

The Relationship Between Social Anxiety and Marijuana Craving in Canadian College Students: Social Anxiety as The Predictor of Marijuana Craving

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Abstract: Social anxiety is correlated with risk for easier dependence on marijuana use, and many works have been done to show marijuana use among college students is associated with mental health problems. Yet it remains unclear whether social anxiety serves as a predictor towards marijuana craving, which refers to an unrelenting desire and is often a criterion for the diagnosis of drug addiction. The present study examined the correlations between social anxiety, marijuana craving and marijuana use motives by analyzing data from questionnaires filled out by current Canadian undergraduates (N = 34). The data showed that higher social anxiety level was correlated with greater marijuana craving, and the frequently chosen motive to use marijuana was social conformity, which means becoming more consistent with other people's behaviors, further suggesting that social anxiety played a role in leading desire for marijuana use. Identification of this association provides novel insights into the prediction and treatment for marijuana-related problems among college students and guidance for college policy design.

Keywords: Social anxiety, Marijuana craving, College students.

1. Introduction

Individuals with social anxiety disorder (SAD), a psychiatric condition featured by being fearful or avoidant of social interactions, appear relatively vulnerable to cannabis use disorder (CUD) [1]. The National Comorbidity Study (NCS) observed that among individuals with SAD, the lifetime prevalence rate of marijuana dependence is 29.0% [2].

Canada is the second country in the world to legalize the non-medical use of cannabis for adults. After the legalization, national-wide access to legal cannabis stores has increased substantially, making cannabis more conveniently to purchase legally, thus leading to continued growth in consumption rate. By the end of 2020, approximately 6.2 million people aged 15 or older, or 20.0% of Canadians in that age group, reported having used cannabis in the past three months, in which over 35.6% of 18- to 24-year-olds reported having consumed cannabis in the past three months [3]. Recently, colleges in Canada start to have marijuana stores on campus. Moreover, in 2022, University of British Columbia becomes the first university across the globe to permit the marijuana shop to sell the marijuana and its derivatives product on campus. Thus, the situation of increasing marijuana tolerance leads to great social impacts: Canadian universities shows high tolerance towards the marijuana usage. Further, marijuana use remains high among college students is shown to be related to mental health problems such as schizotypal traits and social anxiety, suggesting the need to investigate the relationship between marijuana use and social anxiety particularly in this age group [4].

Previous studies have identified a correlation between social anxiety and marijuana craving among adult marijuana users. A longitudinal analysis determined that SAD, but not any other anxiety disorder, served as a risk factor for subsequent cannabis use disorder [5]. Furthermore, Buckner and his colleagues have drawn that patients with SAD use anxiolytic substances such as cannabis to cope with social

anxiety and consequently became reliant on these substances to cope with negative affective states related to social anxiety. Another study performed by Buckner, Heimberg, Matthews and Silgado further investigated the relationship between marijuana-related problems and participants' strategy when facing specific social situations [6]. Marijuana-related problems were positively related with social avoidance and coping; to be specific, marijuana-related problems were significantly related to avoidance of social situations if marijuana is unavailable [1]. Moreover, participants with higher social anxiety (HAS) reported use of marijuana to cope in significantly more social situations and avoiding a significantly greater number of social situations if marijuana was unavailable as compared with the lower social anxiety (LSA) group [6], indicating the worthiness of conducting study on the relationship between social anxiety level and marijuana dependence. In the research by Buckner, Silgado and Schmidt, state social anxiety was experimentally manipulated to examine whether increases in anxiety are associated with greater marijuana craving [7]. The study result showed that increases in state social anxiety were associated with greater marijuana cravings. Specifically, people with SAD might be particularly vulnerable to wanting to take marijuana during a social anxiety provoking situation.

In reviewing the role of marijuana behaviors in social situations, not much research has been done on investigating social anxiety as a predictor for marijuana craving in college student and the reasons behind it. Phillips et al. concluded that marijuana craving was associated with marijuana use in college students who frequently use marijuana, and their academic performance would be negatively affected. However, the reasons of marijuana cravings remain unknown [8]. In addition, participants involved in all these studies are all American, and ages range from young adulthood to old adulthood, but not much attention was paid on the population in Canada.

The primary aim of the current study will examine the

correlation between social anxiety and marijuana craving among college students particularly across Canada, and the potential difference between college students in the US and Canada, and the secondary aim will be finding the motives behind college students' marijuana use. By studying the case in Canada, the large sample size may enable a better understanding of the source of college students' anxiety and students' marijuana-related problems. The hypothesis is that college students with elevated social anxiety will be at particular risk for experiencing marijuana cravings, and thus social anxiety level might be a potential predictor for marijuana use or marijuana-related problems. More evidence would be added for the effect of social anxiety on marijuana use, especially in a legalized environment.

