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## PERCEPTION OF HARM AND BENEFITS OF ADOLESCENTS ABOUT THE USE OF MARIJUANA, PROVINCE OF CONCEPCION, CHILE

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### ABSTRACT

**Objective:** to identify the perception of harm and benefits of marijuana associated with the use of marijuana in high school students aged between 15 and 17 years.

**Method:** quantitative, transversal, descriptive and correlational design. The sample consisted of 268 students from public educational institutions between the ages of 15 and 17 years from five communes in the Chilean province of Concepción. The independent variables were biodemographic (sex, age and course), age of onset, use of marijuana in friends, perception of harm and benefits, and intention to use marijuana). The dependent variables were use (smoking) of marijuana (prevalence of life, in the last 12 months and in the last 30 days). Data collection instrument consisted of a semi-structured questionnaire in base of the CICAD Uniform Inter-American Data System for high school students; *Monitoring The Future*; and Risk Perception. Self-applied instrument with prior consent of the parents and agreement of the students.

**Results:** slightly more than half (54%) of the students reported never having smoked marijuana, but 46% have ever used some in their lives. There is a moderated-negative weak correlation between harm perception and marijuana use. It is also observed a moderated-negative weak correlation between benefit perception and marijuana use. Statistically significant correlations

**Conclusion:** just under half of the students between 15 and 17 years old declare to consume marijuana, an alarming result due to the negative effects of marijuana. Furthermore, they perceive low levels of damage produced by the use of marijuana, and the use of marijuana for medicinal purposes is seen in a favorable position. A comprehensive policy of effective drug prevention at community, family and personal level is imperative.

**DESCRIPTORES:** Smoke. Marihuana. Cannabis. Adolescent Students. Illegal drugs.

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# PERCEPCIÓN DE DAÑO Y BENEFICIOS DE ADOLESCENTES SOBRE USO DE MARIHUANA, PROVINCIA DE CONCEPCIÓN, CHILE

## RESUMEN

**Objetivo:** identificar la percepción de daño y beneficios de la marihuana asociados con el uso de marihuana en estudiantes de enseñanza media con edades entre los 15 y 17 años.

**Método:** diseño cuantitativo, transversal, descriptivo y correlacional. La muestra fue de 268 estudiantes de establecimientos educacionales públicos con edades entre los 15 y 17 años, de cinco comunas de la Provincia de Concepción de Chile. Las variables independientes fueron biodemográficas (sexo, edad y curso), edad de inicio, uso de marihuana en amigos, percepción de daño y de beneficios, e intención de uso de marihuana). Las variables dependientes fueron uso (fumar) de marihuana (prevalencia de vida, en los últimos 12 meses y en los últimos 30 días). El instrumento recolector de datos se conformó de un cuestionario semiestructurado del Sistema Interamericano de Datos Uniformes de la CICAD para estudiantes de secundaria; *Monitoring The Future*; y Percepción de Riesgo. Instrumento autoaplicado previo consentimiento de los padres y asentimiento de los estudiantes.

**Resultados:** un poco más de la mitad (54%) de los estudiantes refirieron nunca haber fumado marihuana, pero sí un 46% ha consumido alguna vez en la vida. Existe una correlación moderada negativa débil entre percepción de daño y uso de marihuana. También se observó una correlación moderada negativa débil entre percepción de beneficios y uso de marihuana. Correlaciones estadísticamente significativas.

**Conclusión:** poco menos de la mitad de los estudiantes entre 15 y 17 años declara consumir marihuana, resultado alarmante por los efectos negativos de la marihuana. Además, ellos perciben bajo daños que produce el consumo de marihuana, y se aprecia una posición favorable al uso de la marihuana con fines medicinales. Es imperante una política integral de prevención de drogas efectiva a nivel comunitario, familiar y personal.

**DESCRIPTORES:** Fumar. Marihuana. Cannabis. Adolescentes. Estudiantes. Drogas Ilícitas.

# PERCEPÇÃO DE DANOS E BENEFÍCIOS DE ADOLESCENTES SOBRE O USO DE MACONHA, PROVÍNCIA DE CONCEPCIÓN, CHILE

## RESUMO

**Objetivo:** identificar a percepção de danos e benefícios da maconha associada ao uso de maconha entre estudantes do ensino médio com idade entre 15 e 17 anos.

