WHAT DO UNIVERSITY STUDENTS THINK ABOUT CANNABIS REGULATION? PERSPECTIVES FROM A COLOMBIAN UNIVERSITY[1]

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ABSTRACT

This study analyzes undergraduate students' perspectives on cannabis regulation in a public university in Colombia, emphasizing their role as citizens and future stakeholders. Using a mixed-methods approach that incorporates surveys and two focus groups, we collected data from 157 students to gather their views on the potential regulation of cannabis in Colombia. As an empirical contribution, we found that student opinions on this topic fall into three categories: critics, optimists, and those who are indecisive. Critics voiced concerns about abuse and stigma, optimists highlighted the potential economic benefits, and the indecisive remained uncertain about the impacts of cannabis regulation. These insights highlight the complexity of student perspectives and the need for inclusive, informative, and evidence-based policy deliberation on drug policy in Latin America.

Keywords: Cannabis policy reform, Cannabis regulation, university students' perspectives, Colombian cannabis legislation, mixed-methods research

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¿QUÉ PIENSAN LOS ESTUDIANTES UNIVERSITARIOS SOBRE LA REGULACIÓN DEL CANNABIS? PERSPECTIVAS DESDE UNA UNIVERSIDAD COLOMBIANA

RESUMEN

Este estudio analiza las perspectivas de estudiantes de pregrado sobre la regulación del cannabis en una universidad pública de Colombia, con énfasis en su papel como ciudadanos y futuro grupo de interés.

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Utilizando un enfoque de métodos mixtos basado en encuestas y dos grupos focales, analizamos datos de 157 estudiantes para conocer sus opiniones sobre el potencial de la regularización del cannabis. Como aporte empírico, encontramos que las opiniones de los estudiantes sobre este tema se categorizan en tres grupos: críticos, optimistas e indecisos. Los críticos expresaron preocupación por el abuso y el estigma, los optimistas destacaron los posibles beneficios económicos, mientras que los indecisos se mostraron inseguros sobre los impactos de la legalización del cannabis. Estos hallazgos resaltan la complejidad de las opiniones de los estudiantes y la necesidad de una deliberación política inclusiva, informativa y basada en evidencia sobre las políticas de drogas en América Latina.

Palabras clave: reforma de la política del cannabis, regulación del cannabis, perspectivas de los estudiantes universitarios, legislación colombiana del cannabis, investigación de métodos mixtos

INTRODUCTION

On June 21, 2023, Colombia nearly reached a fundamental step in the global discussion on cannabis regulation. In a pivotal moment, the Colombian Senate narrowly rejected a legislative initiative intended to amend Article 49 of the Political Constitution, which aimed to regulate the buying, selling, and distribution of cannabis for adult consumption (García, 2023). Although similar proposals were not new in the Colombian Congress, this attempt at cannabis policy reform was the first to advance to such a late stage in the Senate. Opposition parties expressed concerns about the potential negative impacts on public health, especially among children and youth, citing moral and ethical reasons to reject it (Hernández Bonilla, 2023). While this decision did not change the status quo of drug policy, it provided a unique opportunity to discuss and analyze the broader implications of the existing legal frameworks on the social use of cannabis and young adults' perspectives.

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In the midst of this complex context, Colombian universities serve as unique spaces where societal norms and internal regulations on cannabis consumption often clash, creating a legal vacuum and a puzzling dynamic. University students represent a key demographic for understanding shifts in public opinion and drug policy reform. Their role as future citizens, decision-makers, and potential consumers positions them as essential actors in the public discourse surrounding cannabis regulation (Blavos et al., 2017; Romm et al., 2021). Public universities, in particular, act as microcosms of broader social dynamics, where the high prevalence of cannabis consumption reflects larger societal patterns (Herrera et al., 2022; Goodman et al., 2020). This behavior, combined with the formative role universities play in shaping civic responsibility, supports the focus on this population as critical to understanding the future of cannabis regulation in Colombia (Espinosa-Herrera et al., 2016; Mendiburo-Seguel et al., 2017).

This context underscores the importance of our study, which seeks to explore university students' perspectives on the potential regulation of recreational cannabis.

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The central question guiding our research is: How do the diverse viewpoints of undergraduate students on cannabis regulation shape the debate surrounding drug policy reforms? In the specific context of Colombian universities, our contribution examines students' perceptions of cannabis regulation, with a primary emphasis on commercialization and consumption. While the broader debate encompasses issues related to cannabis cultivation and production, our study focuses specifically on market access and personal use. This study illuminates the dynamics of university students' perspectives on this particular issue.

Our study begins by outlining the ongoing debates on cannabis policy reform, particularly within the Colombian context. It then emphasizes the significance of Colombian university settings in capturing young adults' perspectives on the future of cannabis regulation in the country. The study adopts a comprehensive approach, employing mixed methods such as Multiple Correspondence Analysis (MCA) alongside qualitative analysis based on surveys and focus groups. This combination of quantitative and qualitative methodologies enables us to categorize young people's perceptions regarding key aspects of cannabis policy reform. The concluding section of our study emphasizes the need for tailored educational strategies to address both the benefits and drawbacks of cannabis policy reform in Colombia.

BACKGROUND

Recent research on Colombia's illicit drug policies has extensively explored coca cultivation, production, eradication, and its unintended local consequences (Acero & Machuca, 2021; Gutiérrez Sanín, 2020; Llanes, 2022; Rincón-Ruiz et al., 2016). However, this focus on coca leaves a gap in academic literature concerning the perceptions of young potential cannabis users in Colombian university contexts with regard to cannabis policy reform.

Internationally, evidence suggests an increase in cannabis use in U.S. states where it has been legalized (Goodman et al., 2020) and a decrease in frequent use following regulation in Canada (Doggett et al., 2023). Compared to alcohol, cannabis consumption in European universities tends to be more discreet (Dempsey et al., 2016), while an initial increase in marijuana use following regulation is expected in U.S. university settings (Miller et al., 2017). In Nevada, young cannabis users express support for recent regulations, emphasizing harm reduction despite limited understanding (Amroussia et al., 2020). In Colombia, several analyses underline the easy access to cannabis for recreational use among university students, often without considering regulatory mechanisms (Herrera et al., 2022; Quimbayo-Díaz & Olivella-Fernández, 2013; Martínez-Torres et al., 2016; Martínez-Torres et al., 2022).

Conversely, studies in the current Colombian context regarding the health impacts of cannabis use are emerging. From a public health perspective, Moreno-Sanz et al. (2022) report progress in the clinical application of cannabis, particularly

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in alleviating chronic pain symptoms in Colombian patients. In contrast, Campo-Arias et al. (2020) identify a link between cannabis use and increased suicide risk among adolescents, highlighting the need for a deeper understanding of these underlying variables. Concurrently, Castaldelli-Maia et al. (2023) indicate that while the burden of cocaine use disorder has decreased, there remains an urgent need to improve the management of disorders associated with amphetamine, cannabis, and opioid use in South America.

Debates on cannabis regulation often center on public health issues, but the broader picture gains importance when socio-economic impact studies are considered. For instance, Vélez-Torres et al. (2021) critique the fact that regulation has predominantly benefited the corporate sector in Colombia, sidelining smaller rural producers. These dynamics align with the arguments of Bandosz and Wilczek (2021) and Hart (2021), who emphasize how systemic racism and economic interests have perpetuated the erosion of civil liberties.

Colombian psychiatrists generally hold favorable attitudes toward medicinal cannabis, despite having limited knowledge about its legal status and access methods (Orjuela-Rojas et al., 2021). This perspective coexists with calls for greater technological surveillance in the horticultural production of medicinal cannabis to enhance competitiveness in the Latin American market (Peña & Hernández, 2022). Efforts to balance the benefits and risks of cannabis use include the implementation of effective warning labels, as advocated by Gantiva et al. (2024), and the exploration of sustainable cultivation practices through soil bacteria, as demonstrated by Corredor-Perilla et al. (2023).

