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# Exploring Cannabis Knowledge and Attitudes among Mental Health Clinic Outpatients: Implications for Education and Intervention Strategies

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**Background:** This study explores attitudes and knowledge regarding cannabis legalization and potential harm among psychiatric outpatients at Thammasat University Hospital. It explores opinions regarding cannabis legalization and assesses knowledge regarding the adverse effects of cannabis on mental health, focusing on patient awareness of associated risks.

**Objective:** To investigate the views, attitudes, knowledge, and understanding of possible adverse effects of cannabis and risk factors among psychiatric patients.

**Materials and Methods:** A cross-sectional research design was used, targeting patients aged 15 years or older who attended the mental health clinic between May 31 and October 31, 2023. Purposive sampling was used to select patients diagnosed with primary psychiatric disorders under ICD-10 codes F20-F29, F30-F31, F32-F34, F40-F41, and F43. Four hundred twenty-three patients were surveyed using validated questionnaires, including the Burapha University questionnaire and the WHO-Smoking and Substance Involvement Screening Test for Cannabis V3.

**Results:** Of the 423 patients, 59.1% were women, 75.95% were single, 80.6% were Buddhist, and 50.15% earned less than 15,000 Baht monthly. Depressive disorders were diagnosed in 49.1% of the patients, 14.2% had a history of cannabis use, 5.2% were current users, and 79.3% of users were at intermediate risk of addiction. Notably, 82% had insufficient understanding of cannabis, while 18% had fair knowledge. Influential factors included age, occupation, and history of cannabis use. Perceptions of cannabis were fair. Those with higher incomes and those who had used cannabis had more positive perceptions of medical cannabis.

**Conclusion:** These findings highlight the need for tailored education and intervention strategies to address knowledge gaps and potential harm associated with cannabis use in this vulnerable population.

**Keywords:** Cannabis; Knowledge; Attitude; Legalization; Mental health

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Since the removal of cannabis from the Class 5 offensive drug list on June 9, 2022, cannabis-related problems have increased significantly in Thailand. Marketing cannabis, supporting its therapeutic use, and campaigning for unrestricted use of cannabis have all aggravated these problems. In Thailand, licensed dispensaries are permitted to sell cannabis for recreational use, allowing sales to consumers without the need for a medical prescription. Cannabis is currently approved as an alternative treatment only for the following medical conditions: patients undergoing chemotherapy who are experiencing severe nausea and vomiting, patients with drug-resistant epilepsy or intractable epilepsy, patients suffering from multiple sclerosis or experiencing muscle spasms, patients with neuropathic pain, patients undergoing palliative care, patients with AIDS who are underweight, and anorexic patients[(1)].

Nevertheless, a lot of patients have used cannabis for ailments other than those for which it is prescribed. For instance, a lot of people have used cannabis to alleviate sleeplessness, sadness, pain, or anxiety without a doctor's prescription in certain countries such as Canada[(2)].

Research has been conducted to determine if the general public and vulnerable groups, including children, adolescents, pregnant women, and nursing mothers, understand sufficiently the risks associated with cannabis use, but results are inconclusive.

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While some vulnerable groups, namely children and pregnant or lactating mothers, are protected by law, other vulnerable groups, such as mental health patients, are not covered by this legislation.

Studies have connected cannabis use to the onset of various mental symptoms or to the aggravation of psychiatric symptoms, particularly schizophrenia[3], anxiety, and drug use disorders[4]. It is important to know what psychiatric patients understand about cannabis, but no research has been conducted in Thailand on patients' awareness and views of this drug.

Prior studies that gathered information from college students found that students in the Faculty of Social Sciences knew less about cannabis than those in the Faculty of Health Sciences[5].

In addition, a meta-analysis found that most people who use medicinal cannabis use it instead of traditional pharmaceuticals for self-treatment of depression or anxiety, but there is insufficient evidence to support medical cannabis use over conventional therapy. Most evidence supporting the advantages of medical cannabis is from observational studies or randomized controlled trials[6].

Cannabis could aggravate the conditions of patients who fail to understand the risks and benefits involved. Therefore, the authors are investigating what psychiatric patients know and think about cannabis and their views regarding legalization. Findings from the study may be used to plan relevant services and advice, particularly for vulnerable patients.