**Método:** desenho quantitativo, transversal, descritivo e correlacional. A amostra foi de 268 estudantes de estabelecimentos públicos de ensino com idades entre 15 e 17 anos, provenientes de cinco comunas da Província de Concepción do Chile. As variáveis independentes foram biodemográficas (sexo, idade e curso), a idade de início, o uso de maconha em amigos, a percepção de danos, e os benefícios e a intenção de usar maconha. As variáveis dependentes foram o uso (tabagismo) da maconha (prevalência de vida, nos últimos 12 meses e nos últimos 30 dias). O instrumento de coleta de dados foi composto por um questionário semiestructurado do Sistema Interamericano de Dados Uniforme da CICAD para estudantes do ensino médio; *Monitoring The Future*, e a Percepção de Risco. Instrumento autoaplicado com o consentimento prévio dos pais e a concordância dos alunos.

**Resultados:** pouco mais da metade (54%) dos estudantes relatou nunca ter fumado maconha, mas 46% já o usaram em suas vidas. Existe uma correlação moderada entre a percepção do dano e o uso da maconha. Observamos também uma correlação moderada negativa entre a percepção de benefícios e o uso de maconha. Correlações estatisticamente significantes.

**Conclusão:** pouco menos da metade dos estudantes entre 15 e 17 anos declara consumir maconha, resultado alarmante devido aos efeitos negativos da mesma. Além disso, eles percebem poucos danos sobre o uso de maconha, e uma posição favorável é vista para o uso de mesma para fins medicinais. Uma política abrangente de prevenção efetiva de drogas na comunidade, na família e no nível pessoal é imperativa.

**DESCRITORES:** Fumar. Maconha. Cannabis. Adolescentes. Estudantes. Drogas Ilícitas.

## INTRODUCTION

The United Nations Office on Drugs and Crime reports that approximately 3.8% of the world's population uses marijuana.<sup>1</sup> This psychoactive substance is derived from the cannabis sativa plant, which is the most cultivated in the world, and its product with the highest traffic and consumption.<sup>1</sup> One of its most psychoactive chemical components is delta-9-tetrahydrocannabinol (THC), which has negative effects on brain function: memory, attention, emotion and decision making, with negative impact on people's health.<sup>2-3</sup>

The Organization of American States, in turn, reported that on the continent, the school population of Chile has a higher consumption of marijuana with a higher prevalence (28%) compared to that of the hemisphere (16.52%).<sup>4</sup>

The study of drugs in the Chilean school population, reported higher prevalences. The results showed that 43.7% of the students from eighth basic grade to fourth grade (high school) report having used marijuana at least once in their lives, 34.2% in the last year and 20.1% in the last month.<sup>5</sup> There was also a decrease in the perception of risk, students consider that using marijuana does not affect their health and there is a tendency to marijuana consumption, behavior that affects their quality of life.<sup>6</sup>

In the last study in the Chilean general population there was also an increase of a little over 7 points in the prevalence of marijuana consumption, comparing the results of 2014 (11%) with those of 2004 (4%).<sup>7</sup> In addition, it is worrying that the new consumers are concentrated in the young population, a 62.2% are between 12 and 25 years old, 5.5% are adolescents (10 to 19 years old)<sup>8</sup> compared to 2004.<sup>7</sup> This increase is also associated with a decrease in the perception of risk, both for experimental marijuana (34.4%) and for frequent marijuana (67.2%). In 2014, the perception of the risk of consuming marijuana decreased less than 10 percentage points compared to 2006,<sup>7</sup> that is, the population is increasingly accepting the idea that the use of marijuana is harmless.

Several studies document marijuana harm in both adult population and adolescents.<sup>9</sup> Specifically in this group they report the impact on brain development negatively influencing learning (memory, attention and concentration)<sup>10-11</sup> impacting school performance,<sup>12-13</sup> and later in the future, personal, professional and work. It is also anticipated as the onset to continue with the consumption of other drugs.<sup>14</sup>

Marijuana is an illegal drug in Chile, although there is currently controversy between the benefits and risks of legalizing marijuana.<sup>15-16</sup> It is evident that more and more students are consuming marijuana without considering the adverse effects for life. It is known that the adolescent is characterized by the search for new sensations by engaging in actions without considering the risks for him such as the use of drugs,<sup>17</sup> that can lead to dependency or addiction.<sup>18</sup>

Recognizing the personal impact, therefore on the family and society that face marijuana consumption, this study is designed to identify the perception of harm and benefits of marijuana associated with the use of marijuana in high school students with ages between 15 and 17 years old.

