Second-Year Nursing Students' Self-Reported Alcohol and Substance Use and Academic Performance

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Abstract

The use of alcohol and substances among students and young adults in South Africa is alarmingly high. Peer pressure, social activities and external influences have been reported as major factors driving students' drinking behaviour. Nursing students may be vulnerable to alcohol and substance abuse, as they face various stressful situations in their personal and professional lives as developing healthcare professionals. This article describes the self-reported prevalence of alcohol and substance use among second-year nursing students in the Faculty of Health Sciences at a South African university, as well as the possible association between alcohol and substance use and academic performance. This was determined as part of a larger study. In this quantitative, cross-sectional study, data were collected by means of a questionnaire. Of the 75 second-year nursing students approached to participate, 69 completed the questionnaire (response rate 92.0%). The majority of the respondents (81.2%) reported alcohol consumption, 52.2 per cent consumed alcohol with an energy drink, and 17.4 per cent consumed alcohol in conjunction with cannabis. Less than half (40.6%) smoked cigarettes or tobacco and 21.7 per cent indicated cannabis use. One and a half per cent (1.5%) reported smoking smokeless tobacco. A small percentage (8.7%) indicated medication use for attention deficit hyperactivity disorder (ADHD), which was obtained with a prescription and 7.3 per cent obtained the medication without a prescription. Sedatives and tranquilisers were reportedly

UNISA university of south africa PRESS

Africa Journal of Nursing and Midwifery
https://upjournals.co.za/index.php/AJNM/index
Volume 21 | Number 1 | 2019 | #4150 | 14 pages

https://doi.org/10.25159/2520-5293/4150
ISSN 2520-5293 (Online)

used by 8.7 per cent with a prescription, and 5.8 per cent without. The use of glue and solvents, “spice” and LSD was reported by 5.8, 2.3 and 1.5 per cent, respectively. Substance use may lead to unprofessional behaviour. Intervention programmes could contribute to decreased academic stress, effective time management and educated professional students.

Keywords: alcohol and substance use; nursing students; South Africa

Introduction

Substance use is common among the South African population, with at least 7.15 per cent of South Africans reporting the use of some form of narcotic (Africa Check 2016). This is double the world norm. Substance use among students and young adults is alarmingly high in South Africa (Rehab and Drug Support 2018). South Africa has been named as one of the drug capitals of the world, with alcohol affecting 17.5 million South Africans. South Africans use double the amount of cannabis compared to the average global figure of approximately 1 500 metric tons, annually. South Africans are also the biggest Mandrax users in the world, with about 110 000 people using Ecstasy. Methamphetamine is the drug of choice in 42 per cent of drug users in Cape Town. The WHO awards South Africa a score of four (drinking five or more beers or glasses of wine at one sitting for men, and more than three drinks for women) out of five on a least risky to most risky patterns-of-drinking scale. The higher the score, the greater the alcohol-attributable burden of disease in the future (Seggie 2012).

Alcohol abuse among international student populations is also rising. The National Institute on Alcohol Abuse and Alcoholism in America reported that 80 per cent of students drink alcohol. Half of these students engage in binge drinking, defined as consuming more than three or four drinks in a sitting (Borsari and Carey 2001). A recent study among 339 hostel-dwelling students at a South African university reported hazardous drinking in 15.6 per cent, harmful drinking in 4.1 per cent and alcohol dependence in 5.6 per cent (Van Zyl et al. 2015). This study did not differentiate between students’ degree courses. Johnston et al. (2015) reported on the key findings from a national survey on adolescent drug use and noted a high prevalence of drug use and abuse among different student populations. The use of psychostimulants occurs commonly among students who use these drugs to enhance study ability and concentration (Bucher, Vu, and Hojat 2013; Habibzadeh et al. 2011).

Alcohol and substance use or abuse is also high among medical students. A study by Galen, Henderson, and Coovert (2001) at the Weill Cornell Medical College, New York, and the Weill Cornell Medical College, Qatar, found that more than a third of medical students reported excessive drinking in the preceding month, and five per cent reported non-prescription steroid use during the preceding year. A more recent study done in 2013 surveyed third-year medical students and found that 20 per cent of them

had used stimulants at one point in their lives, and 15 per cent had used it during their years as medical students (Cassels 2013).