## Materials and Methods

### Study design

This cross-sectional design study was conducted between May 31 and October 31, 2023, at the Psychiatric Outpatient Department of Thammasat University Hospital. The protocol of the study was approved by the Human Ethics Committee of Thammasat University (protocol number MTU-EC-PS-0-044/66). The main objective of the study was to explore the views and attitudes toward cannabis among psychiatric outpatients, as well as to assess their general knowledge and understanding of its potential adverse effects.

### Participants

Psychiatric patients with the following criteria were recruited from the Psychiatric Outpatient Department of Thammasat University Hospital: 1) diagnosed by a psychiatrist with a major psychiatric disorder classified according to the International Classification of Diseases, Tenth Revision (ICD-10) codes F20-F29, F30-F31, F32-F34, F40-F41, and F43, 2) at least 15 years old, 3) able to read and comprehend Thai well enough to complete the survey, and 4) having voluntarily consented to participate in the study.

The main exclusion criteria were a serious physical condition such as unstable vital signs, extreme infirmity or serious sickness, current severe mental symptoms, fear, or a refusal to comply, suicidal acts or intention to harm others, psychosis that significantly impairs cognitive function, severe hearing loss impairing communication, or impaired IQ.

### Sample size and sampling method

Four hundred twenty-three psychiatric outpatients aged at least 15 years old at the Mental Health Clinic of Thammasat University Hospital were surveyed between May 31 and October 31, 2023. The sample size was calculated using the formula for estimating proportions in an infinite population. A 95% confidence level (Z=1.96) was applied, with the population proportion set at 0.5 to account for maximum variability in the absence of prior prevalence data. A margin of error of 0.05 was used, resulting in a minimum required sample size of 384 participants. To account for potential non-response and incomplete data, an additional 10% was added, yielding a final target sample size of 423 participants.

To ensure representation, purposive sampling was used, specifically targeting patients diagnosed with primary psychiatric disorders under ICD-10 codes F20-F29, F30-F31, F32-F34, F40-F41, and F43. This approach aimed to capture a diverse range of psychiatric conditions within the outpatient population for a comprehensive understanding of cannabis attitudes and knowledge among this demographic.

### Measurement

The questionnaire was based on the following three surveys. 1) The Burapha University cannabis questionnaire used the Cronbach's alpha coefficient formula with an alpha coefficient of 0.70[7] to survey university students. After obtaining the owner's consent, the authors modified the Burapha questionnaire to make it more appropriate for psychiatric patients. The questionnaire consisted of two main sections. The first section assessed participants' knowledge of cannabis, including

indications for use, adverse effects, medical cannabis use in Thailand, and cannabis-related laws in Thailand. The second section evaluated key opinions and viewpoints regarding cannabis, including general attitudes toward cannabis, perceptions of medical cannabis, and views on recreational cannabis use. 2) The authors translated the Attitudes on Marijuana Survey: Young Adults Ages 18 to 25 in the New York Area who Attend College questionnaire into Thai. It aimed to assess perspectives, attitudes, and understanding of cannabis and cannabis laws. 3) The authors modified the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST) V3.1 to screen specifically for cannabis.

### Statistical analysis

For the knowledge section, the attitude section, and the sociodemographic characteristics section, descriptive statistics were computed and expressed as frequencies, mean values, and standard deviations. Linear regression was utilized to calculate the correlation between knowledge scores, attitudes, and socio-demographic characteristics. The Pearson correlation coefficient was used to assess the association between cannabis knowledge scores and respondents' attitudes regarding cannabis in general, medicinal cannabis, and cannabis law. Data analysis was done using IBM SPSS Statistics, version 28.0.1.1 (IBM Corp., Armonk, NY, USA). The level of significance was defined as $\alpha=0.05$.

## Results

Four hundred twenty-three psychiatric patients at the outpatient psychiatry department of Thammasat University Hospital were included. Of all the patients, 250 (59.1%) were women. The mean age of the population was 32.62 years (SD 13.319). Most of the patients were single (75.95%), and most were Buddhist (80.6%). Students comprised 34%. Monthly incomes of 50.15% were less than 15,000 Baht.

