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The Legal and Moral Perceptions of Clinical and Non-Clinical Undergraduates Regarding Substance Use: A Pilot Project

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Abstract

Introduction: Heavy alcohol and illicit drug use has been documented amongst medical and dental professionals and educational programs have been developed to attempt to reduce such behaviour in clinical undergraduates. This pilot study aims to investigate the legal and moral perceptions of substance use in clinical and non-clinical undergraduates.

Method: A cross-sectional self-report questionnaire was administered to 107 clinical and non-clinical undergraduates to investigate their moral and legal perceptions of alcohol and illicit substance use.

Results: More clinical (72.5%) than non-clinical students (66.0%) drink alcohol regularly. Both groups perceive ecstasy, cocaine and ketamine as 'high risk' drugs. A third of both clinical (34%) and non-clinical (36%) students support the legalisation of illicit drugs. Forty seven percent of non-clinical students would consider changing their behaviour if illicit substances were legalised compared to 32% of clinical students. Clinical students believe the legal punishment for Class A drugs is appropriate, but disagree with that for Class C drug use. Personal values of clinical students differ regarding some immoral activities. Social perceptions of illicit substance users are similar for both clinical and non-clinical students with those who use heroin perceived most negatively by 86.5% of all undergraduates.

Conclusion: Individual substance use behaviours may be influenced by legal perceptions of illicit substance use. Personal values and social norms are also likely to be important. Further research is required to investigate how these perceptions affect a clinical student's decision to participate in excessive alcohol and illicit substance use behaviours.

Introduction

Excessive alcohol and illicit substance abuse among medical and dental (clinical) professionals is frequently reported. Junior doctors and dentists, as well as medical and dental undergraduates participate in excessive alcohol and illicit drug activities. [1-8] This behaviour does not appear to be restricted to the United Kingdom, with research from elsewhere showing similar results.[9,10] Medical undergraduates are reported to use alcohol and illicit substances in the same way as other undergraduate students[11] despite their medical knowledge and experience. Alcohol consumption increases as clinical undergraduates progress through their training,[6] although cannabis and other illicit substance use has been shown to decrease.[3] Regarding dental undergraduates, there is evidence that some students regularly use cannabis more than once a week[2,7,12] although such use may be decreasing.[8] In addition, the use of amyl nitrate has increased amongst female dental undergraduates[7] and the current use of other substances including Ecstasy, cocaine and ketamine is more prevalent in females than in males.[8] Of the clinical dental students who have experimented with illicit substance use, many claimed that they embarked on substance use before starting university.[13]

In the United Kingdom, medical and dental professionals must adhere to standards and guidelines set by their regulatory organisations in order to ensure that the quality of care provided to the general public is maintained.[14,15] Excessive alcohol and illicit substance use can have a number of negative impacts on the physical and mental health of an individual. For this reason, the misuse of alcohol and other illicit substances by healthcare professionals raises concerns about individual conduct, health, behaviour and performance. This is especially important when substance misuse is linked to unprofessional behaviour resulting

in a negative perception of the health care profession e.g. following an incident involving intoxication at work or persistent absenteeism.[1,11,16]

As well as promotion of and adherence to the regulatory standards, clinical degrees also embody professional standards and codes of conduct which, among other things, require behaviour that is both ethical and moral. Although neither of these terms is easy to define specifically, within our undergraduate teaching we expect our students to behave ethically (to do what s/he *ought* to do i.e. do the right thing) and morally (to be of good character, avoid harming others in any way and to act justly or fairly whether there is a relevant "law" or "rule" or not).[17] However, there is a literature suggesting that individuals may consider engagement in substance use as a personal rather than moral decision (i.e. a decision that is outside the realms of regulation and moral behaviour).[18] Interestingly, categorisation of substance use as personal has been shown to differentiate between individual reasoning about a particular behaviour (e.g. whether individual A believes that substance use is "good or bad") and actual behaviour (e.g. whether or not individual A will engage in substance use).[18,19]

Various educational schemes have been considered in an attempt to prevent unhealthy and inappropriate behaviour within the professional community, and guidance and instruction on professional behaviour and conduct is taught throughout medical training programs.[20] However, the need to increase its teaching within dental programs has been highlighted[7,21] as, despite being educated about the potential consequences to their future careers, dental undergraduates continue to participate in excessive alcohol and illicit substance use behaviours.[7,8] There is also evidence that dentists who use alcohol excessively are likely to continue such habits after graduation[22] and that such use increases with age and experience

in dentists specifically and healthcare professionals in general. [22,23] To date, research has focused on investigating the prevalence of alcohol and illicit substance use amongst medical and dental professionals throughout their careers, with little consideration of reasons to explain substance misuse.

