Motivations to decrease and cease substance use in third-level students: A scoping review.

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Abstract

Background: Illicit substance use by third-level students is associated with depressive symptoms, health risk, relationship strain, and legal ramifications. Prevention and intervention programmes have often been grounded in information exchange, aimed at education of students about the associated risks. However, these interventions produce only small to moderate effect sizes in promoting reduction or cessation of substance use in third-level students. Understanding what motivates third-level students to change their substance use behaviour is essential in the planning of effective behaviour change programmes. The aim of this scoping review was to determine factors that relate to student motivations to reduce or stop their illicit use of substances, and to increase understanding of the factors that may be pertinent in behaviour change interventions for substance use in this population.

M**ethod**: We searched 8 databases in August 2018 using search terms based on 'students', 'illicit substance use', and 'motivations'. We identified 86 research articles that reported on third-level students' illicit substance use, and included reasons or motives for their usage.

Results*:* After full-text screening, only three studies were eligible for inclusion in the qualitative synthesis. The majority of studies were excluded as they described motives for abstention, but did not describe motivation for reducing or stopping current patterns of use of illicit substances.

Conclusion*:* Few efforts have been made to identify motivations of third-level students to decrease or cease substance use. Promising avenues for future research on motivations to change in relation to substance use include the social contextual factors, perceptions of effects on social relationships, and actions of friends and family members to prompt contemplations of change.

Introduction

Worldwide, there is an increase in the use of illicit substances in third level students. For example, marijuana use amongst third-level students in the United States has reached the highest level in decades (MTF, 2016). Marijuana use has similarly high prevalence in Australia, as well as across Europe. There is a large volume of research that examines the factors that predict commencement of illicit substance use, and describes the subsequent consequences (e.g. Judson & Langdon, 2009; DuPont, Coleman, Buher, & Wilford, 2008). However, little is known about the reasons why third-level, that is, college or university, students may be motivated to change their illicit substance use behaviour, or the factors that motivate third-level students to decrease or cease their use of illicit substances, and misuse of prescription drugs (Arria et al., 2008).

Young adults who enter third-level education represent a distinct population who may be especially susceptible to use illicit substances (Arnett et al., 2005; White, Labouvie, & Papadaratsakis, 2005). The transition from second to third-level education can act as a risk factor for the onset of or increase in substance use in students (Acharya, Jin, & Collins, 2018). This time of heightened sensitivity can be due to the combination of developmental, social, and environmental factors associated with third-level life (Cadeira et al., 2009; White et al., 2006). Students strive to find balance across life domains, including academic, social (friends and family), and work lives, and this effort may influence the likelihood of using substances, increasing the frequency of substance use or creating a window where their motivations to use substances could be further enhanced (Skidman, Kaufman, & Crowell, 2016; Kerley, Copes, & Griffin, 2015; Pedrelli et al., 2015). Managing social and academic pressures, which are an inherently part of students' lives, may contribute to the development of maladaptive coping mechanisms (Deasy, Coughlan, Pironom, Jourdan, & Mannix-McNamara, 2014; Banes, Stephens, Blevins, Walker, & Roffman, 2014), which may include substance use.

The primary focus of research that seeks to understand illicit substance use among third-level students emphasises motivations related to coping, and perceived social norms and expectancies (Rogowska, 2016; Cooper, 1994). For example, Bennett and Holloway (2017) described personal enhancement as a primary motivation for illicit substance use in third-level students. Some third-level students may believe that substance use, and the misuse of prescription drugs, will help combat some of the difficulties of third-level life, for example time demands, a desire or need to establish particular social networks, or participate in group activities (Prosec et al., 2018; Aikins, 2011; Stewart & Marino, 2013). The use of illicit or other substances may also be motivated by a belief in their neuro-enhancing

capabilities (Rabiner et al., 2009). Evidence negates the role of neuro-enhancing stimulants as a means of strengthening academic performance. Previous research in this area indicates that they can have an adverse effect on grades, attendance, memory, and overall interest in course content (Suerken et al., 2016). The use of illicit substances is associated with addiction, mental health problems, and increased likelihood of polysubstance use (Conway et al., 2016; Lai, Cleary, Sitharthan, & Hunt, 2015; Benotch, 2014; Connor, Haber, & Hall, 2014). The reasons why students enrolled in third-level education may be more likely to begin using illicit substances, than those not enrolled in third level education (i.e. colleges and universities), are well mapped in the research literature, as are the consequences of illicit substance use (Teter et al., 2006). However, these reasons are not congruent with the perceptions third-level students have regarding the effects of illicit substance use on their health and wellbeing (Johnstone et al., 2017), suggesting that students may be experiencing a degree of cognitive dissonance regarding their patterns of illicit substance use (Festinger, 1962).