Depressive disorders, including major depressive disorder, persistent depressive disorder, and alcohol-induced mood disorder, were the most common psychiatric diagnoses, affecting 49.1% of the population. Psychiatric diagnoses were divided into three groups: 1) psychotic disorders including schizophrenia, schizoaffective disorder, delusional disorder, and amphetamine induced psychosis, 2) mood disorders including major depressive disorder (MDD), persistent depressive disorder, alcohol induced mood disorder, bipolar disorder, and cyclothymia, and 3) other psychiatric disorders including generalized anxiety disorder (GAD), panic disorder, anxiety disorder not otherwise specified (NOS), mixed anxiety and depression, social anxiety disorder, adjustment disorder, post-traumatic stress disorder (PTSD), obsessive-compulsive disorder (OCD), somatoform disorder, illness anxiety disorder, and trichotillomania.

Active cannabis use was reported by 22 patients (5.2%), while 60 (14.2%) acknowledged cannabis use at some point in their lives (Table 1). Among those with a cannabis use history, 79.3% were at intermediate risk of addiction according to the ASSIST questionnaire. None were found to be at high risk for cannabis addiction. Half of the patients who reported lifetime cannabis use (53.6%) indicated that their use was for medicinal purposes. However, only 20% of these participants reported that cannabis was prescribed by a health professional, whereas the remaining 80% used cannabis on a self-prescribed basis to treat their own ailments.

### Cannabis knowledge

Among the total population, 82% had insufficient understanding of cannabis, while 18% had fair knowledge. None had good knowledge. Individuals with a history of cannabis use exhibited a more neutral attitude [mean score of 2.753 (SD 0.824)] compared to non-users, who held a negative attitude [mean score of 2.2698 (SD 0.61788)].

### Factors affecting knowledge regarding cannabis (Table 2)

- Age: There was a negative correlation between cannabis knowledge and age, with older individuals performing worse on knowledge assessments ($p<0.001$). The average age of current cannabis users was 33 years (SD 13.86).
- Occupation: General contractors exhibited less knowledge than other occupational groups ($p=0.019$).
- History of cannabis use: Individuals with a history of cannabis use scored higher on knowledge assessments than those who had never used it ($p=0.04$).
- Other factors: No significant associations were found between cannabis knowledge and gender, marital status, education level, income, religion, history of alcohol or smoking, or psychiatric diagnosis.

### Attitudes towards cannabis

Both groups (users and non-users) exhibited fair

**Table 1.** Demographic data

| Demographic data | |
|---|---|
| Gender; n (%) | |
| Male | 121 (28.60) |
| Female | 250 (59.10) |
| LGBTQ+ | 52 (12.30) |
| Age (years); mean [SD] | 32.62 [13.30] |
| Marital status; n (%) | |
| Single | 321 (75.90) |
| Married | 82 (19.40) |
| Divorce | 20 (4.70) |
| Educational level; n (%) | |
| Lower than Bachelor's degree | 189 (44.68) |
| Bachelor's degree or higher | 234 (55.32) |
| Religion; n (%) | |
| Buddhist | 341 (80.60) |
| Non-Buddhist | 82 (19.40) |
| Occupation; n (%) | |
| Student | 144 (34.00) |
| Business owner | 34 (8.00) |
| Government officer/state enterprise employee | 68 (16.10) |
| Self employed | 23 (5.40) |
| Private employee | 63 (14.90) |
| Unemployed | 48 (11.30) |
| Other | 43 (10.20) |
| Income; n (%) | |
| <15,000 Baht per month | 212 (50.10) |
| 15,000-30,000 Baht per month | 135 (31.90) |
| 30,001-50,000 Baht per month | 57 (13.50) |
| >50,000 Baht per month | 19 (4.50) |
| History of cannabis use; n (%) | |
| Never used cannabis | 341 (80.60) |
| History of using cannabis | 60 (14.20) |
| Currently using cannabis | 22 (5.20) |
| Method of cannabis use; n (%) | |
| Smoke | 38 (46.30) |
| Consumption | 13 (15.90) |
| Smoke and consumption | 4 (4.90) |
| Others | 1 (1.20) |
| Missing data | 26 (31.70) |
| Primary psychiatric diagnosis; n (%) | |
| Psychotic disorders | 51 (12.05) |
| Mood disorders | 265 (62.65) |
| Other psychiatric diagnoses | 107 (25.30) |