The theory of *planned behaviour*[24] describes the process by which attitudes and beliefs determine behaviour and has been used to successfully predict a variety of behaviours.[25-28] The addition of *moral norms* ('an individual's perception of moral correctness or incorrectness of performing a particular behaviour')[26] and *personal norms* (personal rather than social values regarding a specific behaviour),[29] have facilitated study of perceived morality of risky behaviours including tobacco use in public,[30] risky driving behaviour[31] and incident reporting.[32] Moral and personal norms relating to substance use in clinical and non-clinical undergraduate populations will be investigated during this study.

Aim of Study

This aim of this questionnaire-based pilot study is to investigate undergraduates' legal and moral perceptions regarding alcohol and illicit drug use. We want to know whether there are different perceptions of alcohol and illicit substance use between clinical and non-clinical undergraduate students, given the explicit training that clinical students receive about the impact of substance use.

Methods

The targeted population were full-time clinical and non-clinical undergraduates registered at a university in the United Kingdom. An anonymous, paper-based questionnaire was distributed to two cohorts: clinical (medical, dental and veterinary) undergraduate students

in one cohort and non-clinical (other undergraduates) students in the other. Demographic data was collected about gender and the participant's course and faculty. No data were collected that would make any participant personally identifiable within their cohort.

Participants were asked about their own and their peers' tobacco, alcohol and drug use and their moral and legal perceptions regarding licit and illicit substance use. Their perceptions of current legislation were assessed with items relating to perceived agreement with the UK drug classification system, relative punishments for illicit substance use and also opinions about the legalisation of controlled substances. Moral attitudes were assessed by asking students how much they disapproved of adults undertaking the 24 specific items listed in Table 4: response options were a) don't disapprove b) mildly disapprove c) disapprove quite a lot and d) strongly disapprove.

Participants were also asked about the perceived health risks of specific drugs including alcohol. We included items about social attributions of hypothetical individuals described as substance users ("Most people of my age believe that those who use cannabis / cocaine / heroin) are……."). Attributions were grouped such that *positive characteristics* included ambitious, educated, successful and interesting whilst *negative characteristics* included antisocial, criminal, emotionally unstable, rebellious, weak-willed and unemployed. If any participant thought 50% or more of their peer group would associate a particular characteristic to substance users, this item was scored as 1. If they perceived that fewer than 50% would attribute such a characteristic then the item was scored as zero.

In order to achieve a maximal response, questionnaires were distributed on 18 different days at different times of day over a period of 6 weeks, to students in various libraries around the

university. Having gained permission from library staff, students were approached by two of the authors (AR and JS) and asked if they would participate in the study. Willing participants were given a questionnaire with a coversheet that concisely summarised information about the study. Participants were reassured that the study was completely voluntary and anonymous so that they would be protected from potentially negative consequences of disclosing sensitive information. Recruitment continued until the clinical and non-clinical samples comprised similar numbers of students. Contact information was provided on the coversheet to allow participants to contact the authors if they required further information regarding the study or to request a copy of the results.

Participants were free to withdraw from the survey at any time before questionnaire submission and were given the opportunity to voluntarily state their reasons. If they consented to participate they deposited their completed questionnaire in a box on the libraries' reception desks. Once entered into a database, data were kept confidential by ensuring that only password protected personal computers were used. Full approval to conduct the study was granted by the Faculty of Medicine and Dentistry Committee for Ethics in 2013.

