

## What do people do before going to the dentist? Qualitative study of cultural practices of pain relief in primary care.

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**Abstract:** Objective: To describe and classify the main cultural practices used to relieve orodental pain in people who seek emergency dental care in vulnerable urban and rural areas of central Chile. Methodology: A sample of 88 adults residing in urban and rural sectors, who received treatment at primary care emergency dental services in three districts of the central area of Chile was studied using a qualitative descriptive approach of sociocultural epidemiological orientation based on Grounded Theory. Interviews were conducted in the waiting room of the emergency service or at the patient's home. Empirical saturation and triangulation of temporal data were protected. Results: Practices of biomedical origin (self-medication and care received at dental emergency services) and socio-cultural practices were documented. They include the use of chemical products (iodine, phosphorus, battery acid, hydrogen peroxide, gasoline, and alcoholic drinks, among others), herbal infusions (*Buddleja globosa*, *Aloe vera*), mechanical-physical techniques (use of cold or heat, massage); subjects also perform the mechanical manipulation of the area with sharp objects, occasionally extracting the tooth itself. Practices occur more frequently at home when the person feels the pain in the affected area, and end on the dental chair with the tooth extraction. Conclusions: The coexistence of biomedical practices and alternative cultural strategies was observed. These practices complement each other and make people postpone seeking professional dental care, which may worsen their health condition.

**Keywords:** *Self-medication; toothache; self-care, dental care.*

### INTRODUCTION.

Relieving toothache is one of the priorities of international organizations regarding public policies for the promotion of oral health.<sup>1</sup> It is undoubtedly necessary to meet these objectives, and to continue with the development of biomedical research focused on pathology. At the same time, interdisciplinary approaches could contribute to the understanding of this complex phenomenon of human experience. Indeed, interdisciplinary studies show that orodental pain is mediated by social status and culture;<sup>2</sup> socio-economic inequality that affects vulnerable sectors is one of the main factors in this regard. The poorest populations have worse oral health and consequently could suffer more dental pain. In Chile, despite the implementation of a series of reforms in public health, the problems of access and quality of care still persist, mainly due to inadequate facilities and limited resources to provide the services patients need.<sup>3-5</sup> Furthermore, the low

number of dentists in the public sector and the overload of cases, which decreases time assigned to patients making more difficult to perform treatments.<sup>6</sup>

Consequently, the vulnerable sectors go to the dentist less often.<sup>7-9</sup> The lack of socio-economic resources is particularly associated with the long periods of time elapsed between the moment individuals perceive the symptoms and when they voluntarily seek professional care. People must face barriers that hinder care provision, such as: lack of time, long waiting periods for appointments, transportation problems, fear of the dentist and/or dental equipment, or lack of confidence in the health professionals.<sup>10</sup>

Postponing dental care would create a latency time between the onset of first symptoms of orodental pain and the dental consultation, during which for that period people recur cultural strategies to solve their health problem.<sup>11-14</sup>

A review of the main studies reporting cultural practices of pain relief shows that these refer to contexts of broader studies conducted on the quality of dental care in public services that provide primary and emergency care. The prevalent approach is biomedical involving the use of quantitative methodologies based on patient surveys, after the provision of professional care. Results are presented as frequency analyses associated with broad nomenclatures in which the dental care practices declared by the subjects are organized.

The main epidemiological subpopulations studied are vulnerable urban-rural groups with limited access to dental care.<sup>12,15</sup> The quality of dental health in ethnic minorities and rural sectors calls for a series of studies showing the effect of social inequality and culture on this phenomenon.<sup>14,16-18</sup> An emerging methodological trend includes Western studies that analyze the questions and exchange of information regarding dental pain relief practices among social network users, particularly Twitter<sup>19</sup> and Google.<sup>14</sup> Most of the studies report practices of pain relief before people seek professional care, and exceptionally in the period between care provision and the next dental check-up or follow-up.

These studies show the recurrence of self-medication in different subpopulations,<sup>15,16,20</sup> mainly the use of

painkillers obtained in pharmacies with or without the advice of a professional. They suggest that family and social support networks, as well as the collaboration of pharmacists, favor this practice.