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Additionally, the exploration of the anti-cancer potential of Cannabis sativa extracts, as described by Camargo et al. (2023), paves the way for advancements beyond regulatory debates and agronomic characterizations. Meanwhile, research by Moscoso et al. (2022) and Rodriguez-Yzquierdo et al. (2021) on identifying plant diseases and biotic stress, respectively, expands our understanding of the agronomic and phytosanitary challenges associated with cannabis cultivation in Colombia.

Thus, current perspectives on cannabis, both internationally and in Colombia, reveal a complex scenario where the need for informed and equitable public policies becomes imperative. In the context of drug policy reform, it is crucial to consider the perceptions of youth, particularly in university settings, as well as the broader implications of cannabis regulation that extend beyond recreational use. While young consumers support these regulatory initiatives, there is a clear need for further research on their attitudes and the potential impacts of policy reform in the Global South. Additionally, studies like those by Espinosa, Castellanos and Osorio (2016) and Reyes Rodríguez and Khenti (2019) suggest that young university students' perceptions of cannabis regulation play a critical role in shaping their support for such policies. These findings emphasize the importance of understanding how youth perceive cannabis regulation as a key factor in broader drug policy discussions.

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THE COLOMBIAN CANNABIS POLICY REFORM: A PUZZLING DICHOTOMY BETWEEN REGULATION AND PROHIBITION AIMS

Colombia, as a South American nation, has historically grappled with complex dynamics related to cannabis consumption and export. Tracing key milestones in cannabis policy reveals that Colombia aligned its policies with the Versailles Treaty, incorporating commitments from the Opium Convention of 1912. Formal prohibition measures were first introduced in 1920 and subsequently updated in accordance with international agreements in 1961, 1971, and 1988 (Quintero, 2020). Despite these commitments, Colombia experienced a "marijuana boom" from the 1970s to 1982, with cannabis cultivation and trafficking occurring primarily along the Caribbean coast and directed toward the United States (Britto, 2020). This boom ended with the rise of domestic cannabis production in the U.S., prompting a shift from marijuana trafficking to cocaine smuggling (Cruz Olivera & Pereira Arana, 2021).

Although the Colombian National Narcotics Statute, codified in Law 30 of 1986, was influenced by Richard Nixon's 1971 War on Drugs policy, this approach shaped the drug cartels' conflict against Colombia's political elite (Cruz Olivera & Pereira Arana, 2021; Quintero, 2020). However, it allows the carrying and consumption of a personal dose of up to 20 grams of cannabis and the cultivation of up to 20 plants per person. This regulation continues to influence Colombia's current drug policy.

Following this development, the establishment of the new political constitution in 1991 advanced the recognition of civil and individual liberties in Colombia. This is reflected in Article 16, which guarantees the right to develop one's personality. Consequently, in 1994, the Constitutional Court declared Articles 51 and 87 of the National Narcotics Statute unconstitutional with Sentence C-221/1994 (Lemaitre & Albarracín, 2017). With this ruling, the history of drug consumption in Colombia was divided into a puzzling dichotomy. On the one hand, repressive measures of the National Narcotics Statute remained in force. On the other, the approach to drug consumption evolved to frame it as a matter of individual liberties, public health, and human rights (Quintero, 2020). Predictably, presidents across the ideological spectrum criticized this ruling, arguing that decriminalizing the personal dose conflicted with Colombia's commitment to the war on drugs (Lemaitre & Albarracín, 2017). Nonetheless, the most substantial change related to drug consumption occurred in 2009, during the Álvaro Uribe administration.

During Uribe's presidency, opposition to the decriminalization of the personal dose was seen as a manifestation of punitive populism (Londoño Berrío & Restrepo Parra, 2011). This is reflected in seven attempts to overturn the Constitutional Court's decision on the personal dose (Quintero, 2020). This persistence culminated in a 2009 law, passed by Congress, aiming to ban drug consumption by amending Article 49 of the Colombian Constitution, which pertains to the right to health (Lemaitre & Albarracín, 2017). Ironically, this law contributed to both cannabis regulation and prohibition objectives. On the one hand, Executive Decree 2467, issued during the Juan Manuel Santos administration, established the foundation for Law 787 of 2016, which

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regulates the medical and scientific use of cannabis. This law promotes social inclusion by encouraging rural marijuana production and safeguarding small-scale growers under the government's voluntary crop substitution program, aligning with the 2016 peace agreement between FARC rebels and the Colombian government (Vélez-Torres, Hurtado, & Bueno, 2021).

Furthermore, in 2021, Executive Decree 811 established a new framework for cannabis use in Colombia, emphasizing its industrial applications. A year later, the Ministry of Health's Resolution 227 of 2022 addressed procedural aspects related to licensing, quotas, and the use of plant components and derivatives in industrial products and for human consumption. In sum, efforts to restrict drug use under the guise of health concerns ultimately facilitated the legislation of medical Cannabis in Colombia.

Conversely, the amendment of Article 49 of the Colombian Constitution also provided fertile ground for reinforcing drug prohibition measures. Through Law 1801 of 2016, known as the National Code of Police and Coexistence, the Juan Manuel Santos administration introduced corrective measures for over 16 drug and cannabis related behaviors, such as fines and referrals to Drug Dependence Treatment Centers (Cruz Olivera & Pereira Arana, 2021). Under former president Iván Duque's administration, Executive Decree 1844 of 2018 penalized the possession and consumption of psychotropic substances in public spaces. In this regard, the Constitutional Court clarified that state security forces must intervene only when the consumption of legal or illegal psychoactive substances disrupts public order or constitutes a crime, ruling that drug possession in public spaces does not constitute a crime (Quintero, 2020). According to reports from civil society organizations, one could claim that this prohibition approach has led to stigmatization and police abuse against users (Temblores ONG, 2021) without significantly altering Colombians' decisions regarding drug use (Quintero, 2020). In sum, drug prohibition measures throughout Colombia's history have raised questions about their long-term effectiveness.

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Considering this complex history faced by Colombian cannabis users, it is noteworthy to analyze the puzzling dynamics within Colombian universities regarding cannabis use and its possible regulation. In the following section, we delve into the analysis of the unique scope conditions that public universities in Colombia provide for examining cannabis regulation at the local level.

COLOMBIAN UNIVERSITIES, A REPLICATION OF CONTRADICTORY REGULATIONS AT THE LOCAL LEVEL

The tension between national laws and international regulations regarding cannabis use often unfolds in complex social dynamics within Colombian higher education institutions. Historical factors in Colombia have created a legal void, leaving cannabis use in a legal gray area. This puzzling situation is noticeable on public university campuses, where the explicit prohibition of drug consumption contrasts sharply with its widespread and openly visible practice among students. As a result, it is common to

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observe groups of students consuming cannabis in discrete areas of the campus without facing significant repercussions from university authorities.

This unofficial tolerance can be interpreted in several ways:
1. As an acknowledgment of the students' autonomy.
2. As a form of resistance to the criminalization of behaviors perceived as part of the university experience.
3. As a recognition of the open nature of university institutions.

However, this scenario becomes more complex due to two underlying aspects. On the one hand, Colombian regulations recognize that, as a logical consequence of respecting human dignity, there is a right to free personal development, whose core principle protects individual freedom of action. This right recognizes autonomy and personal identity, allowing individuals the power to make self-determined choices in various aspects of life, including drug consumption (Alfonso Castro, Rojas Palomino, & Suarez Marroquín, 2022). In the university context, this principle is reflected in the tolerance towards cannabis consumption, recognizing students as capable of making informed decisions. The contradiction between formal prohibition and permissive practices within universities can be interpreted as an implicit acknowledgment that repressive policies restrict the free development of personality without providing practical solutions to drug consumption issues.

