Risk Perception of Cannabis Use Among a Sample of Thai Cannabis Users

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Abstract

Amid the recent cannabis legalization in Thailand, this research captured and analyzed cannabis-related health risk perception among Thai cannabis users. This study used a cross-sectional design with 376 Thailand-based cannabis users recruited through an anonymous online survey from July to August 2022 using the SurveyMonkey application. Descriptive analysis and ordinary least squares regression analysis were performed to describe overall respondents' characteristics and to identify predictors of low cannabis health-risk perception. Out of 376 respondents, 24.2% perceived cannabis as *not risky* for health, 46% considered cannabis as *low risk*, 26.6% as *moderate risk*, 2.7% as *high risk*, and 0.5% as *most risky*. Perceived risk of using cannabis was lower among respondents who had a higher perceived benefit of using cannabis (β = -0.133), a lower education level (β = -0.342), were full-time employed (β = -0.271,) and used cannabis more than twenty days in the past month compared to their counterparts (β = -0.373). Our results suggest that using cannabis in any form and frequency is perceived as a no to low health risk consumption by Thai cannabis users, calling for additional prevention and cannabis health literacy efforts.

Keywords

Cannabis; cannabis legalization; perceived risk; Thailand; web survey

Introduction

Cannabis remains the most common illicit drug consumed worldwide (United Nations Office on Drugs and Crime [UNODC], 2023). Initiation and continuation of cannabis use, and drugs in general, result from the interplay of a set of risk and protective factors (Ajzen, 2001; Bandura, 1986). Among these factors, perceived risk or "the perceptions of negative effects of using drugs" (Danseco et al., 1999, p. 39) is one of the strongest predictors (Savonen et al., 2023). Several studies have highlighted the relationship existing between cannabis use and risk perceptions (Florimbio et al., 2024; Parker & Anthony, 2018). Low-risk perception regarding cannabis is linked to a higher chance of initiation and continuation (Danseco et al., 1999) and a higher likelihood of frequent cannabis usage (Florimbio et al., 2023), which can, in turn, lead to cannabis use disorder (CUD) heightening the chance of experiencing severe cannabis-related adverse effects (Di Forti et al., 2014; Gukasyan & Strain, 2020). Conversely, a higher perception of cannabis-related risk is associated with a lower chance of initiating cannabis and lower cannabis consumption (Johnston et al., 2005; Kilmer et al., 2007).

Although cannabis remains illicit in most countries, a growing number of nations have legalized or decriminalized the medical and/or recreational use of cannabis. The medical usage of cannabis has drawn considerable interest within the scientific community as it represents potential new ways to treat chronic pain (Haroutounian et al., 2016) or epilepsy (Reddy & Golub, 2016), among others. However, the legalization of cannabis can potentially lead to a decrease in the risk perception associated with cannabis.

In June 2022, Thailand became the first Southeast Asian country to legalize cannabis in a region known for its punitive stance regarding drug use (Tanguay, 2024). The legislation permits the retail and cultivation of cannabis for recreational and medical usage. Still, it forbids retailers to sell cannabis in any form to people below 20 years old and pregnant women. Additionally, cannabis concentrates, tinctures, and oils are allowed if their THC concentration remains below 0.2% (Minister of Public Health [Thailand], 2021). These recent changes have the potential to impact perceived risk linked to cannabis, which may influence Thais' decisions to use cannabis. Given these rapid changes and the importance of risk perception on health-related decisions, characterizing Thai cannabis users with a low perception of cannabis risk would allow the designing of relevant prevention messages to limit cannabis-related short- and long-term adverse effects.

There is a lack of research concerning cannabis use in Thailand. Based on the most recent report from the Thai Office of Narcotic Control Board (ONCB), approximately 1.4% of the Thai population had consumed cannabis within the past year. In comparison, 3.4% had used cannabis at least once in their lifetime (Kanato et al., 2019). The ONCB also noted a significant increase in the number of Thais who reported using cannabis in the past month (eleven times higher than in 2011), suggesting a growing acceptance of cannabis use among the general population (Kanato et al., 2019). More recent data indicates an increase from 2.2% to 4.2% between 2019 and 2021 in the prevalence of cannabis use in the annual surveys conducted by the Centre for Addiction Studies (Kalayasiri & Boonthae, 2023).

