

Self-medication in patients with acute toothache during the COVID-19 pandemic: a descriptive and cross-sectional study

Automedicação em pacientes com odontalgia aguda durante a pandemia da COVID-19

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ABSTRACT: The COVID-19 pandemic generated several changes in the habits and behaviors of the world population. During the peak period of the pandemic, many people avoided going to health establishments for possible consultations for fear of contracting the infection, thus opting to self-medicate in a painful situation. Self-medication is a common practice in acute pain situations. The present study aimed to evaluate the characteristics and motivations of self-medication in patients who presented acute pain of odontogenic origin during the COVID-19 pandemic period. The descriptive and cross-sectional study was carried out through the application of a digital questionnaire through the “Google Forms” platform with 11 objective and discursive questions, in a random sampling process. The following parameters were analyzed: a) the main medications used on their own in an acute pain situation; b) the quantity and frequency of use of these drugs; c) possible adverse reactions reported due to the use of these medications. The sample consisted of 111 people and based on the results, it was inferred that the practice of self-medication occurred in greater numbers among people with higher education (42.3%). The main complaint that led patients to self-medicate was pain of endodontic origin (45.1%) and the majority of the sample classified the pain as being of severe intensity (40.5%). The main medications used were sodium dipyrone, paracetamol and nimesulide. Around 48% of the sample did not read the leaflet before taking these drugs and only 5.6% of them reported adverse reactions such as gastric discomfort and drowsiness. Based on the aforementioned results, it is concluded that the practice of self-medication was high during the observed period and should be discouraged by all health professionals, seeking to develop social awareness regarding the topic.

KEY WORDS: Self-medication; Toothache; COVID-19 pandemic.

RESUMO: A pandemia da COVID-19 gerou diversas mudanças nos hábitos e comportamentos da população mundial. Durante o período da pandemia, alguns serviços de atendimento médico estavam fechados e diversas pessoas evitaram ir até estabelecimentos de saúde para eventuais consultas por medo de contraírem a infecção, optando assim por se automedicarem em uma situação de dor. A automedicação é uma prática comum em situações de dores agudas. O presente estudo teve por objetivo avaliar as características e as motivações da automedicação em pacientes que apresentaram dor aguda de origem odontogênica durante o período da pandemia da COVID-19. O estudo do tipo descritivo e transversal foi realizado por meio da aplicação de um questionário digital através da plataforma “Google Forms” com 11 questões objetivas e discursivas, em um processo de amostragem aleatória. Foram analisados os seguintes parâmetros: a) os principais medicamentos utilizados por conta própria em uma situação de dor aguda; b) a quantidade e frequência de uso desses fármacos; c) possíveis reações adversas relatadas pelo uso desses medicamentos. A amostra foi composta por 111 pessoas e por meio dos resultados, inferiu-se que a prática da automedicação ocorreu em maior número em pessoas que possuem ensino superior (42,3%). A queixa principal que levou os pacientes a se automedicarem foram situações de dor de origem endodôntica (45,1%) e a maioria da amostra classificou a dor como sendo de forte intensidade (40,5%). Os principais medicamentos utilizados foram dipirona sódica, paracetamol e nimesulida. Cerca de 48% da amostra não leram a bula antes da ingestão desses fármacos e somente 5,6% deles relataram reações adversas como desconforto gástrico e sonolência. Com base nos resultados supracitados, concluiu-se que a prática da automedicação foi alta durante o período observado e deve ser desencorajada por todos os profissionais da saúde, buscando o desenvolvimento de uma consciência social a respeito do tema.

PALAVRAS-CHAVE: Automedicação; Odontalgia; Terapêutica; Pandemia COVID-19.

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INTRODUCTION

The COVID-19 pandemic began at the end of 2019 in Uhan, China, where the first infection occurred. After that, physical distancing was adopted around the world as a preventive measure to slow the speed of viral spread^{1,2}. With this fact, several changes in the habits and behaviors of the world population were noticed. During the pandemic period, many people avoided going to health establishments for possible consultations for fear of contracting the infection, thus opting to self-medicate in a painful situation³.

Self-medication can be defined as the act of an individual taking a medication based on their own decision, without professional guidance or prescription, seeking to cease a painful manifestation or symptom^{3,4}. This practice is inserted in a large sociocultural context, mainly due to the flawed public health system, which leads patients to self-medicate in an attempt to obtain medical care^{1,3}. Another aggravating factor is the lack of guidance from health professionals to the population, indicating problems related to the primary level of basic care: prevention and health promotion^{3,5}.