Conversely, Colombian regulations do not specify the circumstances of time, manner, and place in which the consumption and possession of psychoactive substances are permitted. The National Code of Police and Coexistence generally prohibits the consumption of such substances in public spaces, resulting in fines. However, it does not specify the conditions under which consumption might be allowed, revealing another legal vacuum on the issue (Alfonso Castro et al., 2022). In this context, consumption within public universities is related to the perception of these institutions as public spaces protected from micro-trafficking, police intervention, and other risks faced by consumers[2].

The stance of institutional tolerance and permissibility towards the consumption of psychoactive substances sometimes generates conflicts and coexistence tensions among different members of the university community. It does not adequately address the potential risks associated with cannabis consumption, especially in terms of mental health and academic performance. It fails to significantly alter high consumption levels and the low-risk perception among users, raising concerns about individual autonomy and the responsibility that comes with it. In summary, the history of cannabis prohibition

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2 Although funded and overseen by the national and state authorities, Colombian public universities do not fit the traditional definition of "public spaces." These higher education institutions operate as academic environments with the autonomy to establish their own internal norms and policies. Here, we acknowledge that it is vital to regulate practices within universities to ensure the safety and well-being of the university community, maintain academic integrity, and uphold legal and social responsibility.

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and ongoing debates on its regulation in Colombia highlight the complex dynamics of cultural, social, economic, and political factors shaping global drug policies. As societies grapple with these challenges, considerations of public health, human rights, and social justice become critical. As spaces for learning and critical reflection, universities serve as platforms for open dialogues about cannabis consumption, addressing the issue from both an educational and health perspective.

METHODS

This study employed a mixed-methods research design using an embedded approach to answer the research question (Creswell, 2014). This methodological strategy simultaneously collects qualitative and quantitative data as complementary tools. For the quantitative approach, data were gathered through surveys and analyzed using a non-experimental descriptive design (Ato, López-García, & Benavente, 2013). In the social sciences, non-experimental descriptive designs are crucial when manipulating variables or randomly assigning participants is not feasible or ethical (Reio, 2016; Price et al., 2015). These designs are primarily used in observational studies that describe natural phenomena without asserting causal relationships. Despite their limitation in establishing causality due to potential confounding variables, they are valued for providing practical recommendations based on systematic observations (Reio, 2016).

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Multiple Correspondence Analysis (MCA) was used to cluster perceptions and opinions about cannabis consumption among university students. MCA is a statistical technique that explores and visualizes relationships among multiple variables within a dataset, making it particularly useful for large categorical databases. For instance, MCA has been employed in drug consumption studies, including cannabis research, to examine how various demographic and behavioral factors interact with consumption patterns. One notable study utilized MCA to analyze the simultaneous use of CBD and THC, revealing the complexity of their interaction and how factors such as timing of administration and the THC/CBD ratio influence cognitive and memory effects (Vilches et al., 2020).

This technique transforms data from a multi-way contingency table into a two-dimensional matrix, enabling visual interpretation through reduced-dimension maps that illustrate how each variable's categories are associated or differentiated. Consequently, MCA provides a clear visualization of complex relationships within the data, facilitating the identification and understanding of how various categorical variables interrelate, which is crucial for devising evidence-based interventions and effective public health policies (Greenacre, 2007; Le Roux & Rouanet, 2010).

Moreover, through a qualitative approach, content analysis enables the systematic interpretation of responses to open-ended survey questions and transcribed data from two focus groups. While thematic analysis is commonly cited in the literature as a standard research method (Flick, 2014), content analysis is chosen here to identify frequent and significant patterns within the text (Krippendorff, 2019). This approach is informed by an inductive process that remains true to the semantic content of the data, adhering to best

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practices recommended by Neuendorf et al. (2017), to highlight the explicit meanings shared by participants. This qualitative method has been used in the study of cannabis regulation and youth perceptions, specifically in exploring Canadian youth's awareness of the adverse health effects associated with cannabis use (Leos-Toro et al., 2020).

Participants

An online, self-administered survey in Spanish language was conducted among adult undergraduate students at the University of Caldas, Colombia, between May and November 2023. The survey was confidential, distributed via Qualtrics software, to ensure privacy and encourage honest responses. The study included 157 participants (average age = 23.48 years). Proportional stratified random sampling, based on school and gender, was used to determine the sample size, with optimal allocation to ensure equitable representation. Participants were selected from official enrollment lists provided by the university's Academic Registrar's Office and were invited via email. A 95% confidence level and a 7.82% margin of error were established to ensure the reliability and precision of the estimates. The total population of eligible undergraduate students enrolled in the first semester of 2023 was 9378.

The inclusion criteria required participants to be undergraduate students enrolled during the first semester of 2023 and aged 18 or older. Students who were not officially enrolled or who did not provide informed consent were excluded from the survey. The final sample of students, classified by school and gender, was as follows:

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Figure 1. Gender Distribution of Survey Participants (MCA Viewing)[3]
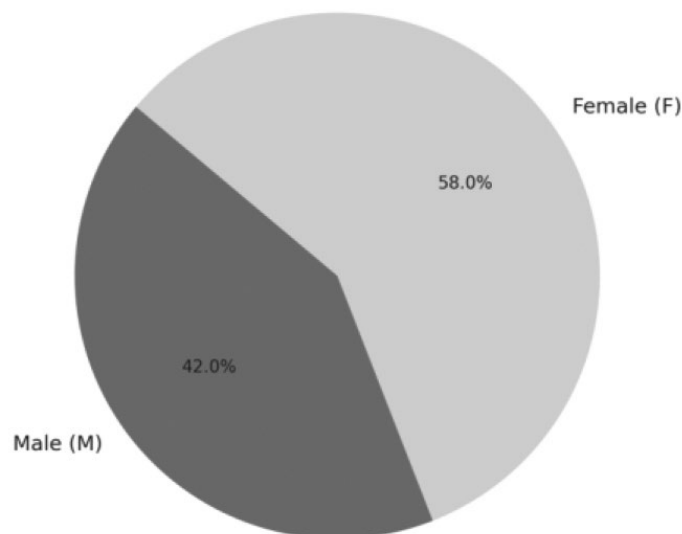
Source: Own elaboration.

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3 Each descriptive statistics table includes information to aid in the subsequent reading of MCA, facilitating the understanding of Figure 3 and Table 8.

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Figure 2. School Distribution of Survey Participants with Absolute Values and Percentages (MCA viewing)
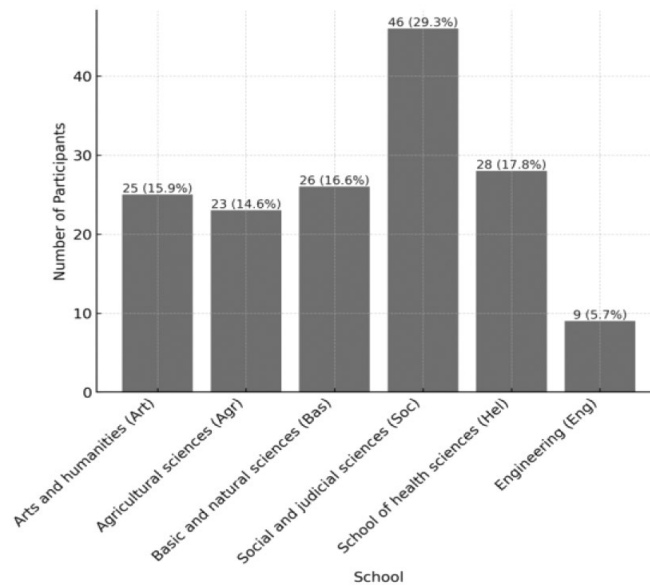
Source: Own elaboration.