Despite the increasing prevalence of substance use in adolescents and emerging adults, especially third-level students (Johnston et al., 2016; Suerken et al., 2016), there is insufficient data to inform best practices to reduce the harms associated with these behaviours (McCabe, Knight, Teter, & Wechsler, 2004; Abelman, 2017). The majority of interventions to date have focused on education based methods, yet, education about the consequences of use has small to moderate effects on the prevalence of illicit substance use in third-level students (Yeager, Dahl, & Dweck, 2018; Aria et al., 2017; Strang et al., 2012; Skager & Skager, 2007). Students who have existing knowledge about the harms associated with substance use declare that they are less likely to use illicit substances (Kilmer et al., 2006). This may be because students with pre-existing knowledge of the associated risks are less inclined to commence using illicit substances. Whereas students with less prior knowledge of the subsequent consequences may be less inhibited in commencing use, and so educational interventions may be insufficient in outweighing the consequences of their lived experience. This suggests that education may be useful in primary prevention efforts, but ineffective in motivating students to cease their current patterns of illicit substance use. As motivation for abstention from illicit substance use cannot be equated with motivation to stop or reduce current patterns of illicit substance use (Rosenberg et al., 2009), addressing reasons for abstinence is not a primary focus of this paper.

Primary prevention of substance use is the preferable approach, however the high prevalence of use of illicit substances in third-level students signposts the need to also identify opportunities for interventions for students who have already used, or are currently using substances, and these

opportunities emerge from understanding what factors may motivate students to reduce the frequency of use or stop the use of illicit substances. Despite well evidenced reports of the negative psychological, physical, social, and academic consequences of drug use, the potency of these as instigators of change in substance use behaviour are under-examined. Describing the motivators for behaviour change in relation to substance use in third-level students will indicate opportunities for effective intervention programmes (Michie, West, Sheals, & Godinho, 2018). The aim of this scoping review is to describe the evidence relating to the factors that may motivate third-level students to reduce or cease using illicit substances.

Method

We sought to identify both published and unpublished studies by systematically searching relevant databases and websites, as well as conducting a grey literature search. Academic Search Complete, PsycINFO, PsycBOOKS, CINAHL, PubMed, MEDLINE, PsycARTICLES, and Psychology and Behavioural Sciences Collection were searched for articles published from January 2000 to August 2018 using search terms, key words, and MeSH terms. Search terms were generated based on 'students', 'illicit substance use', and 'motivations' (see Table 2). We searched the reference lists of retrieved papers to identify any possible studies or publications not indicated in the search return, and to generate a list of authors who may have other or unpublished data on this topic. These authors were contacted with a request for any additional data, conference publications or other output that may be of relevance. The final stage of the search strategy consisted of a grey literature search. Search terms remained consistent to those outlined above in the search of published studies - 'students', 'illicit substance use', and 'motivations' (see Table 2 for an extended list of search terms). After eligibility screening, studies were included in the review if they met the following inclusion criteria outlined in Table 1, and not in breach of any exclusion criteria. The quality of each of the final papers included was then assessed using a CASP (Critical Appraisal Skills Programme) checklist.

Results

Following screening and full text review, 3 publications were included in the review (Figure 1). The studies were published in 2005, 2009 and 2012 on data collected between 2003, 2005, and 2004 – 2007 respectively. Two studies used quantitative data, one of which was a cross-sectional design and

the other a longitudinal study design, with three time points across three years. All of the studies used data collected from third-level students on campuses in the United States. All three studies recruited participants who had used illicit substance at least once in their lifetime. Two studies used self-report of use of substances in the last year, and lifetime use. Standardised questionnaires were used to generate indicators of addiction and substance use-related experiences. One study used focus-group methodology to understand motivations to stop using ecstasy.

