Opinions on the Medical and Recreational Use and Legalization of Marijuana in Mexico: Results of a National Survey

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ABSTRACT

Introduction. The use of medical marijuana was legalized in Mexico in 2017. In June 2021, the Supreme Court authorized personal marijuana use, as well as its planting, cultivation, harvest, preparation, possession, and transportation for recreational purposes by persons aged 18 and over, decriminalizing its use. **Objectives.** 1) To determine which variables are associated with favorable opinions regarding medical use, recreational use, and the legalization of marijuana use; and 2) to determine whether there are differences in the variables that best predict support for medicinal and recreational use and legalization of marijuana among marijuana users and non-users. **Method.** Data are drawn from the 2016 National Survey on Drug, Alcohol, and Tobacco Use, administered to a nationally representative sample of Mexican households. A validated questionnaire was used with questions on demographic characteristics, marijuana use (including the number of times it has been used), respondents' opinions regarding the legalization of marijuana and recreational use, whether they have been offered marijuana without having to pay for it, perception of risk associated with marijuana use, and excessive alcohol consumption. **Results.** Being male and having a low perception of the risks of marijuana use are the variables mostly strongly associated with approving medical and recreational use and its legalization, irrespective of whether respondents used it. Other variables associated with approval are age, educational attainment, and income level. **Discussion and Conclusion.** Legislators and policy makers should consider the full range of public opinion concerning the use and legalization of marijuana and incorporate it into their proposals.

Keywords: Opinions, marijuana, medicinal, recreational, legalization, users, Mexico.

RESUMEN

Introducción. En México, el uso de la marihuana medicinal fue legalizado en 2017 y en junio de 2021, la Suprema Corte autorizó el uso personal de marihuana, así como su siembra, cultivo, cosecha, preparación, posesión y transporte con fines recreativos para personas mayores de 18 años. **Objetivos.** 1) Conocer las variables que se relacionan con las opiniones favorables hacia el uso médico, recreativo y legalización de la marihuana y 2) determinar si existen diferencias en las variables que mejor predicen el apoyo al uso medicinal, al recreativo y a la legalización de la marihuana entre usuarios y no usuarios de esta sustancia. **Método.** Los datos son de la Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco 2016; es una muestra nacional representativa de hogares mexicanos. Se utilizó un cuestionario validado que contenía preguntas demográficas, consumo de mariguana y número de veces que se ha consumido, opiniones sobre el uso medicinal, recreativo y legalización de la mariguana. **Resultados.** Ser hombre y tener una baja percepción de riesgo son variables que se asociaron con aprobar cualquier uso y con la legalización de la mariguana, independientemente de si los encuestados la usaban o no. Otras variables asociadas con la aprobación son la edad, el nivel educativo y el nivel de ingresos. **Discusión y conclusión.** Es conveniente que los encargados de planificar y establecer las políticas públicas sean incluyentes y tomen en cuenta las diversas opiniones, de tal manera que retomen, respeten y validen estas posturas ante el uso y la legalización de la mariguana.

Palabras clave: Opiniones, mariguana, medicinal, recreativo, legalización, usuarios, México.

INTRODUCTION

We begin by defining key concepts in the discussion of legal issues related to the use of marijuana: its medicinal and recreational use, decriminalization, depenalization, and legalization:

- *Medical use.* The use of derivatives of the plant to treat certain medical conditions (National Institute of Drug Abuse, 2019).
- *Recreational use.* The use of marijuana for pleasure or recreational purposes (National Institute of Drug Abuse, 2019).
- *Decriminalization.* The elimination of criminal sanctions for the use and possession of marijuana, and for the cultivation or acquisition of drugs for personal use. The objective of decriminalization is to eliminate punishment and stigmatization of those who use marijuana (International Drug Policy Consortium, 2016).
- *Depenalization.* Lessening the severity of sanctions for a crime. Depenalization can involve the reduction of maximum and/or minimum prison sentences or fines for certain crimes related to marijuana use, or the replacement of prison sentences with alternative sanctions in the case of minor offenses (International Drug Policy Consortium, 2016).
- *Legalization.* The process by which all actions associated with drugs (such as use, possession, cultivation, production, and buying/selling,) are made legal. As part of this process, governments may adopt laws and regulatory policy relating to the production, distribution, and use of drugs, limiting their availability and access (International Drug Policy Consortium, 2016).

In 1996, California became the first jurisdiction in the Americas to legalize the medical use of cannabis. It is now legal in 33 other states in the US, and recreational use is legal in 11 (Zuleta et al., 2021). In 2018, Canada legalized recreational use at the federal level (Turna et al., 2022; Yu et al., 2020). In Latin America and the Caribbean, medical use became legal in the 2010s in Argentina, Chile, Peru, Paraguay, Colombia, Puerto Rico, and Jamaica (Labiano, 2021; Schleimer et al., 2019). In Mexico, the use of medical marijuana was legalized in 2017, with the law providing that "products containing cannabis derivatives with THC concentrations of 1% or less that have broad industrial use may be commercialized, exported, and imported, in compliance with the established requirements of the health code. Likewise, the Ministry of Health is authorized to design and implement public policy to regulate the medicinal use of pharmacological derivatives of marijuana (Cámara de Diputados, 2017).