Peer pressure, social activities as well as external influences have been reported as major factors driving students' drinking behaviour (Levy and Earleywine 2003; Van Heerden et al. 2009). Students with high academic expectations reportedly drink less and experience fewer problems as a result of alcohol use (El Ansari, Stock, and Mills 2013).

Nursing students may be vulnerable to alcohol and substance abuse, as they face several stressful situations in their personal and professional lives as developing healthcare professionals. The physical and emotional stress of dealing with patients' suffering and pain, and psychophysical exhaustion due to academic activities, could be some of the contributing factors leading to excessive drinking and substance use in order to cope (Arora et al. 2016; Oliveira and Furegato 2008; Pryjmachuk and Richards 2007; Student Doctor 2017).

While the adverse effects of drug- and alcohol use on health are well known, data are lacking regarding the impact on students' academic performance. In addition, substance use places students at risk of unprofessional behaviour. By determining the extent of drug and alcohol use among nursing students, appropriate interventions may be instituted to ensure their optimal functionality as future healthcare professionals.

Aim

The aim of this article is to describe the self-reported prevalence of alcohol and substance use among second-year nursing students in the Faculty of Health Sciences at a South African university as well as possible associations between alcohol and substance use and academic performance. This was determined as part of a larger study in a population-based sample of adolescents and young adults studying at the Faculty of Health Sciences.

The objectives of the larger study were to

- evaluate published data and gather new data on the proposed topic, in order to come to a conclusion regarding the use (if any) of alcohol and substances and the possible association thereof with academic performance among health professional students (from Allied Health, Nursing, and Medicine), and
- highlight the need for further research.

Materials and Methods

Study Design, Sample Selection and Procedures

This was a quantitative, cross-sectional study, and formed part of a larger study in a population-based sample of adolescents and young adults studying at the Faculty of Health Sciences at a South African university. Ethical approval to conduct this study was obtained from the Health Sciences Research Ethics Committee.

The target population included all second-year undergraduate nursing students 18 years and older, registered at the Faculty of Health Sciences for 2016. Students were invited to participate in the study after a classroom contact session.

Using a questionnaire is one of the best methods available in collecting quantitative scientific data, anonymously and easily, from a large population. This method enables the researcher to explore patterns, trends, opinions, behaviours and/or perceptions (McLeod 2018). It should be short and simple; questions must not be leading and biased; the questionnaire must have clear instructions; questions should be posed from more neutral questions to important questions and sensitive questions posed last (Burns and Grove 2005; Rowley 2014).

Responses were coded. The researchers requested the respondents to complete the questionnaire by indicating the benefit of the research to obtain information regarding the use of alcohol, cigarettes and other substances, including illegal drugs. The questionnaire was compiled by using information from various internationally validated questionnaires. Questions were randomly selected from these questionnaires to cover the largest spectrum in order to obtain the information relevant to the research topic. The different questionnaires used to compile this questionnaire included the following:

- The Center for Adolescent Substance Abuse Research (CRAFFT) – a behavioural health-screening tool for use in adolescents under the age of 21, as recommended by the American Academy of Pediatrics, Committee on Substance Abuse for use with adolescents (Center for Adolescent Substance Abuse Research 2009).
- The DSM-IV diagnosis of alcohol abuse or dependence during the 12 months preceding the survey (Bucholz et al. 1994).
- Health and behavioural consequences of binge drinking in college. A national survey of students at 140 campuses (Wechsler et al. 1994).
- Adolescent Alcohol Involvement Scale (AAIS) – a 14-item standardised measure designed to identify adolescents with drinking problems, assessing quantitative aspects of alcohol use and psychosocial consequences in three domains; psychological functioning, social relations and family living (Mayer and Filstead 1979).

- The Alcohol Use Disorders Identifications Test (AUDIT) (National Institute on Drug Abuse n.d.).
- Centre for Addiction and Mental Health (CAMH) questionnaire, by the Institute for Social Research (York University) (Ialomiteanu and Adlaf 2015).