SD=standard deviation

**Table 2.** Linear regression on factors affecting knowledge about cannabis

| Factors affecting knowledge about cannabis | Coefficient standard | 95% CI | | p-value |
|---|---|---|---|---|
| | | Lower | Upper | |
| Gender | | | | |
| Male | Ref. | Ref. | Ref. | Ref. |
| Female | –0.36 | –1.25 | 0.52 | 0.32 |
| LGBTQ+ | 0.24 | –1.09 | 1.58 | 0.72 |
| Marital status | | | | |
| Single | Ref. | Ref. | Ref. | Ref. |
| Married | 0.61 | –0.61 | 1.84 | 0.32 |
| Age | –0.14 | –0.19 | -0.09 | 0.00 |
| Income (per month) | | | | |
| <15,000 Baht | Ref. | Ref. | Ref. | Ref. |
| 15,001-30,000 Baht | –0.16 | –1.18 | 0.86 | 0.75 |
| 30,001-50,000 Baht | 0.58 | –0.91 | 2.09 | 0.44 |
| >50,000 Baht | 1.30 | –0.80 | 3.40 | 0.22 |
| Education level | | | | |
| Lower than bachelor's degree | Ref. | Ref. | Ref. | Ref. |
| Bachelor's degree or higher | 0.73 | –0.15 | 1.62 | 0.10 |
| Religion | | | | |
| Buddhist | Ref. | Ref. | Ref. | Ref. |
| Non-Buddhist | 0.40 | –0.59 | 1.39 | 0.42 |
| Occupation | | | | |
| Student | Ref. | Ref. | Ref. | Ref. |
| Trade sector | –0.24 | –1.87 | 1.38 | 0.76 |
| Public servant/Government employee | –0.17 | –1.72 | 1.37 | 0.82 |
| General contractor | –2.19 | –4.02 | –0.36 | 0.01 |
| Private employee | 0.80 | –0.60 | 2.21 | 0.26 |
| Unemployed | –0.46 | –2.01 | 1.09 | 0.55 |
| Others | –0.22 | –1.86 | 1.40 | 0.78 |
| History of cannabis use | | | | |
| Have never used cannabis | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using cannabis | 1.07 | 0.04 | 2.09 | 0.04 |
| History of alcohol use | | | | |
| Have never used alcohol | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using alcohol | 0.24 | –0.68 | 1.16 | 0.60 |
| History of smoking | | | | |
| Have never smoked | Ref. | Ref. | Ref. | Ref. |
| Have ever smoked or currently smoking | –0.09 | –1.08 | 0.89 | 0.85 |
| Psychiatric diagnosis | | | | |
| Psychotic disorders | Ref. | Ref. | Ref. | Ref. |
| Mood disorders | –0.23 | –1.55 | 1.09 | 0.73 |
| Other psychiatric diagnosis | 0.51 | –0.89 | 1.92 | 0.47 |

CI=confidence interval

attitudes towards medical cannabis use, legalization, and recreational use. Among cannabis users, the mean score for attitudes towards medical use was 3.086 (SD 0.39), and for laws and recreational use, it was 3.5695 (SD 0.519). Non-users had mean scores of 2.92 (SD 0.435) for medical use and 3.26 (SD 0.578) for laws and recreational use. An average score of 1.00 to 2.33 indicated a negative attitude towards cannabis, 2.34 to 3.67 indicated a neutral attitude,

and 3.68 to 5.00 indicated a positive attitude towards cannabis.

### General views and understanding of cannabis (Table 3)

Women had more negative attitudes towards cannabis in general compared to men (p=0.008). Individuals with a history of cannabis use had more positive attitudes than those who never used cannabis. Additionally, those with a history of alcohol use had more negative attitudes towards cannabis than those without.

### Views and attitudes on indications for medical use of cannabis (Table 4)

Negative attitudes towards medicinal cannabis use were more prevalent among women and LGBTQ+ individuals, with p-values of 0.018 and 0.005, respectively. Tradespeople also held more negative views compared to other occupational groups (p=0.005). In contrast, individuals with monthly incomes between 30,001 and 50,000 Baht had the most positive attitudes towards medicinal use of cannabis (p=0.032). Cannabis users also had positive attitudes towards its medical use (p=0.03).

### Views and opinions on cannabis laws and recreational use (Table 5)

There were no statistically significant associations between any demographic or background variables and attitudes towards cannabis laws and recreational use.

### Correlation between cannabis knowledge and attitude towards cannabis in general (Table 6)

General perceptions of cannabis and cannabis knowledge were shown to be negatively correlated. In other words, those with more cannabis knowledge had more negative overall attitudes towards cannabis (p<0.001). Conversely, those with more knowledge had more positive attitudes towards medicinal cannabis (p=0.021). There was no discernible relationship between opinions on medicinal cannabis and cannabis expertise. (p=0.161).