In November 2015, the Mexican Supreme Court declared the system of administrative prohibitions of the recreational use of marijuana unconstitutional. Four more cases were tried between 2015 and 2018, leading to the consolidation of the law. In June 2021, the Supreme Court authorized personal marijuana use, as well as its planting, cultivation, harvest, preparation, possession, and transportation for recreational purposes by persons aged 18 and over, decriminalizing its use (Suprema Corte de Justicia de la Nación, 2021). It is important to note that civil society has been a key actor in marijuana decriminalization and regularization. However, the process of legalization is still underway, since Congress has yet to pass legislation on recreational use that would provide legal assurance to users and third parties and create the necessary conditions for the responsible exercise of this right (Suprema Corte de Justicia de la Nación, 2021).

Public opinion has played an important role in marijuana regulation. In all the US states that have legalized marijuana and approved recreational use, reforms were effected because of citizen initiatives (Chiu et al., 2022). Over the years, popular opinion on the regulation of cannabis has become more relaxed. In this respect, Carliner et al. (2017) find that the Americas may be participating in the phenomenon of normalization of cannabis use, which, according to Pennay and Measham (2016), has become a social process taking place throughout the Western world.

It is worth noting that differences in opinion have been observed depending on whether the issue at stake is medical or recreational use, or the legalization of marijuana. Most data are drawn from opinion studies conducted in the United States and Europe, where the greatest progress has been made in the legalization of this drug. Medical use enjoys higher approval than recreational use. According to research projects and opinion polls undertaken in the United States, over 80% of the population approve of the medical use of marijuana, believing it can be useful in pain relief, managing epilepsy seizures, reducing inflammation, and treating anxiety (Sznitman, & Bretteville-Jensen, 2015). According to authors such as Galston and Dionne Jr (2013), these opinions have gained significant traction, due to the media information people receive daily on the health benefits of marijuana and its derivatives. Analysis of sociodemographic variables shows that the effects of age and sex on these opinions are insignificant, while the effects of income and educational attainment are minimal (Musgrave & Wilcox, 2014; National Poll on Healthy Aging, 2018).

Although support for recreational use is lower, a 2002 CBS News poll (De Pinto, 2022) reported that two-thirds of people in the US agree that recreational marijuana use should be legal at both the federal and local level while 34% would approve of a marijuana business being set up in their neighborhood. This acceptance is four times higher among those who have used marijuana than those who have not.

Sznitman, & Bretteville-Jensen (2015) point out that younger men with college degrees are more likely to approve of recreational use. There is also greater support among people without a religious affiliation (Musgrave & Wilcox, 2014). According to these authors, disapproval among religious people is due, among other things, to the fact that marijuana use is seen as a moral issue, meaning that recreational consumption is considered "wrong." In Australia, the most favorable views for recreational use were found among regular or experimental marijuana users and alcohol users (Chiu et al., 2021).

Most of the literature concerns opinions on the legalization of marijuana. Social groups that have expressed higher levels of support include men, college graduates, and those without a religious affiliation (Felson et al., 2019; Maričić et al., 2013; Schepis et al., 2011). This literature holds that women tend to be more liberal than men about controversial public opinion issues such as the approval of same-sex marriage or the legalization of abortion. However, this does not hold true for the issue of marijuana. Felson et al. (2019) offer the following hypotheses: 1) views on marijuana are associated with the maternal instinct, 2) women use less marijuana, and 3) women have a greater risk perception of marijuana use.

Marital status, parenthood, and religious affiliation also have an influence on attitudes toward legalization, with studies showing that single people are more likely to approve of legalization than married ones, and that parents are more opposed to marijuana use than those without children (Musgrave & Wilcox, 2014). People with a religious affiliation are less likely to support legalization than those without one (Hai, 2018; Krystosek, 2016; Musgrave & Wilcox, 2014).

Self-identifying as a user or non-user also influences opinions on legalization. Based on a survey conducted in the Netherlands, Palali and van Ours (2017) observed that people who have used marijuana are more likely to support legalization. Similar results were described by Trevino and Richard (2002) in a study undertaken in Houston, where 68% of users surveyed supported the legalization of marijuana, as compared with only 33.3% of non-users. These differences between users and non-users were also found by Schnabel and Sevell (2017); Andreas et al. (2021); Cohn et al. (2017); Ellis et al.(2019); Znoj et al. (2022). Another study, conducted on a group of Norwegian students, found that support for legalization was associated with low-risk perception, a history of illicit substance use, and current tobacco and alcohol use (Andreas et al., 2021).

A study of people in Argentina, Uruguay, Chile, Bolivia, Mexico, Peru, Costa Rica, Colombia, and El Salvador found that approval rates for legalization and recreational use of marijuana were higher among those who had tried it than among those who had never used it. In Chile, Colombia, and Mexico, approval was twice as likely among those who had tried marijuana (Mendiburo-Seguel et al., 2017).

