministry of Home Affairs (2019). reported a rise in drug trafficking involving foreigners from Indonesia, Myanmar, Vietnam, Thailand, and the Philippines, along with the dismantling of 35 illicit production sites manufacturing substances such as crystalline methamphetamine, heroin, and ecstasy. Arrests of 118 syndicate members further demonstrate the scale of the problem.

The misuse of social media platforms has exacerbated drug trafficking trends. More than 20 Facebook pages were identified for promoting cannabis-related products, while online communication platforms like WhatsApp and WeChat were frequently used to coordinate sales and distribution. Between 2014 and 2018, 790 Malaysian nationals were arrested abroad for drug offenses, with a notable spike from 110 in 2017 to 143 in 2018, underscoring the transnational nature of the problem. Drug syndicates have also begun marketing cannabis in disguised forms—edibles such as chocolates, cakes, and honey infused with marijuana—to circumvent legal scrutiny (Ministry of Home Affairs, 2019). A dramatic 50.8% increase in the use of ATS pills was also reported, with dependents rising from 764 in 2017 to 1,152 in 2018. Similarly, marijuana use increased by 5.3%, with 1,122 dependents in 2018 compared to 1,066 the previous year (Ministry of Home Affairs, 2019).

This study seeks to provide a nuanced understanding of Internet usage by investigating its intersection with attitudes, religious beliefs, income levels, education, and patterns of alcohol and drug consumption. The Uses and Gratification Theory (U&G) serves as the theoretical underpinning for this inquiry. As a widely adopted framework in communication studies, U&G explains media consumption as a function of individual needs and motivations (Ruggiero, 2000). The theory posits that media use is not passive but influenced by users' goals, attitudes, and perceptions of the medium's utility (Palmgreen, 1984; Palmgreen & Rayburn, 1982). For instance, Tanta, Mihovilović, and Sablić (2014) found that Facebook users in Zagreb used the platform for varied social purposes, including coordinating school activities, sharing personal content, and engaging with peers. Widayat (2019) emphasizes that such digital interactions not only fulfill social needs but also contribute to a sense of identity and belonging. However, the immersive nature of online socialization may also alter the essence of human connection.

U&G has also been applied in health communication research, particularly regarding smoking cessation. Studies have shown that educational attainment, employment status, and socioeconomic background influence the likelihood of individuals seeking smoking-related information online (Mathur et al., 2013;

Nagler et al., 2014). Further, factors such as information comprehension, trust in sources, and perceived ease of access are significant predictors of online health-seeking behavior (Xiao et al., 2022). The current investigation aims to address the ensuing research inquiries:

- 1- What is the correlation of the purpose of Internet usage on alcohol and drug consumption?
- 2- Are there discernible connections between attitude towards Internet use, alcohol consumption, and drug utilization?

Furthermore, the ensuing hypotheses have been postulated to scrutinize the plausible associations among the variables of Internet usage, alcohol consumption, and drug utilization:

- H1: Income will exhibit a positive correlation with alcohol consumption and drug usage.
- H2: Religion will demonstrate a positive relationship with alcohol consumption.
- H3: Religion will show a positive association with drug usage.
- H4: Level of education will be positively linked to alcohol consumption and drug usage.

Internet Usage, Drug and Alcohol Consumption

The Internet's impact on society is fundamentally shaped by the ways in which people choose to use it. As a highly adaptable communication tool, the Internet's role has expanded dramatically over recent decades. Initially designed for basic functions such as accessing email and browsing static websites, it has now evolved into a dynamic, multi-functional platform that facilitates everything from e-commerce and digital education to creative self-expression and remote collaboration. The shift in user behavior has been particularly pronounced with the widespread adoption of smartphones, which serve as the primary gateway to the online world for much of the global population. This transition has significantly amplified the consumption of multimedia content, with video emerging as a dominant format across both informational and entertainment-based digital media (Internet Society, 2019).

In parallel with the technological evolution of the Internet, media portrayals of substance abuse have increasingly depicted the psychological and societal ramifications of addiction. Numerous films, such as *Requiem for a Dream* and *The Basketball Diaries*, offer dramatized portrayals of the progression from experimental drug use to dependency and eventual personal ruin. While these narratives often begin by depicting drug use in alluring or rebellious terms, they typically culminate in stark representations of the devastating impacts addiction can have on individuals and their families. These portrayals suggest that what may initially be perceived as recreational or manageable behavior can quickly evolve into a destructive cycle. Despite these cautionary depictions, popular language continues to normalize drug use through colloquialisms such as "stoned," "high," or "medicated," which often obscure the gravity of addiction and its long-term consequences (Sharma, February 12, 2020).