## METHOD

Quantitative, transversal, descriptive and correlational design. The sample consisted of 268 students from public educational institutions between the ages of 15 and 17 years from five communes in the Chilean province of Concepción. The inclusion criteria were students from public educational establishments, aged 15 to 17 years, who could read the self-applied instrument and were present in their classroom.

The sampling was randomized by three stages, initially the communes were selected, then the educational establishments and finally the courses. The independent variables studied were biodemographic data (sex, age and course), use of marijuana in friends, perception of harm (according

to frequency of use), perception of benefits, and intention to use marijuana (in the hypothetical context of regulatory changes). The dependent variables were Marijuana Use (smoking) (life prevalence, frequency of marijuana use in the last 12 months, and last 30 days) and marijuana use age.

The data collection instrument was made up of a semi-structured questionnaire of the Inter-American System of Uniform Data (SIDUC)<sup>19</sup> of CICAD, for high school students; *Monitoring The Future* (MTF);<sup>20</sup> and Risk Perception.<sup>21</sup> From the SIDUC eight questions were chosen, three related to biodemographic data (sex, age and course) and five about the use of marijuana (life prevalence, last 12 months and last 30 days), age of Start of consumption and perception of marijuana consumption by friends. Two questions related to intentions of marijuana use in a context of regulatory changes, and medical marijuana were also added.

From the MTF survey, three items were included to evaluate the general perception of harm related to the experimental and frequent use of marijuana.<sup>20</sup> The type of response is on a Likert scale (I do not know, no, little, moderate and a lot).

To evaluate the perception of benefits regarding the marijuana consumption, four items of the Benthin scale were adapted,<sup>21</sup> Likert type response format (The risks are greater than the benefits, I am not sure; they are greater than the benefits).

The reliability of the scales was measured with the Cronbach's Alpha coefficient, resulting in a high reliability, of 0.75 for benefit scale and of 0.83 for MTF.

For the data collection, initially a experimental test was carried out on students with similar characteristics to the sample, some questions that the students declared they did not understand had to be adapted and the response time was between 10 to 15 minutes. Meetings were held with teachers and management team of educational institutions to explain the research and coordinate study activities, then interviews with parents were arranged in the meetings programmed by these centers. The instrument was applied in the classroom, to the students who agreed to participate and to whom their parents gave their consent.

For the processing and statistical analysis, the SPSS 15.0 program was used. Descriptive statistics and nonparametric analysis were applied.

## RESULTS

From the 268 students, 51% were female and 49% male. In terms of age distribution, 28% were 15 years old, 32.1% were 17 years old and 39.9% were 16 years old.

Regarding the course, the highest percentages were distributed in the third (40.7%) and second year of high school (39%), followed by first year students (11.9%) and in a lower percentage fourth year students (7.5%).

In relation to the use of marijuana (Life Prevalence, Prevalence of use in the last 12 months, and Prevalence of use in the last 30 days), it has been found that a little less than half of youngsters declare that they have used marijuana once in his life (46.0), the rest never used it (54.0%) (Table 1).

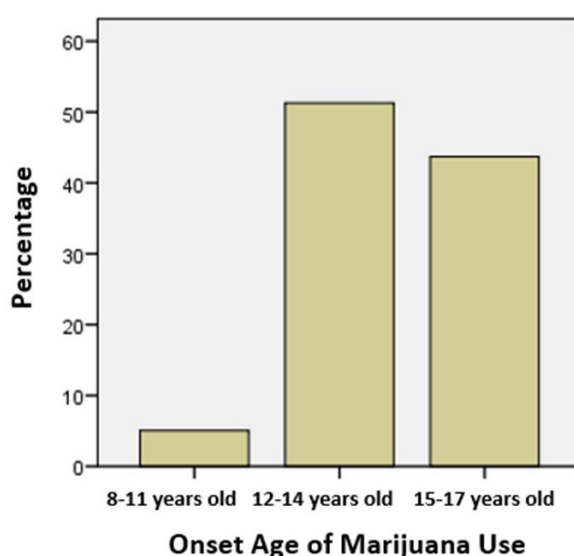
When asked if they have consumed it in the last year, 61.2% of students report not having used marijuana in this period, and only once in 13.1%. On the other hand, 14.6% declare several times in the last twelve months, and 11.2% declare smoking several times a month, week and every day, in the year 2015 (Table 1).