Another constant observed mainly in vulnerable populations in emerging countries, is the extraction of their own teeth, and extractions performed by other people.<sup>17,19</sup> It has been observed that people with fewer resources go to the dentist for a perceived need or when there is pain, and they associate good or bad oral health with manifestations of this particular symptom, considering tooth extraction as the cheapest and most effective strategy to solve their problem.<sup>11</sup>

The search and use of home remedies to relieve dental pain is another constant in these studies; their importance varies significantly depending on the epidemiological subpopulations under study. It has been observed that cultural strategies predominate<sup>14</sup> in emerging and multiracial countries like Brazil. Among the nomenclatures of statistical analysis of pain relief it is possible to identify practices such as the use of home remedies based on natural, herbal or homeopathic products.<sup>16,21</sup> Within the lists of the various materials used to alleviate toothache, there are natural products such as: instant coffee; tobacco; clove; ice; alcohol<sup>17</sup>, and others. Clove and alcohol stand out among the recurrent natural products reported in the few scientific studies carried out globally.<sup>14,12,20</sup>

Also, specific cultural practices such as mouthwashes and topical actions are documented, but their analysis shows, on the whole, low frequencies of use. Likewise, strategies related to spiritual aids or those that include magic-religious dimensions appear almost exclusively in studies carried out in ethnic minorities and rural areas.

Drastic practices involving the use of gasoline, kerosene and rubbing alcohol are reported to a lesser extent. Some studies report exceptional cases in which these practices have had negative consequences for health, such as cases of paracetamol overdose<sup>22</sup> or intoxication by combining alcohol with clove.<sup>23</sup>

The lack of specific studies on people's strategies to deal with dental pain accounts for the need to broaden the vision from the biomedical approach focused on the disease,<sup>24,25</sup> to the socio-cultural aspects of oral

health. The above is because they may have negative implications in the quality of dental health of people. In Chile, this information would provide clues to create specific programs in health promotion and prevention of dental disease, in populations with rural history or in conditions of vulnerability, such as the ones presented in this study.

Consequently, the aim of this study consisted of describing and classifying orodental pain relief practices present in the health-illness-care process of dental patients in primary care services in vulnerable urban and rural areas of central Chile. It was particularly interesting to report the relevance of these practices (frequency in the discourse of each individual and recurrence in the sample), and secondly, to classify them according to the factors they have in common. Pain relief practices will be understood as those actions that, according to people, aim to reduce or eliminate dental pain from the first symptoms until the elimination of the cause of the symptom. The aim of the study is to generate knowledge that allows the implementation of culturally sustainable public policies that consider sociocultural dimensions. The research question is: What are the main cultural practices to relieve orodental pain employed by people who receive emergency dental care?

## MATERIALS AND METHODS.

### Study design

Qualitative descriptive, epidemiological and socio-cultural oriented design<sup>26</sup> that studies the practices of orodental pain relief from the perspective of the agents in their natural daily contexts. This interdisciplinary approach between health and social sciences, among others, suggests that in the health-illness-care process there are behaviors and ideas contextually situated, created in society, and shared and transmitted from generation to generation.

### Sampling

The methodological strategy employed qualitative interviews carried out with 88 adults between 21 and 63 years old, without rejection nor desertion (Table 1) from urban and rural vulnerable areas, recruited in the waiting rooms of healthcare centers between August

2014 to December 2017. The participants of this study come from three districts: a) Paredones with an incidence of income poverty of 33.41%, according to the 2013 CASEN Survey; b) Rengo with 20.47% of the population in poverty, and c) Talca.<sup>27</sup> The Carlos *Trupp neighbourhood* is a vulnerable urban sector in Talca with emerging social class. The districts of Paredones and Rengo are located in the Libertador Bernardo O'Higgins region, and the district of Talca is located in the Maule region. These districts are characterized by informal, temporary labor sources with very low wages; as well as medium education levels (complete elementary and secondary education). In the study population, rurality is associated with low income and low educational level; therefore the risk of oral diseases is higher.<sup>13</sup> This marks differences in the access to health care, primarily due to the lack of information, late dental consultation, and limited resources in the population.<sup>8</sup>

### Data gathering techniques

The protocols of data gathering techniques were adapted (Table 2) to the theoretical needs of this research, and the criteria of sample selection evolved in accordance with the availability and characteristics of the participants attending emergency services. Participants were recruited face to face in the waiting room of the dental emergency services. The 40 to 90-minute interviews were carried out in the family health centers, or at the participants' homes by previously trained dentistry resident, without previous contact with the participants.