The expansion of digital platforms has also transformed the landscape of drug distribution. As noted by Oksanen et al. (2021), the Internet, particularly through the dark web and social media networks, has become a significant conduit for the sale and purchase of illicit substances. Their cross-national study revealed that psychological and behavioral factors—such as low self-control, high impulsivity, emotional distress, and a predisposition to risk-taking behaviors like excessive alcohol consumption, gambling, and problematic Internet use—were key predictors of online drug purchasing. In both the United States and Spain, approximately 2% of respondents acknowledged purchasing drugs via the Internet, and a staggering 77% of these transactions were conducted through social media platforms. The study also found that online drug buying serves as a mediating factor between self-regulation difficulties and frequent substance use, highlighting a complex psychological pathway facilitated by digital environments.

Social media, in particular, has emerged as a powerful influence on youth behavior regarding substance use. A growing body of research has explored how exposure to alcohol-related content on platforms like Twitter (Kiciman et al., 2018), Facebook (Moreno et al., 2021), Instagram, YouTube, and Reddit (Cirillo et al., 2022) shapes attitudes, beliefs, and behavioral intentions. Kiciman et al. (2018) (2018) observed that college students frequently encounter alcohol-themed posts, memes, videos, and advertisements (Cirillo et al., 2022; Hendriks et al., 2020; Strowger & Braitman, 2023), many of which emphasize the social and emotional benefits of drinking, such as stress relief, enjoyment, and peer bonding. Similarly, Moreno et al. (2021) found that even casual exposure to such content could normalize drinking behavior among university students. Cirillo et al. (2022) expanded this understanding by demonstrating that alcohol-related imagery on Instagram and YouTube is often glamorized, contributing to a perception that alcohol is an integral and positive component of the collegiate social experience.

Empirical findings also suggest that engagement with such content is associated with elevated levels of alcohol consumption. Hendriks et al. (Hendriks et al., 2020) argued that both posting and viewing alcohol-related content can reinforce permissive drinking norms and reduce perceived risks associated with consumption. Curtis et al. (2018), and Gupta et al. (2016), similarly reported that students who interact with alcohol-themed content are more likely to engage in drinking, particularly in social settings. Interestingly, peer-generated content appears to exert a stronger influence on drinking behavior than professionally created advertisements or promotional materials from alcohol brands. Corcoran et al. (2024) and Strowger and Braitman (2023) underscored this distinction, showing that youth are more likely to be influenced by relatable posts from their social networks than by commercial advertisements.

Furthermore, Strowger et al. (2024) demonstrated that perceived frequency of alcohol-related content on social media is significantly correlated with higher self-reported alcohol intake among young adults. Hartigan and Coe (2012) further emphasized the prominence of alcohol-related content within youth-oriented digital spaces (Epstein, 2011). Their study revealed that young individuals are disproportionately more engaged with media containing alcohol-related themes compared to neutral content. This trend was particularly noticeable on platforms associated with music sharing and social interaction. Notably, the majority of alcohol-related content encountered by youth originated from commercial sources rather than personal or peer-based contributions. Despite the relatively infrequent presence of overt alcohol advertisements, young users still reported positive perceptions of the substance based on implicit messaging and visual cues embedded in digital entertainment content.

Understanding the psychological mechanisms behind media influence requires a closer examination of attitudes—defined as individuals' evaluations of specific objects, behaviors, or situations as favorable or unfavorable (Ajzen, 1985; Eagly & Chaiken, 1993). Attitudes are central to how media messages are processed and how behaviors are subsequently formed or reinforced. In this context, the Internet is not only a platform for exposure but also a tool for active information-seeking. According to the European Commission's Eurobarometer survey (2011), around 64% of individuals aged 15 to 24 reported using the Internet to search for drug-related information. This rate is even higher in countries such as the Czech Republic, Slovakia, Estonia, and Finland. Cannabis users reported particularly high engagement, with 68–69% indicating that they used the Internet to explore the effects and potential risks of marijuana use, compared to 62% of non-users.

Digital media content shapes not only behavior but also intentions and perceptions about alcohol. For instance, Gupta et al. (2016) highlighted how exposure to celebratory and humorous alcohol-related posts fosters more favorable attitudes toward drinking and increases the likelihood of future consumption. These findings are consistent with those of Hartigan and Coe (2012), who found that even non-commercial depictions of alcohol—such as scenes from music videos or youth-oriented TV shows—were sufficient to influence young viewers' attitudes and behaviors. They noted that the interpretation of such content tends to be positive, particularly among adolescents, and that these

portrayals often contribute to the normalization of binge drinking and risky alcohol-related conduct.