Regarding the prevalence of use in the last 30 days, 75.4% indicate that they have not used marijuana in the last 30 days, only once 9.7%, but 14.9% have done it several times in the week or every day (Table 1).

It is observed that of the students who have consumed, a group that began at an early age (5.0%), more than half of them started among those between 12 and 14 years old (Figure 1).

**Table 1** – Distribution of students, according to consumption characteristics of the Inter-American System of Uniform data. Province of Concepción, Chile, 2015. (n=268)

Prevalence		Frequency	%
Prevalence of life	No	144	54
	Yes	124	46
Prevalence in the last 12 months	Did not smoke	164	61.2
	Just once	35	13.1
	Several times	69	25.7
	Did not smoke	202	75.4
Prevalence in the last 30 days	Just once	26	9.7
	Several times	40	14.9



**Figure 1** – Distribution of students according to age. Province of Concepción, Chile, 2015.

When asked about their friends' perception of marijuana use, 8.6% believe all their friends consume marijuana, 63.8% think some of them, and 27.6% think none of them.

### Perception of harm

A little less than half (44%) of the students perceive that if people try marijuana once or twice in their lives they do not have the risk of physical or other harm. One third (33%) of low to moderate risk. On the other hand, 7.1% perceives a lot of risk in this action. 16% do not know (Table 2).

23.9% of students do not perceive any harm if people occasionally use marijuana, but slightly more than half perceive a low (32.8%) to moderate (20.5%) harm. Only 8.2% consider it very harmful. 14.6% do not know (Table 2).

As they are asked about the frequency of use, students perceive more risk. 9.3% of students do not perceive harm if the person smokes marijuana regularly. Yes, 43.6% perceive harm from low to moderate. Only 28.7% believe that if the person smokes regularly they are exposed to fiscal or other harm. Do not know 18% (Table 2).

**Table 2** – Distribution of students, according to the perception of harm of Monitoring The Future. Province of Concepción, 2015, Chile. (n=268)

Variable		Frequency	%
Perception of harm (try it once or twice)	I do not know	43	16.0
	None	118	44.0
	Little	68	25.4
	Moderate	20	7.5
	Much	19	7.1
Perception of damage (occasional consumption)	I do not know	39	14.6
	None	64	23.9
	Little	88	32.8
	Moderate	55	20.5
	Much	22	8.2
Perception of harm (regularly) Do they smoke marijuana regularly?	I do not know	49	18.3
	None	25	9.3
	Little	44	16.4
	Moderate	73	27.2
	Much	77	28.7

## Perception of Benefits

Students perceive in 26.9% that the possible benefits and/or pleasures of smoking marijuana are greater than the possible risks, while 35.1% perceive the contrary. 38.1% are not sure (Table 3).

25.0% of students state that smoking marijuana can help people of their age cope with emotional difficulties or problems. On the other hand, 48.5% declare that it definitely does not help to face them. A 26.5% is not sure (Table 3).

More than half of students (53.0%) perceive that smoking marijuana does not improve the physical well-being of people of their age. 15.7% believe that it slightly improves it, or definitely improves it. 31.3% are not sure (Table 3).

**Table 3** – Distribution of students, according to Benthin scale of benefits perception. Province of Concepción, Chile, 2015. (n=268)

Item		n	%
To what extent are the possible benefits and/or pleasures of smoking marijuana greater than the possible risks?	The risks are greater than the benefits	94	35.1
	I am not sure	102	38.1
	The benefits are greater than the risks	72	26.9
To what extent smoking marijuana can help people your age to cope with emotional difficulties or problems?	The risks are greater than the benefits	130	48.5
	I am not sure	71	26.5
	The benefits are greater than the risks	67	25.0
To what extent smoking marijuana can improve the physical well-being of people of your age?	The risks are greater than the benefits	142	53.0
	I am not sure	84	31.3
	The benefits are greater than the risks	42	15.7
To what extent can smoking marijuana improve academic performance?	The risks are greater than the benefits	151	56.3
	I am not sure	91	34.0
	The benefits are greater than the risks	26	9.7



56.3% of students believe that smoking marijuana definitely does not improve academic performance. 9.7% believe that it definitely improves it. 34.0% are not sure (Table 3).

### Intention to use in a context of regulatory changes

Regarding to the intention to use in a context of regulatory changes 44.5% of students say that if they were 18 years old and marijuana were legal, they would not consume it; 26.8% would try it, but 20.0% would use it as frequently or more frequently than it is now. 3.8% would use it less and 4.9% do not know.

