



# Attitudes Toward Cannabis of Users and Non-users in Spain: a Concept Mapping Study Among University Students

Arturo Alvarez-Roldan<sup>1</sup> · Iván Parra<sup>1</sup> · Víctor J. Villanueva-Blasco<sup>2</sup>

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## Abstract

The social perception of cannabis use in Spain is getting more tolerant among young people. This study aims to uncover the attitudes of university students toward cannabis and examine the differences in their attitudes according to their use status. We applied concept mapping, a mixed-methods approach. Participants were recruited from 12 universities. During the first stage, 5 focus groups were conducted with 56 participants to determine the ideas in the concept map. In the second stage, ideas were pile-sorted and rated by 140 participants (77% females; average age = 21.6). Hierarchical cluster analysis of the pile-sort data generated the cluster map. We used *t*-tests to explore differences in ratings by past-year users and non-users (abstainers and ex-users). Participants generated 70 ideas associated with cannabis during the brainstorming sessions and categorized them into six groups: risks and harms, information, legalization, motives, tobacco and cannabis, and normalization. Users and non-users agree that cannabis has health risks and that smoking it mixed with tobacco is the main route of administration, although they do not perceive that this mode increases the hazards. Both users and non-users demand more information. However, they strongly disagree regarding the rest of the clusters. Users distinguish between sensible and problem use. They associate frequent use and coping motives with difficulties, whereas they perceive that moderate use yields pleasures and benefits. They blame the lack of legalization for the social stigma they still suffer. Non-users reject these considerations. Spanish university students believe that cannabis use is normal among young people. Non-users are tolerant of peers who use cannabis, but users feel stigmatized. There is a divide between the two groups regarding the convenience of implementing legal reforms.

**Keywords** Cannabis · University students · Concept mapping · Legalization · Stigma · Normalization

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✉ Arturo Alvarez-Roldan  
aalvarez@ugr.es; arturoalrol@gmail.com

✉ Víctor J. Villanueva-Blasco  
vjvillanueva@universidadviu.com

<sup>1</sup> Department of Social Anthropology, University of Granada, 18071 Granada, Spain

<sup>2</sup> Faculty of Health Sciences, Valencian International University, 46002 Valencia, Spain

Spain has one of the highest rates of cannabis consumption in Europe, and young people are the main consumers. According to the last national survey on alcohol and drugs, in 2019, 37.5% of the population aged 15 to 64 years had tried cannabis; 10.5% had used it in the past year, 8% had used it in the past 30 days, and 2.9% used it daily (OEDA, 2021: 71). The average age of first consumption was 18.5 years (OEDA, 2021: 62). Young people aged 15 to 24 years comprised the cohort with the highest prevalence of use: 22.1% in the past year (19.2% in the EU) and 15.9% in the past month (10.3% in the EU) (EMCDDA, 2021: 16; OEDA, 2021: 63–64).

Cannabis production and trafficking are penal offenses in Spain. However, neither the consumption nor the possession of cannabis for personal use constitutes a crime. These behaviors are merely considered administrative infractions against public order and sanctioned with a fine when they occur in public (EMCDDA, 2017).

Cannabis is both available and accessible. In 2019, Spain was the country with the largest quantity of cannabis resin seized globally (UNODC, 2021). Currently, it is one of the leading illegally marijuana-producing countries in the European Union (Alvarez et al., 2016; EMCDDA, 2019). Six out of ten citizens believe it is easy to obtain cannabis (OEDA, 2021: 91).

The most recent national survey suggests that most of the population, 85.3%, acknowledges that cannabis consumption can cause problems—overall health difficulties—when taken every week, and 66.3% believe this is the case if the frequency of use is once a month or less (OEDA; 2021: 88).

Public opinion and attitudes toward cannabis in Spain seem to be changing, especially among younger generations. This change may be due, among other reasons, to the recent cannabis legalization processes implemented in Uruguay, Canada, and many states in the USA. According to the Social Barometer conducted by the Spanish Centre for Sociological Research in April 2021, 49.7% of citizens support the legalization of cannabis sales in authorized dispensaries under certain conditions, and 90.1% support its medical use (CIS, 2021).

Thus, in Spain, cannabis has become an illicit drug that is easily accessible, socially accepted, and widely consumed. At the same time, paradoxically, its use continues to be considered harmful and deviant behavior. Cannabis is subject to formal control by the state and informal control by society (MacCoun, 1993). For a long time, informal controls have been common among cannabis users for harm reduction (Becker, 1953; Zinberg, 1984). As cannabis has moved from subcultural settings to mainstream society, these informal social practices seem to have turned into guidelines for sensible consumption to avoid health damage and social stigma (Brochu et al., 2018; Hathaway, 2019; Robertson & Tustin, 2020).

More than two decades ago, Parker and colleagues introduced the conceptual framework of “normalization” to describe the social accommodation process of young recreational drug users and their drug use within the normative boundaries of society (Aldridge et al., 2011; Parker et al., 1998). The authors identified six dimensions of this process: (1) increasing availability and accessibility of illicit drugs; (2) rising drug-trying rates; (3) growth trends in recreational drug use; (4) social accommodation, i.e., liberal attitudes toward recreational drug use among young people who have not taken illicit drugs and among ex-users; (5) cultural accommodation, namely, neutral or positive depictions of drug use in the media and liberal attitudes in the general population; and (6) a more lenient drug policy and enforcement (Parker, 2005).

The theory of normalization has generated controversy and debate. Its critics have pointed out that the authors exaggerated the extent of drug use among young people and its acceptability by non-users (Blackman, 2004; Shildrick, 2002; Shiner & Newburn, 1997). Cannabis use would have remained stigmatized by conventional society, and users would have coped with social disapproval and a feeling of guilt by adopting informal controls and using risk denial techniques (Hathaway et al., 2011; Sandberg, 2012). It may have contributed to generating a sense of social normalization while cultural differentiation remains. Sandberg (2013) suggests that cannabis use is still part of a stable subculture in Norway, where it is associated with a collection of symbols, narratives, and rituals that involve cultural opposition and differentiation. In contrast, other authors indicate that the normalization of cannabis use would have been a previous step before its legalization in Canada. They note that the gap between punitive drug laws and the tolerant attitudes of citizens was widening (Duff et al., 2012), which could have contributed to facilitating the process of cannabis legalization.