Moreover, media plays a significant role in influencing young people's attitudes and behaviors regarding alcohol consumption (Curtis et al., 2018; Jackson et al., 2018; Noel et al., 2022). Graupensperger et al. (2024) found that negative portrayals of alcohol misuse can paradoxically glamorize the behavior if framed in a comedic or heroic context. This phenomenon points to the need for more nuanced and critically engaged approaches to media literacy that equip young audiences to deconstruct the implicit messages in substance-related content. Such portrayals, whether overtly celebratory or subtly normalized, perpetuate the idea that alcohol is integral to social success and emotional coping. Calhoun et al. (2022) also drew attention to the role of traditional media, including magazines, music, radio, and film, in reinforcing similar norms. This indicates that the influence of media on youth attitudes toward alcohol extends beyond the digital sphere into broader cultural narratives.

Despite these risks, the Internet also offers significant potential for supporting substance use prevention, treatment, and recovery. Digital platforms provide a cost-effective, accessible, and scalable alternative to conventional face-to-face interventions, especially for individuals who may be deterred by stigma, lack of time, or geographical barriers. Riper et al. (2018) emphasized the growing empirical support for Internet-based interventions, particularly those grounded in cognitive-behavioral therapy (CBT) and motivational interviewing frameworks. These digital tools often include features such as personalized feedback, goal setting, and interactive modules, and some even facilitate asynchronous therapist interaction for added support (Ekström & Johansson, 2020; Khadjesari et al., 2015; Sinclair et al., 2017). Internet-based interventions are especially promising for cannabis users, who tend to prefer self-guided and anonymous treatment options. Van der Pol et al. (2013) found that these users are more likely to engage with digital programs that respect their autonomy and privacy. Numerous studies have since corroborated the effectiveness of web-based treatment models in reducing alcohol and cannabis consumption among youth (Olmos et al., 2018; Riper et al., 2018; Romero et al., 2021).

Income, Educational Level, Alcohol Consumption, And Drug Abuse

Alcohol consumption, particularly among males, has emerged as a major public health issue (Mohapatra et al., 2010). Studies show that a significant percentage of Malaysian adolescents engage in risky behaviors, with alcohol use being a key concern. For example, Johari et al. (2020) report that between 66.8% and 83.7% of adolescents engage in risky behaviors. Similarly, Mutalip et al. (2014) found 11.6% of participants consumed alcohol, with 23.6% engaging in risky drinking. The typical age for first alcohol consumption was 21, with beer being the most consumed type. Males displayed significantly higher alcohol consumption rates than females and were more likely to engage in risky drinking. Additionally, urban populations, Chinese ethnicity, and individuals with higher income and education levels were more likely to consume alcohol.

In contrast, Mutalip et al. (2014) found that risky drinking was more prevalent in rural areas, particularly among Bumiputera communities in Sabah and Sarawak, as well as individuals with lower income and education. Males had a 3.5 times higher likelihood of engaging in risky drinking than females, and individuals from rural Bumiputera communities had a 2.7 times higher likelihood. Despite these patterns, no significant association was found between income, education, and risky drinking. Alarmingly, some rural workers were reported to spend a significant portion of their monthly income—up to RM 300—on alcohol (Cheah & Rasiah, 2017).

Mutalip et al. (2014) also found that alcohol consumption increased slightly with age and income. Each additional year of age increased the likelihood by 0.016 times, and each RM 100 increase in income raised the odds by 0.004 times. Ethnically, Malays were less likely to consume alcohol than Indians, though this did not apply to the Chinese demographic. Individuals with secondary or tertiary education were more likely to drink than those with only primary education. Additionally, urban residents, private-

sector workers, and self-employed individuals had higher rates of alcohol consumption. Smokers were also significantly more likely to consume alcohol compared to non-smokers.

Cheah et al. (2019) found that smoking was the most prevalent high-risk behavior among Malaysian adolescents, followed by alcohol consumption. The likelihood of engaging in high-risk behaviors increased with age, and males were more likely to engage in these behaviors compared to females. Chinese adolescents were more likely to engage in high-risk behaviors than Malays, while Indian adolescents were less likely to do so. Better academic performance was linked to a lower likelihood of engaging in high-risk behaviors. Lim et al. (2017) and Nik Farid et al. (2016) also observed that smoking and other high-risk behaviors, like viewing inappropriate online content, were associated with academic underachievement and parental smoking habits.

Ying et al. (2024) found that adolescents with lower academic achievement were more likely to engage in risky behaviors, with those achieving low to medium academic success being 1.53 times more likely to engage in high-risk activities. Mohamed et al. (2008) highlighted that higher academic ambitions were associated with a lower likelihood of substance abuse. Specifically, individuals pursuing postgraduate education were less likely to misuse substances compared to those aiming for lower academic qualifications, such as diplomas. Moreover, senior students and student prefects had lower scores on the Substance and Drug Misuse Index (SDMI), reinforcing the role of positive behavioral conduct in reducing substance misuse.