2. Method

2.1. Participants and Procedures

Participants were undergraduate students studying in Canada who were randomly approached via an email invitation to participate in an on-line survey. Of the 44 prospective participants, 10 responses were discarded because of incomplete surveys, and the effective response rate was approximately 77%. The final sample was comprised of 36 (56% female) participants aged 19-25 years ($M = 19.94$, $S.D. = 1.35$). Participants were all current marijuana users across Canada. The major nationality composition of the sample was as follows: 20.5% American, 14.7% Korean, 14.6% Indian, and 11.7% Chinese. The survey was administered through qualtrics.com, a secure on-line data collection website.

2.2. Measures

Participants were presented with a survey that was composed of three questionnaires that have been proved to be valid and reliable. For adapting specifically to Canadian college students' situation, the survey revises the previous questionnaires.

2.2.1. Demographic Information

Participants were asked to provide demographic data including age, gender, nationality, city of residence and college.

2.2.2. Substance Use Behavior

Participants were asked to choose the substances that they have used before, including cannabis, alcohol, and cocaine. In addition, they were asked to indicate the last time they used these substances and the frequency of use.

2.2.3. Social Anxiety Level

The Social Interaction Anxiety Scale (SIAS) is a self-report questionnaire that measures anxiety in social interactional situations. The rating scale of 20 items in the list ranges from 0 (not at all characteristic or true of me) to 4 (extremely characteristic or true of me). It discriminated among generalized and nongeneralized social phobics, and scores on the SIAS would be higher for patients with social phobia than for all other groups [13]. The scale demonstrates high levels of internal validity across the clinical, community, and student samples and reliability in both clinical and non-clinical samples; the SIAS appears to have good temporal stability as well [9].

2.2.4. Marijuana Craving

The Marijuana Craving Questionnaire (MCQ) is a 47-item self-report multidimensional scale covering distinct

explanations of marijuana craving, in which four dimensions are assessed: compulsivity, emotionality, expectancy, and purposefulness. In addition, 17 items with significant loadings on four latent factors that characterized marijuana craving were yielded. In the current study, the 17-item version of this measure was used. Item responses were scored on a 7-point scale of 1 (strongly disagree) and 7 (strongly agree), and would record the immediate thinking and feeling toward marijuana use. This 17-item version has been shown to be measuring the same four latent constructs and has convergent validity as the 47-item version, therefore is as valid and reliable as the 47-item MCQ in measuring marijuana craving [10].

2.2.5. Marijuana Motives

The Marijuana Motive Measure (MMM) is a 25-item self-report measure assessing the following five marijuana use motives: enhancement, coping, social, conformity, and expansion. Participants needed to decide how frequently their own marijuana use was motivated by each of the reasons listed and rate from 1 (never or almost never) to 4 (almost always or always). MMM has demonstrated high reliability and concurrent validity after assessing the factor structure and internal consistency, so marijuana motives are useful constructs for understanding both marijuana use and consequences [11].

3. Results

In this sample, regarding substance use, 64.7% reported using cannabis other than marijuana, 64.7% reported using alcohol, 25% reported using cocaine, with 35.3% reporting daily use of one of the above substances, 14.7% reporting more than 3 days per week use, and 17.6% reporting weekly use.

Marijuana-using students reported an average score of 73.2 ($S.D. = 15.9$) on social anxiety measure, with 97.1% ($N = 33$) reporting scores higher than 36 (a score of 36 or higher means possible diagnosis for social anxiety). Regarding marijuana craving, participants reported an average score of 79.4 ($S.D. = 18.0$) when filling out the questionnaire.

Social anxiety level was positively related to marijuana craving, $R = 0.82$, $p < 0.001$. For the most part, higher social anxiety level was associated with greater marijuana craving. Specifically, social anxiety level was related to emotionality factor of marijuana craving, $R = 0.72$, $p < 0.001$. Regarding marijuana motives measure, participants reported an average score of 15.1 ($S.D. = 3.8$) on enhancement factor, 14.1 ($S.D. = 3.8$) on conformity factor, 14.6 ($S.D. = 3.9$) on expansion factor, 11.8 ($S.D. = 3.1$) on coping factor, and 14.9 ($S.D. = 3.9$) on social factor. Specifically, social anxiety level was related to conformity factor of marijuana use motive, $R = 0.61$, $p < 0.001$. Furthermore, the conformity factor of marijuana use motive was associated with marijuana craving, $R = 0.53$, $p < 0.001$. However, no statistically significant association between social factor of marijuana use motive and either social anxiety or marijuana craving was drawn.