In Mexico, legalization of medical use is recent, and the legalization of recreational use is still underway, meaning that their impact on marijuana use and opinions on these changes are yet unknown. Although surveys have been conducted by public opinion firms, only a few have used nationally representative samples that would allow for an analysis of characteristics such as sex, age, income, and risk perception, and their association with support for medical and recreational use, and legalization.

An opinion poll conducted by Consulta Mitofsky (2021) found that 58% of respondents agreed that recreational marijuana use should be allowed. Respondents also believed that the current prohibition does not make it difficult to obtain the drug. A 2013 survey by Parametria found that 85% of Mexicans opposed recreational marijuana use. By 2016, this figure had fallen to 65% and by 2018, only half were against it (Parametria, 2018). Both polling organizations agree that five years ago, a majority opposed accepting recreational use since they thought drug use was the cause of insecurity and violence in Mexico, and believed that if recreational drug use were accepted, there would be more users and therefore more violence. However, insecurity and violence have been disassociated from drugs, since drug cartels are now more identified with extortion and protection racketeering. Mexican respondents are inclined to decriminalize consumers by allowing recreational use of the drug and report greater knowledge of the scope of legalization in other countries. Moreover, one in three knows someone who uses marijuana for recreational purposes.

Based on the literature reviewed, the research question guiding this article is whether there are any differences in the variables related to the approval of medical use and recreational use, and the legalization of marijuana in the Mexican population. The objectives are as follows:

1. To determine which variables are related to favorable opinions toward medical and recreational use, and the legalization of marijuana use in a representative sample of the Mexican population.
2. To determine whether there are differences in the variables that best predict support for medicinal and recreational use, and the legalization of marijuana among marijuana users and non-users.

METHOD

Design of the study

The results described here are drawn from the 2016 National Survey on Drug, Alcohol, and Tobacco Use (Encuesta Nacional de Consumo de Drogas, Alcohol y Tabaco, Spanish acronym ENCODAT), a household survey designed to analyze alcohol, tobacco, and other drug use in the population ages 12-65 (Villatoro et al., 2017). The survey used

probabilistic, stratified, and multistage sampling. Selection probabilities were assigned to households and individuals, and localities stratified as rural, urban, or metropolitan.

Sample description

The first sampling stage selected Basic Geographic Areas (Áreas Geográficas Básicas, Spanish acronym AGEB) within each stratum. The second stage randomly selected blocks and homes. Finally, an adult aged 18-65, and also where possible a household member aged 12-17, was randomly selected in each dwelling. The response rate was 74%, yielding a final sample of 56,877 participants: 51.7% women and 48.3% men.

Measurements

Data were collected through a standardized, previously validated questionnaire (Reséndiz et al., 2018; Villatoro et al., 2003). Many participants were interviewed using an audio computer-assisted self-interview (ACASI), but if requested, a face-to-face interview was conducted. The interview lasted approximately 90 minutes. Survey administrators explained the objectives and characteristics of the study, assured participants of the anonymity of the information and checked that the questionnaires were properly filled out.

- *Opinion on medical marijuana use, with the question:* "Should medical use of marijuana be permitted?" (Response options: yes = 1 or no = 0)
- *Opinion on recreational marijuana use, with the question:* "Should recreational use of marijuana be permitted?" (Response options: yes = 1 or no = 0)
- *Opinion on the legalization of marijuana use, with the question:* "Should marijuana use be legalized?" (Response options: yes = 1 or no = 0)
- *Marijuana use:* non-user = 0, has never used marijuana; user = 1, has used marijuana.
- *Sex:* male = 1 or female = 2
- *Age:* 12-17 = 1, 18-29 = 2, 30-39 = 3, 40-49 = 4, or 60-65 = 5 years
- *Religion:* Protestant/Catholic/Jewish = 0, other = 1, none = 2
- *Educational attainment:* elementary school or less = 1, junior high school = 2, high school = 3, undergraduate degree or higher = 4
- *Monthly family income, in terms of the 2016 daily minimum wage in Mexico of MXN $73.03 (USD $3.65) × 30 days/month:* less than twice the minimum wage (USD $109.50 per month or less) = 1, three to six times the minimum wage (USD $328.80 to USD $666.30) = 2, more than six times the minimum wage (more than USD $666.31) = 3
- *Children:* does/does not have children (0 and 1)
- *Exposure to marijuana*, with the question "Has a

friend ever offered you marijuana?" (Response options: yes = 1 or no = 2)
- *Excessive alcohol use:* defined as having consumed, on a single occasion in the 30 days prior to the survey, five or more drinks for men, or four or more for women
- *Perception of risk in marijuana use:* this refers to the perceived danger of using marijuana (Response options: is/isn't dangerous)

Procedure

Three hundred and twenty-three interviewers, supervisors, cartographers, computer assistants and coordinators were trained in May 2016. Information was collected from June 1 to October 30, 2016. To this end, the cartographers paid an initial visit to selected towns and blocks to draw maps and make lists of the households in each block to conduct a probabilistic selection of households and identify risk areas. The interviewers administered the household questionnaire in the selected dwellings and once this stage had been completed, the computer application selected an adult and/or adolescent to answer the individual questionnaire, face to face and with the help of a computer. The supervisors verified each of the non-response codes in the dwellings and household members selected. For each dwelling selected, at least four visits were scheduled at different times and on different days, including weekends, to increase the likelihood of finding the occupants at home. Field operating personnel were organized into eight routes, each consisting of one coordinator, two computer assistants, seven supervisors, and four interviewers per supervisor.