Amat et al. (2020) linked both excessive and insufficient income, along with limited religious knowledge, to sustained drug dependency. Financial difficulties often led to relapse into illicit activities, including drug distribution, while excessive disposable income prompted impulsive spending and drug misuse. Ab Aziz et al. (2025) found that most adolescent substance users came from economically disadvantaged households with low parental educational levels. However, religiosity did not appear to act as a protective factor against substance abuse.

Khairi et al. (2017) emphasized the importance of education in preventing drug abuse. Individuals with only primary education were 11 times more likely to misuse drugs compared to those with tertiary education, with secondary education being associated with a threefold increase in risk. Smoking and alcohol consumption were major risk factors for drug misuse, with smokers being 13 times more likely to engage in drug abuse. Although income and employment status did not directly predict drug misuse, they were linked to behaviors influencing addiction severity. These findings highlight the protective role of education in reducing susceptibility to substance abuse.

Religion, Alcohol Consumption and Drug Abuse

Religion is widely regarded as a system of beliefs, rituals, and practices aimed at connecting individuals with a higher power or ultimate truth (Mestre-Bach et al., 2021). Empirical research consistently highlights that religiosity serves as a protective factor against substance use, potentially due to its influence on moral awareness and self-regulation (Fairclough et al., 2024; Stylianou, 2004). In Malaysia, youth with strong religious convictions tend to engage less in substance use (Hatta, 2010; Nawi et al., 2021), though data from the National Anti-Drugs Agency suggests that some adolescents involved in substance use come from Islamic backgrounds, complicating the narrative of religiosity as a consistent protective factor (Agensi Antidadah Kebangsaan, 2022).

Some studies suggest that high levels of religiosity can foster conservative attitudes and enhance psychological well-being, which may reduce substance use (Fairclough et al., 2024; Vitorino et al., 2024). Salas-Wright et al. (2017) found that private religiosity may buffer adolescents from sensation-seeking behaviors and permissive attitudes toward substance use. However, some research, such as that by Ab Aziz et al. (2025), found no significant link between religiosity and substance use, indicating

inconsistent findings in the literature.

Further, Ying et al. (2024) noted a correlation between weak family ties and low religious engagement among adolescents, which was associated with higher propensity for risky behaviors. Older male adolescents and those from larger families showed fewer tendencies toward risky behaviors. These findings suggest that age and religiosity are critical predictors of adolescent risk-taking, with older adolescents being 2.65 times more likely to engage in risky behavior. Similarly, adolescents who did not prioritize religion were more prone to risky behaviors. These results align with studies by Soleimani et al. (2017) and Mendolia et al. (2018), which highlighted the protective role of active religious practice in reducing risk behaviors.

Religious knowledge also plays a key role in substance use prevention. Amat et al. (2020) found that insufficient religious knowledge may contribute to drug relapse and perpetuate addiction cycles. However, Khairi et al. (2017) observed no significant relationship between the importance of religion and drug use behavior, suggesting the protective effects of religiosity may vary based on how it is internalized and practiced.

Cultural and religious perspectives on alcohol use vary widely. Hinduism does not have a uniform stance on alcohol, with some scriptures permitting its use in specific ritual contexts, while others advocate abstinence for spiritual purity (Dwivedi et al., 2021). In Islam, alcohol is prohibited, with its consumption viewed as detrimental to self-control and spiritual well-being (Alimentarium, 2016). Buddhism's Fifth Precept discourages intoxicants, though certain tantric practices involve ritualistic alcohol consumption (Assanangkornchai et al., 2002; Hodges, 2021; Scheuermann, 2017; Tricycle, 2023).

In Malaysia, alcohol advertising is tightly regulated, especially on billboards and broadcast media, though East Malaysia (Sabah) has more relaxed restrictions. The alcohol industry circumvents these rules through marketing in films, media covers, and event sponsorships. As Western markets become saturated, alcohol producers are increasingly targeting Asian and developing markets for expansion.

Social media is another influential factor in shaping alcohol-related behaviors, particularly among adolescents and young adults. Its interactive nature, combining viewing, sharing, and engagement, has been linked to increased alcohol consumption and related problems (Gámez-Guadix et al., 2015; Steers et al., 2024). Social media acts as a "super peer," exposing users to peer drinking behaviors that may not reflect their real-life experiences (Elmore et al., 2017). Studies show that higher engagement with alcohol-related content on platforms like Instagram and Facebook is associated with increased consumption and adverse outcomes (Curtis et al., 2018; Gupta et al., 2016).

