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# Medicinal plants consumption by patients under psychological treatment in a municipality in Chile

[Consumo de plantas medicinales en pacientes bajo tratamiento psicológico en una municipalidad de Chile]

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## Abstract

**Context:** High levels of mental illness are found today in the population of Chile and the consumption of medicinal herbs could be included in the scope of complementary therapies for the treatment of mental illnesses. In Chile there is no information respect to consumption of medicinal herbs in patients under psychological treatment.

**Aims:** To characterize the consumption of medicinal herbs by patients treated in a mental health clinic.

**Methods:** In this quantitative cross-sectional study (n = 100), patients were administered a closed-response survey to determine the frequency of medicinal plant consumption as complementary treatment and subsequently to characterize such consumption.

**Results:** Among the patients surveyed, 36% consumed medicinal herbs to treat a psychological pathology as a complementary treatment. Among those who consumed medicinal herbs, 65% consumed *Cannabis sativa* (marijuana) either exclusively (42%) or in conjunction with other plants (23%), 80% reported that their therapist was aware of this behavior, and 35% consumed medicinal herbs once or twice a day.

**Conclusions:** In the present study, there was significant use of medicinal plants by patients treated at the mental health clinic, especially marijuana consuming. This demonstrates the importance of recognizing citizens' right to free and equal access to healthcare and acknowledging the responsibility of the state to ensure the safety and quality of the services offered to the population.

**Keywords:** *Cannabis sativa*; consume; *Melissa officinalis*; mental illnesses; medicinal plants; *Thea sinensis*.

## Resumen

**Contexto:** En Chile existen altos niveles de enfermedades mentales y el consumo de hierbas medicinales pueden ser incluidas como terapias complementarias para el tratamiento de dichas enfermedades. En Chile no existe información respecto al consumo de fitoterapia complementaria en pacientes bajo tratamiento psicológico.

**Objetivos:** Caracterizar el consumo de hierbas medicinales en pacientes tratados en una clínica psicológica.

**Métodos:** Se realizó un estudio cuantitativo de corte transversal (n= 100), en el que los pacientes respondieron un cuestionario de respuestas cerradas, para determinar la frecuencia de consumo de plantas medicinales como terapia complementaria.

**Resultados:** Del total de participantes, 36% consumió hierbas medicinales como terapia complementaria al tratamiento psicológico. Entre ellos, el 65% consumió *Cannabis sativa* (marihuana) ya sea exclusivamente (42%) o en conjunto con otras plantas (23%), además, el 80% de los consumidores reportó que su terapeuta estaba en conocimiento de dicho consumo y el 35% consumió una o dos veces al día.

**Conclusiones:** En el presente estudio se observó un consumo significativo de plantas medicinales en personas en tratamiento psicológico, especialmente de marihuana. Esto muestra, la importancia de reconocer los derechos de los ciudadanos para tener un acceso libre e igualitario a tratamientos de salud y la responsabilidad del estado de certificar la seguridad y calidad de los servicios ofrecidos a la población.

**Palabras Clave:** *Cannabis sativa*; consumo; enfermedad mental; *Melissa officinalis*; plantas medicinales; *Thea sinensis*.

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## INTRODUCTION

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According to the results of the last National Health Survey, high levels of mental illness are found today in the population of Chile. In fact, the survey shows that 17.2% of the Chilean population older than 15 years of age has presented depressive symptoms in the last year (MINSAL, 2010). These levels are considerably higher than those reported by developed countries such as the United States (6.6%) (Gauthier et al., 2017). The survey also shows that approximately 30% of those having presented depressive symptoms in the last year were women between 45-64 years of age, 11% were men aged between 25-44 years, and 21% were women and men with a low education level. According to the World Health Organization (WHO), the global incidence of depression and other mental disorders is on the rise. They estimate that these types of disease will be the second leading cause of disability in the world in 2020, if appropriate treatment is not provided. The WHO also states that the main problem is that the majority of individuals who suffer from these types of conditions do not receive the attention they require, which is exacerbated by the low number of specialists in the field (WHO, 2016).

So-called alternative therapies (used in place of conventional medicine) and complementary therapies (used in addition to conventional medicine) can be found among the therapies used to treat pathologies in general and psychological or mental diseases in particular. Neither of these types of therapies are included among allopathic therapies (referred to as those therapies practiced by health specialists and professionals) (Véliz-Rojas et al., 2015).