Statistical analyses

Descriptive analyses were conducted to determine the percentages of opinions concerning medical and recreational use, and the legalization of marijuana in each of the categories of contextual and sociodemographic variables of interest, using Stata version 17. To determine which variables predicted or were associated with favorable opinions, a multiple logistic regression was performed for the total population. Three additional multiple logistic regressions were conducted to determine the specific predictors for each of the two groups based on marijuana use (non-user, user). Multiple logistic regressions were performed with Stata version 17 (StataCorp, 2021).

Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committees of the National Institute of Public Health (IRB 0000676P) and the Ramón de la Fuente Muñiz National Institute of Psychiatry (IRB 00006105). All participants pro-

vided informed consent, and information was only collected from those who agreed to participate. Parents of minors under 18 years of age signed the informed consent form, and the minors were asked for their assent. All participants were assured of the voluntary nature of their participation and the confidentiality of the information obtained.

RESULTS

Sample characteristics

The sex distribution of the sample was 48.3% men and 51.7% women; 80% of the total were under 50 and 30% aged 18-29. Of the total, 8.6% reported having no religion and 60% had children. A third of the sample had completed junior high school and 14.4% held college degrees, while a majority had a family income less than twice the minimum wage (Table 1). A total of 26.6% of those interviewed said they had been offered marijuana without having to pay for it; this percentage was higher among men (39.6%) than women (14.4%). A total of 40% believed it was dangerous to use marijuana (33% of men and 42.1% of women). Excessive alcohol consumption in the month prior to the survey was reported by 20% of participants participant (29.9% of the men and 10.3% of the women). A total of 8.6 % reported using marijuana (14% of men and 3.7% of women; Table 1).

Opinions on Use and Legalization

Table 2 shows the results of an analysis of variables associated with a favorable opinion on medicinal and rec-

Table 1
Sociodemographic Characteristics

Variable	Male n = 27 472	%	Female n = 29 405	%	Total n = 56 877	%
Age (years)						
12-17	4 835	17.6	4 728	16.1	9 563	16.8
18-29	8 330	30.3	8 475	28.8	16 806	29.5
30-39	4 754	17.3	5 750	19.5	10 504	18.5
40-49	4 144	15.1	4 925	16.7	9 069	15.9
50-65	5 400	19.7	5 536	18.8	10 936	19.2
Religion						
Protestant, Catholic, Jewish	23 478	85.5	26 377	89.7	49 855	87.7
Other	1 075	3.9	1 034	3.5	2 110	3.7
None	2 909	10.6	2 003	6.8	4 912	8.6
Educational Attainment						
Elementary or less	5 938	22.1	6 991	24.4	12 930	23.3
Junior High	9 290	34.6	10 743	37.5	20 033	36.1
High School	7 206	26.8	7 346	25.7	14 552	26.2
College or more	4 453	16.6	3 547	12.4	8 000	14.4
Family Income						
< 2x minimum wage	16 320	65.4	18 023	67.8	34 343	66.7
3-6x minimum wage	7 679	30.8	7 705	29.0	15 384	29.9
> 6x minimum wage	942	3.8	836	3.1	4 919	3.5
Children						
Yes	14 700	53.5	19 436	66.1	34 136	60.0
No	12 763	46.5	9 978	33.9	22 741	40.0
Type of Marijuana User						
Non-user	23 627	86.0	28 331	96.3	51 958	91.4
User	3 845	14.0	1 074	3.7	3 100	8.6
Friend Offered Marijuana?						
Yes	10 882	39.6	4 228	14.4	15 110	26.6
No	16 581	60.4	25 186	85.6	41 767	73.4
Perception of Risk of Marijuana Use						
Dangerous	9 057	33.0	12 392	42.1	21 449	37.7
Not dangerous	18 406	67.0	17 022	57.9	35 428	62.3
Excessive Alcohol Use						
Yes	8 208	29.9	3 026	10.3	11 234	19.8
No	19 255	70.1	26 388	89.7	45 643	80.2

Note: n = sample size of specific group.

reational use, and legalization in the general population. Positive opinions on medical use were more common among men, marijuana users, those who had completed junior high school or more, had a monthly family income of more than six times the minimum wage, were childless, had ever been offered marijuana without having to pay for it, or who had a low-risk perception of marijuana use. Those who were aged 30 or younger or had a non-Chris-

tian religious affiliation were less in favor of medical use than those aged 50-65 and those with a Christian affiliation (Table 2).