Cultural and religious norms significantly shape individuals' perceptions and behaviors toward alcohol use, influencing their vulnerability to alcohol-related harm. In predominantly Muslim countries, alcohol consumption tends to be lower, and alcohol dependence is less prevalent (World Health Organization, 2015). Excessive alcohol use is linked to lower life satisfaction, increased tobacco and illicit substance use, depression, and higher physical activity levels (Peltzer & Pengpid, 2016). Strong religious beliefs are often correlated with the rejection of drug use, further emphasizing the role of culture and religion in influencing substance use patterns (Meyer, 14 April 2016). These interrelated factors inform the conceptual framework guiding this research, as depicted in Figure 1.

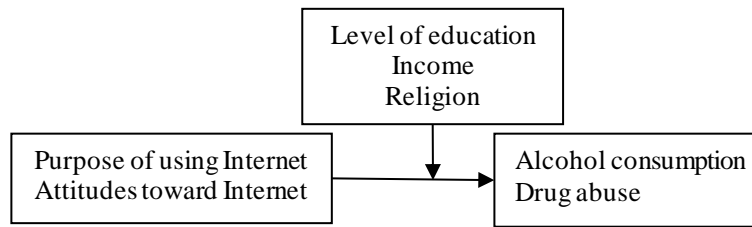


Figure 1: The relationship between Internet usage, Alcohol consumption and drug abuse

Methodology of the Research

Location and Sampling

Local male and female students from Universiti Putra Malaysia (UPM) were involved in the study, representing three major ethnic groups - Malay, Chinese, and Indian - with an age range of 18 to 40 and varying academic levels including Bachelor, Master, and PhD programs at UPM. The age range of 18 to 40 was chosen in alignment with the Malaysian definition of youth as individuals aged between 15 and 40 (Yunus, 2007). To ensure a representative sample, a stratified sampling method, a form of probability sampling, was employed. Utilizing Israel's (1992) formula ($n = \frac{N}{1 + N(e)^2}$) where n represents sample size, N represents the population (undergraduate and postgraduate students), and e represents the precision level (at a 95% confidence level or 0.05 precision), a total of 16,797 undergraduate students and 12,263 postgraduate students were considered as the population. Data was collected from 440 students across 16 faculties (Universiti Putra Malaysia, 2023). This research is part of a broader study examining the effects of Internet usage on both negative and positive youth development among university students.

Participants

The methodology of the study necessitated the collection of data from indigenous students representing three primary ethnic groups - Malay, Chinese, and Indian - pursuing their Bachelor's, Master's, and PhD degrees at the institution. Surveys were disseminated among students who were Malaysian nationals or permanent residents, or whose families resided and were employed in Malaysia, with some family members enrolled at UPM.

A random selection of undergraduate and postgraduate students were invited to partake in a brief version of the Alcohol and Drug utilization survey, focusing on aspects like purposes and attitudes of using Internet, alcohol intake, and substance misuse. Inquiries also delved into demographic details such as income, religion and educational level of the participants. The data from the sample was succinctly summarized using descriptive statistical methods. The eligibility criteria encompassed individuals aged between 18 and 40, aligning with the national definition of youth in Malaysia. Moreover, the surveys were exclusively distributed to students under the age of 40 who had utilized the Internet, while those above 40 were excluded from the analysis.

The majority of the respondents identified as Muslims, comprising 69% of the sample, followed by Buddhists at 19.1%. Christians and Hindus represented 7.5% and 3.9% of the participants, respectively. A significant proportion included undergraduates (79.3%), with the remaining 20.7% pursuing postgraduate studies. Income brackets in the research ranged from below 1000 RM to over 5000 RM, with thirty percent of respondents falling within the 2100 to 3000 Malaysian Ringgits (RM) monthly income category, and the remainder earning between 1000 to 2000 RM per month.

Measurement

The questionnaires comprised a series of items aimed at assessing independent variables (IVs) and dependent variables (DVs) totaling 69 items. The purpose of Internet usage was delineated by 23 items which involved five response options ranging from 1= “Not at all” to 5 = “Very Frequent”. This particular construct was defined as an interval measurement.

Respondents' attitudes toward the Internet were evaluated through 19 items, utilizing a five-point Likert scale, where individuals expressed their viewpoints and sentiments regarding Internet usage, varying from 1= “Strongly Disagree” to 5= “Strongly Agree” for each statement. This scale was operationalized as an interval measurement.