The consumption of medicinal herbs is included in the scope of alternative and complementary therapies for the treatment of mental illnesses. According to the WHO (2013) medicinal herbs are defined as gross plant materials, such as leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes, and other parts of plants, whole, fragmented, or sprayed, which are used for the prevention, diagnosis, or treatment of mental illnesses. The organization notes that using them requires certain precautions, as they may pose risks to people's health if handled incorrectly. The consumption of medicinal herbs is part of the different practices

people engage in for their health. The historical development of the use of medicinal herbs as a therapeutic resource has accompanied human evolution itself. These healthcare practices are related to popular knowledge transferred through traditions and customs (Avello et al., 2010).

Thus, in relation with the concept of herbal medicine, the WHO has promoted and recognized the importance of the use of medicinal herbs in healthcare (WHO, 2013). The Declaration of Alma Ata advocated for the integration of proven traditional remedies in national pharmaceutical regulations and policy (WHO, 2013). In the case of Chile, in 2009, a total of 103 medicinal plants termed traditional herbal medicine (THM) were incorporated in the category of medicines (MINSAL, 2012). Nevertheless, they are not usually prescribed by psychologists (Parada, 2012), and the population has little knowledge in this regard.

Considering the increase in the consumption of medicinal plants as alternative therapy and the significant increase in the incidence of mental illness in Chile, the aim of this study was to identify and describe the consumption of medicinal herbs by patients in a Psychological Care Clinic, located in the municipality of Santiago, Chile.

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## MATERIAL AND METHODS

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### Study design and participants

The sample included 100 participants, of which 54% were women. All participants were patients at the clinic in the municipality of Santiago, Chile, from December 2014 to October 2015. This was a cross-sectional study, with voluntary participation, where a self-consumption survey was assessed and conducted by the authors that allowed to characterize the consumption of medicinal herbs in patients under psychological treatment, mainly such as: age, sex, time of diagnosis, pharmacological treatment, use of medicinal plants as an alternative to treatment, knowledge of the treating physician of consumption, among others.

The clinic attended 414 patients at the time of the study, of whom 100 agreed to participate in the study. Prior to the start of the study, each participant was informed regarding the purpose of the

study and the survey content. Next, they signed the informed consent form. The inclusion criterions were that they were a patient of the clinic and signed the informed consent, on the other hand there were no exclusion criteria. This study was conducted in accordance with the Declaration of Helsinki and the rules formulated by the Ethics Committee of the clinic (VRIP N° 1000/57/14).

### Survey on the consumption of medicinal herbs

The survey used was an adaptation of the version developed by Gratus et al. (2009) to quantify and characterize the use of medicinal herbs in cancer patients, and it consists of closed-ended questions. The survey was adapted to be used with psychological patients in the Chilean population. The translation process was performed in accordance with that described in Cull et al. (2002). The translation and adaptation, conducted by independent translators and aimed at psychological patients, was subsequently evaluated in a pilot study with 20 people. This trial enabled its cultural adaptation to the Spanish spoken in Chile.

The survey consists of three dimensions, with a total of 24 questions and two questions of age and sex (Tables 1-3). The first dimension (six questions) measures socioeconomic aspects, the second (five questions) provides information regarding mental health, and the third (13 questions) focuses exclusively on the consumers of medicinal plants.

### Statistical analysis

As this study includes knowing the consumption of medicinal herbs in patients under psychological treatment, the survey obtained data, organized, presented and described what allowed characterizing said consumption. A description of the most frequent responses by question in each dimension is presented, and the percentages are calculated and compared. The statistical analysis was carried out with the STATA 13.0 program.

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## RESULTS

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The complete survey (questions and percentage

of answers) is shown in Tables 1-3, according to 3 survey dimensions:

### Demographical characteristics

The age of the participants is concentrated between 20 to 30 years old and an average of 28 years (Table 1), ranging from 18 to 65 years. Most of the subjects surveyed correspond to women (54%), from urban zone and focused in an income per household equivalent to 661-826 dollars and the majority are employees had a complete high school educational level and mostly considered them as mestizos.

### Clinical characteristics of patients under psychological treatment

Participating patients have a short time of diagnosis of their psychological condition when the study was conducted (1-2 months before) and only a low percentage presents a diagnosis before 6 months. In relation to the treatment received by the patients; a percentage that although it is not the majority but remains relevant, has received pharmacological treatment (37%), where the main drugs administered were anxiolytics (16%) and mood stabilizers (16%).