Additionally, in October 2023, two focus groups were conducted in Spanish with participants from the University of Caldas, each consisting of six students. These participants were recruited through social media and with the support of the Student Wellbeing Office of the University of Caldas.We made sure that the focus group participants were distinct from survey respondents and recruited independently. The focus groups aimed to explore individual and collective views on cannabis regulation, ensuring diverse representation in terms of gender and academic disciplines. The Ethics Committee of the School of Social and Legal Sciences approved the methodologies for both the survey and the focus groups.

Research instruments

The survey, specifically designed for this study, included five categories with 34 questions, combining both closed-ended and open-ended formats:

1. Familiarity/Previous Knowledge: This section, consisting of five closed-ended questions, assessed participants' knowledge of medicinal cannabis, past debates, and dispensaries, key factors in understanding attitudes toward cannabis.
2. Opinions About Cannabis Regulation: This category, consisting of five closed-ended and three open-ended questions, gathered views on medicinal and recreational regulation, shedding light on the social and political influences on legislation and public opinion.
3. Perceptions of Social and Cultural Effects of Cannabis Regulation: Four closed-ended questions evaluated the influence of current cannabis regulation, such as Colombia's Law 1801, on social and cultural attitudes.
4. Opinions and Perceptions About Cannabis Dispensaries: This section contains seven questions exploring perceptions of dispensaries in regulated cannabis distribution, their role in regulation, and their impact on minors, illegal trade, and ethical considerations.

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5. Opinions About Medicinal Use: Including three closed-ended and four open-ended questions, this category explored perceptions and experiences with medicinal cannabis, focusing on its effectiveness, personal use, and views on regulation.

During the focus groups, a "brainstorm" approach was used. Participants quickly voiced the first word that came to mind upon hearing "cannabis regulation", and these words were later grouped to create "mental maps" that visually depicted shared beliefs. The discussions were then expanded to include public health and individual rights, with the mental maps serving as a referential framework.

Data analysis

For quantitative data, Multiple Correspondence Analysis (MCA) was used as an exploratory multivariate method. MCA is particularly suited for categorical variables, allowing graphical representation of response categories without needing distributional assumptions, thereby offering flexibility (Sourial et al., 2010). Unlike parametric analyses that depend on certain assumptions for identifying patterns, MCA visually uncovers relationships between variables (Greenacre & Blasius, 2006). The analysis identified three clusters of perceptions and opinions about cannabis regulation. Variables were derived from the survey's five categories, excluding open-ended questions, with gender and school membership serving as control variables.

The analysis began with a univariate descriptive statistical examination to evaluate the frequency distribution of each variable. Following this, MCA was performed using SPSS v26 software, applying optimal scaling to ensure balanced weighting across all variables. The analysis was conducted in two dimensions, employing default discretization measures and principal normalization of variables. For accuracy, a convergence criterion of 0.00001 was set, with a maximum of 100 iterations. The categorization process was iterative and emergent, adhering to the principles of content analysis as proposed by Krippendorff (2019). Emphasis was placed on capturing the nuances of students' perceptions and complexities of their collective narratives regarding cannabis regulation, providing a detailed understanding of individual attitudes.

These narratives were analyzed with the help of ATLAS.ti v24, a specialized software for qualitative analysis that facilitated data organization and coding (Friese, 2019). By adopting this methodology, we described the gathered perspectives and interpreted how these interrelated findings contribute to the broader debate on cannabis policy, aligning with the literature's call for in-depth qualitative data analysis (Willig, 2013).

RESULTS

Descriptive analysis

Students exhibit a limited understanding and awareness of the medicinal use of cannabis, considering its advantages and lawful facets, such as dispensaries and current

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legislation. While a considerable segment shows moderate knowledge or exposure, the majority demonstrates lower levels of familiarity or experience (Table 1).

Table 1. Familiarity/Previous Knowledge About Cannabis Use

Variable (Code)	Categories (MCA viewing)	n (%)
Previous knowledge about medicinal cannabis use (UM1)	1. Not very familiar (Not Prev)	76 (48.4)
	2. Moderately familiar (Mod Prev)	32 (20.4)
	3. Very familiar (Ver Prev)	49 (31.2)
Exposure to cases of medicinal cannabis use (UM2)	1. Not very exposed (Not Expo)	47 (29.9)
	2. Moderately exposed (Mod Expo)	42 (26.8)
	3. Very exposed (Ver Expo)	68 (43.3)
Knowledge about the medicinal benefits of cannabis (UM3)	1. Not very informed (Not Know)	50 (31.8)
	2. Moderately informed (Mod Know)	63 (40.1)
	3. Very informed (Ver Know)	44 (28)
Familiarity with debates on cannabis regulation (LUR1)	1. Not very familiar (Not Regu)	96 (61.1)
	2. Moderately familiar (Mod Regu)	31 (19.7)
	3. Very familiar (Ver Regu)	30 (19.1)
Familiarity with cannabis dispensaries as a regulation measure (LUR5)	1. Not very familiar (Not Disp)	105 (66.9)
	2. Moderately familiar (Mod Disp)	23 (14.6)
	3. Very familiar (Ver Disp)	29 (18.5)

Source: Own elaboration.

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There is a positive inclination toward regulating recreational cannabis use, with many students perceiving it as potentially beneficial both economically and in curbing the illegal market. Although uncertainties remain regarding the precise economic impacts and benefits, support for recreational regulation remains strong, accompanied by a generally optimistic outlook on its potential outcomes (Table 2).

Table 2. Opinions About Cannabis Regulation

Variable (Code)	Categories (MCA viewing)	n (%)
Opinion about cannabis regulation measures (L18012)	1. Disagree (Dis Meas)	54 (34.4)
	2. Neutral (Neu Meas)	58 (36.9)
	3. Agree (Agr Meas)	45 (28.7)
Opinion about recreational cannabis use regulation (LUR2)	1. Disagree (Dis Recr)	16 (10.2)
	2. Neutral (Neu Recr)	62 (39.5)
	3. Agree (Agr Recr)	79 (50.3)
Opinion about positive impacts of cannabis recreational regulation (LUR3)	1. Limited impacts (Lim Posi)	37 (23.6)
	2. Uncertain impacts (Unc Posi)	49 (31.2)
	3. Substantial impacts (Sub Posi)	71 (45.2)

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Variable (Code)	Categories (MCA viewing)	n (%)
Opinion about the impact of cannabis regulation on the illegal market (LUR15)	1. Limited impact on reducing the illegal market (Lim ille)	28 (18.1)
	2. Uncertain impacts (Unc ille)	28 (18.1)
	3. Substantial impact on reducing the illegal market (Sub ille)	99 (63.9)
Opinion about the economic impact of cannabis regulation (LUR16)	1. Limited positive economic impact (Lim Econ)	26 (16.8)
	2. Uncertain economic impacts (Unc Econ)	45 (29)
	3. High positive economic impact (Sub Econ)	84 (54.2)

Source: Own elaboration.

Students generally express skepticism about the effectiveness of current cannabis regulation, particularly in addressing its cultural and social effects. Concerns focus on its limited ability to reduce public substance use and improve civic coexistence. Additionally, significant apprehension exists regarding the potential for increased stigma toward cannabis users, as well as greater access and consumption among youth. These perceptions highlight the perceived shortcomings of existing policies and legal measures (Table 3).