Moreover, several recent studies examining the impact of medical cannabis legalization in Thailand described an increased demand for medical cannabis combined with an increased positive attitude and willingness to consume medical cannabis in the future (Ngampoopun et al., 2022; Sukrueangkul, Phimha, et al., 2022). However, other studies observed an increase in

the number of hospitalizations following the authorization of medical cannabis (Ramathibodi Poison Center, 2022) and a general lack of awareness regarding the medicinal uses and benefits associated with cannabis use (Assanangkornchai et al., 2022). The findings from one study examining discussions on Thai-language Facebook groups about *kratom* [a psychoactive herbal remedy] and cannabis indicated that most Facebook users displayed a generally positive attitude towards cannabis, were less likely to consume it with other substances, and rarely discussed potential adverse health effects (Thaikla et al., 2018). To the best of the authors' knowledge, no research has investigated the risk perception related to cannabis among Thai users, and there is no existing data regarding the characteristics and practices of users with a low perception of cannabis-related risks.

The results of this research are based on an anonymous survey conducted on social media (Facebook and LINE messaging app) from July to August 2022. This manuscript has the following aims: a) to characterize the perception of health-related risks linked to cannabis use among Thai cannabis users and b) to identify the characteristics of cannabis users with lower risk perception concerning cannabis.

Method

Participants and recruitment

This study used a cross-sectional design with primary data. The web-based survey was created using SurveyMonkey, and data was collected from July to August 2022. SurveyMonkey is an Internet-based survey creation platform that utilizes cloud-based software. This platform provides free, customizable surveys and a range of paid backend services. No IP addresses were recorded to ensure anonymity. A research assistant reached out to the administrators of Line groups and Facebook pages focusing on cannabis usage and cultivation in the Thai Language. The administrators were asked for permission to post an invitation for the survey. Once the administrators agreed, a link to the SurveyMonkey survey and a recruitment message explaining the study's purpose and who was eligible to participate were shared.

Recruiting participants through cannabis-focused social media groups is more likely to attract individuals who consume cannabis more frequently and have a more extended history of cannabis usage compared to a random sample of cannabis users (Soussan & Kjellgren, 2016). While the collected answers were self-reported, a body of evidence supports the validity and reliability of self-reported responses about substance use behaviors (Adair et al., 1995; Johnson & Mott, 2001) as well as answers obtained via self-administered web-based surveys (Miller et al., 2009).

A participant information sheet and an online informed consent form were presented to the respondents, who agreed to participate once they clicked the survey link. Participants who reported 1) having consumed any form of cannabis in the past 30 days and 2) being at least 18 years of age were granted access to the rest of the survey.

Taking part in the survey was completely voluntary and anonymous, and participants were offered a monetary incentive of 200 THB (USD 5.6) upon completing the study. To facilitate payments, respondents were requested to provide a nickname. To ensure data quality and

discourage participants from giving false information solely for compensation, responses from individuals who completed the survey in less than 300 seconds were excluded from the analysis. The survey was approved by the Mahidol University Social Sciences Institutional Review Board (No.: 2020/238.1412).

Survey questions

The survey typically required 10 to 15 minutes to be completed. Questions aimed to collect information regarding the sociodemographic characteristics, history of drug use, history of cannabis use, and knowledge, attitudes, and behaviors of cannabis usage of participants. The sociodemographic characteristics comprised gender, age, employment status, and level of education.

The frequency of use was assessed through the question, "In the last 30 days, how many days have you used any form of cannabis?" Responses ranged continuously from 0 to 30 days. Methods of usage were determined by the question, "How do you use cannabis?" with response options including "Smoking joints," "Smoking bong/water pipe," "Vaping c-liquid/cannabis concentrates," "Orally/Ingested," and "Other." Additionally, cultivation practices were inquired about with the question, "Have you ever grown cannabis on your own?"