Caldeira and colleague (2009) reported on the prevalence of substance use disorders and subsequent help-seeking behaviours amongst a high-risk sample of students using data from the Third-level Life Study (US), a longitudinal cohort study. All incoming (N=3400) first year students aged 17- 19 years were screened for a history of illicit substance use. Following screening, baseline face-to-face interviews were conducted during the first year of third-level with 1,253 students, and annually for the next two years. 946 students (46% male, 54% female) completed all 3 interviews and provided complete data on substance use. Students were interviewed for past-year alcohol and/or marijuana related substance use and answers mapped against criteria for substance use disorders (SUD). Only students who met criteria for SUD in at least one of the three years were included in the final analysis (n = 548). In the third interview, students were asked about the presence of factors that might motivate them to seek help to change their patterns of substance use. Subsets were then created based on whether students had; a) perceived a need for help, b) experienced social pressures from others to receive help, and c) had attempted to change their substance use behaviours. Results indicated that of the total number of students presenting with SUD (n = 548) only the minority of students (3.6%) perceived a need for help themselves, a further 16.4% were encouraged by either a friend or family member to seek help. Caldeira et al (2009) described an overall reluctance by students to engage in help/treatment seeking, with only 8.8% (48 students) reporting actively seeking help or treatment. The findings from this study suggest that a large treatment gap existed between those students who met the criteria for SUD for one or more years (n = 548) and the number who perceived a need for behaviour change themselves (n = 19). Perceptions of social pressure were more prevalent for alcohol use with marijuana use, than for marijuana use alone. Students who reported a perception of social pressure were more likely to seek help than those who did not experience social pressure.

In a study of third-level students who had used ecstasy in 2003, Levy, O'Grady, Wish, & Arria (2005) reported on a qualitative examination of the experiences of using ecstasy. The study aimed to gain a greater understanding of students' behaviours and attitudes towards the use of illicit substances.

Thirty students from a large US university who had used ecstasy at least once, were recruited for focus groups. Over half of the 30 participants reported using ecstasy on more than 5 occasions, and all 30 participants reported lifetime use of multiple illicit substances. The 30 participants were then divided into four focus (one male-only, one female-only, and one mixed), and engaged in an hour-long discussion about their personal experiences of ecstasy use. The group facilitator asked specific questions about positive and negative experiences of substance use and gave prompts to participants for potential motivational factors related to stopping. Participants were asked to describe reasons for quitting using ecstasy, from their own personal experience or the experiences of their friends. The findings indicated a number of possible reasons that students may be motivated to stop using ecstasy. These were categorised as health concerns, a loss of interest, fear of legal consequences, addiction/tolerance, negative observations of others using ecstasy (perception that people using ecstasy had reduced intellectual capacity or ''personality changes'') and negative personal experiences, including becoming "emotionally unstable".

The third eligible study was completed by Palmer and colleagues (2012) and describes the findings from a series of questionnaires completed in 2005 by undergraduate students who had declared lifetime use of any illicit substance, and/or misuse of a prescription drug. The overall aim was to identify students' patterns of substance use, concerns and consequences relating to use, and interest in interventions to reduce use. Students (N=262) were recruited through campus advertisements. Participants completed a survey of their past year and lifetime substance use and a measure of negative consequences of substance use (adapted from the Young Adult Alcohol Problem Screening Test and the Inventory of Drug Use Consequences). Participants were also asked to indicate their willingness to participate in eleven different interventions. The most frequently reported negative consequences of substance use that may relate to motivation to reduce or stop were having said or done something embarrassing, feeling ashamed or guilty, and factors relating to poor academic performance, although there were low levels of concern regarding their patterns of substance use. Notably, despite low concern about substance use, students demonstrated relatively high interest in an intervention.