Statistical analysis: Raw data were entered manually into a data sheet and checked for errors by the authors; detected errors were corrected prior to analysis using SPSS (IBM Corp, 2012). Due to the categorical nature of the data, non-parametric methods were used for analysis. Descriptive and inferential statistical analyses (chi-square) were used as appropriate. For questionnaires that were only partially completed (6/107 (6%)), the incomplete sections were excluded from the analysis.

We aggregated the responses for the item assessing perceived health risks of specific drugs so that the "low risk" category included "very low risk" and "quite low risk" responses, "average risk" comprised "average risk" responses, and "high risk" included "quite high risk" and "very high risk" responses.

Results

No participants withdrew from the study after questionnaire completion and a total of 107 valid questionnaires were analysed. Table 1 shows the distribution of the survey sample according to gender and faculty.

Exposure to Alcohol, Tobacco and Illicit Substances: Table 2 shows how alcohol, tobacco and illicit substance use vary between clinical and non-clinical students. (Unless p-values are provided there was no evidence of difference between groups i.e. $p>.05$.) Alcohol use is prevalent amongst all university students, with 72.5% clinical students and 66.0% non-clinical students using alcohol regularly. Clinical students were more likely to be non-smokers or to have tried tobacco only a couple of times (70.4% and 60.3% respectively, $p=0.072$) but non-clinical students were more likely to be regular cannabis (none and 7.5%, $p=0.045$) users. Non-clinical students were more likely to use other illicit substances "every so often" or "regularly" than clinical students ($p=0.044$, see Table 2). Fifty one percent of clinical students and 41.5% non-clinical students had tried nitrous oxide and a similar trend is seen for other illicit substances. Regardless of Faculty, all undergraduate students in this study have peers who use illicit substances, in particular cannabis.

Health Risks Associated with Drug Use: Clinical and non-clinical students' perceptions of the health risks of drug use are shown in Table 3.

Each substance was associated with different levels of risk, and a high proportion of both clinical and non-clinical students perceived ecstasy (68.0% and 55.6%), cocaine (72.0% and 72.2%) and ketamine (78.0% and 71.2%) as high risk drugs respectively. Nitrous oxide was perceived to have the lowest health risk compared to the other substances with 65.3% clinical and 43.4% non-clinical students believing it to be a 'low risk' drug (p=0.014). More clinical than non-clinical students considered alcohol to be a high risk substance (46% and 29% respectively, p=0.025). However, a smaller proportion of clinical students than non-clinical believed tobacco to be a high risk drug (40.0% and 44.4% respectively).

Legal Perceptions of Drug Classification: There were differences in attitudes about the legality of drug use between clinical and non-clinical students. Fifty four percent of clinical and 66% of non-clinical student disagreed with the United Kingdom classification of drug system whereas 34% of clinical and 36% of non-clinical students supported the legislation of controlled substances. Clinical students expressed more disapproval than non-clinical of the legislation against ketamine (p=0.003), tranquilizers (p=0.011) and anabolic steroids (p=0.004). Nearly half of all non-clinical students (47%) and a third of clinical students (32%) would change their substance use behaviour (i.e. they would use more) if controlled substances were legalised.

Under the Misuse of Drugs Act (1971), illegal drugs are placed into one of three classes – A, B or C. This is broadly based upon the harms they cause, either to the user, or to society when they are misused. The Class into which a drug is placed affects the maximum penalty for an offence involving that drug. For example, Class A drugs attract the most severe penalty as they are considered likely to cause the most harm. Drugs controlled under the Misuse of

Drugs act are illegal to have, produce, give away or sell. When participants were asked how much they agreed with punishments associated with Class A, B and C drug use, the majority of both clinical and non-clinical students disagreed with the legal punishment for Class C drug use. However, clinical students supported the legal punishment for Class A drugs use more than non-clinical students did (p=0.008). Both clinical and non-clinical students gave similar reasons for being deterred from illicit substance use (Figure 1) but the illegality of the drugs and the fear of loss of livelihood were much greater deterrents for clinical students compared to non-clinical students.