The ambivalent representations of cannabis affect the way in which Spanish young people perceive, understand, and address its use. This study aims to identify the knowledge shared by a sample of university students about cannabis and to examine the differences in their way of thinking about the substance depending on whether they are current users. The specific objectives of the study are as follows:

1. Uncover the set of perceptions that students have concerning cannabis.
2. Examine how they classify these ideas and attitudes into categories.
3. Compare the agreement between cannabis users and non-users regarding these categories.

## Methods

### Overview

Concept mapping (CM) is a participatory mixed method that combines qualitative and quantitative techniques of data collection and analysis to elicit a shared concept map of a group's perceptions and ideas about a cultural domain (Kane & Trochim, 2007; Trochim & McLinden, 2017). The research process follows three main steps. First, groups of participants generate ideas by responding to an open-ended question in brainstorming sessions. Then, each participant pile-sorts the set of ideas generated in the brainstorming sessions and rate them on a Likert scale. Finally, pile-sorting and rating data are analyzed and interpreted using quantitative techniques such as cluster analysis to uncover the concept map (Coxon, 1999).

### Recruitment

A sample of participants was recruited from 12 universities in Spain through word-of-mouth and advertisements in university social networks. Eighty percent of participants came from the universities of Granada, Murcia, Oviedo, and Zaragoza. The University of Granada is the largest, with more than 54,000 students enrolled, and the University of Oviedo is the smallest, with approximately 25,000 students. Eligibility criteria included

being 18 years or older, being enrolled in the university, and residing in Spain in 2018. All participants gave their consent to participate in the study.

## Participant Demographics

The characteristics of the 140 participants who completed pile-sorting and rating tasks are presented in Table 1. The mean age was 21.6 years, and 77% of the sample was women.

## Data Collection and Analysis

### Generating the Ideas

Data were collected from January to May 2018. In the first stage, 62 participants in five separate focus groups—three at the University of Granada ( $n=6$ ,  $n=12$ ,  $n=13$ ) and two at the University of Zaragoza ( $n=14$ ,  $n=17$ )—elicited the ideas of the cultural domain. Participants in each session were asked to brainstorm based on the following focus question: What do you think about cannabis? With the permission of the participants, these sessions were audio-recorded and transcribed verbatim. Three researchers independently reviewed the transcripts and listed the responses to the focus question that appeared in these transcripts. In total, they obtained 132 different answers to the focus question. The same researchers were responsible for narrowing down the number of responses by eliminating redundant responses and merging those with similar meanings. Finally, 70 answers remained; these answers integrated the variety of ideas expressed in the brainstorming sessions. The researchers tried to maintain the original expressions that appeared in the responses to the focus question.

### Structuring the Data

In the second stage, 140 participants sorted and rated the ideas produced in the brainstorming sessions. Fifty participants who had taken part in the brainstorming sessions also completed pile-sorting and rating tasks. The recruitment of new participants to expand the sample in this phase is common in CM studies.

The researchers produced an index card for each idea, and the participants had to sort the cards into piles. They could make as many piles as they wanted (between 2 and 69). Each card could be placed in one pile only. After the pile sorting was completed, participants were asked their level of agreement with each sentence on a 5-point Likert scale (1 = strongly agree to 5 = strongly disagree). Finally, participants provided demographic, cannabis use and tobacco use data. Participants conducted these tasks using the online research platform “Proven by users” ([www.provenbyusers.com/](http://www.provenbyusers.com/)). The mail address and demographics of participants allowed us to control whether someone introduced duplicate data in the application.

### Analysis

A similarity matrix was created with the pile-sort data. Each cell in this square symmetrical matrix represented the number of times the 140 participants included two items in the

**Table 1** Demographic and tobacco/cannabis use characteristics of the study participants in the second stage of CM

	N (or Mean)	% (or SD)
Gender		
Male	32	23
Female	108	77
University		
Universidad de Granada	27	19
Universidad de Murcia	20	14
Universidad de Oviedo	28	20
Universidad de Salamanca	9	6
Universidad de Zaragoza	38	27
Other	18	13
Age	21.6	2.6
University degree		
Social and Cultural Anthropology	29	21
Nutrition and Dietetics	1	1
Interior Design	1	1
Social Education	2	1
Nursing	10	7
Physiotherapy	4	3
Speech Therapy	5	4
Early Childhood Education	11	8
Dental Prosthesis	1	1
Psychology	50	36
Labor Relations and Human Resources	1	1
Social Work	5	4
History and Sciences of Music	1	1
French Philology	1	1
Master's degree	17	12
Doctorate	1	1
Tobacco use		
Daily	22	15.7
Non-daily	21	15.0
Ex-smoker	21	15.0
Never smoker	76	54.3
Age at smoking initiation	15.5	2.1
Cannabis use		
Last year	54	38.6
Past month	32	22.9
4–7 days a week	12	8.6
Never used	30	21.4
Age at first cannabis use	16.3	1.9

same pile. Then, the matrix was converted to a distance matrix by subtracting the count from the sample size so that higher numbers now represented greater dissimilarity. The distance matrix was standardized by dividing the cell inputs by 140.