### Association of perception of harm and benefits from marijuana use (smoking)

There is moderated-negative weak perception of harm and marijuana use (prevalence of life, last 12 months and last 30 days). These associations are statistically significant. Students who smoke marijuana perceive less harm than those who have never smoked (Table 4).

It is also observed a moderated-negative weak correlation between the perception of benefits and the use of marijuana (prevalence of life, last 12 months and last 30 days). Statistically significant correlations at younger ages, they perceive less harm and more benefits than those who did it at an older age (Table 4).

**Table 4** – Association between harm perception of Monitoring The Future and benefits of the Benthin scale with the use of marijuana. Province of Concepción, Chile, 2015. (n=268)

Spearman's Rho correlation		Perception of harm	Perception of benefit
Prevalence of life	Correlation coefficient	-.328**	.193**
	Sig. (bilateral)	.000	.002
Prevalence in the last 12 months	Correlation coefficient	-.414**	.310**
	Sig. (bilateral)	.000	.000
Prevalence in the last 30 days	Correlation coefficient	-.349**	.302**
	Sig. (bilateral)	.000	.000

\* Significant correlation at the 0.05 level; \*\* Significant correlation at level 0.01

## DISCUSSION

A little more than half (54%) of the students reported never having smoked marijuana, but 46% have ever used at some time in their lives. The report made by the students is almost 9 points higher than what was observed in the Eleventh National Study of Drugs in the School Population of Chile, carried out in 2015.<sup>5,22</sup> This result is superior compared to the last study in the general population.<sup>7</sup> Marijuana is the illegal drug most consumed by adolescents, and national and international studies have shown a rise in consumption in recent decades, with no impact from government-led prevention policies.

It is alarming that 47 students out of 100 claim to have smoked marijuana, perhaps motivated by its intoxicating and pleasant effect, unaware that this momentary effect will mark their lives. Studies show that if consumed at an early age, it is more vulnerable to disruptive behaviors, such as compulsive behaviors, among others.<sup>23</sup>

Approximately 40 out of 100 students report having smoked marijuana in the last 12 months and almost 25 out of 100 in the past 30 days, four more than the prevalence observed in the last study in 2015 school population.<sup>5</sup> These results are worrisome, given that this drug is addictive, it



is estimated that 1 in 6 adolescents who try marijuana will become addicted,<sup>24</sup> with the consequent personal, family and social consequences. One of the aspects addressed in the student stage, which is influenced by consumption, is the low academic performance that leads to frustration and the decision to leave their studies, which limits their future to have a life project.<sup>25</sup>

The minimum age of onset of consumption was 8 years, early age of onset and much lower than the average age reported by other studies (14 years old).<sup>26-27</sup> It is difficult to predict all the damage that this drug produces in childhood, studies have reported that if its consumption is at an early age, there is more risk of brain regions damage with negative consequences on brain functions.<sup>28</sup> The most evident are its cumulative effects that hinder learning.<sup>29</sup>

A little less than half of students (44%) do not perceive harm if people try marijuana once or twice, but a little less than one-third (28.7%) believe that if people regularly smoke marijuana they would be exposed to physical harm or others. Over time, studies have reported how people do not perceive harm of this drug for health.<sup>5-29</sup> Similar results have been obtained in university students, who do not relate consumption as a risky behavior.<sup>30-31</sup>

Four out of ten students declare that marijuana can be consumed for medicinal purposes, in general, in the literature there are few studies that determine the medicinal use of marijuana.<sup>32</sup> More than 400 active compounds have been found in the drug, and scientific studies on toxicity are lacking to conclude its medicinal effects for the health of young people and adults.<sup>32</sup>

If there was a regulatory change, 26.8% of students say that if they were 18 years old and marijuana were legal, they would prove it. These results are important to consider in preventive strategies to promote healthy behaviors in educational spaces, given the current analysis of the legal aspects of marijuana.<sup>32</sup> It involves their families and friends in these strategies, appreciating the protective and affective role of the family.<sup>33</sup>

The findings of this study are similar to the conclusions reached by the researchers considering that youngsters commonly believe that marijuana can be consumed recreationally and that its experimental use does not cause harm.<sup>5,27</sup> It is difficult to understand what leads students to carry out this behavior, and the challenge of this society is to take care of their children and adolescents, in order to reduce consumption trends. More research is needed to have more tools to address the problem.