The populations most in favor of recreational use were men, those who had used marijuana, had no religious affiliation, held a bachelor's degree or more, had a monthly family income of three to six times the minimum wage, or were childless. Having been offered marijuana without hav-

Table 2
Logistic Regressions for Medicinal and Recreational Use and Marijuana Legalization, Ages 12-65 (n = 56 877)

Variable	In favor of Medicinal Use				In favor of Recreational Use				In favor of Legalization			
	%[1]	OR	CI 95%	p	%[1]	OR	CI 95%	p	%[1]	OR	CI 95%	p
Sex												
Female	58.5	1.00			8.6	1.00			14.8	1.00		
Male	65.4	1.11	1.03-1.19	.005	16.6	1.37	1.22-1.53	< .001	22.0	1.11	1.01-1.22	.035
Age (years)												
50-65	63.3	1.00			9.4	1.00			13.6	1.00		
40-49	65.0	.99	.89-1.10	.854	10.9	1.11	.93-1.34	.255	16.6	1.18	1.02-1.37	.030
30-39	63.2	.79	.71-0.87	< .001	12.5	1.13	.95-1.35	.176	18.9	1.17	1.01-1.36	.036
18-29	64.7	.65	.58-0.72	< .001	16.7	1.16	.97-1.39	.095	22.9	1.11	.95-1.29	.178
12-17	50.3	.51	.44-0.58	< .001	9.9	.89	.72-1.10	.273	16.2	1.10	.93-1.32	.268
Type of Marijuana User												
Non-user	60.4	1.00			10.1	1.00			15.9	1.00		
User	76.7	1.61	1.39-1.86	< .001	37.7	2.84	2.43-3.32	< .001	43.0	2.27	1.96-2.63	< .001
Religion												
Protestant, Catholic, Jewish	61.6	1.0			11.7	1.0			17.4			
Other	56.8	.83	.70-.98	.026	10.7	.88	.65-1.19	.410	15.5	.87	.67-1.13	.281
None	66.8	1.08	.96-1.22	.176	21.4	1.44	1.21-1.71	< .001	28.8	1.46	1.26-1.69	< .001
Educational Attainment												
Elementary School or less	52.3	1.00			9.3	1.00			13.2			
Junior High	57.6	1.31	1.21-1.41	< .001	11.0	1.02	.88-1.19	.772	15.8	1.06	.94-1.20	.327
High School	68.9	1.97	1.79-2.17	< .001	14.3	1.12	.95-1.32	.185	21.4	1.34	1.16-1.54	< .001
College or more	76.4	2.56	2.21-2.97	< .001	18.6	1.49	1.23-1.81	< .001	28.2	1.91	1.62-2.23	< .001
Family Income												
< 2x minimum wage	58.9	1.00			11.2	1.00			16.7			
3-6x minimum wage	65.2	1.07	.99-1.15	.094	14.6	1.13	1.01-1.27	.031	21.0	1.09	.99-1.19	.086
> 6x minimum wage	74.2	1.26	1.01-1.57	.040	21.0	1.33	.92-1.91	.133	27.5	1.15	.91-1.45	.240
Children												
Yes	62.1	1.00			10.6	1.0			15.9			
No	61.4	1.13	1.03-1.24	.014	15.3	1.33	1.14-1.56	< .001	21.8	1.27	1.13-1.42	< .001
Friend Offered Marijuana?												
No	59.1	1.00			9.6	1.0			15.0			
Yes	71.0	1.33	1.22-1.46	< .001	22.1	1.32	1.18-1.49	< .001	29.0	1.30	1.16-1.45	< .001
Perception of Risk of Marijuana Use												
Dangerous	54.1	1.00			7.2	1.0			11.5			
Not dangerous	66.5	1.46	1.36-1.56	< .001	15.7	1.75	1.56-1.96	< .001	22.4	1.78	1.62-1.95	< .001
Excessive Alcohol Use												
No	59.9	1.00			9.8	1.0			15.3			
Yes	69.5	1.10	1.00-1.22	.056	23.4	1.68	1.49-1.90	< .001	30.3	1.56	1.40-1.73	< .001

Note: [1] Percentage in favor of each category of predictors; *n* = sample size of specific group; OR = Odds ratio; CI = Confidence Interval; *p* = probability.

ing to pay for it, having a low-risk perception of marijuana use, and having consumed alcohol excessively at least once during the thirty days prior to the survey were also significant predictors of supporting recreational marijuana use (Table 2).

The legalization of marijuana elicited greater approval among men, people between the ages of 30 and 49, people who used marijuana, those without religious affiliation, those who had completed high school or more, and those who were childless. It also enjoyed greater approval among respondents who had been offered marijuana without having to pay for it, had a low-risk perception of its use, or reported having drunk alcohol excessively (Table 2).

Opinions on Use and Legalization by Users and Non-Users

Variables were also analyzed separately for marijuana users and non-users. For non-users, the variables associated with the approval of medical use were being male, being 50 or older, and having completed junior high school or more, with the strongest association being found in those with a bachelor's degree or higher. Having received offers of marijuana without having to pay for it, a low- risk perception of its use, and having engaged in excessive alcohol consumption were also associated with this opinion (Table 3).