The researchers analyzed the distance matrix through hierarchical cluster analysis (HCA) using the following algorithms: single, average, complete, Ward, and weighted. The researchers selected the solution obtained with Ward's algorithm because it reported the highest agglomerative coefficient: 0.819. This agglomeration method is designed to optimize the minimum variance within clusters. To measure the goodness of fit of the cluster tree with the distance matrix data, the correlation between the cophenetic distances (the distances between the clusters) and the original distance data was computed. The value of the correlation was 0.728, indicating that the clustering was valid (Kassambara, 2017). To determine the optimal number of clusters in the dataset, first, the researchers plotted the cophenetic distances between the clusters and selected the highest ones: 0.449 between clusters 3 and 4; 0.385 between clusters 2 and 3; and 0.262 between clusters 5 and 6. Thus, the best partitions were 3, 4, or 6 groups. The researchers ran a silhouette analysis to make a final decision. Silhouette analysis measures how well an observation is clustered and estimates the average distance between clusters (Rousseeuw, 1987). The six-cluster partition showed the highest average silhouette width: 0.2. Thus, the researchers chose the six-cluster solution, which allowed an extensive and rich interpretation of the data.

Finally, the researchers conducted independent-samples *t*-tests to explore the differences in the level of agreement with the items in the clusters between cannabis users (individuals who had used the substance in the past year) and non-users (abstainers and ex-users). The magnitude of the difference between the two groups was calculated using Cohen's *d*.

All analyses were computed in the R statistical environment (R Core Team, 2018) using the stats, cluster, and factoextra packages (Kassambara, 2017).

## Interpretation

In the last stage, the researchers examined the items included in each cluster and labeled them according to their meaning. Then, they presented and discussed the final concept map in a meeting with 20 of the participants in the focus groups conducted in the first research stage. Participants validated the interpretation and labeling of the clusters.

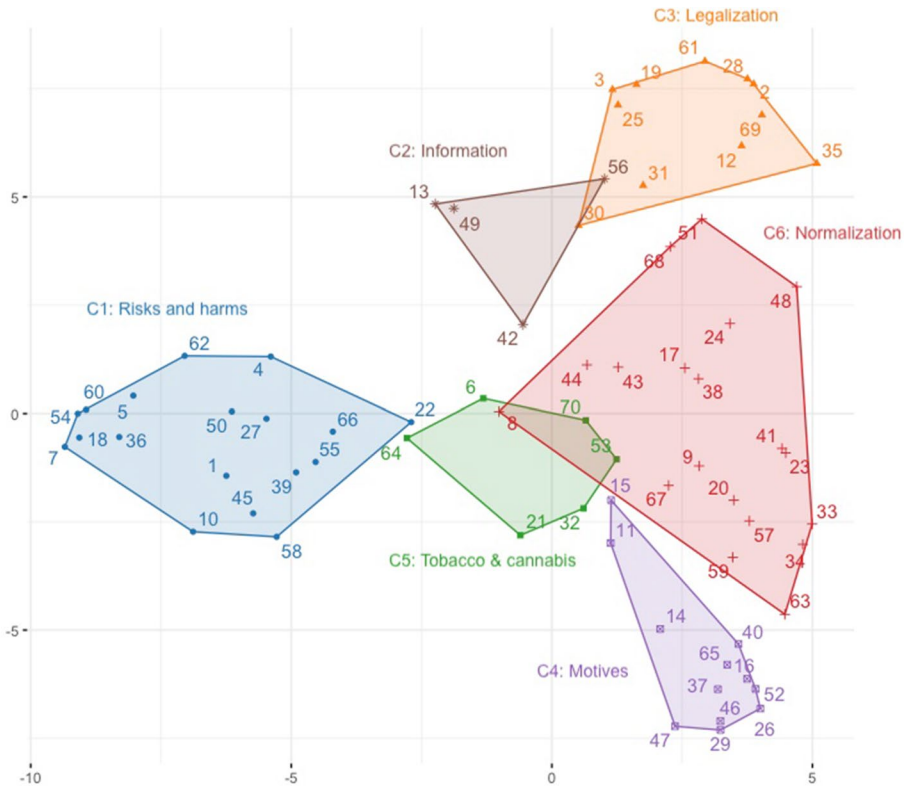
## Results

### Ideas and Clusters of Concept Map

Figure 1 shows the concept map with the six clusters resulting from HCA: risks and harms, information, legalization, motives, tobacco and cannabis, and normalization. Each cluster contains the items that the participants most frequently classified in the same conceptual domain. The dendrogram in Fig. 2 displays the formation process of the clusters. Table 2 in the Appendix presents the 70 ideas grouped by clusters. It also includes descriptive statistics of item agreement ratings by participants and the mean differences between cannabis users and non-users.

### Risks and Harms

This cluster contains 18 ideas about the risks and harms of cannabis consumption. The two groups of participants were equally aware of the hazards and impairments, as the mean