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Table 3. Perceptions of Social and Cultural Effects of Cannabis Regulation

Variable (Code)	Categories (MCA viewing)	n (%)
Effectiveness of using fines to reduce cannabis consumption in public spaces -based on the Law 1801 on civic coexistence- (L18013)	1. Limited effect (Lim Effe)	112 (71.3)
	2. Not sure (Not Effe)	27 (17.2)
	3. High effect (Hig Effe)	18 (11.5)
Impact of Law 1801 on civic coexistence in relation to the stigma towards cannabis consumers (L18014)	1. Slight increase (Sli Stig)	57 (36.3)
	2. Not sure (Not Stig)	51 (32.5)
	3. High increase (Hig Stig)	49 (31.2)
Effectiveness of the Law 1801 on civic coexistence in relation to the cannabis consumption in public spaces (L18015)	1. Slight improvement (Sli Publ)	105 (66.9)
	2. Not sure (Not Publ)	41 (26.1)
	3. High improvement (Hig Publ)	11 (7)
Perception of the impact of Cannabis regulation on access and consumption of young adults (LUR4)	1. Slight increase (Sli Acce)	68 (43.3)
	2. Not sure (Not Acce)	43 (27.4)
	3. High increase (Hig Acce)	46 (29.3)

Source: Own elaboration.

Table 4 shows that students moderately accept dispensaries as a method for regulated cannabis distribution. Optimism surrounds the potential role of dispensaries in supporting regulation and preventing access by minors. Nevertheless, ethical concerns persist regarding the operation of both state and private dispensaries. Despite these reservations, there is a general consensus on the potential of dispensaries to reduce

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illegal trade. Additionally, there is support for implementing an anonymized consumer registry, which could contribute to healthcare funding.

Table 4. Opinions and Perceptions About Cannabis Dispensaries

Variable (Code)	Categories (MCA viewing)	n (%)
Perception of dispensaries as a method of regulated cannabis distribution (LUR6)	1. Disagree (Di Disp)	22 (14)
	2. Neutral (Neu Disp)	75 (47.8)
	3. Agree (Agr Disp)	60 (38.2)
Roles of dispensaries in cannabis regulation (LUR8)	1. Could generate limited opportunities (Lim Role)	56 (35.7)
	2. Not sure (Not Role)	25 (15.9)
	3. Could generate significant opportunities (Sig Role)	76 (48.4)
Perception of cannabis regulation through dispensaries to prevent access by minors (LUR9)	1. Disagree (Dis Mino)	7 (4.5)
	2. Neutral (Neu Mino)	22 (14)
	3. Agree (Agr Mino)	128 (81.5)
Trust in the ethical operation of state dispensaries (LUR10)	1. With low confidence (Low Stat)	47 (29.9)
	2. Not sure (Not Stat)	68 (43.3)
	3. With high confidence (Hig Stat)	42 (26.8)
Trust in the ethical operation of private dispensaries (LUR11)	1. With low confidence (Low Priv)	44 (28)
	2. Not sure (Not Priv)	76 (48.4)
	3. With high confidence (Hig Priv)	37 (23.6)
Perception of the impact of cannabis dispensaries on illegal trade (LUR13)	1. Would slightly contribute (Sli ille)	31 (19.7)
	2. Not sure (Not ille)	25 (15.9)
	3. Would highly contribute (Hig ille)	101 (64.3)
Perception about anonymized registration and health financing (LUR14)	1. Disagree (Dis Anon)	18 (11.5)
	2. Neutral (Neu Anon)	54 (34.4)
	3. Agree (Agr Anon)	85 (54.1)

Source: Own elaboration.

The results indicate a general acceptance of medicinal cannabis use and its positive impact on quality of life. However, some respondents express uncertainty about its effectiveness. This uncertainty may stem from the limited direct experience with medicinal cannabis among respondents, which could influence their perceptions of both its efficacy and the broader implications of its regulation (Table 5).

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Table 5. Opinions About Medicinal Use

Variable (Code)	Categories (MCA viewing)	n (%)
Effectiveness of medicinal cannabis use (UM4)	1. Disagree (Dis Medi)	16 (10.2)
	2. Neutral (Neu Medi)	71 (45.2)
	3. Agree (Agr Medi)	70 (44.6)
Direct experience with medicinal cannabis use (UM5)	1. Limited experience (Lim Expe)	85 (54.1)
	2. Some experience (Som Expe)	49 (31.2)
	3. Extensive experience (Ext Expe)	23 (14.6)
Impact of cannabis regulation on quality of life (UM6)	1. Disagree (Dis Qual)	8 (5.1)
	2. Neutral (Neu Qual)	52 (33.1)
	3. Agree (Agr Qual)	97 (61.8)

Source: Own elaboration.

Multiple Correspondence Analysis (MCA)

The Multiple Correspondence Analysis (MCA) of the cannabis regulation perception model among university students reveals distinct dimensions with solid reliability. The first dimension achieves a high-reliability score ($\alpha = 0.897$), indicating strong item correlation, while the second dimension also shows reliable fidelity ($\alpha = 0.767$). Together, these dimensions account for 45.416% of the total variance, capturing a substantial portion of the analysis. The model's average reliability (0.852) and explained variance (22.708%) demonstrate its effectiveness in identifying key trends and patterns, exploring complex attitudes toward cannabis, and providing valuable insights into student perspectives (Table 6).

Table 6. Summary of the Model on Cannabis Regulation Perception

Dimension	Cronbach's alpha	Variance recorded for		
		Total (eigenvalue)	Inertia	Variance %
1	0.897	7.127	0.297	29.698
2	0.767	3.772	0.157	15.718
Total		10.900	0.454	45.416
Average	.852a	5.450	0.227	22.708
a. The Cronbach's alpha average is based on the eigenvalue average.				

Source: Own elaboration.

The analysis of discriminant measures in each dimension, as detailed in Table 7, elucidates the contribution of individual variables to the two primary dimensions identified in the MCA.

Dimension 1 is predominantly characterized by variables associated with economic regulation, illegal market dynamics, and the efficacy of medicinal cannabis. Key variables include LUR16, assessing the economic impact of cannabis regulation (0.504); LUR15, addressing its effect on the illegal market (0.440); and UM4, focusing on the effectiveness of medicinal cannabis (0.512), highlighting practical aspects of cannabis regulation.

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Dimension 2, while contributing less overall, notably impacts variables related to perceptions of dispensaries (LUR10 and LUR11) and their role in preventing minors' access to cannabis (LUR9). This dimension underlines the importance of trust in the ethical management and regulatory role of dispensaries.

The variance measure indicates that Dimension 1 exerts a stronger influence, with the majority of variables aligning with it. This suggests that economic considerations and the efficacy of medicinal cannabis are pivotal in shaping university students' views. In contrast, gender and school, used as supplementary variables, exhibit lower impacts in both dimensions, indicating their relatively minor role compared to opinions and knowledge about cannabis regulation.

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Table 7. Discriminant Measurements. Perception of Cannabis Regulation

Code	Dimension		Average
	1	**2**	
UM1	0.344	0.001	0.173
UM2	0.280	0.028	0.154
UM3	0.421	0.003	0.212
LUR1	0.322	0.005	0.164
LUR5	0.261	0.015	0.138
L18012	0.180	0.186	0.183
LUR2	0.444	0.306	0.375
LUR3	0.337	0.298	0.318
LUR15	0.440	0.348	0.394
LUR16	0.504	0.410	0.457
L18013	0.119	0.059	0.089
L18014	0.184	0.004	0.094
L18015	0.010	0.075	0.043
LUR4	0.032	0.196	0.114
LUR6	0.365	0.198	0.281
LUR8	0.486	0.150	0.318
LUR9	0.167	0.188	0.178
LUR10	0.238	0.397	0.318
LUR11	0.137	0.398	0.268
LUR13	0.333	0.324	0.329
LUR14	0.220	0.121	0.170
UM4	0.512	0.003	0.258
UM5	0.360	0.006	0.183
UM6	0.427	0.053	0.240
Gendera	0.013	0.019	0.016
Schoola	0.033	0.057	0.045

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Code	Dimension		Average
	1	2	
Active total	7.127	3.772	5.450
Variance %	29.698	15.718	22.708
a. Complementary variable			

Source: Own elaboration.