Questions regarding the perceived health benefits of using cannabis for various ailments (e.g., insomnia, epilepsy, depression) were assessed with the question, "Based on the information you have, how useful do you think cannabis is to treat or alleviate symptoms of [depression]?" The potential answers included "Not useful at all," "Slightly useful," "Moderately useful," "Very useful," "Most useful," and "Don't know/Don't want to answer." The responses to these items were combined to create a perceived benefit score ranging from 1 to 5. These scores corresponded to "Not useful at all" and "Most useful," respectively.

Variables and measurement

The perceived risk of consuming cannabis (the dependent variable) was measured as a continuous variable. Each respondent was asked to answer four questions regarding the perceived risk of consuming cannabis, which were 5-point Likert scale questions. The questions specifically were as follows:

1. Based on the information you have, to what extent does using cannabis products containing THC occasionally put your health at risk?

2. Based on the information you have, to what extent does using cannabis products containing THC daily put your health at risk?

3. Based on the information you have, to what extent does using CBD products occasionally put your health at risk?

4. Based on the information you have, to what extent does using CBD products daily put your health at risk?

We initially planned to subdivide and analyze the dependent variable by the type of cannabis product (e.g., THC vs. CBD) and the frequency of usage (e.g., occasionally vs. daily). Interestingly, the correlation coefficients among subdivided dependent variables were large, indicating no significant differences (or similarities) in the level of perceived risk of consuming cannabis across the type of cannabis product as well as the frequency of usage (Table 1). Based on this result, the numeric value selected by each respondent for each question was summed, and the summed score was then divided by four to estimate an average score. The score of the dependent variable ranged from one to five, and a higher score indicated a higher perceived risk of consuming cannabis.

Regarding independent variables, the perceived benefit of consuming cannabis was used as a continuous variable. Each respondent was asked to answer eight questions regarding the perceived benefit of consuming cannabis, which were 5-point Likert scale questions. Similar to the dependent variable, the numeric value selected by each respondent for each question was summed, and the summed score was then divided by eight to calculate an average score. The score ranged from one to five, and a higher score indicated a higher perceived benefit of consuming cannabis.

Table 1: Descriptive Statistics of Perceived Risk of Using Cannabis Products by Type and Frequency and Their Correlations

Variables	Mean	Std. Dev.	Median	Min	Max
1. Perceived risk of using products containing THC daily or occasionally	2.30	0.79	2.25	1	5
2. Perceived risk of using CBD product(s) daily or occasionally	2.45	0.95	2.50	1	5
3. Perceived risk of using THC or CBD daily	2.68	1.07	2.50	1	5
4. Perceived risk of using THC or CBD occasionally	2.06	0.71	2.00	1	5
Pearson's correlation analysis	1	2	3	4	
1. Perceived risk of using products containing THC	1.000	0.703*	0.848*	0.772*	
2. Perceived risk of using CBD product(s)		1.000	0.878*	0.796*	
3. Perceived risk of using THC or CBD daily			1.000	0.611*	
4. Perceived risk of using THC or CBD occasionally				1.000	
Spearman's correlation analysis	1	2	3	4	
1. Perceived risk of using products containing THC	1.000	0.702*	0.849*	0.752*	
2. Perceived risk of using CBD product(s)		1.000	0.877*	0.803*	
3. Perceived risk of using THC or CBD daily			1.000	0.620*	
4. Perceived risk of using THC or CBD occasionally				1.000	

*Note: *statistically significant at .05*

The age categories were 18–25, 26–35, 36–45, and above 45 years. Sex (male & others), employment (full-time employed & others), and had ever grown cannabis (yes & no) were measured as binary variables. The education categories were low (below upper secondary level of education), middle (upper secondary level of education), and high (college level of education or above). The frequency of cannabis use was measured as a categorical variable with three levels: 1–10, 11–20, and above 20 days during the past 30 days. Lastly, three

methods of usage (smoking joints, vaping\electric cigarette, and smoking bong/waterpipe) were measured as binary variables: Yes and No.