Complex mission. Intervention strategies should focus on the course of life. It is necessary, at an early age, to work with health assets to promote healthy lifestyles, and to strengthen personal resources throughout life.

The strategies in young people who have started their consumption have to be oriented to motivate prosocial behavior and the use of their personal resources to have the ability to solve problems after evaluating the personal, family and community environment.<sup>34</sup>

The limitations of the study were that this study is of quantitative design, since the research topic is related to people's behaviors, a qualitative approach would be necessary.

## CONCLUSION

It is observed that slightly less than half of the students between 15 and 17 years old declare to consume marijuana, an alarming result due to the negative effects of marijuana on adolescents' development. Furthermore, they perceive low levels of damage produced by the use of marijuana, and the use of marijuana for medicinal purposes is seen in a favorable position.

A comprehensive effective drug prevention policy at the community, family and personal level is imperative, and all social actors are involved. An effective intervention is urgent because health is a right.

## REFERENCES

1. Oficina de las Naciones Unidas contra la Droga y el Delito. Informe Mundial de droga. New York(US): UN; 2016.
2. Instituto Nacional sobre el Abuso de Drogas; Institutos Nacionales de la Salud; Departamento de Salud y Servicios Humanos de los Estados Unidos. Available from: <https://www.drugabuse.gov/es/publicaciones/drugfacts/la-marihuana>
3. Torres G, Fiestas F. Efectos de la marihuana en la cognición: una revisión desde la perspectiva neurobiológica. *Rev Peru Med Exp Salud Publica* [Internet]. 2012 Mar [cited 2016 July 22];29(1):127-34. Available from: <https://dx.doi.org/10.1590/S1726-46342012000100019>
4. Organización de los Estados Americanos. Secretaría de Seguridad Multidimensional. Comisión Interamericana para el Control del Abuso de Drogas. Observatorio Interamericano de Drogas. Informe del Uso de Drogas en las Américas. Washington(US): OEA; 2015.
5. Servicio Nacional para la Prevención y Rehabilitación del Consumo de Drogas y Alcohol. Observatorio Chileno de Drogas. Décimo Primer Estudio Nacional de Drogas en Población Escolar [Internet]. 2014 [cited 2016 July 22]. Available from: <https://www.politopedia.cl/wp-content/uploads/2016/06/De%CC%81cimo-Estudio-Nacional-de-Drogas-en-Poblacio%CC%81n.-Senda.2013.pdf>
6. Lev-Ran S, Imtiaz S, Taylor BJ, Shield KD, Rehm J, Le Foll B. Gender differences in health-related quality of life among cannabis users: results from the National Epidemiologic Survey on Alcohol and Related Conditions. *Drug Alcohol Depend*. 2012;123(1-3):190-200.
7. Servicio Nacional para la Prevención y Rehabilitación del Consumo de Drogas y Alcohol. Observatorio Chileno de Drogas. Décimo Primer Estudio Nacional de Drogas en Población General. [Internet]. 2015. [cited 2016 July 22]. Available from: <http://www.senda.gob.cl/wp-content/uploads/2015/07/Informe-Ejecutivo-ENPG-2014.pdf>
8. World Health Organization. Health for the World's Adolescents. A second chance in the second decade. [Internet]. 2014 [cited 2016 July 22]. Available from: [http://apps.who.int/adolescent/second-decade/files/1612\\_MNCAH\\_HWA\\_Executive\\_Summary.pdf](http://apps.who.int/adolescent/second-decade/files/1612_MNCAH_HWA_Executive_Summary.pdf)
9. Meier MH, Caspi A, Ambler A, Harrington H, Houts R, Keefe RSE et al. Persistent cannabis users show neuropsychological decline from childhood to midlife. *Proceedings of the National Academy of Sciences of the United States of America*. [Internet]. 2012 [cited 2018 Apr 30];109(40):E2657-64. Available from: <https://dx.doi.org/10.1073/pnas.1206820109>
10. Mena I, Dörr A, Viani S, Neubauer S, Gorostegui ME, Dörr MP, Ulloa D. Efectos del consumo de marihuana en escolares sobre funciones cerebrales demostrados mediante pruebas neuropsicológicas e imágenes de neuro-SPECT 3. *Salud Mental*. 2013;36(5):367-74.
11. Solowij N, Jones KA, Rozman ME, Davis SM, Ciarrochi J, Heaven PCL, et al. Verbal learning and memory in adolescent cannabis users, alcohol users and non-users. *Psychopharmacology*. 2011;216(1):131-44. Available from: <https://dx.doi.org/10.1007/s00213-011-2203-x>
12. Volkow ND, Baler RD, Compton WM, Weiss SR. Adverse health effects of marijuana use. *N Engl J Med*. 2014;370(23):2219-27.
13. Volkow ND, Wang GJ, Telang F, Fowler J, Alexoff D, Logan J, et al. Decreased dopamine brain reactivity in marijuana abusers is associated with negative emotionality and addiction severity. *Proc Natl Acad Sci*. 2014;111(30):E3149-56. Available from: <https://dx.doi.org/10.1073/pnas.1411228111>
14. Secades-Villa R, Garcia-Rodríguez O, Jin CJ, Wang S, Blanco C. Probability and predictors of the cannabis gateway effect: a national study. *Int J Drug Policy*. 2015 [cited 2018 Apr 30];26(2):135-42. Available from: <https://dx.doi.org/doi:10.1016/j.drugpo.2014.07.011>