### Characteristics of medicinal plants consumption in patients under psychological treatment in Chilean population

Regarding patients who consume medicinal plants (36%), the majority of consumers were in the age range between 24 and 33 years old, with an average of 29 (Fig. 1) are mainly men (57%). Mostly consume before beginning the psychological treatment (70%), the majority of the consumers of medicinal plants, consumed *Cannabis sativa* (marijuana) exclusively. The second most used plant was *Melissa officinalis* (melissa) and jointly consumed marijuana, *Thea sinensis* (green tea), and melissa (Table 3). It is important to note that in terms of the total frequency of consumption, marijuana (exclusively or in conjunction with other plants) exhibited the highest frequency, reaching 55% (Table 3).

**Table 1.** Demographical data of the study population.

Demographical data	Percentage (%)
<b>Age</b>	
20-30	61
31-40	22
41-50	10
51 and above	7
<b>Gender</b>	
Male	46
Female	54
<b>Location</b>	
a) Urban	81
b) Rural	19
<b>Income per household (in CLP)</b>	
a) Equal to or less than \$ 160,000	12
b) \$ 200,000 to \$ 300,000	32
c) \$ 400,000 to \$ 500,000	38
d) \$ 600,000 to \$ 1,200,000	16
e) \$ 1,700,000 or more	2
<b>Marital status</b>	
a) Single	71
b) Married	14
c) Widowed	3
d) Separated	8
e) Other	4
<b>Indigenous relevance</b>	
a) Mestizo	87
b) Ethnicity	3
c) Other	10
<b>Educational level</b>	
a) Without studies	1
b) Incomplete basic	1
c) Complete basic	5
d) Incomplete media	4
e) Complete media	29
f) Incomplete technique	7
g) Complete technique	11
h) Incomplete university	24
i) Complete university	14
j) Postgraduate studies	4

**Table 1.** Demographical data of the study population (*continued...*).

Demographical data	Percentage (%)
<b>Occupation</b>	
a) House Owner	6
b) Employee	40
c) Unemployed	8
d) Independent	13
e) Retired	2
f) Student	29
g) Other	2

**Table 2.** Characteristics of patients under psychological treatment in a Chilean population.

Characteristic/treatment	Percentage (%)
<b>Time since the diagnosis of the disease</b>	
less than a month	26
1-2 months	43
3-4 months	13
5-6 months	9
more than six months	9
<b>Condition of the problem related to mental health</b>	
a) I've always had the problem	28
b) Sometimes I have the problem	40
c) I rarely have the problem	16
d) Others say that I have the problem	5
e) The problem comes from the others	2
f) I do not feel I have the problem	9
<b>Have you received treatment?</b>	
a) Yes	58
b) No	42
<b>Have you received pharmacological treatment?</b>	
a) Yes	37
b) No	73
<b>What has been the pharmacological treatment?</b>	
a) Anxiolytic	16
b) Anticonvulsant	2
c) Mood stabilizer	16
d) Sleep Inductor	3

**Table 3.** Characteristics of medicinal plants consumption in patients under psychological treatment in a Chilean population.

Characteristic	Percentage (%)
<b>Do you use medicinal plants as a complementary therapy to alleviate your symptoms?</b>	
a) Yes	36
b) No	64
<b>Did you use medicinal plants before consulting for your mental health?</b>	
a) Yes	70
b) No	30
<b>How many plants do you use?</b>	
a) 0	0
b) 1	93
c) 2	4
d) 3	2
e) 4	1
f) 5 or more	0
<b>Which plants do you use?</b>	
a) <i>Cannabis sativa</i> L. (marijuana)	45
b) <i>Melissa officinalis</i> L. (melissa)	42
c) Marijuana, <i>Thea sinensis</i> L. (green tea), and melissa	10
d) Others: <i>Matricaria chamomilla</i> L. (chamomile), <i>Buddleja globosa</i> Hope (matico), <i>Peumus boldus</i> Molina (boldo), <i>Ruta graveolens</i> L. (rue)	3
<b>Reasons for the use of medicinal plants</b>	
a) Strengthen your own defenses	20
b) Counteract the adverse effects of psychological treatment	2
c) Decrease the progress of the disease	6
d) Decrease psychological pain	17
e) Other	55
<b>Does your therapist know that you use medicinal plants?</b>	
a) Yes	80
b) No	20
<b>Who recommended you the use of medicinal plants?</b>	
a) An article in a scientific journal	12
b) A family member	35
c) A friend or acquaintance	29
d) A health professional	12
e) Advertising/TV	4
f) Magazine, newspaper	8