Table 3
Multiple Logistic Regression for Medicinal Use by Type of Marijuana User

Variable	Nonusers (n = 49 643)				Users (n = 4 818)			
	%¹	OR	CI 95%	p	%¹	OR	CI	p
Sex								
Female	57.9	1.0			72.9	1.0		
Male	63.4	1.11	1.03-1.19	.005	77.8	1.43	1.06-1.92	.019
Age (years)								
50-65	62.7	1.0			74.8	1.0		
40-49	64.4	.99	.89-1.10	.791	73.8	1.20	.72-2.00	.478
30-39	62.0	.79	.71-.88	< .001	75.2	.82	.52-1.29	.384
18-29	62.2	.64	.58-.72	< .001	80.0	.77	.51-1.18	.236
12-17	49.2	.51	.44-.59	< .001	70.0	.58	.34-1.00	.051
Religion								
Protestant, Catholic, Jewish	60.4	1.0			75.2	1.0		
Other	54.6	.81	.69-.95	.010	77.0	1.27	.52-3.14	.601
None	63.2	1.04	.92-1.19	.496	83.3	1.38	1.01-1.88	.042
Educational Attainment								
Elementary School or less	51.4	1.0			65.9	1.0		
Junior High	56.5	1.31	1.21-1.42	< .001	69.6	1.32	.94-1.86	.114
High School	67.3	1.94	1.75-2.14	< .001	83.0	2.69	1.80-4.01	< .001
College or more	74.7	2.46	2.13-2.84	< .001	89.5	4.92	2.94-8.23	< .001
Family Income								
< 2x minimum wage	57.5	1.0			75.0	1.0		
3-6x minimum wage	63.7	1.08	1.00-1.16	.055	78.2	.86	.66-1.12	.271
> 6x minimum wage	71.0	1.21	.96-1.54	.113	92.1	1.76	.83-3.74	.142
Children								
Yes	64.4	1.0			71.4	1.0		
No	58.9	1.10	.99-1.22	.084	82.3	1.43	1.02-2.00	.040
Friend Offered Marijuana?								
Yes	58.7	1.0			73.6	1.0		
No	68.2	1.34	1.22-1.48	< .001	77.6	1.30	.97-1.75	.083
Perception of Risk of Marijuana Use								
Dangerous	53.9	1.0			59.2	1.0		
Not dangerous	64.6	1.42	1.33-1.53	< .001	80.3	2.22	1.62-3.04	< .001
Excessive Alcohol Use								
Yes	59.1	1.0			75.0	1.0		
No	66.9	1.10	1.00-1.22	.053	78.5	1.05	.81-1.36	.735

Note: ¹ Percentage in favor of medicinal use for each category of predictors; *n* = sample size of specific group; OR = Odds ratio; CI = Confidence Interval; *p* = probability.

Table 4
Multiple Logistic Regression for Recreational Use by Type of Marijuana User

Variable	Non-users (n = 50 666)				Users (n = 4 790)			
	%[1]	OR	CI 95%	p	%[1]	OR	CI 95%	p
Sex								
Female	7.6	1.00			34.3	1.00		
Male	13.0	1.42	1.26-1.59	< .001	38.7	1.34	1.03-1.75	.032
Age (years)								
50-65	8.6	1.00			26.2	1.00		
40-49	9.8	1.11	.90-1.35	.326	27.8	1.30	.75-2.24	.353
30-39	10.1	1.12	.93-1.35	.216	36.3	1.30	.82-2.05	.265
18-29	12.4	1.15	.95-1.39	.153	44.0	1.34	.87-2.06	.185
12-17	8.4	.85	.66-1.08	.188	35.6	1.16	.69-1.96	.582
Religion								
Protestant, Catholic, Jewish	9.6	1.00			36.5	1.00		
Other	9.1	.94	.68-1.31	.722	26.2	.69	.40-1.18	.171
None	16.1	1.53	1.25-1.86	< .001	45.9	1.21	.89-1.64	.213
Educational Attainment								
Elementary School or less	8.1	1.00			26.7	1.00		
Junior High	9.0	1.03	.88-1.19	.746	31.8	1.08	.72-1.61	.706
High School	11.0	1.07	.90-1.27	.469	43.3	1.41	.94-2.11	.097
College or more	14.6	1.42	1.14-1.76	.002	51.1	1.89	1.21-2.96	.005
Family Income								
< 2x minimum wage	9.4	1.00			32.9	1.00		
3-6x minimum wage	11.3	1.11	.97-1.26	.128	43.8	1.21	.94-1.56	.142
> 6x minimum wage	15.4	1.33	.85-2.07	.217	52.8	1.24	.72-2.13	.446
Children								
Yes	9.1	1.00			29.0			
No	11.6	1.27	1.04-1.53	.016	47.0	1.53	1.18-1.99	.002
Friend offered Marijuana?								
Yes	9.0	1.00			34.4	1.00		
No	15.2	1.40	1.22-1.60	< .001	38.6	1.08	.80-1.47	.613
Perception of Risk in Marijuana Use								
Dangerous	6.9	1.00			14.3	1.00		
Not dangerous	12.2	1.60	1.43-1.79	< .001	42.5	3.32	2.38-4.62	< .001
Excessive Alcohol Use								
Yes	8.8	1.00			27.6	1.00		
No	16.4	1.56	1.35-1.80	< .001	46.5	2.05	1.64-2.56	< .001

Note: [1] Percent in favor of recreational use for each category of predictors; *n* = number of participants in the specific group; OR = Odds ratio; CI = Confidence Interval; *p* = probability.