### Data analysis

The interviews' audio files were manually and accurately transcribed, they were not revised by the participants. The qualitative, inductive and computerized analysis was made using the Nvivo<sup>10</sup> Software on the Grounded Theory principles.<sup>28</sup> The procedures of empirical saturation (stopping data collection when obtaining a full description of the phenomenon), and the triangulation (combining different situations, subjects and researchers)<sup>29</sup> contributed to the reliability of the study. A triangulation of temporary data was conducted (implementation of the same instrument of data collection in different stages with ten new interviews), situations, subjects and researchers between August 2014 to December 2017.

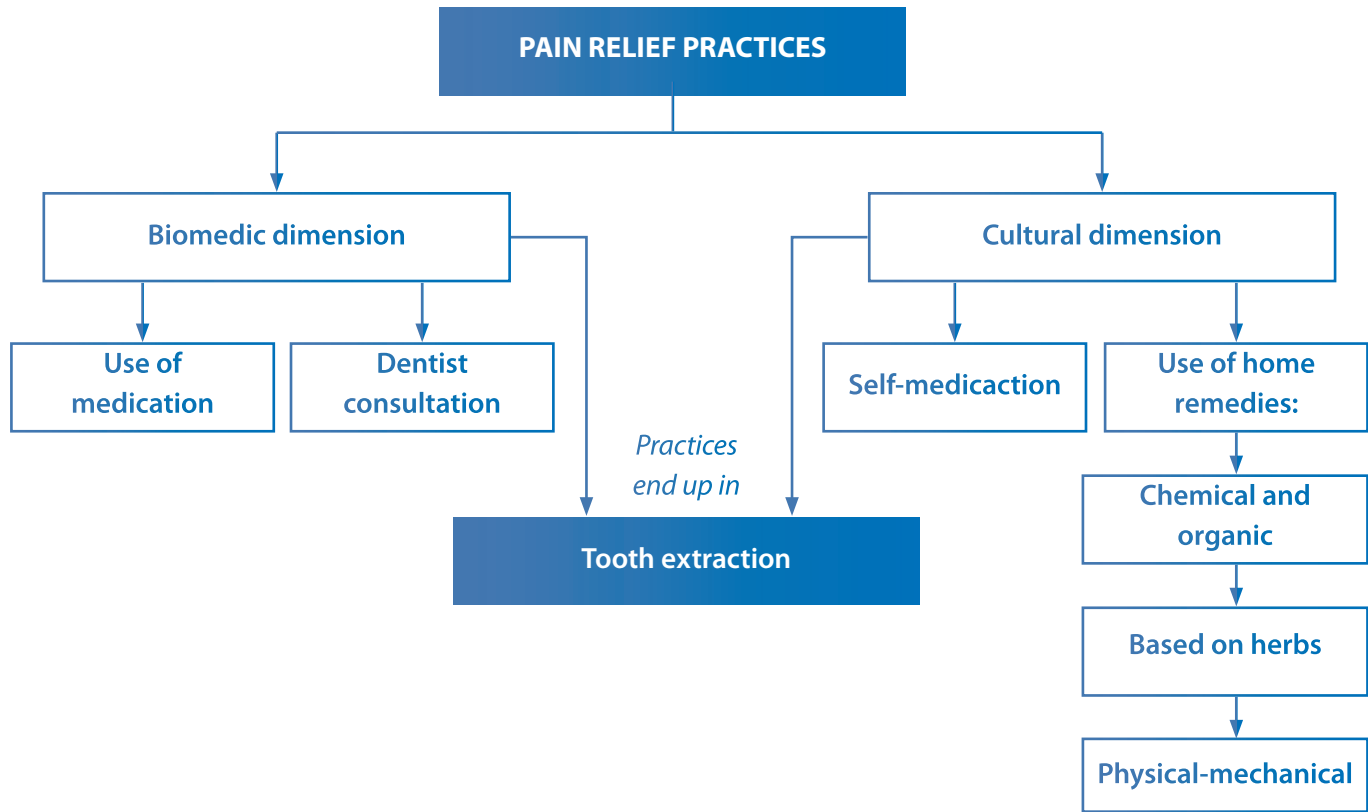
**Ethical considerations**

The participants were informed of the purpose of the study and of the people in charge of the research. The digital audio files and the informed consents were properly guarded, as was the privacy of the empirical

material. An identification number was assigned to each participant, correlated to their age and sex.