This questionnaire was then distributed for completion. A total of 60 (87.0%) respondents indicated that they found the questions easy to understand and 51 (73.9%) indicated that the questions did not make them feel uncomfortable. These responses were obtained as part of the questionnaire. Reliability was dealt with by asking simple, relevant questions that the students would be able to answer because of the nature of the questions. Collins et al. (2000) suggested avoiding the following when using questionnaires to improve reliability: loaded language, double-barrel questions, leading questions, incomplete questions, negative items, ambiguous questions, lengthy statements, and unwarranted assumptions.

The respondents received an information leaflet and the principal investigator explained the research objectives. Anonymity and confidentiality were assured as no identifying data were recorded. Each respondent gave written informed consent before the questionnaire was completed.

Data Analysis

Data were captured from the questionnaire and analysed by means of the Remark Office OMR 8 software system. Descriptive statistics including frequencies and percentages were calculated.

Results

Data were collected from the completed questionnaires. The results regarding demographic information, study habits, academic performance, activity on social media, the use of medication, other substances and drugs, and drinking and smoking habits will be provided.

Demographic Information

Of the 75 second-year nursing students approached to participate in this study, 69 completed the questionnaire (response rate 92.0%). The respondents were mostly female (n = 67; 97.1%) and in the age range 19–20 years (n = 41; 59.4%). The two main languages spoken were English (n = 26; 37.7%) and Afrikaans (n = 25; 36.2%).

Study Habits

On average, the respondents reported that they studied 2.85 hours daily, with the highest percentage (n = 35; 50.7%) between 1–3 hours. Only nine (13.0%) respondents reported studying between 4–6 hours a day.

Activity on Social Media

The respondents spend a mean of four hours a day on social media, such as Facebook, Twitter, Myspace and Instagram, with the highest percentage (n = 26, 37.7%) between two to three hours. Seven (10.1%) respondents reported visiting these social media websites, but not on a daily basis. None of the respondents stated that they never use the Internet.

Academic Performance

The highest percentage (n = 28; 40.6%) of the respondents reported average marks of 60–69 per cent. One respondent (1.5%) reported an average mark of < 50 per cent, 12 (17.4%) reported 50–59 per cent, 22 (31.9%) reported 70–79 per cent and five (7.3%) reported 80–89 per cent. No average marks above 90 per cent were reported.

Use of Medication, other Substances and Drugs

Table 1 summarises the use of medication, other substances, illegal drugs, alcohol, cigarettes and related products among the nursing students during the previous 12 months.

More than 70 per cent (n = 49) of the respondents used cough and cold medication, with 30 (43.5%) reporting taking this medication only 1–2 times in the past 12 months. Five respondents (7.3%) used medication for attention deficit hyperactivity disorder (ADHD) without a prescription.

Of the 15 (21.7%) respondents who reported cannabis use, seven (10.1%) reported the frequency of use as 1–2 times in the past 12 months. One respondent (1.5%) confirmed taking an illegal drug via injection. One respondent (1.5%) reported using anabolic steroids (testosterone) to enhance sport performance. None of the respondents reported the use of magic mushroom, cocaine, crack cocaine, Ecstasy, methamphetamine, heroin, ketamine or benzylpiperazine (BZP).

Table 1: Prevalence of the use of medication, other substances, illegal drugs, alcohol, cigarettes and related products among undergraduate nursing students at a South African university over the past 12 months (n = 69)