Alcohol consumption patterns were gauged using 11 items from the Alcohol Use Disorders Identification Test (AUDIT) formulated by the World Health Organization. The scale implemented a 5-point Likert scale encompassing the following options: never; monthly or less; 2-4 times a month; 2-3 times a week; to 4 or more times a week. Additionally, a nominal scale was employed to inquire about information-seeking behaviors regarding alcohol, with four choices (TV, Internet, friends, parents).

Moreover, drug usage was assessed through 17 items derived from Johnston, O'malley, Bachman, and Schulenberg's (2010) scale. It featured a Likert scale with five response alternatives including never, monthly or less, 2-4 times a month, 2-3 times a week, and 4 or more times a week. The data was coded from 1 to 5 for analytical purposes. Respondents were questioned about their consumption of various types of drugs, and a nominal question inquired about the primary source of information regarding drugs, offering the options of TV, Internet, friends, and parents. Demographic information pertaining to respondents encompassed aspects of religion, income, and educational level.

Data Analysis

The data underwent analysis employing both descriptive statistics and inferential statistics through the utilization of the Statistical Package for Social Science (SPSS) to determine relationships between variables. Descriptive analysis was utilized to explore the purpose of Internet usage, attitudes toward the Internet, alcohol and drug consumption patterns, as well as the demographic profile of respondents, reporting frequencies, percentages, means, and standard deviations.

Inferential analysis, specifically correlation analysis, was conducted to examine the associations between Internet usage purpose and attitudes towards the Internet, income levels, alcohol consumption, and drug usage. To assess mean differences in alcohol and drug consumption levels and level of education, a t-test was performed. Furthermore, ANOVA was employed to ascertain mean differences between religion, alcohol consumption, and drug usage.

A pilot test involving 30 participants was conducted to evaluate the validity and reliability of the research instrument. The results of Cronbach's Alpha analysis indicated a high level of reliability exceeding 0.7. Specifically, for attitudes toward the Internet, α was 0.833; for the purpose of using the Internet, $\alpha=0.852$; for drug usage, $\alpha=0.748$; and for alcohol usage, $\alpha=0.952$. Missing data points were minimal and were substituted with the mean values.

Results and Discussion

Attitudes Towards Internet

The item “Internet is the fastest way to research knowledge” with a mean of 4.47 and a standard deviation of 0.77, is widely regarded as the most popular reason for Internet use, followed closely by “Internet is

a universal library”, with a mean of 4.41 and a standard deviation of 0.81. Furthermore, opinions such as viewing the Internet as a tool for facilitating learning and research, finding excitement in accessing information online, and acknowledging the boundless freedom offered by the Internet were also prominent among respondents. Conversely, the idea that the Internet leads to isolation received the lowest mean score of 3.01, with the subsequent lowest mean associated with the belief that the Internet contributes to societal breakdown, scoring 3.05 with a standard deviation of 0.97.

Purpose of Internet Usage

In terms of respondents' purpose of using the Internet, the act of "Checking my Facebook" garnered the highest mean score of 4.50, with a standard deviation of 0.87, followed by the purpose of "Finding information relevant to research" with a mean of 4.22 and a standard deviation of 0.82.

Alcohol Usage

Regarding alcohol consumption among the participants, the study found that the mean for "viewing educational films about drinking on the Internet" was the highest ($M = 1.23$, $SD = 0.60$), while the lowest mean was associated with "being unable to recall events from the previous night due to alcohol consumption" ($M = 1.03$, $SD = 0.25$). A significant majority of the respondents, amounting to eighty-four percent, reported abstaining from any form of alcoholic beverage. Furthermore, the majority of participants (91.6%) confirmed that they had not caused harm to others as a result of their drinking habits. A large proportion of the respondents (84.8%) also indicated that they refrained from alcohol consumption altogether and 46.4% turning to the Internet as their primary source of information.

Drug Usage

Concerning drug use among respondents, the highest mean score was attributed to the action of "using Pain Reliever," scoring 1.03 with a standard deviation of 0.31, closely followed by "smoking cigarettes" with a mean of 1.20 and a standard deviation of 0.81. Conversely, the act of "using Heroin" yielded the lowest mean score of 1.03, with a standard deviation of 0.31. Notably, these findings deviate from those of a prior study conducted by Gooch on March 28, 2012, which identified heroin as the most commonly used drug. Additionally, a significant proportion (79.3%) of respondents confirmed that they had never visited websites related to drug use.

The Relationship Between Purposes of Internet Usage and Alcohol Usage

RQ 1: The Effect of Purpose of Using Internet on Alcohol and Drug Consumption

The results of the correlation coefficients revealed no relationship between purposes of Internet usage and the alcohol usage ($r = -0.015$, $p > 0.05$). The results also showed that there was no relationship between purpose of using Internet and drug abuse ($r = 0.060$, $p > 0.05$).