Figure 3 displays the categories of groups representing three clusters:

• Cluster 1: Critics

This cluster includes young students with moderate exposure to medicinal cannabis who hold a critical view on recreational regulation. While they support medicinal cannabis regulation, they are skeptical about its recreational use, voicing concerns over increased youth access and consumption due to regulatory policy gaps. Their distrust in both state and private dispensaries, particularly regarding their effectiveness in addressing illegal trade, reflects apprehension about the future of cannabis market regulation. They also have mixed opinions on cannabis's impact on quality of life, indicating critical views on medicinal use. These students predominantly belong to the School of Health Sciences and Engineering, showing an analytical approach to this regulatory issue.
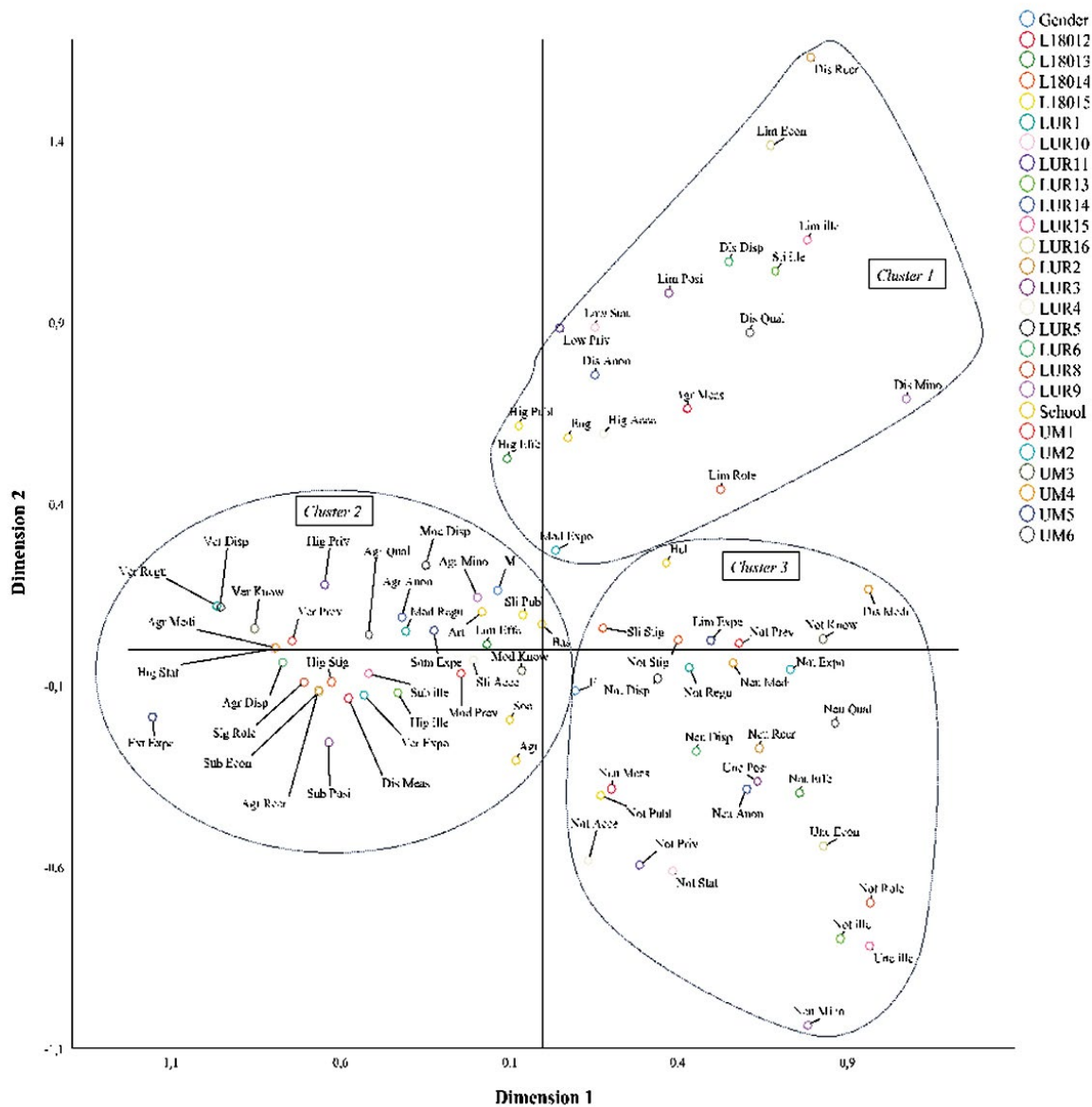
• Cluster 2: Optimists

This group consists of students who perceive themselves as having extensive knowledge of medicinal cannabis. They adopt a positive stance on regulation and its socioeconomic benefits. Despite concerns about social stigma and youth access, they endorse the ethical operation of dispensaries as a key element in curbing illegal trade. Their acceptance of the perceived effectiveness of medicinal cannabis and its quality-of-life benefits, often based on personal experiences, are widely accepted within this cluster. Predominantly male, these students come from diverse academic backgrounds, including Arts and Humanities, Agricultural Sciences, Basic and Natural Sciences, and Social and Legal Sciences.

• Cluster 3. Indecisive

This cluster is primarily composed of female students with limited knowledge of medicinal cannabis and its regulation, leading to uncertainty about cannabis regulation overall. Their neutral stance and pervasive uncertainty suggest that more information is needed to develop concrete opinions. This ambiguity is further influenced by minimal direct experience and concerns about cannabis-related stigma.

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Figure 3. Group Category Chart. Perception of Cannabis Regulation

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Source: Own elaboration.

Qualitative analysis

The analysis of the open-ended survey questions is summarized as follows (Figure 4):

Regulation of recreational use: Most responses indicate that cannabis regulation for recreational use should include restrictions for minors, dosage limits, quality control, and access to information about its effects. Some students recommend limiting sales to authorized centers and granting dispensaries exclusive rights to control cannabis genetics. Ideas such as home cultivation, taxation, and job creation are also mentioned, although some participants consider that cannabis should not be regulated or that individuals should have the freedom to decide for themselves.

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Key measures include setting dosage and age limits for cannabis use, creating designated smoking areas and treatment centers for minors, establishing international research standards, implementing prevention and social welfare programs, regulating access for individuals over 18 at affordable prices, maintaining databases to verify consumer age, conducting surveillance and active intervention to identify addiction cases, performing medical checks to detect adverse reactions, establishing strategic consumption points monitored by authorities, and supporting legal dispensaries with sales control.

Benefits of cannabis regularization: According to surveyed students, regulating cannabis for recreational purposes could have significant economic and social benefits:
1. It could reduce the illegal market by providing consumers with accurate and safe product information, minimizing illegal sales and drug trafficking.
2. The legal cannabis industry could create jobs and boost the country's economy, while preventing user criminalization and reducing the stigma surrounding cannabis use.
3. Regulation could help control access to minors and allow for the statistical registration of cannabis users, whether for dependent, recreational, or medicinal use.

Regulation of dispensaries: There is a consensus on preventing sales to minors, ensuring product quality and safety, and implementing strict control over sales and data. Suggested measures include employing specialized staff, collaborating with health and education sectors, and enforcing anti-monopoly and anti-corruption efforts. Below is a summary of the opinions:
- Do not sell to minors.
- Certification and regulation to ensure product quality and safety.
- Control and monitoring of sales and inventory.
- Regulated access for medical users.
- Education and campaigns for responsible use.
- Prevention of monopolies and corruption.
- Recording of purchases and responsible handling of personal data.
- Trained and specialized staff in the product.
- Monitoring and control of dosages and supply times.
- Coordination with health and education institutions.
- Transparency and responsibility in the management and distribution of cannabis.