Statistical analysis

Descriptive statistical analysis was performed to encapsulate the study sample and variables. In the analysis, the bivariate association between the dependent variable (i.e., perceived risk of consuming cannabis) and independent variables were examined by a t-test and an analysis of variance.

In addition, because the dependent variable was continuous, an ordinary least squares (OLS) method was conducted to investigate the multivariate associations. We assessed assumptions of the OLS model, especially multicollinearity and normality of residuals. Multicollinearity was evaluated by three statistical indicators: correlation, variance inflation factor, and tolerance. All three indicators did not show multicollinearity to be a problem. Specifically, correlation coefficients among the independent variables were modest, ranging from 0.05 to 0.38. Variance inflation factor (ranging from 1.22 to 2.50) and tolerance (ranging from 0.40 to 0.86) in the OLS model were lower than 5 and higher than 0.2, respectively (Chatterjee & Simonoff, 2013).

For the normality of residuals, we inspected the distribution of residuals of the OLS model and found no substantial violation of the assumption of normality of residuals (Pallant, 2020). All statistical analyses were conducted using IBM SPSS Statistics 20.

Results

A total of 751 potential respondents agreed to participate in the survey and were subsequently directed to the eligibility questions. Of these, 615 respondents met the eligibility criteria. Additionally, the following exclusion criteria were applied:

- Seventy-nine participants were excluded for completing the survey in less than 300 seconds.
- Fifty-seven participants were excluded because they were under 18 years old, reported no cannabis use in the past 30 days in the frequency of use section, or stated an initiation age that exceeded their actual age in the socio-demographic questions.
- One hundred three respondents were excluded due to unidentified or missing answers to any questions in the survey.

After applying these additional exclusion criteria, 376 respondents were included in the final analysis.

Results of descriptive statistical analysis

The results of the descriptive statistical analysis are shown in Table 2. The average score of perceived risk of consuming cannabis was 2.37 (SD = 0.80), indicating that the respondents

considered cannabis as a low to moderately risky substance to consume. The average score of perceived benefit was 3.23 (*SD* = 0.76). Approximately 72% of participants considered cannabis as moderately to most beneficial to treat and/or alleviate health ailments.

The majority of the respondents were male (61.7%), employed full-time (66.2%), and had upper secondary school level of education or above (84.3%). The average age of all respondents was 32.01 years (*SD* = 10.63), of which approximately 68% were aged 35 years or below. Regarding the frequency of cannabis use in the past 30 days, 69.1% of all respondents reported using cannabis ten times or less in the past 30 days. Out of all respondents, 63% have ever grown cannabis. Smoking "joints" was the most frequent method of cannabis usage (56.1%), followed by "vaping" (29.5%) and "smoking bong/water pipe" (12.2%).

Table 2: Results of Descriptive Statistical Analysis (*n* = 376)

Variables	*M*	*SD*	Min	Max	Freq	%
Dependent Variable						
Perceived risk	2.37	0.80	1	5		
Not risky at all					91	24.21
Low risk					173	46.01
Moderate risk					100	26.59
High risk					10	2.66
Most risky					2	0.53
Independent Variables						
Perceived benefit	3.23	0.76	1	5		
No useful at all					15	3.99
Slightly useful					90	23.94
Moderately useful					202	53.72
Very useful					61	16.22
Most useful					8	2.13
Age	32.01	10.63	18	70		
18–25 years					133	35.37
26–35 years					123	32.71
36–45 years					63	16.76
Above 45 years					57	15.16
Sex						
Male					232	61.7
Others					144	38.3
Education						
Below upper secondary school					59	15.69
Upper secondary school					150	39.89
College or above					167	44.41
Employment						
Full-time employed					249	66.22
Others					127	33.78
Ever grow						
Yes					237	63.03
No					139	36.97
Frequency of using cannabis in the past 30 days	9.36	7.37	1	30		
1–10 times					260	69.15

Variables	*M*	*SD*	Min	Max	Freq	%
11–20 times					84	22.34
Above 20 times					32	8.51
Smoking joints						
Yes					211	56.12
Others					165	43.88
Vaping/electric cigarettes						
Yes					46	12.23
Others					330	87.77
Smoking bongs/waterpipe						
Yes					111	29.52
Others					265	70.48

Note: M = mean; SD = standard deviation; Min = minimum; Max = maximum; Freq = frequency.