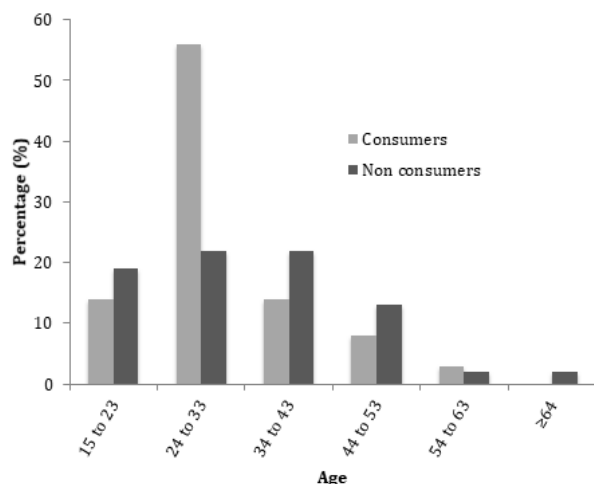
**Table 3.** Characteristics of medicinal plants consumption in patients under psychological treatment in a Chilean population (*continued...*).

Characteristic	Percentage (%)
<b>Do you know the side effects of the herbal-drug interaction?</b>	
a) Yes	42
b) No	58
<b>Perception of the patient with herbal medicine</b>	
a) Radically improves	26
b) Some positive changes	68
c) Unchanged	6
d) Radically worsened	0
<b>Origin of the medicinal plants that you consume</b>	
a) Supermarket	8
b) Naturist store	19
c) Local cultivation	22
d) Own culture	42
e) Mental health clinic	3
f) Imported	3
g) Pharmacy	3
<b>Forms of preparation of medicinal plants (specify product name)</b>	
a) Fresh or juice	32
b) Syrup	3
c) Tablets	3
d) Drops	9
e) Others	53
<b>What parts of the plant do you use?</b>	
a) Root	3
b) Stem	6
c) Leaf	39
d) Flower	14
e) Whole plant	34
f) Other	4
<b>Frequency of consumption</b>	
a) Every day one or two times	35
b) Every day three or four times	21
c) Every day about five times	7
d) Three times a week	13
e) One or two times per week	20
f) Other	4



In general, the subjects do not describe any particular cause for the consumption of medicinal plants as an alternative therapy to their psychological treatment (55%), notwithstanding that some reported that they consume by: strengthen defenses and diminishing the psychological pain, mainly. Most report significant changes after the use of medicinal plants (68%).

In terms of level of income per household among consumers of medicinal plants, the highest frequency of consumption was found in the US\$308 to US\$771 income range, with a total of 68%. These results also showed that lower rates of consumption were found at higher income levels (i.e., above US\$2,777). When analyzing the group of consumers of medicinal plants by education level, it is observed that the majority had a high school diploma (60%) and that the lowest percentage (2%) corresponded to those with a university degree.



**Figure 1.** Consumers of medicinal plants by age.

Percentage, according to the age, of patients under psychological treatment who consume and do not consume medicinal plants as alternative therapy. The results are shown in percentages.

## DISCUSSION

This is the first study in Chile that investigates the consumption of medicinal plants in patients with psychological or mental diseases and under treatment. This subject is highly relevant since according to the latest Study on Burden of Disease and Attributable Burden performed in our country (MINSAL, 2007), 23.2% of the years of life lost due to

disability or death (DALY) are determined by neuro-psychiatric conditions. For children between 1 and 9 years old, 30.3% of DALYs are due to these conditions, a proportion that increases to 38.3% between 10 to 19 years old (MINSAL, 2017). This type of research allows public health directs policy orientation, standard development (regulation), and support to the management of activities related to the understanding and practice of so-called alternative/complementary medicine (ACM) related to high prevalence diseases.

The results show an important frequency of consumption of medicinal herbs, that although it is less than 50% among the patients analyzed, remains important and is similar to that found in other populations (Véliz-Rojas et al., 2015). This highlights the significance of recognizing the right of citizens to free and equal access to healthcare and acknowledging the responsibility of the state to ensure the safety and quality of the services offered to the population (MINSAL, 2012).