RQ 2: Relationships Between Attitude Towards Using Internet, Alcohol Consumption and Drug Usage

No relationship between attitude toward Internet and alcohol drinking ($r = 0.045$, $p > 0.05$) was found. However, the relationship between attitude toward Internet and drug abuse was significant ($r = 0.328$, $p < 0.05$).

H1: Income Will Be Positively Related to Alcohol Consumption and Drug Usage

In the same vein, there was no relationship between income and drug abuse ($r=-0.058$, $p>0.05$). Similarly, there was no relationship between income and alcohol usage ($r=-0.006$, $p>0.05$). Therefore, H1 regarding the positive impact of income and alcohol consumption and drug usage was rejected (Table 1).

Table 1: Pearson Correlation between IVs and DVs (n=440)

Variables	Alcohol usage		Drug usage	
	r	P	r	P
Purposes of Internet usage	-0.015	0.761	0.060	0.210
Attitudes of Internet usage	0.045	0.351	0.328**	0.000
Income	-0.006	0.899	-0.058	0.222

* $p<0.05$

Mean Differences Between Religion, Alcohol Usage, And Drug Usage

H2: Religion Will Be Positively Related to Alcohol Consumption. H3: Religion Will Be Positively Related to Drug Usage

The outcomes of the one-way ANOVA analysis unveiled notable variances between religion and alcohol consumption ($F=16.46$, $p<0.05$). Nevertheless, these average disparities did not demonstrate significance in terms of drug misuse; conversely, the average variances concerning alcohol consumption were statistically significant ($F=0.186$, $p>0.05$). As a result, the hypothesis H2, which posited the favorable influence of religion and alcohol intake, was upheld, whereas hypothesis H3, suggesting the positive influence of religion and drug use, was refuted (Table 2).

Table 2: Relationship between religion, alcohol usage and drug usage (n=440)

Alcohol Usage	Mean		Sum of Square	df	mean2	F	p
Islam	8.2838						
Christian	10.0606						
Hindu	8.5882						
Buddhist	10.0952	Between Groups	274.791	4	68.698	16.46	0.00
Others	9.0000	Within Groups	1814.825	435	4.172		
Total	8.7795	Total	2089.616	439			
Drug Usage	Mean		Sum of Square	df	mean2	F	p
Islam	16.2574						
Christianity	15.8485						
Hinduism	16.7647						
Buddhism	15.8690	Between Groups	19.424	4	4.856	0.186	0.94
Others	16.3333	Within Groups	11383.448	435	26.169		
Total	16.1727	Total	11402.873	439			

* $p<0.05$

Mean Differences Between Level of Education, Alcohol Usage and Drug Usage

H4: Level Of Education Will Be Positively Related to Alcohol Consumption and Drug Usage

The mean discrepancies for each cluster of participants' educational attainment and patterns of alcohol

and substance use were evaluated using an independent t-test. The outcomes indicated that there were no significant distinctions between undergraduates and postgraduates in terms of alcohol and drug misuse. Consequently, the hypothesis H4, which suggested a favorable relationship between educational level and alcohol consumption as well as drug use, was refuted (Table 3).

Table 3: T-Test between level of the education and Alcohol and Drug Usage (n=440)

Level of Education	Alcohol Usage			Drug Usage		
	Mean	t	p	Mean	t	p
Undergraduate	8.7937	0.266	0.790	16.1236	-0.398	0.691
Postgraduate	8.7253			16.3626		

*p<0.05

Discussions

This study explored the connection between Internet usage—both in terms of purpose and attitude—and substance use behaviors, focusing specifically on alcohol consumption and drug abuse among university students in Malaysia. The findings revealed that while the frequency or purpose of Internet use (such as for social networking or academic research) did not show a significant correlation with substance use, attitudes towards the Internet were notably linked to drug abuse. This finding is partially aligned with previous research suggesting that the way individuals cognitively and emotionally engage with online content can influence health behaviors (Gupta et al., 2016; Riper et al., 2018). This result is not consistent with Curtis et al., (2018), Jackson et al., (2018), Noel et al., (2022) and Graupensperger et al. (2024) who found the association between alcohol and media exposure.

The lack of a relationship between the purpose of Internet use and substance use contradicts earlier studies, such as those by Brewer (2003) and Gupta et al., (2016), which posited that information seeking and media exposure online might normalize or promote risky behaviors, including drug consumption. In contrast, this study found that general Internet usage purposes, such as academic research or social networking (e.g., Facebook), did not lead to increased substance use among Malaysian students. Instead, the study highlighted that it is attitudes towards the Internet—reflecting psychological orientation or media literacy—that play a more crucial role, especially regarding drug misuse.