Results from the Bivariate association analysis

Overall patterns indicated that respondents who had a high perceived benefit, low education level, older by age, male, employed full-time, have ever grown cannabis, had a high frequency of use of cannabis in the past 30 days, and consumed cannabis by smoking "joints" had a lower perceived risk of consuming cannabis than their counterparts (Table 3). Noteworthy, younger respondents had a higher perceived risk of consuming cannabis than older respondents: the average scores of respondents aged 18–25, 26–35, 36–45, and above 45 years were 2.50, 2.41, 2.32, and 2.05, respectively.

Male respondents reported a lower score of perceived risk (2.27) compared to others (2.53), and respondents with lower education levels had a lower score of perceived risk than those with higher education. The average score for respondents below the upper secondary school level of education was 2.08. Meanwhile, the average scores for those with upper secondary school level and college level of education or above were 2.35 and 2.50, respectively.

Respondents who have grown cannabis had a lower score of perceived risk (2.26) compared to those who have not (2.57). In terms of the frequency of cannabis use in the past 30 days, the average perceived risk scores were 2.42, 2.37, and 1.96 for those who used cannabis ten times or less, between 11 and 20 times, and more than 20 times, respectively. Respondents who used cannabis by smoking "joints" had a lower score of perceived risk (2.29) than others (2.47). However, the other methods ("vaping c-liquid/cannabis concentrates" and "smoking bong/waterpipe") were not significantly related to the perceived risk of consuming cannabis.

Table 3: Results of Bivariate Association by T-test or Analysis of Variance (n = 376)

Variables	*Mean*	*SD*	*p* value
Perceived benefit			.007*
No useful at all	2.55	0.83	
Slightly useful	2.40	0.83	
Moderately useful	2.44	0.73	
Very useful	2.16	0.97	
Most useful	1.59	0.42	
Age			.005*
18–25 years	2.50	0.83	

Variables	*Mean*	*SD*	*p* value
26–35 years	2.41	0.80	
36–45 years	2.32	0.78	
Above 45 years	2.05	0.68	
Sex			.002*
Male	2.27	0.80	
Others	2.53	0.78	
Education			.002*
Below upper secondary school	2.08	0.61	
Upper secondary school	2.35	0.78	
College or above	2.50	0.86	
Employment			< .001*
Full-time employed	2.26	0.75	
Others	2.60	0.86	
Ever grow			< .001*
Yes	2.26	0.75	
No	2.57	0.85	
Frequency of using cannabis in the past 30 days			.009*
1–10 day(s)	2.42	0.81	
11–20 days	2.37	0.73	
Above 20 days	1.96	0.82	
Smoking joints			.037*
Yes	2.29	0.71	
Others	2.47	0.91	
Vaping/electric cigarettes			.270
Yes	2.49	0.76	
Others	2.35	0.81	
Smoking bong/waterpipe			.440
Yes	2.32	0.83	
Others	2.39	0.79	

*Note: *statistically significant at .05; SD = standard deviation.*

Results of Ordinary Least Squares method

A significant relationship was observed in five variables: perceived benefit of consuming cannabis, sex, education level, employment status, and frequency of use of cannabis in the past 30 days (Table 4).

Specifically, perceived benefit was negatively related to perceived risk with a coefficient estimate of -0.133 (β = -0.133), indicating that respondents with a higher perceived benefit had a significantly lower perceived risk. Additionally, male respondents and those employed full-time were more likely to have a lower perceived risk of consuming cannabis than their counterparts. Education level showed a partial relationship with the perceived risk of consuming cannabis. Respondents with an education level below upper secondary school had a lower perceived risk. However, there was no significant difference in perceived risk between those with upper secondary education and those with a college education or higher. The frequency of cannabis use in the past 30 days was positively associated with perceived risk, indicating that respondents who smoked less frequently in the past 30 days (1–10 times and

11–20 times) perceived higher risk of consuming cannabis, with coefficient estimates of 0.38 and 0.37, respectively.