Among users, being male, having higher educational achievement, no religious affiliation, and being childless were significantly related to approval of medical use. A low-risk perception of its use and engaging in excessive alcohol consumption were also significantly associated. Having a bachelor's degree or more was the variable with the highest association, indicating that the higher a person's educational attainment, the more likely they were to have a positive opinion in this respect (Table 3).

Among non-users, approval of recreational use was associated with being male, having a bachelor's degree or higher, having no religious affiliation, and being childless. It was also significantly associated with having received offers of marijuana without having to pay for it, a low-risk perception of its use, and excessive alcohol consumption in the previous thirty days (Table 4).

Among users, approval of recreational use was higher among men, those who held a bachelor's degree or higher, or who were childless. Once again, this approval was significantly associated with low-risk perception and high alcohol consumption (Table 4).

Among non-users, support for legalization was most strongly associated with being male, aged 40-49, having completed high school or more, having no religious affiliation, and being childless. Having received offers of marijuana without having to pay for it, having a low-risk perception of its use, and excessive alcohol consumption were also associated with this opinion (Table 5).

Table 5
Multiple Logistic Regression for Legalization by Type of Marijuana User

Variable	Non-users (n = 50 341)				Users (n = 4 742)			
	%[1]	OR	CI 95%	p	%[1]	OR	CI 95%	p
Sex								
Female	13.7	1.00			42.4	1.00		
Male	18.6	1.13	1.02-1.24	.015	43.1	1.10	.83-1.44	.515
Age (years)								
50-65	12.7	1.00			31.9	1.00		
40-49	15.6	1.19	1.02-1.39	.028	31.0	1.18	.72-1.92	.511
30-39	16.7	1.18	1.01-1.37	.037	41.5	1.23	.81-1.87	.328
18-29	18.7	1.12	.95-1.32	.166	49.3	1.12	.74-1.69	.586
12-17	14.8	1.14	.93-1.39	.200	42.7	1.01	.60-1.72	.961
Religion								
Protestant, Catholic, Jewish	15.3	1.00			42.2	1.00		
Other	13.9	.87	.66-1.16	.355	30.0	.87	.53-1.45	.603
None	24.3	1.54	1.30-1.83	< .001	49.5	1.17	.88-1.56	.277
Educational Attainment								
Elementary School or less	12.1	1.00			30.4	1.00		
Junior High	14.0	1.08	.96-1.22	.215	35.1	1.00	.70-1.42	.985
High School	18.1	1.30	1.13-1.50	< .001	50.9	1.55	1.08-2.24	.018
College or more	24.6	1.91	1.63-2.23	< .001	57.4	1.85	1.21-2.81	.004
Family Income								
< 2x minimum wage	14.9	1.00			38.1	1.00		
3-6x minimum wage	18.1	1.08	.97-1.19	.148	47.2	1.06	.83-1.35	.640
> 6x minimum wage	22.0	1.12	.87-1.44	.372	57.8	1.17	.66-2.06	.588
Children								
Yes	14.5	1.00			33.4	1.00		
No	18.1	1.17	1.02-1.34	.022	53.3	1.81	1.38-2.37	< .001
Friend Offered Marijuana?								
Yes	14.4	1.00			41.5	1.00		
No	23.0	1.37	1.21-1.55	< .001	43.4	.96	.72-1.28	.759
Perception of Risk in Marijuana Use								
Dangerous	11.2	1.00			18.3	1.00		
Not dangerous	19.1	1.67	1.52-1.84	< .001	48.1	3.32	2.42-4.53	< .001
Excessive Alcohol Use								
Yes	14.3	1.00			33.7	1.00		
No	24.1	1.49	1.32-1.68	< .001	51.2	1.81	1.44-2.27	< .001

Note: [1] Percent in favor of marijuana legalization for each category of predictors; *n* = sample size of the specific group; OR = Odds ratio; CI = Confidence Interval; *p* = probability.

Among users, there was a significant association with having completed more than high school, being childless, having a low-risk perception, and having engaged in excessive alcohol consumption (Table 5).

DISCUSSION AND CONCLUSION

Being male and having a low-risk perception of the use of marijuana are variables associated with approval of its medical use, recreational use, and legalization, irrespective of whether respondents to the 2016 ENCODAT survey used it. The association between being male and supporting legalization coincides with the results of Maričić et al. (2013), Schepis et al. (2011) and Felson et al. (2019). In keeping with these authors, the adverse opinion of women towards legalization may be related to having children, a tendency to engage in lower consumption and higher risk perception (Felson et al., 2019).