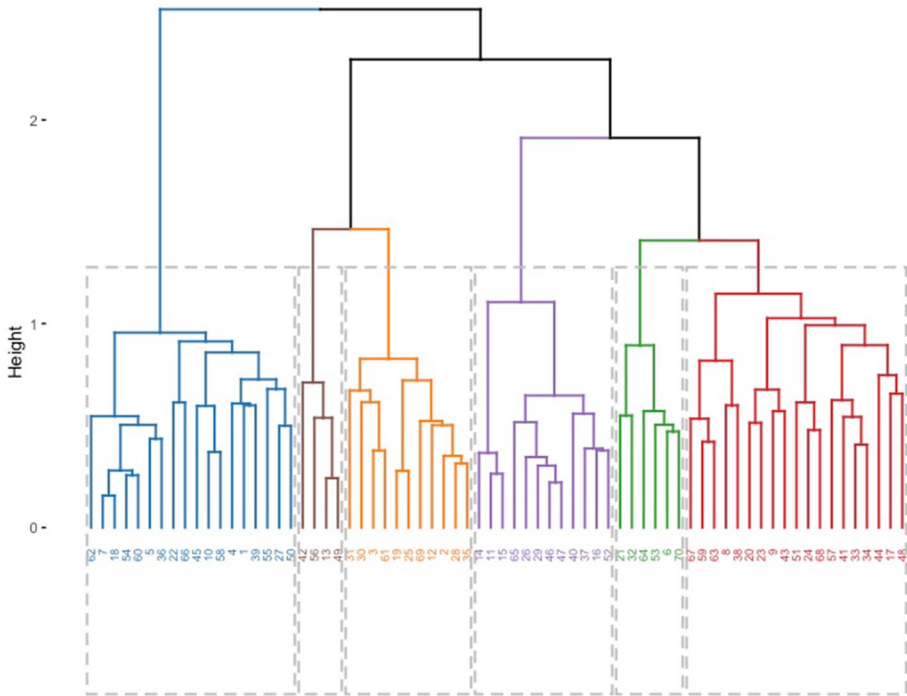


**Fig. 1** Concept map of cannabis perceptions. Each point in the concept map represents one of the 70 ideas generated and sorted by participants. Points closer together represent ideas that were sorted together more often, on average, by participants. Points farther apart were sorted together less frequently or not at all. Closer clusters are more similar than clusters that are farther apart. Map plotted using principal components with the `fviz_cluster()` function from the `factoextra` package

cluster score was very similar for non-users ( $M=3.76$ ,  $SD=0.64$ ) and users ( $M=3.70$ ,  $SD=0.47$ ). Both groups accepted that cannabis use carries health risks; they agreed that starting to smoke can lead to repeating the experience (# 27), creates tolerance (# 1), triggers tachycardia (# 45), and impairs memory and motor skills (# 10) and that quitting smoking is positive and improves health (# 55). However, both groups claimed to have rarely experienced adverse reactions (# 58).

Most participants believed that cannabis can trigger mental illnesses in predisposed persons (# 18), generate anxiety (# 7), and cause cancer (# 54). They considered that many of these problems become apparent after a long time, and most people are not aware of them (# 62). All participants believed that cannabis affects the brain (# 60). However, users and non-users differed significantly when assessing whether cannabis can produce notable changes in behavior (# 5), whether it generates addiction (# 36) and whether addiction is psychological or physical (# 22).

Users and non-users diverged significantly regarding the idea that one cannot know the effects of cannabis until one has tried it (# 39) and that the authentic content of the substance is unknown (# 4). They also disagreed that cannabis can be a gateway to other



**Fig. 2** Cluster dendrogram. In the dendrogram, each leaf corresponds to one idea. As we move up the tree, objects that are similar to each other are combined into branches, which are themselves fused at a higher height. The height of the fusion, provided on the vertical axis, indicates the distance between two ideas/clusters. The higher the height of the fusion, the more distant the ideas/clusters are. This height is the cophenetic distance

substances (# 50). Finally, the main disagreement between the two groups was that the effects of cannabis are not the same in all people and vary depending on people's physical and mental state (# 66).

## Information

This small cluster comprises four core ideas for youth, as evidenced by the cluster's mean score, which was the highest for non-users ( $M=3.99$ ,  $SD=0.80$ ) and users ( $M=4.31$ ,  $SD=0.48$ ),  $t(138)=-2.99$ ,  $p<0.01$ ,  $d=-0.47$ . More studies (# 49) and more information (# 13) are needed to guide the behavior of young people toward drugs, although users think that context is more influential for consumption than information is (# 42). However, non-users disagreed that recommendations should be aimed at responsible use (# 56).

## Legalization

This cluster includes 11 opinions on the advantages and disadvantages of legalization. The scores for this cluster were lower than those of previous clusters:  $M=3.05$ ,  $SD=0.40$  for non-users and  $M=3.33$ ,  $SD=0.43$  for users,  $t(138)=-3.54$ ,  $p<0.001$ ,  $d=-0.68$ . The



majority of participants thought that cannabis was very accessible (# 30), but they did not acknowledge a direct relationship between prohibition and the level of consumption (# 69). They considered that illegal cannabis trafficking was a lucrative business (# 3) that continued because the government did not want it to end (# 61). Only a few defended legalization because of the tax revenue it could generate (# 12).

Users and non-users diverged regarding the convenience of legalizing the cannabis market. The former considered that citizens should be able to decide the legal status that cannabis should have (# 28) and that it could be similar to the legal status of tobacco and alcohol (# 35). For them, cannabis legalization would help to eliminate the illegal market and criminality (# 2). In contrast, non-users were for continuing prohibition. They were afraid that legalization could increase consumption (# 19) and encourage use in minors (# 25). They more strongly agreed that medical cannabis should be regulated (# 31).

## Motives

This cluster includes 12 ideas about the reasons to use cannabis. It presents the greatest discrepancies between non-users ( $M=2.75$ ,  $SD=0.65$ ) and users ( $M=3.71$ ,  $SD=0.60$ ),  $t(138) = -8.75$ ,  $p < 0.001$ ,  $d = -1.52$ . Users indicated a series of positive effects based on their personal experience: they like the taste (# 26), they feel great (# 46), it makes them laugh (# 47), they take it to cheer up and have a good time (# 16), it relaxes them (# 29), it calms their anxiety (# 40), it helps them fall asleep (# 29), it facilitates introspection (# 52), and it allows escape and disconnection (# 37). Non-users disagreed with these positive effects to greater or lesser extents, and they scored under 3 for all of these ideas except the last idea. They showed a greater acceptance for compassionate uses: therapeutic (# 11), palliative (# 15), or analgesic (# 14). However, the differences between non-users and users were still significant.

## Tobacco and Cannabis

This cluster covers six ideas related to the relationship between tobacco and cannabis. It was the lowest scored cluster by cannabis users ( $M=2.98$ ,  $SD=0.53$ ). Non-users showed similar average agreement ( $M=2.90$ ,  $SD=0.54$ ). The two groups agreed that people smoke cannabis mixed with tobacco (# 6), but they did not acknowledge that regular dual consumption facilitates the substitution of cannabis with tobacco (# 32). They did not need to control themselves to avoid smoking more (# 21).