## Discussion

This study sheds light on significant issues regarding the expanding acceptance and use of cannabis, particularly among psychiatric patients in Thailand. To the authors' knowledge, this is the first study within Thailand's psychiatric community to examine attitudes and knowledge about cannabis.

**Table 3.** Linear regression on factors affecting general views and attitude toward cannabis

| Factors affecting general views and attitude toward cannabis | Coefficient standard | 95% CI | | p-value |
|---|---|---|---|---|
| | | Lower | Upper | |
| Gender | | | | |
| Male | Ref. | Ref. | Ref. | Ref. |
| Female | −0.208 | −0.361 | −0.055 | 0.008 |
| LGBTQ+ | −0.155 | −0.385 | 0.073 | 0.182 |
| Marital status | | | | |
| Single | Ref. | Ref. | Ref. | Ref. |
| Married | 0.044 | −0.166 | 0.255 | 0.678 |
| Age | 0.004 | −0.003 | 0.012 | 0.282 |
| Income (per month) | | | | |
| <15,000 Baht | Ref. | Ref. | Ref. | Ref. |
| 15,001-30,000 Baht | 0.149 | −0.026 | 0.325 | 0.095 |
| 30,001-50,000 Baht | 0.099 | −0.158 | 0.356 | 0.450 |
| >50,000 Baht | 0.038 | −0.321 | 0.398 | 0.834 |
| Education level | | | | |
| Lower than bachelor's degree | Ref. | Ref. | Ref. | Ref. |
| Bachelor's degree or higher | −0.086 | −0.239 | 0.065 | 0.265 |
| Religion | | | | |
| Buddhist | Ref. | Ref. | Ref. | Ref. |
| Non-Buddhist | −0.013 | −0.184 | 0.157 | 0.878 |
| Occupation | | | | |
| Student | Ref. | Ref. | Ref. | Ref. |
| Trade sector | 0.0003 | −0.279 | 0.280 | 0.998 |
| Public servant/Government employee | −0.109 | −0.374 | 0.155 | 0.417 |
| General contractor | 0.112 | −0.200 | 0.426 | 0.480 |
| Private employee | 0.023 | −0.218 | 0.264 | 0.850 |
| Unemployed | 0.098 | −0.168 | 0.364 | 0.469 |
| Others | −0.071 | −0.352 | 0.208 | 0.615 |
| History of cannabis use | | | | |
| Have never used cannabis | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using cannabis | 0.455 | 0.279 | 0.630 | 0.00 |
| History of alcohol use | | | | |
| Have never used alcohol | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using alcohol | −0.162 | −0.320 | −0.003 | 0.045 |
| History of smoking | | | | |
| Have never smoked | Ref. | Ref. | Ref. | Ref. |
| Have ever smoked or currently smoking | 0.118 | −0.051 | 0.287 | 0.172 |
| Psychiatric diagnosis | | | | |
| Psychotic disorders | Ref. | Ref. | Ref. | Ref. |
| Mood disorders | 0.196 | −0.030 | 0.423 | 0.089 |
| Anxiety disorders and others | 0.140 | 1.797 | 0.381 | 0.254 |

CI=confidence interval

The study examined variables including gender, age, income, marital status, education, religion, occupation, history of cannabis and alcohol use, smoking, and psychiatric diagnoses.