Discussion

The purpose of this scoping review was to identify potential factors that may motivate third-level students to change their illicit substance use behaviour, in part to inform an intervention to reduce

the harm associated with the use of illicit substances in this cohort (Dick, et al, 2020) . There is a dearth of research that examines what factors may motivate a reduction or cessation of illicit substance use in third-level students, and only three studies were identified as eligible for this qualitative synthesis. These studies report on research conducted across three separate third-level campuses in the United States, between 2003 and 2007. Based on our inclusion criteria, studies conducted on or after the year 2000 were deemed eligible as this timeframe coincided with evidence to support increase in drug use among young people from 2000 onwards, grounded in a cultural and theoretical rationale (Johnston, O'Malley, Bachman, & Schulenberg, 2013; Hall et al., 2005). Increased prevalence rates suggest that there is something unique about this time that may contribute to students' motivations to use illicit substances (Strote, Lee, & Wechsler, 2002). Understanding motivations for abstinence is useful for several reasons, including informing prevention programmes, however, as previously stated, the reasons why third-level students may abstain from using illicit substances differ from the reasons that motivate students to reduce or cease their current patterns of illicit substance use (Rosenberg et al., 2012). Based on this, studies that reported solely on reasons for abstinence were excluded.

The reasons provided by students for abstention, including a lack of curiosity or interest, and religious beliefs, these reasons could arguably be described as individual differences that act as protective factors, rather than as explicit motives (Cooper, Agocha, & Sheldon, 2000; Hawkins, Catalano, & Miller, 1992), and so were not classified as motivations for change as defined in the current study. Several excluded studies reported on prevalence rates and the demographic profiles of third-level students who reported using illicit substances, (Kasperski et al., 2011; Strote, Lee, & Wechsler, 2002). These studies did not measure intentions or motivations to change. A further 43 studies were excluded as they described the potential motives of third-level students for initiating use, but not reasons for stopping, or reducing the behaviour (Titus, Green, & White, 2006). For example, university students have reported academic enhancement as a primary motive for initiating substance use, particularly misuse of prescription drugs (Belvins, Stephens, & Abrantes, 2016; Eickenhorst et al., 2012; Low & Gendaszek, 2010), however academic enhancement is not a commonly reported reason why people stop, or change their use (Palmer et al., 2012). Further, we note that many studies do not report or measure if these motivations for use were satisfied by substance use, which may relate to any (dis)continuance of the behaviour. Understanding the factors that may serve as motivations for third-level students to continue with, or to change substance use behaviour is crucial in identifying strategies and supports in relation to behaviour change (Michie et al., 2012; Webb, Sniehotta, & Michie, 2010; Michie, Fixsen, Grimshaw, & Eccles, 2009; DiClemente, 1999).

The majority of prior research examining third-level student illicit substance use indicates a relationship between illicit substances use and negative psychosocial and health consequences (Lo, Monge, Howell, & Cheng, 2013), but we note that these consequences are not necessarily identified by the third-level students themselves, or at least are not perceived as sufficient motivation for behaviour change (Palmer et al., 2012). For example, the effects, including negative consequences, of marijuana use are well established (Arria et al., 2017; Arria, Caldeira, Bugbee, Vincent, & O'Grady, 2016; Volkow, Baler, Compton, & Weiss, 2014) and marijuana is the most commonly used substance among third-level students (Johnston, O'Malley, Miech, Bachman, & Schulenberg, 2015). Yet, the evidence base that maps the association of marijuana use to psychological and physical harm (Arria, Barrall, Allen, Bugbee, & Vincent, 2018; Keith, Hart, McNeil, Silver, & Goodwin, 2015) has been insufficient as informational strategies to prompt a change in behaviour (Liccardo Pacula, Kilmer, Wagenaar, Chaloupka, & Caulkins, et al., 2014). For example, information provision about negative consequences of alcohol and tobacco use is ineffective in changing behaviour, despite the scale and breadth of evidence for a relationship of alcohol and tobacco consumption (Kelly & Barker, 2016).

Each of the three papers discussed, presented on students' personal experiences of substance use and outlined harmful effects which create opportunities to strengthen the design of interventions in this area. Caldeira et al., (2009) detected a treatment-gap between those students who reported negative consequences, and those who took action to change their behaviour. For the purpose of their study (Caldeira et al., 2009), only students who met DSM-IV criteria for SUD were included in final analysis. Of the students who attempted to change their behaviour themselves, 54.2% were unsuccessful. The high-risk sample, and the unsuccessful attempts made by these students, suggests that significant problematic behaviour exists within this population. However, the expertise and support that is necessary in order to make these changes possible is lacking. Increasing motivations to change substance use behaviour may be a good strategy to maximise the effectiveness of health interventions (Michie, West, Sheals, & Godinho, 2018). Yet, we note that behaviour change techniques and strategies must be specific to both the target population (Vasiliou et al, 2020), and the environment in which the intervention will be delivered.