Personal Values Regarding Drug Use Activities: There were few differences in the moral perceptions of clinical and non-clinical students regarding many behaviours associated with substance use (Table 4). However, clinical students were more likely to disapprove of 'taking cocaine whilst looking after a young child' (mean (SD) = 3.96 (0.19) vs 3.76 (0.64), p=0.030) and there was marginal evidence of a difference in the same direction for "driving a car after drinking a glass of wine" (mean (SD) =2.49 (1.07) vs 2.13 (1.08), p=0.085).

Social Perceptions of Drug Users: Fewer positive (ambitious, educated, successful and interesting) than negative attributions (antisocial, criminal, emotionally unstable, rebellious, weak-willed and unemployed) were awarded to hypothetical people who use cannabis, cocaine and heroin by both clinical and non-clinical undergraduate students. Clinical and non-clinical students awarded similar proportions of positive and negative attributions respectively to those who use each drug: cannabis - positive: 35.1% and 36.7%; negative: 53.2% and 54.4%; cocaine - positive: 43.1% and 44.1%; negative: 61.7% and 62.1% and heroin - positive: 16.2% and 13.1%; negative: 53.2, 54.4.

Discussion

The findings of this study showed that alcohol consumption was prevalent amongst undergraduates with clinical students more likely to consume alcohol regularly. In contrast, non-clinical undergraduates were more likely to smoke and use cannabis. There were differences in the perceived risks of different substances depending according to whether students were clinical or not and also in levels of agreement with the classification of substances and associated legislation. All students who participated in this study had peers who used alcohol, tobacco and other illicit substances.

The extent of alcohol use is unsurprising as undergraduate students are old enough to purchase alcohol, and in addition, the culture of being a university student is likely to play a role.[34] A greater number of clinical than non-clinical students consumed alcohol regularly, though the reasons for this are unknown. One possible explanation is that clinical students may come from more affluent backgrounds than non-clinical students and thus have more disposable income with which to purchase alcohol, although results from this study (Figure 1) suggest that more clinical than non-clinical students stated that the cost of substances was one reason for non-participation. Another reason may be related to the length and intensity of dental and medical undergraduate courses, along with the pressures of repeated assessments, such that clinical undergraduates look towards drinking alcohol as a form of stress-relief. These high figures relating to alcohol consumption by clinical undergraduates support the findings of others.[2,7,8] However, one recent study[8] found that although the majority of dental undergraduates drank alcohol, they did so in moderation.

The low level of smoking amongst clinical undergraduates is consistent with previous recent research.[8] As both medical and dental undergraduates are expected to give appropriate

advice to patients regarding smoking cessation and illicit drug use, it is likely that most have internalised the health messages and this explains the low level of use. In addition, clinical undergraduates will be informed of the harmful effects of these products, both from formal teaching, and may have observed the harmful effects in their patients.

All undergraduate students in this study had peers who use illicit substances (in particular cannabis). This is unsurprising as clinical and non-clinical students are not segregated outside of their teaching, and live and socialise together.

The perception of risk associated with substances varied between the two groups of students, with clinicians perceiving alcohol as more risky, but tobacco less risky than non-clinicians did. There was no obvious correlation of perceived risk between the two groups regarding illicit substance use with clinicians perceiving some substances (Ecstasy and ketamine) as more risky and some substances (cannabis, cocaine and nitrous oxide) as less risky than non-clinicians. Further research could be conducted to investigate these differences in levels of perceived risk.

Non-clinical students were more likely to disprove of the legislation and classification of illicit substances compared to clinical students, and non-clinical students were also more likely to increase their substance use if the classification changed. Fewer clinical students would change their behaviour if the legal deterrent of substance use was removed. This suggests that the legality of drugs may have a lesser influence over drug use behaviour for clinical students than for non-clinical students. As part of their undergraduate teaching of 'professionalism', clinical students will have received messages about illicit drug use, and students will be aware that the effects of excessive alcohol intake and the use of illicit recreational drugs can have serious consequences for the careers of both doctors and

dentists. A recent General Dental Council (GDC) document[34] gives guidance on how convictions relating to alcohol and drugs amongst dental professionals are assessed in relation to Fitness to Practice cases. Ultimately, a charge of serious professional misconduct can arise relating to an allegation of 'drunkenness or the misuse of drugs', as detailed in an earlier GDC document.[35] Finally, other unknown factors may have an influence on an individual student's perceptions such as their previous education, socio-economic status and family values.