Although the score was low for both groups, non-users considered it more probable that smoking cannabis combined with tobacco could involve synergy and codependency phenomena (# 70). Users assumed that joint filters do not prevent the inhalation of toxic products derived from tobacco combustion (# 64). They recognized that mixing tobacco and marijuana can get more out of a quantity of cannabis (# 53).

## Normalization

This cluster includes 19 ideas related to the normalization of consumption. The average score is significantly lower for non-users ( $M=2.88$ ,  $SD=0.46$ ) than for users ( $M=3.49$ ,  $SD=0.38$ ),  $t(138) = -8.27$ ,  $p < 0.001$ ,  $d = -1.44$ . There was consensus between the groups that smoking cannabis is a personal decision (# 44), it is used in groups to socialize (# 59), it is normal among youth (# 38), and there is a lack of concern about the

consequences (# 8). All agreed that consumption was not widespread in Spanish society (# 23), and they did not attribute cannabis smoking to being idle (# 9).

There are several ideas in which users and non-users maintain significant differences. Users perceived cannabis as less problematic than other illegal drugs (# 24), although it had the stigma of illegality (# 51), which alcohol does not bear because it is legal (# 68). They did not associate being a teetotaler with refraining from using cannabis (# 43). They thought that consuming the first time with close people gives people security (# 67) and that cannabis enhances the experience at music festivals (# 63). They considered intervention based on scare tactics (to use fear to motivate cannabis abstinence or cessation) counterproductive (# 17) and believe that the state should not collect revenues from cannabis if it became regulated (# 48).

Finally, users considered sensible or controlled use of cannabis possible if it was occasional and was not used to cope with personal problems (# 57). They viewed this substance as more benign (# 41) and natural (# 34) than alcohol or tobacco. They perceived that cannabis did not cause conflicts (# 33), and did not induce acute adverse reactions like alcohol (# 20). Non-consumers entirely disagreed with these opinions. The scores of these items show the highest differences between users and non-users within this cluster (see Table 2 in the Appendix).

## Discussion

This study employed a CM methodology to uncover six clusters of ideas that shape the mental map of Spanish university students about cannabis: risks and harms, information, legalization, motives, tobacco and cannabis, and normalization. The study shows that users and non-users have contrasting perspectives on some controversial issues.

In the mental map of this young population, cannabis represents a substance with harmful effects on health. The repertoire of damage includes psychosis, anxiety, behavioral problems, tolerance and dependence, cognitive impairment, and cancer. Both users and non-users recognize that smoking cannabis mixed with tobacco is the main route of consumption in Spain, but the groups are not conscious of the hazards accompanying this practice, including sustained use, drug substitution, and greater dependence (Agrawal et al., 2012; Lemyre et al., 2019; McClure et al., 2018). Users disagree with non-users on the nature of cannabis addiction—that they presume it is more psychological than physical—and do not consider cannabis a gateway drug. This perception of risks is in line with pharmacological, biomedical, and psychological studies that have established a relationship between the use of cannabis and health problems (Hall, 2009; Thake & Davis, 2011; Volkow et al., 2014; WHO, 2016). Participants omit other adverse outcomes that cannabis can cause, such as academic failure, conflict with family and friends, and impaired driving. To neutralize their feeling of guilt and to avoid cognitive dissonance (i.e., inconsistency between behavior and beliefs), cannabis users have developed risk denial techniques. They separate their consumption from that of heavy users, emphasize their ability to engage in responsible and controlled use, and compare the risks of cannabis and other substances, mainly alcohol (Hathaway, 2004; Peretti-Watel, 2003; Shiner & Newburn, 1997).

Spanish university students perceive and accept cannabis as a medicine. It is uncertain whether they refer to new drugs that comply with pharmaceutical regulations, such as Sativex or Dronabinol, or whether they think about smoking marijuana, which is not a

medication (NASEM, 2017). They do not seem aware of the problems that smoking can cause or the difficulties in establishing marijuana's therapeutic value. In addition, users think that cannabis can help to self-regulate health and mood, justifications that non-users reject. Users view smoking cannabis as a form of self-medication against anxiety and nervousness, as an escape from routine, and as an aid for relaxation or sleep. Some authors have suggested that medical cannabis paved the transition to the legalization of cannabis in the USA (Dioun, 2017, 2018; Kilmer & MacCoun, 2017), and the same may have occurred in Canada (Cox, 2018). In Spain, most political parties represented in Parliament seem to agree on legalizing cannabis for medical use but not recreational use. The reasons, methods, and risks of the therapeutic use of cannabinoids are different from those of recreational use, which should guide the design of cannabis policy.

Users and non-users agree that young people consider it "normal" to smoke joints. They believe that taking recreational drugs is a personal decision. Non-users respect the choice of other young people to consume cannabis. Most likely, many non-users have cannabis-using friends (Parker et al., 2002). However, this tolerance and social accommodation must be nuanced. Both groups call for more studies and information, but each group assumes that further information will support their point of view on cannabis.

Users distinguish between sensible and problem use. They associate frequent use and coping motives with difficulties, whereas they think occasional and moderate use yields pleasure and benefits. They refer to positive experiences, such as laughing, enjoying the taste of cannabis, or having a good time, as reasons for recreational consumption. They report morally acceptable reasons to justify their consumption instead of more ambivalent ones, such as sensation seeking, risk-taking, or being stoned. This distinction between patterns of use and their association with cultural legitimacy emerged in other qualitative studies on cannabis users (Duff & Erickson, 2014; Hathaway, 2004; Järvinen & Ravn, 2014; Lau et al., 2015). When users point to the agency and rationality of cannabis use, they aim to legitimize their behavior by placing it within the context of the consumer society, in which individuals responsibly assume risks in a controlled way. Describing their comportment as adjusted to the norms and values of individualistic rationality, they try to avoid being considered impulsive, gregarious, or substance abusers. Goffman used the term "normification" to refer to this effort by a stigmatized individual to present himself or herself as an ordinary person and distinguished it from "normalization," which is when ordinary people treat a stigmatized person as if he or she does not have a stigma (Goffman, 1963: 30–31). It is important to distinguish users' strategies to combat their stigmatization from society's normalization of their behavior.