Improvement of legislation: There is a diversity of opinions regarding public cannabis consumption laws. While some support a complete ban, others advocate for designated consumption areas. Proposals include limiting consumption in the presence of minors and offering education on associated risks. Some argue that it is a personal decision. The aim is to balance regulating consumption with respect for personal freedoms. Suggested measures include campaigns promoting responsible consumption, drawing comparisons with regulations on other substances, and addressing illegal sales. There are also proposals to legalize and create exclusive spaces, with the aim of reducing stigma and providing alternatives.

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Medical cannabis benefits: Most responses mention that cannabis can be beneficial in managing pain, especially chronic pain. It is also noted that it may have healing properties in the treatment of diseases such as epilepsy, anxiety, insomnia, and stress. Some respondents also believe cannabis could help manage diseases such as Parkinson's, cancer, arthritis, and depression. However, many stress the need for further research on its specific effects and benefits to ensure its safe and effective use.

Concerns regarding medicinal cannabis use: Recreational use and abuse of cannabis, as well as social stigma and the lack of proper regulation, are some of the concerns and challenges posed by its medicinal use. Additional concerns include the potential for addiction, misuse, illegal trade, and a lack of comprehensive research on its benefits and side effects. Other issues cited are dependency, treatment costs, potential influence on youth, and the risk of it replacing other effective medical treatments. However, some highlight the importance of responsible and regulated use, the need to combat social stigma, and the promotion of research and education on the topic.

Medicinal cannabis regulation: The general opinion is that cannabis should be regulated and controlled, especially for medicinal use. Suggestions include selling it in pharmacies with prescriptions and monitoring patients who use it. Respondents also stress the importance of providing information and education about its risks and benefits. Some respondents advocate for free access, coupled with age restrictions and designated consumption areas. The need for quality control and the establishment of clear standards regarding its use and access is mentioned. Overall, the emphasis is on regulating cannabis in a safe and controlled manner, especially for medicinal purposes.

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Figure 4. Word Cloud of Open Questions
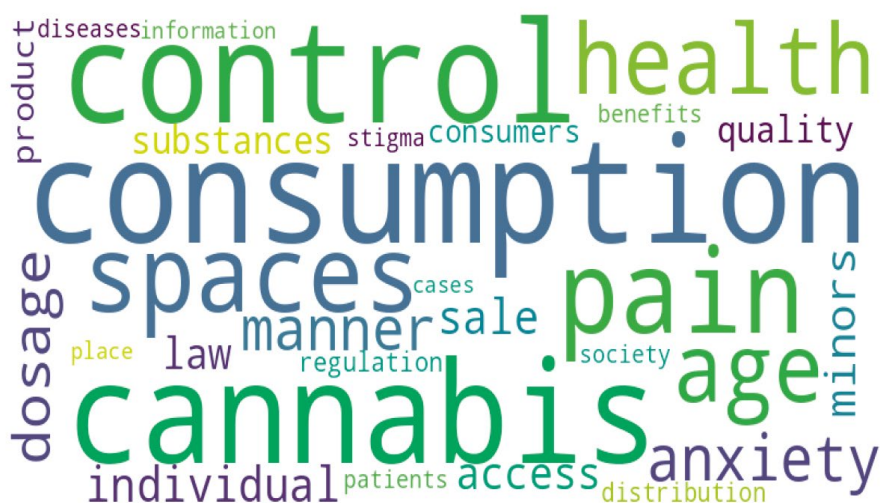
Source: Own elaboration.

The first focus group (Figure 5) engaged in a thought-provoking discussion on individual rights within the context of cannabis regulation. Their dialogue, enriched by diverse perspectives, underscored the intricate nature of the topic. Participants stressed the need for a comprehensive approach to regulation, recognizing the
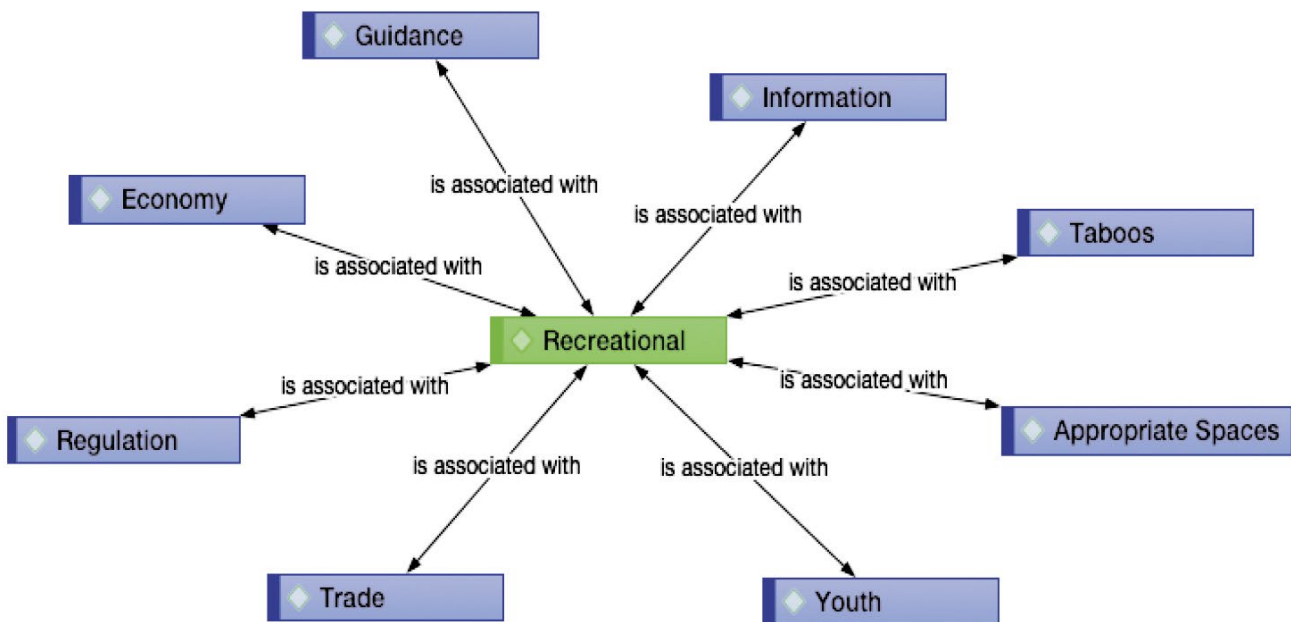
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interconnectedness of various factors. As one participant aptly put it: "Everything is related. Regulation entails information and support. It's like with alcohol and cigarettes, where there is information about the effects and designated spaces for consumption" (Student).

The analysis then centered on individual rights. Participants discussed potential challenges related to regulation, with one voicing a common concern, "The first thing people think is that consumption will occur everywhere. That's why it is crucial to regulate appropriate spaces" (Student). This perception echoes the group's collective commitment to finding a balance between individual rights and broader public health concerns.

When discussing autonomy and personal decision-making, the students were firm in their stance. "Regulation should not be taken lightly, especially among the young" (Student), one participant asserted. Another advocated for a comprehensive educational approach, stating: "We should think about education, not only in hospitals or campaigns but also in schools, with a subject dedicated to understanding the effects of cannabis, similar to sex education" (Student).

Furthermore, the group highlighted the importance of a clear regulatory framework and practical support to balance individual rights with health and safety concerns. "Our freedoms end where others' begin" (Student), one participant noted, suggesting that laws should establish clear boundaries for consumption spaces and other related activities.

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Figure 5. Individual Rights Focus Groups

Source: Own elaboration.

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The second focus group (Figure 6) centered on public health topics, particularly the societal implications of cannabis regulation. Participants conveyed a cautious perspective regarding the potential consequences for individual and community well-being.