In sum, the OLS model results supported the descriptive findings, indicating that the perceived risk of consuming cannabis was significantly lower among respondents who had a higher perceived benefit, had a lower education level, were male, employed full-time, and smoked more frequently in the past 30 days, compared to their counterparts. The results also suggested that older respondents, those who had grown cannabis, and those who consumed cannabis by smoking "joints" also had a lower perceived risk, aligning with the descriptive results. However, these patterns were not statistically significant.

Table 4: Results of Multivariate Association by Ordinary Least Squares Method

Variables	**β**	**SE**	***p* value**
Perceived benefit of consuming cannabis	-0.133	0.057	.020*
Age			
18–25 years	0.138	0.149	.356
26–35 years	0.156	0.132	.238
36–45 years	0.165	0.143	.250
Above 45 years			
Sex			
Male	-0.199	0.089	.026*
Others			
Education			
Below upper secondary school	-0.342	0.131	.010*
Upper secondary school	-0.086	0.090	.336
College or above			
Employment			
Full-time employed	-0.271	0.098	.006*
Others			
Frequency of use of cannabis in the past 30 days			
1–10 day(s)	0.378	0.152	.013*
11–20 days	0.369	0.163	.024*
Above 20 days			
Ever grow			
Yes	-0.110	0.092	.232
No			
Practice			
Smoking joints	-0.077	0.085	.366
Others			
Vaping/electric cigarettes	0.098	0.123	.424
Others			
Smoking bong/waterpipe	-0.018	0.105	.864
Others			
Intercept	2.825	0.287	< .001*
F-value (*p* value)	4.45 (< .001*)		
R-square value	0.147		

*Note: * = statistically significant at .05; β = coefficient estimates; SE = standard error.*

Discussion

The present study provides insights into the perception of Thai cannabis users regarding cannabis-related health risks amid its recent legalization in Thailand. Overall, the results of this online survey indicated that our respondents perceived cannabis as less than moderately risky for their health: 70.2% of the survey respondents considered cannabis in general as a not risky or low-risk substance to be consumed. This large percentage could be partially explained by the prior legalization of medical cannabis in 2019. Several studies have underscored the impact of such legislation on risk perception: for example, in the United States, where medical cannabis was allowed, cannabis use and adolescent cannabis usage were associated with a low-risk perception of the potentially harmful effects linked to cannabis (Wall et al., 2011). Furthermore, Chiu et al. (2022) described the links between a shift toward a more positive attitude, policy changes, and decreased perceived risk regarding cannabis. However, Gilman et al. (2022) found no significant impact of recreational cannabis legalization on risk perception of cannabis. To the best of our knowledge, there was no study before the legalization of cannabis in Thailand that focused on the perception of cannabis-related health risks among cannabis users. Therefore, it is difficult to assess the impact of the recent Thai legalization of medical and recreational cannabis on risk perceptions as of now. Future longitudinal research should determine potential changes in cannabis-related risk perception not only among Thai cannabis users but also in the general population.

In addition, cannabis has been used as a traditional medical remedy and as an ingredient for culinary recipes in Thailand, which could also be a contributing factor to this low-risk perception, especially among the older age groups (Areerat, 2021). However, strains of cannabis with high THC content, as well as marijuana concentrates and edibles, are sold online to Thai users at the moment of writing (for example, see Organic Village, 2024). These cannabis strains and types of cannabis products differ from the natural marijuana customary used in Thai traditional medicine: marijuana concentrates, also called dabs, wax, or shatter, are potent forms of cannabis displaying high THC—on average 52 to 69%, but could be as high as 90–95% concentration (Bidwell et al., 2018)—compared to the average 10–15% THC characterizing non-hybridized marijuana strains. Such a high level of THC drastically increases the chances of paranoia, psychotic disorders, and cannabis use disorder (Alzghari et al., 2017; Bidwell et al., 2021).