The act of self-medication is extremely dangerous and its effects can be harmful to the individual's body, causing great losses and compromising body functions^{2,4}. The harm caused by this practice mainly includes the adverse reactions that the body may present due to the pharmacodynamic action of the medication, as these can potentially be increased depending on the quantity and frequency of ingestion of these medications^{4,6}.

In Brazil, this practice occurs relatively frequently, as around 16.1% of the population reported having already performed or still continuing to self-medicate. This number is even higher among women and residents of the North, Northeast and Central-West regions⁷.

This previous data has worried entities related to the health sector. The World Health Organization (WHO) has clearly expressed the need to combat the practice of self-medication, highlighting the importance of using drugs only in situations of real need and under medical and professional guidance⁸.

With regard to dentistry, patients suffering from acute toothache also self-medicate as a way of relieving their pain, using analgesics and anti-inflammatories^{10, 11, 12}. One of the main reasons for this is the fact that a large part of the population does not have universal and easy access to a dentist, postponing the visit through the use of medication. The reasons for this postponement range from situations of fear and anxiety to lack of access for financial or travel reasons^{4, 13, 14}.

With the advancement of the pandemic due to COVID-19, the indiscriminate use of medications and the practice of self-medication increased significantly in our country, which experienced one of the worst scenarios in terms of the number of deaths and people hospitalized¹². Recent studies have demonstrated an exponential increase in the practice of self-medication during the pandemic period around the world, ranging between 7.0 and 88.3%^{1,15}.

Therefore, it is necessary to evaluate which are the main medications involved in this process, as well as promote awareness regarding the indiscriminate use of drugs and their

harm to the health and general well-being of the individual. Thus, the objective of the present study was to observe the practice of self-medication in patients with acute toothache during the period of the pandemic that was decreed in Brazil from March 2020, as well as verify the main medications used on their own, evaluate the quantity and frequency of use of these drugs by patients and describe possible adverse reactions reported by patients.

MATERIAL AND METHODS

The study is characterized as a descriptive, cross-sectional, observational and quantitative research, using primary data collection. It was carried out through the online application of a questionnaire with questions about self-medication in people aged 18 or over.

The self-administered questionnaire was made available on the Google Forms platform between June and December 2020, and invitations to complete it were made available on social media. The sample was of convenience, due to the ease of access to these people and, in total, 111 people participated in the study.

The first part of the questionnaire contained the Free and Informed Consent Form (TCLE), in which after reading, the individual decided to participate or not in the research. If so, the first 4 questions contained sociodemographic variables with the aim of characterizing the participants based on age, occupation and education. The second part contained 7 questions that addressed the practice of self-medication, the main medications used on one's own in an acute pain situation; the quantity and frequency of use of these drugs and the possible adverse reactions reported due to the use of these drugs. The questionnaire was prepared by the authors, based on studies related to the topic.

The research project was approved by the Ethics Committee of the University of Ribeirão Preto (UNAERP) (CAAE 14358419.3.0000.5498).

Before definitive application, a pre-test was carried out on a population similar to the study population to change and/or adapt the questions to the study objectives.

The data were analyzed using the SPSS version 17.0 program. Descriptive statistics were performed and the results were expressed in tables with frequency distribution in absolute numbers and percentages. The association between self-medication and social and demographic variables was also verified using Pearson's chi-square test with a significance level of 5%.

RESULTS

111 people participated in the study, with an average age of 36.9 years (± 13.7), the youngest being 18 years old and the oldest being 78 years old. The majority of participants (82.9%) were female, 58.6% had higher education, 36.9% had secondary education and 4.5% had primary education. 63.1% of the participants were working at the time of data collection.