There were few differences in the perceived morality of behaviours while under the influence of substances between clinical and non-clinical students, nor were there significant differences between the two groups of students when attributing positive and negative characteristics to substance users. These results show that both groups have similar moral norms,[26] irrespective of whether they receive clinical education or not, and supports previous findings in similarities between those in clinical and non-clinical groups.[11]

One of the strengths of this study is that it provides a concurrent comparison of the legal and moral perceptions of both clinical and non-clinical undergraduates. In addition, it investigates their attitudes and behaviours regarding legislation of substances, health risks, morality and their views on acceptability of behaviours whilst under the influence of licit and illicit substances.

This study does have some limitations. It is a small study (n=107) and thus is descriptive rather than inferential in nature. There may be an element of self-selection bias in the sample which may have affected the results. The number of participants who were not willing to participate in the study were not recorded, nor was the number of students approached at each of the individual libraries. Thus the response rate to the study is

unknown. Furthermore, it is possible that those students who are regular substance users do not regularly visit a library, thus increasing the possible risk of selection bias. Although students were asked to indicate their year of study, the limited number of students used in the study meant that no meaningful analysis could be undertaken to explore whether or not attitudes to substance use change over the course of a degree. For these reasons, it is proposed that this study be used as a pilot project.

In terms of generalisability, the views of clinical and non-clinical undergraduates at a single university may not be representative of all UK undergraduates. The ages and ethnicities of the students were not recorded in this study, and other universities may have differing numbers of mature students or students from ethnic minorities. It has previously been reported that students from ethnic minorities have higher abstention rates from alcohol consumption, and also use tobacco and cannabis less frequently than white students[5,6,11] Thus the views and perceptions of these students regarding substance use are liable to be different from those of white students. In addition, this study counted both medical and dental undergraduates as 'clinical', and so no differentiation can be made between the views of these two student groups. Some of the responses were not adequate e.g. the number of students who agreed with the legalisation of controlled substances may be an under-estimate, as the subjects reported difficulty answering the question because it forced a binary response. Many students may have supported the legalisation of some drugs, yet still felt that other substances should remain illegal. As a result, participants found themselves having to be conservative and disagree with the legalisation of all controlled substances. Despite this paper's limitations, the findings are relevant to the current evidence base, and provide a benchmark from a single UK university from which further studies could be

conducted. The questionnaire could be distributed to larger numbers of undergraduates from other UK universities in order to give a more comprehensive picture of their views towards illicit substance use, and could then be further expanded to universities in other countries to compare views between different cohorts of students. Following this, further research might be undertaken to investigate how these perceptions affect a clinical student's decision to participate in excessive alcohol and illicit substance use behaviours, and why some clinical students continue to abuse substances regardless of the possible consequences.

Conclusion

This paper suggests that student perceptions of the morality and legality or otherwise of substance may influence individual behaviour. Our findings also suggest that personal values and social norms are important. Further research is required to investigate how these perceptions affect a clinical student's decision to participate in excessive alcohol and illicit substance use behaviours, and why some clinical students continue to abuse substances regardless of the possible consequences.

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Table 1: The demographics of the study population

Gender	Male	n=53 (49.5%)
	Female	n=54 (50.5%)
	TOTAL	**n=107**
	Arts Engineering	5 10
	Veterinary Sciences	24
	Science	10
	Social Sciences/Law	5
	Arts	5
	Medicine/Dentistry	53
	TOTAL	**n=107**

Table 2: Frequency of alcohol, tobacco and illicit substance use amongst undergraduate students and their peers