4. Conclusion

This study is the first to examine the role of social anxiety level as a predictor for marijuana craving particularly in the case of Canadian college students. The results contribute to the understanding of the social anxiety-marijuana relationship in novel ways. First, this study is consistent with previous work suggesting that marijuana craving was associated with

marijuana use in college students, and data suggests on average, a great proportion of students who have the potential to be diagnosed with social anxiety have high-level marijuana craving [8]. Second, data from the present study shows a strong correlation between social anxiety and marijuana craving given that college students with higher social anxiety level tend to have higher craving for marijuana in spite of gender or nationality. Third, the present study extends prior study by pointing out the close correlation between the conformity factor of marijuana use motive and social anxiety and the conformity factor's association with marijuana craving.

The current study supports the purposed hypothesis that Canadian college students with elevated social anxiety would be at risk for experiencing marijuana cravings. The positive correlation between emotionality factor of marijuana craving and social anxiety level provided novel insights into the specificity of marijuana's role in coping with socially situations. In the MCQ, the questions targeting on emotionality focused on the relaxing effect of instant marijuana use, such as easing tension, anxiety, and restlessness, which could all be considered as symptoms of people when facing socially stressful situations such as parties, club activities, and public speech. This finding indicates that the main intention of marijuana craving is to reduce emotional stress, and reveals that social anxiety played a role in leading desire for marijuana use.

In addition to the relationship between social anxiety and marijuana craving, the conformity factor of marijuana use motive appeared to be distinctively linked with social anxiety level, compared to other motives. Conformity refers to the ability of an individual to navigate relationships and events within a framework of societal regulations [12]. In the MMM, the questions relate to conformity focused on the interactive part of people's life, such as fitting in a group activity, being approved by other marijuana users, and feeling less left out. Given the specific nature of social anxiety and college life, it is reasonable to regard marijuana use as an approach to conciliate the anxiousness from unable to fit into peer groups around, or serves as a symbol to demonstrate the matchup level with a certain group.

The present findings should be considered in light of three limitations that point to considerations for future research directions. First, the number of subjects and effective responses from questionnaires were moderate, and the future research may include a relatively large sample size to generalize the study. Though the distribution of the sample in this study was relatively fair which scattered across Canada, future research could be done to include more diverse nationality and Canadian colleges. Additionally, the current study does not investigate equal number of male participants as female, so the role of gender between marijuana use and social anxiety among Canada college students could be further investigated, as other research has suggested that social anxiety may be particularly related to marijuana-related behaviors among women [7]. Second, the sample is composed of undergraduates in Canada. Although this way of sampling is chosen specifically to target individuals who are particularly at risk for marijuana-related problems, future research is necessary to determine whether the observed relations generalize to other marijuana-using populations. Furthermore, the future research may consider the peculiarity of college students, since they are teenagers who experience the period of identity confusion and college life may be their

first time to emerge with diverse groups. Third, the present results all come from questionnaire responses which were then converted into quantitative data, so further study could extend case studies or design experimental environment to test more instant social anxiety level and marijuana craving. To be specific, the MCQ only investigates the instant feeling of participants for marijuana use, but the SIAS reflects an individual's general mental state, which represents that participants' craving for marijuana at that moment caused by social anxiety is not ensured. Therefore, designing experiments to intentionally create different social situations as explanatory variables and test for immediate desire for marijuana can help further consolidate the role of social anxiety as the predictor for marijuana craving.

Despite these limitations, broader future research direction could also stand from practical views. The trend that marijuana shops are moving into campus in Canada raises the problem of whether the physical convenience of getting access to marijuana may lead to college students' consumption on marijuana and higher possibility of developing substance use disorder. Furthermore, the present results point out the likelihood that students who purchase marijuana more often might higher stress level from social life; during teenage and early adulthood, individuals may experience identity crisis such as feeling confused about themselves and their position in the society. Thus, through utilizing this study, Canadian college and universities should attach much importance on students' mental health and enact specific policies to mitigate the situation of substance use. Further research of the mechanisms underlying why social anxiety serves as a predictor for subsequent marijuana-related problems could have important implications for the development of prevention and treatment programs for vulnerable individuals.

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