15. Csete J, Kamarulzaman A, Kazatchkine M, Altice F, Balicki M, Buxton J, et al. Public health and international drug policy. *Lancet*. 2016 Apr 2 2013 [cited 2018 Apr 30];387(10026):1427-80. Available from: <http://positivegarden.com.ua/wp-content/uploads/2016/04/305864299-The-Lancet-Public-health-and-international-drug-policy-2016.pdf>
16. Velleman, R. Changing perspectives on problematic drug Use. In: Mistral W, editor, *Emerging Perspectives on Substance Misuse*. Chichester (UK): John Wiley & Sons; 2013. p.1-22.
17. Fondo de las Naciones Unidas para la Infancia. Oficina Regional para América Latina y el Caribe. Aproximación a la situación de adolescentes y jóvenes en América Latina y el Caribe. 2013 [cited 2018 Apr 30]. Available from: [http://www.unicef.org/lac/UNICEF\\_Situacion\\_de\\_Adolescentes\\_y\\_Jovenes\\_en\\_LAC\\_junio2105.pdf](http://www.unicef.org/lac/UNICEF_Situacion_de_Adolescentes_y_Jovenes_en_LAC_junio2105.pdf)
18. United Nations Office of Drugs and Crime -UNODC. Cannabis: A short review. 2013 [cited 2018 Apr 30]. Available from: [https://www.unodc.org/documents/drug-prevention-and-treatment/cannabis\\_review.pdf](https://www.unodc.org/documents/drug-prevention-and-treatment/cannabis_review.pdf)
19. Organización de Estados Americanos. Comisión Interamericana para el Control del Abuso de las Drogas. Observatorio Interamericano de Drogas. Sistema interamericano de datos uniformes. Protocolo de la encuesta sobre drogas en hogares. Washington(US): OEA; 2011 [cited 2018 Apr 30]. Available from: [http://www.cicad.oas.org/oid/protocols/1\\_PROTOCOLO\\_Encuesta\\_Hogares\\_Julio\\_2011.pdf](http://www.cicad.oas.org/oid/protocols/1_PROTOCOLO_Encuesta_Hogares_Julio_2011.pdf)
20. Johnston L, O'Malley P, Miech R, Bachman J, Schulenberg J. Monitoring the future national survey results on drug use: 1975-2015: overview: key findings on adolescent drug use. Ann Arbor (US): Institute for Social Research, The University of Michigan; 2015.
21. Benthin A, Slovic P, Severson H. A psychometric study of adolescent risk perception. *J Adolescence*. 1993;16(2):153-68.
22. Blasco-Fontecilla H. Posmodernidad, sociedades adictivas, cannabis y comportamiento suicida: ¿Hacia un mundo feliz? *Adicciones*. 2017;30(1):3-8.
23. Volkow ND, Morales M. The brain on drugs: from reward to addiction. *Cell*. 2015;162(4):712-25.
24. Castaño-Pérez G, Velásquez E, Olaya-Peláez A. Aportes al debate de legalización del uso medicinal de la marihuana en Colombia. *Rev Fac Nac Salud Pública*. 2017 [cited 2018 Apr 30];35(1):16-26. Available from: <https://dx.doi.org/10.17533/udea.rfnsp.v35n1a03>
25. Navalón A, Ruiz-Callado R. Consumo de sustancias psicoactivas y rendimiento académico: una investigación en estudiantes de educación secundaria obligatoria. *Salud y drogas [Internet]* 2017 [cited 2018 Apr 30],17(1):45-52. Available from: <http://www.redalyc.org/articulo.oa?id=83949782005>
26. United Nations Office of Drugs and Crime -UNODC. IV Estudio Nacional Prevención y Consumo de Drogas en Estudiantes de Secundaria 2012. Lima(PE): DEVIDA/USAID; 2013. Available from: [https://www.devida.gob.pe/documents/20182/97548/Informe-Ejecutivo\\_IV-Estudio-Nacional-Prevenci%C3%B3n-y-Consumo-de-Drogas-en-Estudiantes-de-Secundaria-2012.pdf/5446ffbc-39a1-4573-8f61-cd5bca027d4b](https://www.devida.gob.pe/documents/20182/97548/Informe-Ejecutivo_IV-Estudio-Nacional-Prevenci%C3%B3n-y-Consumo-de-Drogas-en-Estudiantes-de-Secundaria-2012.pdf/5446ffbc-39a1-4573-8f61-cd5bca027d4b)
27. Organization of American States. The drug problem in the Americas. Washington(US): Organization of American States; 2013.
28. Loredó A, Casas A, Monroy D. Efectos adversos de la marihuana en la edad pediátrica: su conocimiento ¿podría limitar la legalización de la droga en México?. *Bol Med Hosp Infant Mex [Internet]*. 2014 Aug [cited 2018 Apr 29];71(4):248-51. Available from: <https://dx.doi.org/10.1016/j.bmhmx.2014.06.001>
29. Madras, B. Update of cannabis and its medical use. Review for the 37th session of the WHO Expert Committee on Drug Dependence. Geneva(SZ): World Health Organization; 2015.