The study also revealed that 84.8% of participants abstained from alcohol, which can be attributed to cultural and religious norms, particularly since 69% of the sample identified as Muslim. This supports the idea that religion acts as a protective factor against alcohol use, as significant differences were found between religious groups. These results echo prior research (Fairclough et al., 2024; Hatta, 2010), which suggests that religiosity serves as a buffer against alcohol consumption. Alcohol use was more prevalent among Chinese students, likely influenced by cultural factors, while Muslim students demonstrated lower alcohol consumption due to the prohibition of alcohol in Islam. These findings differ from those of Ying et al. (2024), Soleimani et al. (2017) and Mendolia et al. (2018), who found that active religious practice and perceived importance of religion were linked to decreased risky behaviors. The lack of a significant relationship between religion and drug use highlights the complex interplay of social, psychological, and digital factors in shaping substance use behaviors.

Income and educational attainment did not predict differences in alcohol or drug usage. These results deviate from Cheah and Rasiah (2017), who identified higher education and income levels as predictors of alcohol use, and Mohamed et al. (2008), who found that academic aspirations correlated with reduced substance misuse. The findings may reflect a homogenizing effect of university environments, where access to digital literacy and institutional guidance dilutes socioeconomic disparities in health-related behaviors.

The study's findings also contradicted Cheah and Rasiah's (2017) work, which found that individuals with secondary or tertiary education were more likely to drink compared to those with only primary education. Additionally, Mohamed et al. (2008) found that youth with graduate study aspirations were less likely to misuse substances than those with lower educational goals. The results also did not align with Cheah et al. (2019), Nik Farid et al. (2016), Lim et al. (2017) and Ying et al. (2024), who observed that academic performance was linked to risky behavior engagement.

In essence, the study revealed that utilizing the Internet is not linked to negative behaviors like alcohol and drug abuse; however, researchers should delve into specific Internet usage purpose and attitudes rather than solely focusing on online duration. Gordon et al., (2007) further argued that understanding the motives behind individuals' Internet usage is crucial for comprehending these associations. The majority of students exhibited a desire to seek information online; however, the nature of information sought is evidently contingent on the individual conducting the search.

The Internet, as a media platform, can lead individuals towards both positive and negative behaviors, depending on the type of content they engage with. It can encourage risky behaviors such as online gambling, pornography consumption, and drug use (via searches for information about drug use), or normalize alcohol consumption in social contexts. These behaviors can be explained by uses and gratifications theory, which explore how individuals interact with new technologies and the content they access.

Conclusions

This study concludes that general Internet use, including its purpose, does not significantly influence alcohol or drug consumption among Malaysian university students. However, a significant positive association was identified between students' attitudes toward Internet use and drug abuse. This suggests that the psychological and motivational frameworks surrounding Internet engagement warrant closer attention in future studies. While religion emerged as a significant factor in predicting alcohol consumption, it had no effect on drug abuse, and neither educational level nor income showed predictive value for substance use.

The findings challenge conventional narratives suggesting that digital media inherently escalates substance use, advocating instead for a more nuanced approach that considers attitudinal and contextual dimensions of media engagement. Uses & Gratifications theory is focused on what people do with the media based on their choices. According to the literature review, people watch movies, use the Internet, play online games and they feel gratified leading them to consuming alcohol or drug. However, the present study did not support the above-mentioned statement.

Recommendations

Based on the study's findings, several recommendations are offered for future research and practical applications. Future research should adopt a mixed-methods approach to explore the complex relationship between Internet usage and substance use, combining quantitative data with qualitative insights into students' motivations and emotional contexts. Additionally, disaggregating Internet usage by content type and platform (academic, recreational, peer-related) will help identify specific associations with substance use.

Preventive strategies should be culturally and religiously sensitive, with university programs strengthening digital literacy to promote critical media consumption, particularly regarding substance-related content. Educational institutions should provide comprehensive substance abuse education accessible to all students, emphasizing prevention and harm reduction. Incorporating online therapeutic

interventions, such as cognitive-behavioral strategies, into counseling services could support students hesitant to seek face-to-face help.

From a policy perspective, greater regulation of alcohol- and drug-related content on digital platforms, especially those popular among young users, is needed. Collaborative efforts between government, universities, and social media companies are crucial to minimizing exposure to harmful content. Future research should also explore religious subgroups to understand the role of doctrinal beliefs in substance use prevention. While no direct link between income and substance use was found, socioeconomic factors should still be considered in preventive efforts.

Co-Author Contribution

Author 1 carried out the fieldwork, prepared the literature review, overlooked the whole article's write up, research methodology and did the data entry. Authors 2, 3 wrote statistical analysis, interpretation of the results and wrote the comments.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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