Substance	*Number of occurrences over past 12 months*						
	1–2	*3–5*	*6–10*	*11–19*	*20–39*	*≥ 40*	*Total*
	n (%)	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*	*n (%)*
Medication							
Cough and cold	30 (43.5)	16 (23.2)	2 (2.9)	0	1 (1.4)	0	49 (71.0)
ADHD medication with prescription	0	0	0	0	1 (1.5)	5 (7.3)	6 (8.7)
ADHD medication without prescription	2 (2.9)	0	2 (2.9)	1 (1.5)	0	0	5 (7.3)
Sedatives and tranquillisers with prescription	3 (4.4)	2 (2.9)	0	0	1 (1.5)	0	6 (8.7)
Sedatives and tranquillisers without prescription	4 (5.8)	0	0	0	0	0	4 (5.8)
Other substances and illegal drugs							
Glue and other solvents	3 (4.4)	0	0	0	0	1 (1.5)	4 (5.8)
Synthetic cannabis (“spice”)	2 (2.9)	0	0	0	0	0	2 (2.9)
LSD	1 (1.5)	0	0	0	0	0	1 (1.5)
Cannabis	7 (10.1)	5 (7.3)	3 (4.4)	0	0	0	15 (21.7)
Drinking							
Alcohol	12 (17.4)	8 (11.6)	7 (10.1)	9 (13.0)	6 (8.7)	14 (20.3)	56 (81.2)
Energy drink with alcohol	18 (26.1)	8 (11.6)	3 (4.4)	3 (4.4)	3 (4.4)	1 (1.5)	36 (52.2)
Cannabis and alcohol	9 (13.0)	0	3 (4.4)	0	0	0	12 (17.4)
Smoking							
Cigarettes	11 (15.9)	6 (8.7)	1 (1.5)	0	0	10 (14.5)	28 (40.6)
Smokeless tobacco	0	1 (1.5)	0	0	0	0	1 (1.5)
Water pipe	14 (20.3)	4 (5.8)	2 (2.9)	2 (2.9)	4 (5.8)	2 (2.9)	28 (40.6)

ADHD: attention deficit hyperactivity disorder; LSD: lysergic acid diethylamide

Drinking Habits

The use of alcohol was reported by 56 (81.2%) of the respondents, with 14 (20.3%) consuming alcohol 40 times or more in the past 12 months. More than half (n = 36; 52.2%) combined alcohol with an energy drink in the past 12 months; the highest

percentage (n = 18, 26.1%) between 1–2 times during that period. Eight (11.6%) respondents had taken alcohol in the form of mouthwash, rubbing alcohol or hand sanitiser. None of the respondents was ever involved in a treatment programme because of their drinking habits.

The highest percentage of respondents had their first drink at 16 (n = 3; 20.3%) or 18 (n = 5; 20.3%) years of age. Almost a third (n = 21; 30.4%) stated that they would drink between 2–3 alcoholic drinks on a typical day. Almost half (n = 31; 44.9%) of the respondents bought their alcohol at a liquor store.

Smoking Habits

In all, 28 (40.6%) respondents had smoked cigarettes and 28 (40.6%) a water pipe; a smoking apparatus in which the smoke is drawn through a container of water and cooled before reaching the mouth. Eleven (15.9%) respondents reported that they had started smoking in the past year.

Discussion

Changes in living conditions are associated with stress, and students attending universities, in particular, are exposed to profound changes and having to take responsibility for themselves and to make life-changing decisions. This period of excitement and learning is often associated with a high level of anxiety and stress. Heydari et al. (2015) noted that some students may end up making the "wrong choice" when they then try to relieve the psychological stress and tension by means of substance use. Determining the prevalence and pattern of substance use among university students is essential when considering the implementation of prevention and treatment programmes in this regard.

The results from this study confirm the use of drugs, tobacco and alcohol among second-year nursing students studying at a university in South Africa. These findings correspond with findings published by Lord et al. (2003) and McCabe et al. (2014) reporting the use of cannabis (21.0–66.7%), hallucinogens (13.8–19.7%), prescription opiates (7.9–39.2%), stimulants (6.7–11.8%) and Ecstasy (7.8–11.5%) among pharmacy and nursing students. Participants in the current study reported the use of cannabis, "spice" and LSD only. Law enforcement by the South African Constitutional Court ruling in September 2018 has now legalised the use of cannabis, which can therefore no longer be classified as an illicit drug. The ruling states the following: Laws cannot prohibit individuals from using or possessing cannabis in private. It is acceptable to cultivate cannabis in a "private place" for own consumption. No public smoking of cannabis is permitted and no commercial cannabis may be cultivated (*Financial Mail* 2018; Minister of Justice and Constitutional Development et al. 2018).