**Table 4.** Linear regression on factors affecting views and attitudes on indications for medical cannabis usage

| Factors affecting views and attitudes on indications for medical cannabis usage | Coefficient standard | 95% CI | | p-value |
|---|---|---|---|---|
| | | Lower | Upper | |
| Gender | | | | |
| Male | Ref. | Ref. | Ref. | Ref. |
| Female | −0.11 | −0.22 | −0.02 | 0.018 |
| LGBTQ+ | −0.21 | −0.35 | −0.06 | 0.005 |
| Marital status | | | | |
| Single | Ref. | Ref. | Ref. | Ref. |
| Married | 0.06 | −0.08 | 0.19 | 0.422 |
| Age | −0.0005 | −0.005 | 0.004 | 0.83 |
| Income (per month) | | | | |
| <15,000 Baht | Ref. | Ref. | Ref. | Ref. |
| 15,001-30,000 Baht | 0.04 | −0.07 | 0.15 | 0.45 |
| 30,001-50,000 Baht | 0.18 | 0.01 | 0.34 | 0.03 |
| >50,000 Baht | 0.02 | −0.20 | 0.25 | 0.82 |
| Education level | | | | |
| Lower than bachelor's degree | Ref. | Ref. | Ref. | Ref. |
| Bachelor's degree or higher | −0.03 | −0.14 | 0.05 | 0.42 |
| Religion | | | | |
| Buddhist | Ref. | Ref. | Ref. | Ref. |
| Non-Buddhist | −0.006 | −0.11 | 0.10 | 0.90 |
| Occupation | | | | |
| Student | Ref. | Ref. | Ref. | Ref. |
| Trade sector | −0.25 | −0.43 | −0.07 | 0.005 |
| Public servant/Government employee | −0.15 | −0.32 | 0.01 | 0.08 |
| General contractor | 0.00 | −0.20 | 0.20 | 0.99 |
| Private employee | −0.06 | −0.22 | 0.08 | 0.38 |
| Unemployed | −0.07 | −0.24 | 0.09 | 0.38 |
| Others | −0.07 | −0.25 | 0.10 | 0.44 |
| History of cannabis use | | | | |
| Have never used cannabis | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using cannabis | 0.12 | 0.01 | 0.23 | 0.03 |
| History of alcohol use | | | | |
| Have never used alcohol | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using alcohol | −0.05 | −0.15 | 0.04 | 0.27 |
| History of smoking | | | | |
| Have never smoked | Ref. | Ref. | Ref. | Ref. |
| Have ever smoked or currently smoking | 0.08 | −0.02 | 0.19 | 0.13 |
| Psychiatric diagnosis | | | | |
| Psychotic disorders | Ref. | Ref. | Ref. | Ref. |
| Mood disorders | −0.03 | −0.18 | 0.10 | 0.59 |
| Anxiety disorders and others | −0.007 | −0.16 | 0.14 | 0.92 |

CI=confidence interval

**Table 5.** Linear regression on factors affecting views and attitude on cannabis law and recreational use of cannabis

| Factors affecting views and attitude on cannabis law and recreational cannabis use | Coefficient Standard | 95% CI | | p-value |
|---|---|---|---|---|
| | | Lower | Upper | |
| Gender | | | | |
| Male | Ref. | Ref. | Ref. | Ref. |
| Female | −0.09 | −0.22 | 0.05 | 0.220 |
| LGBTQ+ | −0.22 | −0.42 | −0.01 | 0.037 |
| Marital status | | | | |
| Single | Ref. | Ref. | Ref. | Ref. |
| Married | −0.07 | −0.26 | 0.11 | 0.453 |
| Age | 0.001 | −0.006 | 0.008 | 0.762 |
| Income (per month) | | | | |
| <15,000 Baht | Ref. | Ref. | Ref. | Ref. |
| 15,001-30,000 Baht | −0.08 | −0.24 | 0.07 | 0.295 |
| 30,001-50,000 Baht | −0.11 | −0.34 | 0.11 | 0.33 |
| >50,000 Baht | 0.01 | −0.31 | 0.33 | 0.95 |
| Education level | | | | |
| Lower than bachelor's degree | Ref. | Ref. | Ref. | Ref. |
| Bachelor's degree or higher | −0.06 | −0.20 | 0.07 | 0.36 |
| Religion | | | | |
| Buddhist | Ref. | Ref. | Ref. | Ref. |
| Non-Buddhist | −0.05 | −0.21 | 0.09 | 0.46 |
| Occupation | | | | |
| Student | Ref. | Ref. | Ref. | Ref. |
| Trade sector | 0.15 | −0.09 | 0.40 | 0.23 |
| Public servant/Government employee | 0.16 | −0.07 | 0.40 | 0.179 |
| General contractor | 0.14 | −0.13 | 0.42 | 0.31 |
| Private employee | 0.09 | −0.12 | 0.31 | 0.39 |
| Unemployed | 0.07 | −0.16 | 0.31 | 0.51 |
| Others | 0.14 | −0.11 | 0.39 | 0.27 |
| History of cannabis use | | | | |
| Have never used cannabis | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using cannabis | −0.01 | −0.17 | 0.14 | 0.88 |
| History of alcohol use | | | | |
| Have never used alcohol | Ref. | Ref. | Ref. | Ref. |
| Have ever used or currently using alcohol | −0.08 | −0.22 | 0.05 | 0.23 |
| History of smoking | | | | |
| Have never smoked | Ref. | Ref. | Ref. | Ref. |
| Have ever smoked or currently smoking | 0.02 | −0.13 | 0.17 | 0.791 |
| Psychiatric diagnosis | | | | |
| Psychotic disorders | Ref. | Ref. | Ref. | Ref. |
| Mood disorders | −0.05 | −0.26 | 0.15 | 0.61 |
| Anxiety disorders and others | 0.004 | −0.21 | 0.22 | 0.96 |