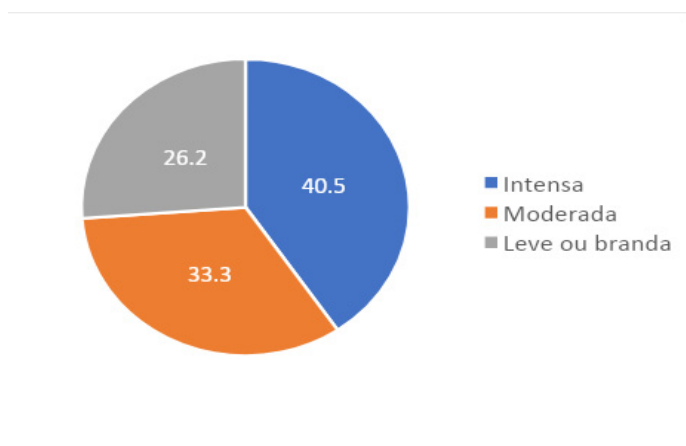
When asked whether they sought a dentist due to pain in the last 3 months, 88.3% responded yes. The main complaint was pain of endodontic origin as shown in table 1. The classification

of pain intensity is shown in Figure 1.

Table 1 - Distribution of survey participants' responses about the origin of pain.

Origin of the pain	Frequency	%
Endodontics	50	45.1
Unknown	22	19.8
Periodontal	12	10.8
Third molar (eruption or extraction)	11	9.9
TMD	two	1.8
Others	14	12.6
Total	111	100.0

Source: Authors, 2023.



Source: Authors, 2023.

Among people who took medications to combat pain, only 30.6% read the leaflet of the chosen medication before taking it and the frequency of taking these medications is described in Table 2 below.

Table 2 - Distribution of frequency of medication intake in cases of pain.

	Frequency	%
Every 6 hours	30	27.0
Every 8 hours	31	27.9
Every 12 hours	16	14.4
Every 24 hours	7	6.3
Others	6	5.5
Did not use	21	18.9
Total	111	100.0

Source: Authors, 2023.

Of the total participants, 78 (70.3%) reported taking some medication on their own.

Table 3 shows that dipyron (45.8%) and paracetamol (16.7%) were the active ingredients of most of the medications used.

Table 3 - Frequency distribution of the active ingredients of the medications most used by participants.

Active principle	N	%
Dipyron	44	45.8
Paracetamol	16	16.7
Nimesulide	14	14.6
Ibuprofen	6	6.2
Diclofenac	5	5.2
Amoxicillin	4	4.1
Ketoprofen	3	3.1
Tramal	two	2.1
Aceclofenac	1	1.1
Codeine	1	1.1

Source: Authors, 2023.

96.4% of the participants declared that they did not have any adverse reactions after taking the medication and the most experienced were stomach pain, headache and drowsiness.

The results were analyzed according to whether the participants self-medicated or not and Table 4, below, shows the main results of this comparison.

Table 4 - Comparison between patients who practiced self-medication and demographic and social factors.

		Self-medication		P *
		Yes	No	
Sex	Feminine	66	26	0.0456*
	Masculine	12	7	
Age	≤ 37 anos	34	24	0.005*
	> 37 years old	44	9	
Education	Elementary School	4	1	0.691
	High school	27	14	
	University education	47	18	
Occupation	Employee/working	52	18	0.227
	Unemployed/retired	26	15	
Pain intensity	Intense	40	18	0.000*
	Moderate	27	10	
	Light, bland	11	5	
Read the leaflet	Yes	24	10	0.961
	No	54	23	

Chi-square test and Fischer's exact test. p<0.05

Source: Authors, 2023.

DISCUSSION

Self-medication in Brazil is practiced by a large part of the population and with the popularization of the internet and ease of access to information, it has shown a strong growth trend in recent years. A study produced in Brazil by Schmid et. al.¹⁶ analyzed data from a population survey in the city of São Paulo, with 3,226 individuals divided into two domains, favela and non-favela. As a result, they found that the practice of self-medication in the studied sample ranged from 27 to 32% and that the irrational use of medicines was closely linked to the acute

morbidity of individuals and access to the medicine through purchase. Another study demonstrated that in our country around 16% of the population has already self-medicated or is still “self-medicating” and that more women than men practice self-medication⁹. These data corroborate this present study, in which it was found that the practice of self-medication increased according to gender, being more prevalent in women (82.9%) .

With the advancement of the COVID-19 pandemic, there was a significant increase in the number of self-medication practices around the world^{1,15}. Most people who took medications without professional guidance sought to alleviate painful symptoms without needing to seek care in hospitals or to prevent viral infection¹⁵.

A survey carried out by the Federal Pharmacy Council demonstrated how the fear of contracting COVID-19 impacted the sale of medicines during the period from January to March 2020 compared to the same period in 2019. The consumption of ascorbic acid or vitamin C, known as its supposed “preventive effect” against COVID-19 increased by 180.01%, followed by hydroxychloroquine, which showed a 67.93% increase in sales²².