One variable associated with a positive opinion of use and legalization is education, with people with higher educational attainment, such as a bachelor's degree, tending to support recreational use. This coincides with what has been reported in other studies (Felson et al., 2019; Maričić et al., 2013; Schepis et al., 2011; Sznitman, & Bretteville-Jensen, 2015). Two other variables that are significant for almost all analyses are parenthood and excessive alcohol consumption. Parenthood is not significantly associated with support for medical use among non-users. We think it would be advisable to further explore this variable in future studies, given

that, as Musgrave and Wilcox (Musgrave & Wilcox, 2014) note, parents tend to be more opposed to both legalization and any form of use than people without children. The only cases where excessive alcohol consumption was not associated with a favorable opinion was for medical use among the general population and non-users. This association between alcohol consumption, recreational use, and marijuana use is similar to that reported by Chiu et al. (2021).

Having no religious affiliation is associated with favorable opinions of recreational use and legalization among the general population. An analysis of users versus non-users also finds that this variable is significantly related to approval of medical use in both groups and of recreational use and legalization among non-users. Various authors (Felson et al., 2019; Hai, 2018; Krystosek, 2016; Maričić et al., 2013; Musgrave & Wilcox, 2014; Schepis et al., 2011) have observed this association between lack of religious affiliation and approval of marijuana use. Musgrave and Wilcox (2014) believe this association is due, among other things, to religious believers considering marijuana use a moral issue, and therefore that recreational use is "wrong."

The greater support for legalization among users than non-users is consistent with the literature (Salas et al., 2020; Palali & van Ours, 2017; Schnabel & Sevell, 2017; Trevino & Richard, 2002). The variables that differed between the two groups were age, religion, and having been offered marijuana without having to pay for it. The latter variable did not prove significant for either group of users.

The profile of an average non-user who would support legalization is a man aged 40-49, with at least a high school education, no religious affiliation, no children, with a low perception of the risk of marijuana use, who has engaged in excessive alcohol consumption, and who has been offered marijuana without having to pay for it. In this same group, the variable not associated with supporting recreational use is religious affiliation. Educational attainment is significant if the person holds a bachelor's degree but is not associated with age. We assume that if a person has at least a bachelor's degree, they are over 18, the age of majority in Mexico.

The answer to the central question of this study is that there are differences in the variables related to the approval of medical and recreational use, and legalization of marijuana. The variables associated with support or lack of support for all three issues are age, educational attainment, and income.

In Mexico, policies criminalizing marijuana have failed: there has been no reduction in use and corruption levels are high. The challenge is to find a model that does not increase use or criminalize users, and considers the results presented in research on participants, which considers the profile of users or the age of onset of marijuana use. Understanding popular opinion on these issues is a key part of the search for a new model, and the results presented in this study contribute to this understanding.

The proposals against prohibition and for the legalization of marijuana in Mexico are the result of popular initiatives rather than government policy. In 2013, SMART, the Mexican Society for Responsible and Tolerant Personal Use (Sociedad Mexicana de Autoconsumo Responsable y Tolerante) went to court to demand the right to grow and use small amounts of marijuana, and in 2018, the Supreme Court ordered Congress to enact legislation legalizing recreational use. However, it was not until July 2021 that the prohibition of marijuana for personal recreational use was repealed. A regulatory mechanism for the purchase of seeds and the possession and use of marijuana for recreational purposes is still pending. Popular opinion has not been considered in designing this regulatory process, but we believe it must be considered if these measures and policies are to achieve positive results.

We believe that the disparagement with which marijuana users are treated is based on a moralistic, usually groundless judgment, and that legislators and policy makers should reconsider their opinions. This would enable legislative and regulatory decisions to be inclusive, by respecting and validating the range of positions on marijuana use.

Chiu et al. (2021) attribute low-risk perception, which Andreas et al. (2021) and Salas et al. (2020) found among students who supported legalization, to media influence. We believe that the media play an important role in changing people's opinion on the regulation of marijuana. We agree with Felson et al. (2019), who address the shaping of public opinion in their discussion of legalization. As noted in studies of Mexico (Mitofsky, 2021; Parametria, 2018), public opinion has undergone significant changes in recent years, tending toward greater approval. We believe that the interaction of media messages regarding the benefits of cannabis and public opinion has steered governments in the region toward relaxing legislation (Schleimer et al., 2019) and contributed to the normalization of marijuana use (Carliner et al., 2017; Pennay & Measham, 2016). However, since our study did not include questions related to media influence on opinions regarding the use and legalization of marijuana, this interpretation remains a hypothesis to be tested in future research.

In future research, it would be useful to use representative samples such as the one in this study to examine the hypothesis of Roy Campos, director of the Mitofsky Group, who believes that growing support for the decriminalization of marijuana in Mexico is due to the perception that prohibition does not make it more difficult to obtain marijuana, and that continuing the approach of criminalization will not solve the problem of violence. In other words, citizens have already disentangled the issue of violence in Mexico from the issue of marijuana use.

Limitations

One limitation in this study is that the 2016 ENCODAT survey did not explore respondents' reasons for approv-

ing medical and recreational use. Neither did it evaluate people's exposure to information or the influence of news media and social media on their opinions on medical and recreational use, or legalization of marijuana, even though this exposure has consistently been associated with public opinion. Moreover, since the opinions expressed by those who participated in the study correspond to the end of 2016, they are likely to have changed since then.

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Conflicts of interest

The authors declare they have no conflicts of interests.

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