Non-users do not view "sensible" and "rational" cannabis consumption as feasible. They have strong attitudes against illicit drugs, including cannabis. Hathaway et al. (2015) found that health, legal, familial, and ethnicity reasons were common explanations among Canadian undergraduates for abstaining from cannabis use (see also Rosansky & Rosenberg, 2019). In addition, non-users interpreted their resistance to peer pressure as a form of self-identity (see also Mostaghim & Hathaway, 2013) and as a sign of maturity and personal integrity. Gender expectations may have also influenced the perspective of non-users in our study since they were principally female, and women are more influenced by social control than men when using illicit drugs (Dahl & Sandberg, 2014; Kolar, 2021; Measham, 2002). For instance, Butters (2004) observed that having fewer friends who used drugs and stronger perceptions of parental disapproval of cannabis use were stronger deterrent factors of cannabis use escalation to risk levels for female adolescents than for males.

Normalization theory has suggested that illegal drug use becomes normal and socially accepted when a series of factors are present, including easy availability and access, more

experimentation and consumption, sociocultural accommodation, and tolerant drug policy and enforcement (Parker, 2005; Parker et al., 1998). According to this theory, cannabis use among young people is no longer a subcultural or deviant behavior. Instead, using illicit drugs such as cannabis is understood as a rational act within the individualistic morality of a consumer and risk management society (Parker et al., 2002). Although normalization theory has been questioned by some authors (Blackman, 2004; Sandberg, 2012, 2013; Shil-drick, 2002; Shiner & Newburn, 1997), it has achieved popularity among Spanish university students, likely resulting from the reflexivity of modern social life (Guiddens, 1990). Notwithstanding, they do not see cannabis use as widely extended among the general population or as a comportment of unoccupied people.

Finally, in our study, users do not feel socially accepted, and they blame this feeling on the illegal status of cannabis in Spain. They still perceive themselves as bearing a certain stigma for using cannabis. Illicit drug users may experience stigma as perceived devaluation, alienation, or discrimination (Ahern et al., 2007). Skliamis et al. (2020) compared the perceived stigmatization of cannabis users in seven European countries. They found that overall cannabis-related stigmatization was low to moderate. Daily cannabis users were more likely to suffer rejection by friends, be subjected to negative stereotypes (unreliable, irresponsible, lazy), and experience alienation. A strict cannabis policy was associated with a higher level of stigmatization. Users in our research share this view. They believe that the legalization of cannabis would end the current situation of normative and moral ambiguity, that formal control and scare tactics have no deterrent impact on the cessation or reduction of use, and that cannabis legalization would also reduce crime. They equate legalization with liberalization and prefer a legal supply similar to that of tobacco or alcohol, which involves more risks from a public health point of view. Non-users reject legalization because they believe it would increase consumption and its adverse consequences. Both groups attach great importance to laws in the regulation of drug use in society. They seem to forget that cannabis use has never been a crime in Spain. Users believe that cannabis legalization would change negative perception of recreational drug use. Non-users forget that informal control mechanisms have served to restrain the extension of use, whereas formal control has failed in this respect.

In conclusion, the opinions and ideas on cannabis of users and non-users among Spanish university students reveal a divide in the social perception of this substance. This study also shows a space of shared beliefs—about the value of the law, health, and knowledge—in which informal social control occurs and leads to self-restriction of cannabis use.

This study contains several limitations. We used a convenient sample that may not represent all Spanish university students. Notwithstanding, it is common to employ this sampling procedure in CM studies, which have exploratory aims. The results reflect the attitudes and opinions of young individuals studying at university, not those of young Spanish people in general. Women were overrepresented in the sample because most participants were enrolled in social sciences and health studies, degrees with more female participation. Although the concept map was validated by 20 participants, other labels of clusters could be suggested to show the findings.

**Appendix**

**Table 2** 70 items grouped by clusters. Descriptive statistics of item ratings by cannabis use and results of *t*-tests

Cluster/item	Combined N = 140		Non- cannabis users N = 86		Cannabis users N = 54		95% CI for mean differ- ence	<i>t</i>	df	Cohen's <i>d</i>
	M	SD	M	SD	M	SD				
<b>Cl: risks and harms</b>	3.74	0.58	3.76	0.64	3.70	0.47	-0.13; 0.27	0.68	138	
62. People are not aware of the problems it can cause in the long term	4.09	1.02	4.19	1.11	3.94	0.86	-0.11; 0.59	1.36	138	
7. It can produce anxiety	3.96	0.97	3.99	1.02	3.91	0.90	-0.25; 0.42	0.48	138	
18. It can activate mental illnesses	4.01	1.05	4.10	1.11	3.87	0.93	-0.12; 0.59	1.29	138	
54. Smoking can cause cancer	4.19	1.05	4.15	1.12	4.26	0.94	-0.48; 0.25	-0.60	138	
60. It is a drug that affects your brain	4.37	0.97	4.42	1.05	4.30	0.84	-0.21; 0.46	0.73	138	
5. It is no joke, it conditions your life, changes your daily life, your behavior, your way of thinking, everything	4.02	1.10	4.22	1.10	3.70	1.02	0.15; 0.88	2.78***	138	0.48
36. It causes addiction	4.15	1.06	4.35	1.01	3.83	1.06	0.16; 0.87	2.88***	138	0.50
22. Cannabis addiction is more psychological than physical	3.29	1.25	3.01	1.32	3.72	1.02	-1.10; -0.32	-3.59***	132	-0.59
66. The effects depend on the person, your body constitution, your character, how you feel psychologically	4.03	0.91	3.76	0.96	4.46	0.61	-0.97; -0.45	-5.35***	138	-0.84
45. It causes tachycardia but, as you see that nothing is wrong with you, you keep smoking	3.03	1.02	3.00	1.03	3.07	1.03	-0.43; 0.28	-0.41	138	
10. I forget things, I don't coordinate, I fall asleep, I slow down, I'm groggy	3.34	1.26	3.31	1.24	3.37	1.31	-0.49; 0.38	-0.26	138	
58. I have had bad experiences; it has frightened me	2.82	1.27	2.92	1.24	2.67	1.32	-0.18; 0.69	1.14	138	
4. You don't really know what you're smoking	3.71	1.10	3.91	1.05	3.39	1.12	0.15; 0.89	2.71**	138	0.48
1. You smoke more and more to get the same effects	3.49	1.36	3.57	1.44	3.35	1.25	-0.25; 0.69	0.92	138	
39. The first time you don't know how it's going to make you feel	4.08	1.02	3.93	1.16	4.31	0.70	-0.69; -0.08	-2.46**	138	-0.38
55. When you stop smoking you feel better	3.56	1.11	3.56	1.13	3.57	1.07	-0.40; 0.37	-0.08	138	
27. If you start smoking, you will probably end up doing it more times	3.62	1.02	3.60	1.08	3.65	0.93	-0.40; 0.31	-0.24	138	