The study was approved by The Scientific Ethics Committee of Universidad de Talca (folio 2015-099-GD, 2017043).

**Figure 1:** Orodonal pain relief practices in vulnerable adults



**Table 1.** Bio-demographic description of the participants.

Attribute		Frequency n = 88	Percentage (%)
Districts	Rengo	20	23
	Paredones	24	27
	Talca (Carlos Trupp NBHD)	44	50
Age	≤ 25	20	22
	25-34	16	18
	35-44	25	29
	45-54	22	25
	55-64	5	6
Sex	Female	65	74
	Male	23	26
Residence	Urban	49	56
	Rural	39	44
Schooling	Elementary-incomplete	5	6
	Elementary-complete	27	30
	High School-complete	50	57
	Higher Education	6	7

NBHD: Neighborhood

**Table2.** Synthesis of the qualitative interview protocol.

Introductory questions	I would like to know how your experience was when you had toothache, could you tell me about this? When and where was it? What was your first reaction? What did you think it was? How would you define or describe this feeling? and How did you cope with it?
Dimension	<b>Questions</b>
Data on practices and visions associated with the treatment of toothache	In relation to the handling of this painful situation, why did you do it this way? Do you think it is the fastest and best solution to this problem? Do you act this way because some health professional told you how to do it or did you hear it or see it from someone else? As for toothache, how would you define it? Do you consider that this can be avoided? What do you currently do to prevent or control toothache? Are you doing this because you believe it is the best option or did someone else tell you that you had to do it?
Data in relation to dental care	When do you go to the dentist? Why? Do you think that this is enough to keep a regular check of your teeth? What situations make you to go to the dentist? In what way do they influence you? How does the schedule of the public oral health system influence your attending dental check-ups?
Oral health care data	How many times a day do you brush your teeth or prosthesis, if you have one? What hygiene elements do you use to care for your mouth and how often do you use them? Do you think that what you do for the care of your mouth is enough to have good oral health? Why?
Family context data	Do you have children? How many? Do any of them make it difficult for you to take care of your oral health or prevent you from going to the dentist on a regular basis? Why? Do you have any kind of disease or condition? How does it influence you to attend the dentist on a regular basis or the daily care of your oral health? Do you think you have family support to solve your health problems? How do they face these problems? Can you tell me more about it? How accessible is the dental practice or another health care center for you? Why? How do you get to the practice?

**Table 3.** Palliative cultural practices of toothache in the adult population .

Categories	Description	Frequency (n -%)
Pharmacological *	Prescribed and self-administered medication. Ex: diclofenac, local anesthesia, tetracycline, lysine clonixinate, ketorolac, paracetamol, ibuprofen, mefenamic acid, (naphazoline hydrochloride 1mg, metamizole sodium and acetylsalicylic acid).	74-84.1
Chemical	<b>Chemical:</b> cyanoacrylate cement (superglue), iodine, phosphorus, battery acid, hydrogen peroxide	50-56.8
	<b>Mouthwashes:</b> Table salt solution in water baking soda solution in water	32-36.4
	<b>Organic:</b> oil, gasoline, alcohol, chili, coal, ash, brake fluid, clove, warm oil, garlic, baking, quillay "milk" (Quillaja saponaria), onion, natre (Solanum ligustrinum).	39-44.3
Infusions based on herbs	wormwood, sweet grass, borage, mint, cat's claw, orange-ball-tree leaves (Buddleja globosa), Chanca Piedra (Phyllanthus niruri), Aloe vera, oregano, natre (Solanum ligustrinum), congona (Peperomia spp.)	23-26.1
Physical-mechanical	<b>Physical (local heat or cold):</b> warm oil, "cones" of oregano (funnels of paper through which hot air is applied to the painful cheek), compresses with cold water or ice.	31-35.2
	<b>Manipulation of the painful area:</b> Bite or squeeze, chew, use chewing gum, massage the area with: Mentholatum®, bleach, wood ash, oregano and tobacco, reposition of the tooth, introducing needles or hot copper wire or a toothbrush into the tooth, removal of the tooth.	11-12.5

\*: Names of active ingredients are used, not the brand name reported by the interviewees.