CI=confidence interval

## Key findings and implications

The study revealed that a significant majority of the psychiatric patient population were women (59.1%), suggesting gender-specific factors in psychiatric illnesses or treatment-seeking behaviors. This could prompt further investigation into why women are more represented in this population, leading to improved targeting of interventions.

**Table 6.** Pearson correlation between knowledge and view towards cannabis in general, view towards medical cannabis and view towards cannabis law

| | Total knowledge score | General view towards cannabis | View towards medical cannabis | View towards cannabis law |
|---|---|---|---|---|
| Total knowledge score | 1 | −0.197 (<0.001) | 0.112 (0.012) | −0.068 (0.161) |
| General view towards cannabis | −0.197 (<0.001) | 1 | 0.382 (<0.001) | 0.232 (<0.001) |
| View towards medical cannabis | 0.112 (0.021) | 0.382 (<0.001) | 1 | 0.199 (<0.001) |
| View towards cannabis law | −0.068 (0.161) | 0.232 (<0.001) | 0.199 (<0.001) | 1 |

Additionally, the high proportions of single individuals (75.95%) and those with low monthly incomes (50.15% earned less than 15,000 Baht) indicate potential links between socioeconomic status and mental health issues. Economic stressors, lack of social support, and limited resources may contribute to the prevalence of psychiatric disorders among this demographic. The predominance of depressive disorders (49.1%) underscores the significant burden of mood-related conditions in this population.

### Knowledge and attitudes towards cannabis

This survey showed concerning results, with 82% of respondents demonstrating insufficient knowledge of cannabis. This lack of understanding is particularly concerning in psychiatric populations, as uninformed cannabis use may worsen existing psychiatric symptoms or interfere with treatment outcomes. This knowledge gap may lead to uninformed use of cannabis, potentially exacerbating psychiatric symptoms. Addressing this lack of understanding is crucial for promoting informed decision-making and mitigating negative consequences associated with cannabis use. Notably, none of the surveyed individuals possessed good knowledge of cannabis, reflecting broader societal attitudes or educational deficiencies.

Individuals with a history of cannabis use exhibited more favorable attitudes towards cannabis compared to non-users, aligning with previous research indicating that direct experience with cannabis influences attitudes[8]. However, potential biases or confounding factors, such as socio-cultural norms and personal beliefs, must be considered.

The prevalence of cannabis use among psychiatric patients (14% with a history of use and 5.2% currently using) raises concerns about substance abuse within this population. The association between cannabis use and psychiatric disorders is complex, with implications for exacerbating symptoms and affecting treatment outcomes[9]. The finding that a significant proportion of cannabis users are at an intermediate level of risk of addiction highlights the need for targeted screening and intervention protocols for substance use disorders in psychiatric settings.

### Factors influencing knowledge

The negative relationship between age and cannabis knowledge suggests that younger individuals tend to have better knowledge about cannabis, due to greater exposure through media, peer influence, and educational initiatives[10]. Gender differences were also noted, with women having more unfavorable images of cannabis, due to societal stigma and feelings of shame[11]. Occupation played a role, with general contractors having less knowledge than other occupations, possibly because they had less formal education or training on cannabis-related topics.

A positive relationship between cannabis knowledge and previous cannabis use was observed, indicating that personal experience shapes understanding. However, this must be approached cautiously, considering potential biases such as selective recall or self-reporting tendencies among cannabis users.

### Attitudes towards cannabis

Attitudes towards cannabis, including opinions on medical indications, laws, and recreational use, are multifaceted and influenced by various factors. Individuals who were using or had used cannabis exhibited more positive attitudes toward cannabis in general compared to non-users. Gender-specific cultural norms and socialization patterns may explain why women demonstrated more negative attitudes towards cannabis. Additionally, occupation and income level influenced attitudes towards medicinal cannabis use, with lower income individuals and those in trade exhibiting more unfavorable attitudes.