Many students engage in illicit substance use, yet do not meet the criteria for a substance use disorder, and are therefore unlikely to perceive their use as problematic (Caldeira et al., 2008; Slutske, 2005). Due to their limited perception of the problem, students may not be motivated to change their

behaviour, and rarely seek help to change their behaviour despite experiencing negative consequences (McCabe, West, & Weschler, 2007). This represents a challenge for intervention design, and be a barrier to engagement with interventions, including those designed on social norms or education. There is, however, some intriguing inconsistencies. For example, in the findings by Palmer et al., (2012), despite less than a third of third-level student participants reporting only moderate concern about their use, almost 80% reported a moderate interest in interventions. It is possible that the study design, that brought focus groups of peer users together in focus groups, influenced reported concerns or expressions of interest (Levy, O'Grady, Wish, & Arria, 2009), which hints at intervention opportunities related to promotion of social norms and personal reflections on experience and desire for change. A caution is noted in the higher likelihood of third-level students to share positive experiences with substance use, as students may dismiss negative consequences as rare or be less likely to share negative experiences with peers in regular social or friendship contexts (Christensen, Rothgerber, Wood, & Maltz, 2004). Multiple motives to change behaviour were reported by third-level students in the focus groups (Palmer et al 2012), and included health concerns, legal consequences, social stigma and negative intrapersonal consequences. Within these focus groups, no single factor was identified as a primary motive, and an avenue for programmes to prompt reduction and cessation of substance use behaviour may be to support students to recognise consistent negative effects across various life domains (Vasiliou et al, 2020) , and to reflect on how these consequences are incongruent with their desired outcomes for use.

Students may misperceive or underestimate the effects of substance use behaviour on their lives, or normalise the negative or unintended consequences (Ravert, 2009). Findings from this review indicate that the strongest predictor of behaviours across each of the three studies were influenced by social factors. The negative consequences reported by students predominantly related to how their peers would view them; the feelings of shame surrounding their use, and the concerns about what others would think. In line with this, the strongest predictor of help-seeking behaviours was social pressure experienced from a friend or family member. Even in cases where students failed to recognise problems with their own patterns of use, they were willing to attempt to change their behaviour if someone else expressed concern about their substance use. This highlights the high regard, which students, particularly young adults, place on the opinions of their peers, and how they incorporate these opinions into the formation of behaviours which are deemed socially acceptable. These findings can aid in the development of intervention designs by attempting to rectify social norms in student populations

and inform students of the best way to intervene if they feel concerned about a friend/peer/classmates use.

Limitations

Differences in injunctive norms and legal policies in regards to substance use exists across countries and cultures, and we note that all three of the included studies were completed with undergraduate students in universities in the United States, so caution is advised in any transferecen to other cultures or countries. In addition to the demographic (e.g. age) and immediate social context (university) the broader social, cultural and legal context of substance use behaviour may influence motivations to begin or discontinue substance use. These contextual factors may directly or indirectly contribute to motivations to change substance use behaviour and so should be explicitly examined, and were not in the included studies. The possibility of procedure and design as influences on the data of studies examining motivations related to substance use is acknowledged, for example in studies that use focus group methodology in young adult groups discussing substance use. Anonymization and other design procedures may avert some of the most obvious challenges in conducting research on illicit behaviours, but this, with the dominance of self-report and retrospective report may influence recruitment and study findings.

There are significant changes in the ease of access to substances, and the types of substances likely to be used by third-level students in the last two decades. Although prevalence reports describe these, the three studies we identified examine motivations to change substance use behaviour based on data collected a decade ago. Motivations to commence, to change and to stop using substances are influenced as much by social contextual factors as by personal experiences and intrapersonal factors, and contemporary research is needed to describe if and how motivations to change substance use behaviour may be associated with social norms, social context, and the perceived and actual prevalence of the use of illicit substances.

Conclusions

In order for behaviour change to occur, the person must first recognise a need to change, that is, they must have a motive. This review gauged the factors related to motivations to reduce or stop using substance use among third-level students. This area is under-researched, and very few studies have examined motivations for behavioural change related to substance use in third level students.