**Table 4.** Quotations representative of analysis categories.

Result	Narrative from the interviews
Use of medicinal herbs	"Water with oregano, my mom made me put it hot here on the tooth, but it did not do anything, the thing made it hurt more" (female, 53 years old)
Extraction of your own tooth	"Because I had never gone to a dentist and because of the comments I heard from other people, I do not go, I do not go, I do not go, and so, alone I started to move my teeth, I took them out myself. Once this one here I took it out with a nail to avoid going to the dentist" (female, 40 years old)
Complementary pain relief practices	"Just pills, brines and oblea china. Any pill people told me that could do me good, I took them, even clove" (female, 40 years)
Intergenerational transmission of practices	"I think I'm just like my daddy because my daddy was like that; he was the enemy of the dentist. Once he was in so much pain that he massaged the area with oil and, in one go, he never had a toothache again. Of course, battery oil kills the nerve of the tooth but it is painful when you apply it "(female, 40 years old).
Problems accessing oral health services and cultural practices	"... at that time, as there were no remedies in the countryside, they gave you a spoonful of natre and the pain was gone" (male, 45 years old)
Exhaustion of the cultural strategy	"... neither the pill, nor the clove, nor the cream on my face, nor the anesthesia was doing anything to me, so there was nothing more to do than getting up and going to the dentist" (female, 40 years old).

## RESULTS.

The study population consisted mainly of women (74%). (Table 1) The study shows that, to relieve orodental pain, people use the following cultural relief practices in decreasing order: pharmacological, chemical, herbal, and physical-mechanical. (Table 3 and Table 4) People use substances that can be used topically or administered orally.

Among pharmacological practices, the most common is consuming one or more nonsteroidal analgesic and antibiotics that can be purchased mainly in pharmacies or on the advice of relatives or close acquaintances (family, friends, or coworkers). They consume what is generically called "*pain pills*", among which a wide range of medicines is identified. (Table 3) Self-medication usually happens between the third or seventh day after the onset of pain, a small proportion initiates self-medication at the onset of symptoms. The participants considered tetracycline as painkiller drug.

Within the category of chemical practices, the most prevalent one was the intake of distilled spirits, followed by the direct application of garlic, natre (*Solanum ligustrinum*), iodine, and chili peppers on the painful area. The use of battery acid was also reported, and exceptionally the use of brake fluid, gasoline, crude oil, matches, and hydrogen peroxide, all directly applied to the painful area. Additionally, the use of mouthwashes

consisting of a solution of warm water and table salt or baking soda was also reported. (Table 4)

In the herbal category, the use of a wide variety of medicinal herbs infusions was reported. (Table 3)

Within the category of physical-mechanical practices there is tooth extraction in a dental care service, and exceptionally performed by the patients themselves. Another reported practice to relieve orodental pain consists of introducing elements inside the affected tooth, such as warmed wires and needles, toothbrush, cinnamon or medicines. One less frequently documented practice consisted of massaging the painful area with or without ointments, jaw clenching, applying pressure to the area using both hands, and a mixture of all the practices previously mentioned.

Additionally, application of heat or cold compresses on the painful area is reported. Such practices include: avoiding abrupt changes in temperature and introducing heat through paper funnels where of warm air flows onto the cheek, and cooling of the area by chewing ice or drinking cold water. These cultural practices of pain relief are complementary and simultaneously used at home. Moreover, pain management is perceived as an acquired behavior from childhood and passed on from one generation to the next

A general agreement is observed regarding the time to stop using mitigating practices; most people use them

until they realize these practices are not working. After one or two weeks of self-medication, the immediate action is tooth extraction. In most cases it is performed at a public health care center.

On the other hand, the avoidance of tooth extraction is unusual and mainly due to professional advice. For a significant number of participants, tooth extraction is the only perceived solution to cope with toothache and to avoid greater suffering, which they have observed within their family and surroundings.