**Table 2** (continued)

Cluster/item	Combined N = 140		Non- cannabis users N = 86		Cannabis users N = 54		95% CI for mean differ- ence	t	df	Cohen's d
	M	SD	M	SD	M	SD				
50. After trying cannabis, you can go on with other types of drugs	3.52	1.24	3.77	1.13	3.13	1.32	0.21; 1.07	2.94**	101	0.53
<b>C2: information</b>	4.11	0.71	3.99	0.80	4.31	0.48	-0.54; -0.11	-2.99**	138	-0.47
42. When you use cannabis, the context has more influence than the information you have	3.93	1.04	3.79	1.14	4.15	0.83	-0.69; -0.03	-2.14*	135	-0.35
56. Drugs are not going to disappear from the world, so it is better to give recommendations so that people engage in responsible use	3.91	1.24	3.66	1.32	4.31	0.99	-1.04; -0.27	-3.34***	134	-0.54
13. More information should be given	4.31	1.04	4.27	1.12	4.39	0.90	-0.48; 0.24	-0.67	138	
49. More studies should be conducted	4.29	1.01	4.22	1.06	4.39	0.94	-0.52; 0.18	-0.95	138	
<b>C3: legalization</b>	3.15	0.43	3.05	0.40	3.33	0.43	-0.42; -0.14	-3.94***	138	-0.68
31. People who use it for medicinal purposes end up buying anything because the state does not regulate it	3.06	1.06	2.99	1.02	3.17	1.11	-0.54; 0.18	-0.97	138	
30. It is amazing how easily you can get it	4.05	1.07	4.02	1.16	4.09	0.92	-0.44; 0.30	-0.37	138	
3. Marijuana is big business today	4.11	0.94	3.99	1.00	4.32	0.80	-0.64; -0.01	-2.03*	138	-0.35
61. Drug trafficking does not end because the government does not want it to end	3.21	1.24	3.09	1.28	3.39	1.17	-0.72; 0.13	-1.37	138	
19. If cannabis becomes legal, the demand will increase	3.16	1.32	3.34	1.35	2.87	1.21	0.02; 0.91	2.07*	138	0.36
25. By legalizing it, minors will see it as less harmful and want to try it	3.20	1.28	3.40	1.28	2.89	1.22	0.08; -0.94	2.32*	138	0.40
69. Prohibition creates consumers	3.01	1.18	2.99	1.18	3.06	1.17	-0.47; 0.34	-0.33	138	
12. It would damage my interests if they legalized it. They would put taxes on it, and it would be even more expensive	2.56	1.20	2.53	1.19	2.59	1.24	-0.47; 0.36	-0.28	138	
2. It must be legal to end the conflicts with the mafias and the black market	2.77	1.30	2.47	1.20	3.26	1.31	-1.22; -0.37	-3.67***	138	-0.64
28. People should be able to decide whether it should be legal	3.14	1.50	2.70	1.43	3.85	1.32	-1.63; -0.68	-4.78***	138	-0.83
35. It should be able to be sold like alcohol and tobacco	2.48	1.39	2.05	1.24	3.17	1.34	-1.56; -0.68	-5.05***	138	-0.88