Respondents with higher cannabis knowledge scores were more pessimistic about cannabis in general. This might be the case because those who are more knowledgeable about cannabis are also more conscious of its detrimental effects on the human body and society. This finding indicates a negative

correlation between overall cannabis knowledge and general attitudes toward cannabis, suggesting that greater awareness of harms and risks is associated with less favorable views. This study's results coincide with Kannan et al.'s study, where knowledge scores and attitude scores showed a negative correlation, suggesting that less positive attitudes toward cannabis use were linked to more knowledge about the detrimental effects[12]. Respondents with higher knowledge test results also showed a more optimistic attitudes for medicinal cannabis use, as certain political parties in Thailand have endorsed medical cannabis in their electoral campaigns, which has helped to further advance favorable opinions of cannabis. In contrast, this reflects a positive correlation between higher knowledge levels and attitudes toward medical cannabis, driven by greater awareness of its therapeutic benefits. According to Sucheera et al., attitudes on cannabis were also shown to be favorably linked with information about its pros and cons, such as the knowledge that it can alleviate the suffering from chronic diseases. Similarly, staff members who have completed medical cannabis training are more likely to express more positive opinions regarding medical cannabis[13].

### Strength and limitation

This study was the first to examine knowledge and attitudes towards cannabis in Thailand's psychiatric population. It provides comprehensive insights into the complex interplay of demographic and behavioral factors influencing cannabis attitudes.

However, the generalizability of the study is limited, as data were collected from a single hospital setting. Therefore, the findings may not be applicable to other hospitals or different clinical settings. A key limitation of this study is the reliance on self-reported data, which may be subject to underreporting and reporting bias, particularly regarding the use of illicit substances. Such bias could have influenced participants' responses and affected the accuracy of reported substance use patterns. In addition, the ASSIST questionnaire was not applied to assess the use of substances other than cannabis. Future studies would benefit from incorporating a broader assessment of other psychoactive substances and the severity of their use, as these factors may influence perceptions of cannabis use as well as attitudes toward substance use more generally.

### Future directions

Future research should explore longitudinal trends in cannabis knowledge and perception and investigate the effectiveness of educational interventions in promoting accurate understanding and reducing stigma. Tailored interventions addressing specific misconceptions and concerns identified in this study can contribute to informed decision-making and efforts to reduce harm in psychiatric populations.

## Conclusion

In conclusion, understanding the factors affecting cannabis knowledge and attitudes is essential for designing targeted interventions, promoting informed decision-making, and reducing potential harm associated with cannabis use. Addressing knowledge gaps and providing accurate information can foster a more informed and responsible approach to cannabis use within communities.

## What is already known about this topic?

Since cannabis was removed from Thailand's class 5 drug list, its availability has expanded, raising worries about its impact on vulnerable groups such as psychiatric patients. This is because cannabis is known to worsen psychiatric symptoms, especially in patients with schizophrenia, anxiety, and drug use disorder[3,4]. Previous Thai studies have primarily focused on its understanding in students or the general population, which also revealed inconclusive results.

## What does this study add?

This is the first research to look at the Thai outpatient psychiatric population's understanding of cannabis and its harmful effects. This study found that most patients have little awareness of cannabis and that characteristics such as age, career, and previous cannabis use can alter knowledge and attitudes about cannabis. These findings also underscore the need for more knowledge and care for mental patients, as cannabis use among the Thai community grows.

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## Authors' contributions

NK designed and carried out all studies, performed the data analyses, and drafted the manuscript. VC designed the study, evaluated the results, and approved this manuscript. PT evaluated the results, and approved this manuscript, contributed to submitting all research grants, and edited the manuscript. All authors have read and agreed to the published version of the manuscript.

## Data availability statement

The data supporting the findings of this study are not publicly shared in order to protect participant confidentiality. Requests for access to de-identified data may be considered by the corresponding author, subject to ethical approval.

## Ethics approval and consent to participate

The protocol of the study was approved by the Human Ethics Committee of Thammasat University (protocol number MTU-EC-PS-0-044/66). Written consent from participants was obtained prior to study.

## Clinical trial registration

Not applicable, as this study did not involve a clinical trial.

## Use of artificial intelligence

The authors used ChatGPT 5.4 (OpenAI) only for language editing and to improve readability. All scientific content, interpretation, and final wording were reviewed and approved by the authors.

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## Conflicts of interest

The authors declare no conflict of interest.

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