In this study, alcohol use reported by 81.2% of nursing students may be regarded as an area of great concern in this population, with 20.3% indicating the use of alcohol on 40 or more occasions in the last 12 months. Just more than half (52.2%) of these students used alcohol in combination with energy drinks; disregarding the negative effect it might have on their cardiovascular system. Using a combination of alcohol and cannabis was reported by 17.4 per cent in this population. The drinking patterns reported are not expected of students in the health professions since they should be aware of the effect it may have on their studies and patient care. The number of nursing students smoking cannabis (21.4%), and using glue (5.8%), "spice" (2.3%) and LSD (1.5%) is of great concern considering the side effects of these substances. Cannabis has serious side effects, such as loss of memory and concentration (short to medium term), impaired reflexes and loss of sensation (short term), total detachment from the present moment and from immediate necessities (short term), fear and the sensation of losing control (short term), and increased heartbeat and heart palpitations (Mr-Ginseng 2011). These side effects will potentially have a negative impact on students' academic performance causing them to skip classes and to spend less time studying, and decreasing their concentration and ability to recollect information (Fargen, Drolet, and Philibert 2016).

These findings could possibly be an indication that nursing students are not really coping with the lifestyle changes, demands, responsibilities and decision-making choices associated with university life. Furthermore, the fact that students reported spending a mean of four hours a day on social media and only studying, on average, 2.85 hours daily, is also alarming since this is reflected in their average marks. Only nine respondents (13.0%) reported studying four to six hours a day. None of the respondents reported current academic averages above 90 per cent. The highest percentage reported by the respondents ($n = 28$; 40.6%) was an average mark of between 60–69 per cent, while 18.8 per cent ($n = 13$) of the respondents obtained marks below 60 per cent. There was no positive association found between alcohol and substance use and academic performance in this group of students. Only descriptive statistics were noted and no statistical calculations, such as p-values, were done. These findings are supported by a recent study done at the nursing school of the University of Akron, America (Roberts and Baumberger 2017).

Another recent South African study among nursing students by Gerber, Botes, and Vorster (2016) implicated time management, academic stress and clinical stress as possible contributing factors towards students' poor academic achievements and high stress levels. As part of their clinical training, nursing students are expected to work 440 clinical hours annually. The nursing students reported factors such as insufficient sleep, mild exhaustion, poor eating habits and little time to exercise affecting their personal health. A study by Bidwal et al. (2015) on healthcare professional students in the state of California concluded that these students had double the stress levels on the perceived stress scale (PSS) than the general adult population. Oliveira and Furegato (2008) reported that students who participate in excessive drinking and substance use

have decreased academic success because of lapses in concentration and recollection, spending less time studying and skipping more classes resulting in a poor throughput and a greater risk for discontinued enrolment. The current study only investigated drinking habits and did not distinguish between abuse, excessive use and/or addiction.

Substance abuse places students at risk of unprofessional behaviour, such as plagiarism, cheating on examinations, listing fraudulent publications, inaccurate reporting manoeuvres, falsifying duty hours and under-reporting of medical examinations (Fargen, Drolet, and Philibert 2016). There is a need for intervention programmes that focus on managing academic stress, teaching effective time management skills and educating students on the consequences of substance use. This may lead to greater capability in students as well as improved competence in future nursing practitioners that will lead to better patient care.

Limitations

Surveys may be biased since respondents must recall past experiences. The self-reported and sensitive nature of the information gathered in this questionnaire may have inhibited students and contributed to bias in the findings, in spite of assurances of confidentiality and privacy. The respondents may not have responded fully in fear of potential repercussions. This could have resulted in the under-representation of substance use. The small number of nursing respondents in this study limits the generalisability of the findings.

Conclusion

As seen in similar international studies, binge drinking, heavy alcohol use, smoking of cigarettes and other substances, and the use of cannabis, “spice” and LSD are prevalent among nursing students. This could result in unprofessional behaviour that might put patients at risk as well as prolong the students’ studies, as their academic success rate is lower. These students have indicated that they experience high levels of stress because of the workload and environmental factors related to their academic, social and professional roles at university.

Recommendations

It is recommend that tertiary institutions look at improving students’ environmental issues, such as living conditions, social circumstances and exposure to and accessibility of substances, reassessing pressure associated with academic programmes, and implementing awareness-prevention and/or intervention programmes aimed at educating and supporting students regarding alcohol and substance use.

Acknowledgements

The authors thank the second-year nursing students for their participation, Ms S. Roux for the capturing of the data, and Ms T. Mulder (medical editor) for the technical and editorial preparation of the manuscript.

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