**Table 2** (continued)

Cluster/item	Combined N = 140		Non- cannabis users N = 86		Cannabis users N = 54		95% CI for mean differ- ence	t	df	Cohen's d
	M	SD	M	SD	M	SD				
<b>C4: motives</b>										
14. It helps with pain	3.12	0.79	2.75	0.65	3.71	0.60	-1.18; -0.75	-8.75***	138	-1.52
	3.64	1.11	3.36	1.11	4.07	0.97	-1.08; -0.35	-3.90***	138	-0.68
11. It has therapeutic and medical uses	3.81	1.12	3.50	1.12	4.31	0.93	-1.18; -0.45	-4.45***	138	-0.77
15. It does not offer a cure, but it can have palliative utility, to improve the quality of life of sick people	3.90	1.15	3.64	1.19	4.31	0.95	-1.03; -0.32	-3.72***	131	-0.61
65. If you are a nervous person, it helps you to focus	2.56	1.11	2.30	1.05	2.96	1.10	-1.03; -0.29	-3.56***	138	-0.62
26. I like the taste	2.87	1.44	2.22	1.26	3.91	1.07	-2.08; -1.29	-8.48***	126	-1.42
29. It helps me to sleep, to relax	2.91	1.29	2.42	1.17	3.70	1.06	-1.66; 0.91	-6.71***	122	-1.14
46. I feel great	2.68	1.27	2.21	1.11	3.43	1.14	-1.60; -0.83	-6.25***	138	-1.09
47. It makes me laugh	3.14	1.24	2.64	1.20	3.94	0.81	-1.64; 0.97	-7.68***	138	-1.22
40. When I have anxiety, I prefer to smoke a joint than take an Orfidal (Lorazepam)	2.66	1.41	2.08	1.13	3.57	1.34	-1.91; -1.08	-7.08***	138	-1.23
37. People smoke to escape from reality, to disconnect	3.31	1.14	3.16	1.10	3.56	1.16	-0.78; -0.01	-2.01*	138	-0.35
16. People smoke a joint because they want to cheer up, to have fun	3.09	1.18	2.86	1.18	3.44	1.09	-0.98; -0.19	-2.93**	138	-0.51
52. People used it to experiment, introspectively, to get to know themselves better	2.86	1.17	2.57	1.11	3.31	1.13	-1.13; -0.36	-3.84***	138	-0.67
<b>C5: tobacco and cannabis</b>										
21. I control myself because if I did not, I would smoke more	2.93	0.54	2.90	0.54	2.98	0.53	-0.27; 0.10	-0.92	138	
32. I started sharing tobacco so as not to make a joint and ended up smoking cigarettes	2.55	1.22	2.50	1.14	2.63	1.35	-0.57; 0.31	-0.59	99	
64. The filters of the joints do not clean the tobacco shit that we swallow directly	2.19	1.20	2.31	1.21	1.98	1.17	-0.08; 0.74	1.60	138	
53. When you mix it with tobacco, you get more out of a gram of cannabis	3.46	0.96	3.22	0.90	3.85	0.94	-0.95; -0.32	-3.97***	138	0.69
6. Many people who smoke cannabis also smoke a lot of tobacco because they mix both in their joints	3.34	1.02	3.13	0.97	3.69	1.01	-0.89; -0.22	-3.27***	138	-0.57
	3.60	1.02	3.53	0.98	3.70	1.08	-0.52; 0.18	-0.96	138	
70. Marijuana is smoked with tobacco because tobacco provides the effect of nicotine	2.43	0.91	2.67	0.83	2.04	0.91	0.34; 0.93	4.25***	138	0.74

**Table 2** (continued)

Cluster/item	Combined N = 140		Non- cannabis users N = 86		Cannabis users N = 54		95% CI for mean differ- ence	t	df	Cohen's d
	M	SD	M	SD	M	SD				
<b>C6: normalization</b>										
67. Consuming the first time with people close to you gives you security	3.11	0.52	2.88	0.46	3.49	0.38	-0.76; -0.47	-8.27***	138	-1.44
59. You smoke with friends, to socialize, to join a group	3.81	1.11	3.43	1.17	4.41	0.63	-1.28; -0.67	-6.39***	136	-0.98
63. If I'm at a music concert I want to take it	3.40	1.09	3.43	1.17	3.35	0.95	-0.30; 0.45	0.41	138	
8. Young people are not afraid of the consequences	2.66	1.36	2.18	1.18	3.41	1.30	-1.64; -0.80	-5.73***	138	-0.99
38. Among young people, joints are seen as something normal	3.57	1.11	3.47	1.18	3.74	0.99	-0.66; 0.11	-1.43	138	
20. You cannot die from smoking marijuana. However, if you drink a lot, you can suffer an alcoholic coma	3.69	1.12	3.63	1.19	3.80	1.02	-0.55; 0.22	-0.86	138	
23. Everybody smokes cannabis	2.51	1.38	2.02	1.18	3.28	1.34	-1.68; -0.83	-5.82***	138	-1.01
9. People smoke because they have nothing to do; they are idle	1.80	1.11	1.72	1.14	1.93	1.06	-0.59; 0.18	-1.06	138	
43. People who don't drink usually don't smoke either	2.22	1.13	2.30	1.16	2.09	1.07	-0.18; 0.60	1.07	138	
51. People who smoke marijuana are stigmatized because it is illegal	2.75	1.28	2.92	1.30	2.48	1.21	-0.02; 0.87	1.99*	138	0.34
24. It is better looked upon than other illegal drugs such as cocaine, heroin, or pills	3.28	1.15	3.05	1.11	3.65	1.14	-0.99; -0.22	-3.10**	138	-0.54
68. Alcohol is socially accepted, and marijuana is not	4.09	1.04	3.83	1.15	4.50	0.64	-0.97; -0.38	-4.46***	137	-0.68
57. I don't see smoking occasionally as bad, as long as you feel well and do not seek refuge in drugs	3.77	1.26	3.50	1.31	4.20	1.05	-1.10; -0.31	-3.50***	130	-0.58
41. I don't think it's worse than alcohol or tobacco	3.33	1.34	2.72	1.27	4.30	0.74	-1.91; -1.24	-9.25***	138	-1.43
33. It's not a conflict-provoking drug	3.34	1.33	2.93	1.28	4.00	1.13	-1.49; -0.65	-5.02***	138	-0.87
34. It's more natural than other drugs	2.56	1.27	2.24	1.18	3.07	1.26	-1.24; -0.41	-3.95***	138	-0.69
44. Although it's unhealthy, smoking is a personal decision	3.16	1.20	2.73	1.12	3.83	0.99	-1.47; -0.73	-5.92***	138	-1.03
17. I don't need speeches; scaring people doesn't make people stop using cannabis	4.01	0.94	3.97	1.00	4.09	0.85	-0.45; 0.20	-0.78	138	
48. The state needs to gain revenues from marijuana and more in this country where there is not enough money	2.87	1.33	2.53	1.23	3.41	1.31	-1.31; -0.44	-3.98***	138	-0.69
	2.33	1.18	2.05	1.14	2.78	1.13	-1.12; -0.34	-3.72***	138	-0.65



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## Declarations

**Ethics Approval** The authors declare that they have obtained ethics approval from an appropriately constituted ethics committee/institutional review board where the research entailed animal or human participation.

**Conflict of Interest** The authors declare no competing interest.

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