One participant raised concerns about public health, stating: "If regulation occurs, access to psychoactive substances would increase, which could lead to higher consumption and, consequently, an increase in respiratory diseases and social cohabitation issues" (Student). This perspective reflects concerns about the potential side effects of increased consumption on both individual and social health.

Another participant noted the dual effects of regulation, stating: "Regulation could benefit the control of certain chronic diseases through the medicinal use of cannabis. However, greater support for prevention programs is crucial so that the public is aware of the problems of excessive consumption" (Student). This opinion highlights the therapeutic potential of cannabis while emphasizing the need for education and preventive measures.

Regarding measures to ensure health and well-being within a legal framework, the group agreed on the importance of establishing appropriate consumption spaces and communicating the associated risks. "There should be designated spaces for consumption and clear communication about the health risks" (Student), remarked one participant.

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Figure 6. Public Health Focus Groups
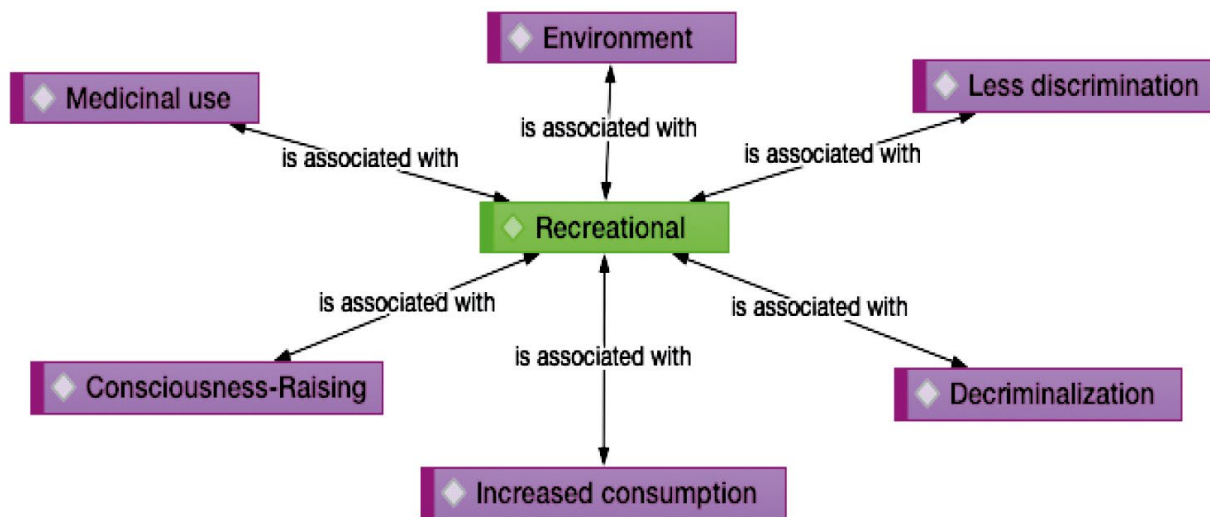
Source: Own elaboration.

Finally, both focus groups deliberated on how regulation could affect consumption dynamics at the university level, offering varied perspectives. A participant from the second group suggested that regulation might have little effect on consumption due to the already widespread use of cannabis in university settings. Conversely, a participant from the first group highlighted the commercial implications, arguing

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that regulation could boost sales and revenues, potentially weakening the illicit market on campus.

CONCLUSION

This study has explored the diverse perspectives of undergraduate students in a Colombian public university regarding potential cannabis regulation. The findings highlight the need for nuanced, educational, and balanced regulatory strategies that consider both individual freedoms and public safety. Classifying students into three distinct groups—critics, optimists, and indecisive—emphasizes the importance of integrating various viewpoints in developing and refining drug policies, such as Law 1801, to enhance their effectiveness and social equity.

The findings suggest that future cannabis policies should include not only legal and recreational aspects but also their impact on public health, economic inequalities, and educational needs. Policies must be flexible enough to accommodate different levels of familiarity and concerns about cannabis, as indicated by studies that show variations in consumption and attitudes under different regulatory frameworks (Hammond et al., 2020). Considering both the risks, such as the association between cannabis use and increased suicide risk among adolescents (Campo-Arias et al., 2020), and the potential medical benefits, such as alleviating chronic pain symptoms (Moreno-Sanz et al., 2022), underscores the complex public health implications of cannabis regulation.

This study contributes to the national debate on cannabis regulation in Colombia by emphasizing the perspectives of young people as key actors in the future decision-making of the country. Our findings show that focusing solely on economic and regulatory aspects is insufficient unless health risks and stigma are also addressed, particularly among university students. These concerns are crucial for creating more inclusive policies focused on public health, including prevention and establishing safe environments for responsible consumption (Marín Llanes et al., 2023; Orjuela-Rojas et al., 2021).

Internationally, young people are often perceived as a vulnerable group. However, consistent with Flacks' (2018) critique, this study shows that, with proper education and information, young individuals can make informed decisions. Both well-informed students and less-exposed students showed critical thinking when assessing risks and benefits of cannabis, reinforcing the need to empower youth within a more equitable regulatory framework (Leos-Toro et al., 2020).

University students demand for assertive communication and evidence-based dialogue on this topic, underscoring the need for an integrated policy approach that considers public health and development. This aligns with the analysis of "Ruta Futuro" (Morales Sánchez et al., 2021) and several studies on public perception of drug policies in Latin America (Mendiburo-Seguel et al., 2017). Such an approach echoes critical but pragmatic views on drug policies (Uprimny, 2021), advocating for minimizing negative

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impacts and strengthening harm-reduction strategies while respecting constitutional rights to personal development and highlighting education as a fundamental governmental tool (Lemaitre & Albarracín, 2017). Criticism of policies favoring large corporations (Vélez-Torres et al., 2021) and advocacy for equitable opportunities for all stakeholders, particularly rural producers, inform the socio-economic equity needed in policy reform.

This study indicates that young people, who might become potential recreational or medicinal cannabis users, are critical agents for social and cultural change. Their inclusion is essential for understanding the future direction of public opinion and social acceptance of cannabis regulation. As active citizens and future leaders, they play a vital role in advocating for sustainable development and social equity, calling for a policy approach that fosters sustainable and equitable practices. Integrating sustainable agricultural techniques into cannabis policies aligns with the potential for technological surveillance in horticultural production (Peña and Hernández, 2022) and sustainable cultivation practices (Corredor-Perilla et al., 2023).

The analysis of students' perceptions reveals how their critical, optimistic, and indecisive views reflect the key divisions in Colombia's ongoing debate on drug policy reform. These perspectives highlight the importance of involving youth in the development of policies that address not only regulation but also the social and public health aspects of cannabis use. As active citizens and future leaders, their involvement is crucial for shaping policies that promote sustainable and equitable practices.

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Future research should involve a broader demographic sample of university students in Latin America to validate these findings and uncover new insights that could refine cannabis policies in Colombia and beyond. Such an expansion would provide richer data for comparative studies and enable policymakers to develop a more comprehensive understanding of the implications of cannabis regulation, focusing on sustainable development and social equity.

There is a broad consensus among students on the need to raise awareness about cannabis consumption and its health consequences, emphasizing harm-reduction strategies similar to those used for tobacco and alcohol (Marín Llanes et al., 2023). Students also agree on designating specific areas for consumption, reflecting concerns about the impact on public space and social coexistence.

In conclusion, as cannabis regulation advances in Colombia and other Latin American countries, it is crucial to involve youth in ongoing dialogues to refine policies that not only regulate cannabis but also promote public health, social justice, and economic development. This inclusive, informative, and evidence-based approach must align with constitutional rights to personal development and safety. Fundamentally, future studies should expand this research to the broader Latin American context to deepen our understanding of these dynamics and support informed political reforms based on evolving youth perspectives.

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