30. Servicio Nacional para la Prevención y Rehabilitación del Consumo de Drogas y Alcohol. Observatorio Chileno de Drogas. Décimo Segundo Estudio Nacional de Drogas en Población General. Santiago de Chile(CH): Ministerio del Interior; 2016.
31. Sepúlveda J, Roa J, Muñoz M. Estudio cuantitativo del consumo de drogas y factores sociodemográficos asociados en estudiantes de una universidad tradicional chilena. *Rev. méd. Chile* [Internet]. 2011 July [cited 2016 July 22];139(7):856-63. Available from: <https://dx.doi.org/10.4067/S0034-98872011000700005>
32. Calderón GA, Pareja LM, Caicedo C, Chica RA. Regulación del uso de marihuana en Colombia con fines medicinales. *Hacia Promoc Salud*. 2017 [cited 2018 Apr 30];22(1):43-55. Available from: <https://dx.doi.org/10.17151/hpsal.2017.22.1.4>
33. Fuentes M, Alarcón A, García F, Gracia E. Use of alcohol, tobacco, cannabis and other drugs in adolescence: effects of family and neighborhood. *Anal Psicol* [Internet]. 2015 Oct [cited 2018 Apr 30];31(3):1000-7. Available from: <https://dx.doi.org/10.6018/analesps.31.3.183491>
34. Hernández-Serrano O, Espada J, Guillén-Riquelme A. Relación entre conducta prosocial, resolución de problemas y consumo de drogas en adolescentes. *Anal. Psicol.* [Internet]. 2016 May [cited 2018 Apr 30];32(2):609-16. Available from: <https://dx.doi.org/10.6018/analesps.32.2.204941>

## NOTES

### CONTRIBUTION OF AUTHORITY

Study design: Henriquez PC, Hamilton H.

Data collect: Henriquez PC.

Data analysis and interpretation: Henriquez PC, Hamilton H.

Discussion of the results: Henriquez PC, Hamilton H.

Writing and / or critical review of content: Henriquez PC, Hamilton H.

Review and final approval of the final version: Henriquez PC.

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### ETHICS COMMITTEE IN RESEARCH

Approved by the *Centre for Adicction and Mental Health* (088/2014), and the Ethics Committee of the Faculty of Medicine of the University of Concepción, the authorization was requested for the study to be carried out by the Ministerial Regional Secretariat of Education of Bio Bio and the National Service for the Prevention and Rehabilitation of Consumption of Drugs and Alcohol (SENDA).

### CONFLICT OF INTEREST

There is no conflict of interest.

### HISTORICAL

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