Consequently, patients go to the dentist when they are already bio-psychosocially exhausted and emotionally frustrated. The latter encourages the search for a quick and radical solution to the painful symptom, i.e. extraction, which is the main expectation from treatment.

Results confirm the complex relationship and interaction between the cultural and biomedical dimensions (self-medication with medicines and dental care at health centers). (Figure 1) People request dental care as their last response to a pain they were not able to overcome using their cultural practices, nor with the alternatives derived from the biomedical model.

## DISCUSSION.

The results of the present study provide an empirical contribution regarding the strategies that patients use to relieve toothache previous to dental consultation. Biomedical practices were documented, such as self-medication and sociocultural practices using a variety of chemical products. The main form of application is oral intake, followed by indirect application through mouthwashes, infusions, and direct application on the painful area. Another strategy, less frequent but the most aggressive one is the mechanical manipulation of the painful area with sharp objects, and exceptionally, tooth extraction.

Regarding the context of application:

- 1) these are used at home,
- 2) At the moment when the person feels the orodental pain,
- 3) and during a period of three days to two weeks that usually concludes with tooth extraction in emergency dental care.

The strategies included in this research coincide with the ones reported in similar studies,<sup>10,12,13</sup> especially with regard to the recurrence of the use of herbs, self-medication, search for dental care, and eventually extraction.<sup>16,22</sup> In this study, as well as in the literature, self-medication is common for pain relief until the patient decides to consult a dentist.<sup>16,22</sup> It is interesting to note that results of this and other studies<sup>12</sup> highlight the relative importance of alcohol (both as local medication and intake) as a pain reliever.

With regard to data processing, the present study is distinguishable by the classification of practices and the establishment of their recurrence without addressing the problem of standardization. In comparison with other studies, the nomenclature here is more specific with respect to other authors who register these practices, in general terms, as *“practices of self-medication”*<sup>20</sup> or *“practices associated to dental pathologies”*<sup>13</sup> or as lists detailed and organized by those who make them without previous categorization.<sup>12</sup> Based on the review of studies that address this topic, one advantage of the present study is that it focuses only on one type of oral health practices, which is pain relief, allowing for a wider and more descriptive register of this specific area.

Most of the cultural practices of orodental pain relief, reported by the participants of this study are harmful to the health of those who practice them. Some of these practices can cause potential systemic damage, like excessive intake of medications; others produce local damage to tissues, which can cause exacerbation of the symptom to avoid. Collectively, some practices relieve pain due to the pulpal necrosis they provoke, such as in the case of battery acid; however they also cause damage in the surrounding tissue, which can also increase the risk of alveolitis, which will eventually result in more pain and suffering.

As a summary, although the practices of pain relief described in this study have been documented in the literature of other countries, with different levels of scope and specificity, there is a general agreement regarding the following aspects: the practices are performed to cope with toothache; they are associated to a latency period before dental consultation; self-medication is the most prevalent practice of choice, which ends up with

emergency tooth extraction.<sup>22</sup>

With regard to the limitations of the study, it did not analyze the prevalence of the practices with the social determinants of health such as ethnicity, gender, poverty, or access to health services, specifically in the central area of Chile, where the study was carried out.<sup>4</sup> Neither was investigated the epidemiological subpopulation of the private health network, nor the one who do not have access to care. Likewise, the specific procedures for the application of each documented practice were not addressed in this study, because it would have been necessary to do a more comprehensive and detailed observation of the self-care process, however, they could constitute research material for forthcoming studies in this area. The motivations of the participants to perform these practices were not investigated either.

The paradigm of qualitative research does not allow for calculating correlations between socio-demographic variables and the evaluated dimensions. These should

be studied in future quantitative studies based on the dimensions analyzed in this study. Likewise, future research should focus on designing culturally sensitive interventions intended to promote timely dental consultation, especially when it is guaranteed by Chilean public policy. It would be beneficial to give more importance to the existence of diverse cultural practices of pain relief and take them into consideration when developing plans for health promotion and disease prevention.

## CONCLUSION.

Before going to the dentist due to orodental pain, people perform a wide variety of biomedical and cultural practices that bring temporary relief from the symptom. It is the first action taken to cope with pain, they are practices for several days or weeks. These practices delay seeking professional care, and may potentially damage health and complicate dental care.

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