Drug		**Clinical students** (N=51)				**Non-Clinical students** (N=53)			
		Never used	**Used a couple of times**	**Use every so often**	**Use regularly**	**Never used**	**Tried a couple of times**	**Use every so often**	**Use regularly**
Alcohol	n	0	5	9	37	1	3	14	35
	%	0.0	9.8	17.6	72.5	1.7	5.7	26.4	66.0
Cannabis	n	20	22	9	0	24	18	7	4
	%	39.2	43.1	17.6	0.0	45.3	34.0	13.2	7.5
Cocaine	n	44	5	2	0	44	5	3	1
	%	86.3	9.8	3.9	0.0	83.0	9.4	5.7	1.9
Ecstasy (MDMA)	n	37	13	1	0	38	7	8	0
	%	72.5	25.5	2.0	0.0	71.7	13.2	15.1	0.0
Ketamine	n	47	3	1	0	47	6	0	0
	%	92.1	5.9	2.0	0.0	88.7	11.3	0.0	0.0
Nitrous Oxide	n	25	21	5	0	31	14	8	0
	%	49.0	41.2	9.8	0.0	58.5	26.4	15.1	0.0
Tobacco	n	13	27	8	3	20	13	12	8
	%	25.5	52.9	15.7	5.9	37.7	22.6	15.1	15.1

Table 3: Perceived health risk associated with alcohol, tobacco and illicit substance use[a]

Substance type	Clinical students			Non-Clinical students		
	Low	Average	High	Low	Average	High
Alcohol	11 (22%)	16 (32%)	23 (46%)	23 (43%)	15 (28%)	16 (29%)
Cannabis	27 (54%)	14 (28%)	9 (18%)	21 (39%)	21 (39%)	12 (22%)
Cocaine	3 (6%)	11 (22%)	36 (72%)	5 (9%)	10 (18%)	39 (73%)
Ecstasy (MDMA)	8 (16%)	8 (16%)	34 (68%)	13 (24%)	11 (20%)	30 (56%)
Ketamine	7 (14%)	4 (8%)	39 (78%)	6 (11%)	9 (17%)	37 (72%)
Nitrous Oxide	32 (65%)	13 (26%)	4 (8%)	23 (44%)	18 (34%)	12 (22%)
Tobacco	17 (34%)	13 (26%)	20 (40%)	16 (30%)	14 (26%)	24 (44%)

[a] Questionnaire data were summarised for tabular representation. “Low risk” included “very low risk” and “quite low risk” questionnaire responses. “Average risk” includes “average risk” responses and “High risk” includes “quite high risk” and “very high risk” responses.

Table 4: The perceptions of students regarding moral attitudes towards specific behaviours

Activities	Mean score (SD)		p value
	Clinical students	Non-clinical	
Smoking tobacco in the street	1.75 ±0.959	1.70 ±0.882	0.774
Driving a car after drinking a glass of wine	2.49 ±1.067	2.13 ±1.082	0.085
Experimenting with drugs at home with some close friends	2.25 ±1.072	2.11 ±1.058	0.514
Smoking 20 or more cigarettes a day	2.57 (1.101)	2.74 (1.067)	0.404
Drinking more than 3-4 units of alcohol per day	2.09 (0.966)	2.26 (1.146)	0.409
Taking cocaine whilst looking after young children	3.96 (0.192)	3.76 (0.642)	**0.030**
Trying cannabis (marijuana, pot etc.) once or twice	1.75 (1.072)	1.87 (1.117)	0.584
Drinking alcohol on their own to relax	1.51 (0.750)	1.43 (0.767)	0.568
Taking ecstasy/MDMA during a Friday night out	2.70 (1.137)	2.46 (1.161)	0.290
Drinking so much alcohol that they vomit/pass out	2.38 (1.023)	2.57 (1.092)	0.336
Using laughing gas to have a good time at a dinner party	1.89 (0.913)	1.87 (1.020)	0.920
Going into university hung-over from drinking the night before	1.83 (0.802)	2.06 (1.172)	0.247
Smoking cannabis occasionally	2.11 (1.086)	2.11 (1.144)	0.992
Taking ecstasy/MDMA to enhance intimacy with their sexual partner	2.62 (1.244)	2.34 (1.159)	0.227
Smoking cannabis regularly	2.75 (1.017)	2.74 (1.129)	0.928
Snorting cocaine whilst out clubbing	3.15 (1.133)	3.08 (1.124)	0.730
Going into a lecture high on cannabis	3.17 (0.964)	3.11 (1.040)	0.750