It is important to highlight that among the consumers of medicinal plants, in our sample of study, the majority corresponds to men whose occupation is employed but in the entire sample the highest percentage corresponds to women. In this sense, mental illnesses are especially relevant in women since unipolar depressive disorders and anxious disorders are among the first five causes of DALY (MINSAL, 2017). Therefore, it is important that public policies, including counseling for the consumption of complementary therapies if the patient informally decides, can be targeted to specific groups. Considering that mental problems and disorders affect to a greater extent people with a lower educational level (Vicente, 2002), younger people (Vicente, 2010) and women (Vitriol, 2010); likewise, they have a particular impact on people of indigenous peoples (Vicente, 2005). Even which some groups were actually observed with higher consumption in our study (lower educational level, younger people), which shows that some groups have a higher risk factor.

Psychologists or physicians should acknowledge the consumption of medicinal herbs by psychological patients, as improper use could produce more negative consequences than benefits for patients with mental illnesses, especially and as it was observed in our study the high consumption of illegal

medicinal plants (marijuana) that in patients with a basal pathology could even aggravate their disease. This is relevant in some of the aspects evaluated in the survey that we apply in this study because most consumers of medicinal plants: they do it before being diagnosed with mental pathology, they do not specify the cause of the consumption, they were recommended by people who are not health professionals, do not know possible side effects and most recognize positive changes after consumption. These results, although they correspond to a small sample, are important to consider since the alternative consumption of medicinal plants in patients under psychological treatment should include supervision of health professionals.

The study and description of the consumption of medicinal herbs as complementary medicine, is important not only for health education aimed at their proper use but also for the patient-psychologist interaction, which enables the development of treatment plans that incorporate the customs and traditions related to the provision of healthcare. In this sense, healthcare systems cannot be indifferent to the use of medicinal plants as a therapeutic resource for people with mental illnesses. A comprehensive perspective would enable the development of strategies for the proper use of medicinal herbs in patients who are treated in psychological consultations (De França et al., 2008).

The literature notes that the use of medicinal plants is frequent in the population as an alternative therapy for the treatment of various pathologies. People assume these herbs are safer than pharmaceutical products. However, certain herbs are powerful and not as innocuous as thought. They can interact with medicines commonly used over the long-term, leading to pharmacological alterations that can be harmful to people's health (Sarmiento et al., 2010). This further shows why describing the consumption of medicinal plants is important, particularly to avoid complications during treatment.

With regard to how medicinal herbs are obtained, the evidence shows that a significant percentage of subjects cultivate the medicinal herbs they consume, in our study, however, we found that less than 50% of consumers grow their own plants.

This shows a cultural practice that is relevant for both the conservation of biodiversity as well as the preservation of traditions. This aspect could be used as a resource in the health sphere aimed at the development of strategies that incorporate traditional and cultural elements of each community in healthcare, which must necessarily be supported by biological studies and clinical trials. This can be achieved with the purpose not only of protecting the population from possible adverse or toxic effects on their health but also of recognizing and regulating those unconventional practices or therapies that are useful for public health (Lazar et al., 1997).

It has been reported that, in general, mainly people of higher educational and socio-economic status resort to alternative/complementary therapies (Lazar et al., 1997). However, the opposite was found in this study, as increased consumption was observed in those in lower income ranges and lower educational level. This may be because this study was conducted in the single municipality of Santiago. Therefore, it is necessary to increase the number of locations assessed. Similarly, the WHO notes that older people consume more medicinal plants because they prefer to prevent disease in more natural ways. The average age of consumption in our results was 29 years. Again, this may relate to the study sample in which most participants ranged from 20 to 30 years of age, as they are mainly the individuals under treatment for mental illness. In the future a study should be carried out with people representing different socioeconomic strata.

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## CONCLUSIONS

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A high level of consumption of medicinal plants for the treatment of mental illnesses was observed. Given the high frequency of this type of pathology in our population, expanding the sample analyzed in order to involve a greater number of participants will be necessary in the future, as well as assessing the biological effect of medicinal plants and incorporating this knowledge into public health programs in the country.

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## CONFLICT OF INTEREST

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The authors declare no conflict of interest.

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### Author contribution:

Contribution	Ramírez-Tagle R	Ávalos V	Silva E	Martínez F	Valladares M
Concepts or ideas	X				X
Design	X				X
Definition of intellectual content	X	X	X	X	X
Literature search	X	X	X	X	X
Data acquisition		X	X	X	
Data analysis					X
Statistical analysis					X
Manuscript preparation	X				X
Manuscript editing					X
Manuscript review	X	X	X	X	X

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