Moreover, our analysis indicated that cannabis products containing either CBD or THC were perceived as relatively equal in terms of health risks. This result suggests that Thai cannabis users are not necessarily aware of the existing differences in terms of therapeutic and adverse effects that these two psychoactive molecules can generate. Although cannabis products containing therapeutic doses of THC are used to treat several health issues, the frequent consumption of cannabis products with non-therapeutic doses of THC can lead to various short- and long-term deleterious health effects, including increased risk of pedestrian or motor accidents (Hartman & Huestis, 2013; McCartney et al., 2021); depression and anxiety (Gobbi et al., 2019); and, cannabis hyperemesis syndrome (CHS) (Lathrop et al., 2023: Soriano-Co et al., 2020). This calls for increased prevention and education measures in Thailand to elicit a better understanding of the differences between the effects of CBD versus THC.

In the same vein, the lack of apparent distinction in terms of health-related risk between occasional and daily cannabis use is of concern: research has consistently proven that near-daily/daily consumption of cannabis has short- and long-term harmful effects. Frequent use

of cannabis has been linked to changes in the structure of the brain (Pierre, 2017; Wang et al., 2021), an increased likelihood of psychosis (Di Forti et al., 2019; Pardo et al., 2021), anxiety disorder (Crippa et al., 2009), vehicle accidents due to driving impairment (McCartney et al., 2021) and increased chance of developing cannabis use disorder (Callaghan et al., 2020; Grant & Pickering, 1998).

Our analysis also indicated that higher perceived health benefits were associated with lower health risk perception. According to Kalayasiri and Boonthae (2023), a portion of the Thai population considers that cannabis can be a cure for cancer in humans and has no addictive properties. These perceived benefits, even if inexact, have most likely contributed to lowering the perceived risk of cannabis consumption within the Thai population.

Overall, in a context where the rates of cannabis use and cannabis use disorder have increased in the past few years, informing and educating Thai cannabis users about the health risks inherent in the consumption of cannabis is timely and of public health importance (Kalayasiri & Boonthae, 2023). More research is needed to understand the factors contributing to the overall low-risk perception among cannabis users. Future research could establish the sources of information (e.g., social media, newspapers, scientific articles) that Thai cannabis users with low cannabis-related perceived risk have used or have been exposed to obtain their knowledge about cannabis. Results from such investigation could help design prevention messages targeting permissive cannabis-related beliefs and attitudes through adequate media, which, in turn, can reduce the risk of cannabis initiation and frequent/heavier cannabis usage.

This study has several limitations. First, the survey was limited to persons above 18 years old and was not accessible to young adolescents who are more at risk of initiating cannabis. Second, social media-based surveys can also introduce a participant recruitment bias depending on the social media global outreach. Third, respondents were recruited from social media groups dedicated to cannabis consumption and cultivation discussion. This implies that respondents were more likely to participate in our survey compared to other cannabis users who are not openly discussing cannabis online. Fourth, this study did not differentiate users who consumed cannabis as an official treatment from recreational users. Fifth, the questions regarding health risk perception were part of a broader study aiming at surveying the practices, beliefs, and attitudes of Thai cannabis users a few months after its legalization. A dedicated research focusing on cannabis risk perception with detailed questions about perceived health risks linked to different cannabis products (e.g., concentrates, edibles, marijuana) and more specific adverse effects (e.g., vehicle accident, psychosis, dependence) would help to identify the adverse cannabis-induced impact that Thai cannabis users misevaluate. Identifying such misconceptions will allow the designing of targeted health communications supported by scientific evidence to increase the awareness of Thai cannabis users on potential health risks linked to cannabis usage.

Conclusion

The majority of the Thai cannabis users who have participated in our survey do not perceive cannabis as a potential health risk. Our analysis also indicates that using cannabidiol (CBD) or 9-delta-tetrahydrocannabinol (THC)-based products and occasional or daily use were not perceived as significantly different in terms of health risks. Considering our findings and the emergence of potent forms of cannabis in the Thai market, developing prevention messages

about the health risks linked to cannabis use and broadcasting these messages on the relevant media is crucial.

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