Several promising avenues for future research are indicated, including a close examination of the social contextual factors, perceived effects of social relationships, and actions of friends and family member to prompt change in use or contemplations of change in use of substance by students.

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Table 1: Inclusion and Exclusion Criteria

Inclusion Criteria:
- Studies dealing with a third-level student population (such as university or third-level students)   - Studies reporting on illicit substances (such as marijuana, cocaine, amphetamines), or the misuse of prescription substances   - Studies which have clearly outlined motives for changing current patterns of illicit substance use   - Studies published after the year 2000   - English language studies
Exclusion Criteria:
- Studies dealing with students outside a third-level setting (such as adolescents)   - Studies reporting on any substances (such as alcohol, tobacco, caffeine) that are not considered to be illicit/illegal   - Studies reporting on illicit/illegal substances (such as prevalence rates, demographics) without clearly identifying motives for changing patterns of use   - Studies outlining motives for abstaining from illicit substance use   - Studies published before the year 2000   - Non- English language studies

Table 2: Search terms:

Motivations		Illicit Substance Use		Students
Reason*		Illicit substance *use		Third-level student
Change		Drug *use		University student
Behavior*Change		Prescription drug *use		Third-level student
Health behaviour*		Illicit drug *use		Post-secondary student
Reduc*		Illegal drug *use		Undergraduate
Cease		Recreational drug *use		Postgraduate
Quit		Study drug *use		Tertiary student
Decrease		Smart drug *use		Tertiary institute
Intention		Psychoactive drug *use		University*
Intervention		Problematic drug *use		Third-level*
Motiv*	AND	Narcotic *use	AND	Database Specific Keyword for "students"
Database Specific Keyword for ''motive''		Cannabis *use		
		Marijuana *use		
		Database Specific Keyword for "drug use"		

Figure 1. PRISMA Flow Diagram

Records identified through database searching
(n =1,441)

Additional records identified through other sources
(n = 7)

Records after duplicates removed
(n = 1,198)

Records screened
(n = 1,198)

Records excluded
(n = 1,112)

Full-text articles assessed for eligibility
(n = 86)

Full-text articles excluded for reason of did not describe motives/reasons for change in patterns of drug use
(n = 83)

Studies included in qualitative synthesis
(n = 3)

Table 3. Summary of included papers

	Authors	Title	Sample	Outcome Measures	Study Design	Findings
1.	Caldeira et al., 2009	Third-level students rarely seek help despite serious substance use problems.	548 undergraduate students Mid-Atlantic University, U.S	Self-perceived need to change substance use behaviour Social pressures Help/treatment seeking for substance use behaviour	Longitudinal cohort study Self-report measures Survey and face-to-face interviews	Only 3.6% of the 548 meeting criteria for substance use disorder sought help to change behaviour. Efforts at behaviour change were associated with social pressures from family and friends. In the absence of a self-perceived need, encouragement from family or friends was a significant predictor of effort to change (33%) versus those with no self-perceived need and not encouragement from others (1.3% sought help to change)
2.	Levy, O'Grady, Wish, & Arria, 2005	An In-Depth Qualitative Examination of the Ecstasy Experience: Results of a Focus Group with Ecstasy-Using Third-level Students.	30 undergraduate students, University of Maryland, U.S	Experiences of using ecstasy	Focus groups	Reasons tendered by participants as motivations for stopping use were categorised as negative personal experiences, health, addiction/tolerance, financial, loss of interest, own observation of the undesirable behaviour

					or experience of others who use ecstasy (e.g. personality change in other users) and concern about legal consequences.
3.	Palmer et al., 2012	Third-level Student Drug Use: Patterns, Concerns, Consequences, and Interest in Intervention.	262 undergraduate students, Southern Connecticut, U.S	Prevalence of drug use Prevalence of negative consequences of drug use Interest in interventions for drug use	Self-reporting measures Consisted of three scales to assess outcomes	Negative consequences (e.g. not completed homework; financial) especially intrapersonal consequences (e.g. felt guilty, ashamed, embarrassed; regretted impulsive actions) were associated with personal concern, but negative consequences and personal concern not associated with interest in intervention for behaviour change