The *internet*, despite being very useful for disseminating true information about the pandemic, has also become a field for speculation and opinions without scientific basis, which has boosted the sharing of fake news about preventive medications and the treatment of COVID-19^{23,24}.

In a descriptive and cross-sectional study carried out before the pandemic, the objective was to evaluate the practice of self-medication in patients with toothache. In the same study, more than half of the participating individuals had incomplete primary education (65%) and had an income of less than the minimum wage (93%)⁵. However, according to the sample of the present work, the level of education does not influence the practice of self-medication, since 58.6% of the individuals in the sample have a degree in Higher Education. Facilitated access to information through the *internet* and the wide availability of medicines may be factors that contributed to these findings.

The most commonly used drugs without professional prescription are, according to a study by Loyola *et. al* analgesics, antispasmodics and antidiarrheals¹⁸. In a study by Arrais⁹, analgesics and muscle relaxants topped the *ranking* of most commonly used medications, with dipyron being the medication most consumed by Brazilians. In the study by Schmid *et. al.*¹⁶, the most used drugs were those that act on the central nervous system. All these data are in line with those found in the present study. The drugs most used by the samples evaluated include analgesics, anti-inflammatories and antibiotics, although the latter require a prescription to be purchased.

A cross-sectional study sought to define a profile of medications used by elderly people who self-medicated. Around 80.5% of the elderly people studied practiced self-medication and the most frequently used drugs were muscle relaxants, analgesics and antipyretics¹⁹. These data corroborate the findings of this present study, since the highest prevalence rate of self-medication is among patients over 37 years old (42.3%) and among those who classified the pain as intense (40.5%), these results being

statistically significant.

In a study carried out by Tomasini *et. al.*²⁰ using university students as a sample, it was concluded that 65% of students read the leaflet before ingestion, which was a very relevant and significant number. In the present study, despite the majority of individuals having completed higher education, only 30.6% of them reported reading the leaflet before taking the medications. A consensus of the authors believes that one hypothesis for the large abstention from reading the leaflet is due to the fact that dipyron and paracetamol, medications most cited in the study, are medications commonly used in pain situations, easily accessible and sold, also in “blister” packaging, that is, a transparent packaging that does not come with a leaflet, which prevents it from being read.

Berreni *et. al.*²¹ developed a study that sought to evaluate the main adverse reactions related to the practice of self-medication in a total of 12,365 notifications registered between 2008 and 2014. According to the authors, three quarters of the reported reactions were considered serious. The main ones included gastrointestinal and neuropsychiatric disorders, with the most frequently used medications being non-steroidal anti-inflammatory drugs, benzodiazepines and analgesics. In the present study, a small number of individuals reported feeling some type of adverse reaction after taking the medication on their own. This number represents around 3.6% and the main reactions were drowsiness and gastric discomfort.

Limitations of the present study include the use of a convenience sample and the restricted total number of participants. *Online* data collection may also have been a limitation, as it excludes certain population groups without access to *internet* and can be considered as a selection bias. Patients’ lack of knowledge or difficulty in identifying the real origin of pain must be taken into account. Even so, its findings are extremely relevant to the scientific community, so that the knowledge acquired through it can positively influence the scenario of self-medication practice in the country, as it provides an observation regarding the most common practices related to the topic during a critical period for society, helping health authorities in the development of practices and measures to curb self-medication in the post-pandemic scenario.

Finally, other studies must be carried out and new research linked to this topic must be initiated, with the aim of understanding what impacts the indiscriminate use of medicines during this period may have had, reversing its findings into effective benefits for the population.

CONCLUSIONS

Based on the findings of the present study, it is inferred that self-medication has been a growing practice, facilitated by the greater dissemination of knowledge and access to information. In the context of the pandemic, this issue became even worse due to social isolation and the fear of consulting a health professional. It must be discouraged through the dissemination of information that highlights the risks and harms of this practice, seeking to develop social awareness regarding the topic.

Participation of each author: Felipe de Souza Duarte: writing the introduction, results, references and general formatting. Leonardo Oliveira Freitas: writing the discussion and assistance in analyzing the results of the drugs used presented in the study. Silvio Rocha Correa da Silva: design and idealization of the study, material and methods, statistical analysis and work guidance.

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