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Self-Medication for Oral Health Problems in COVID-19 Outbreak: Prevalence and Associated Factors

Automedicación para enfermedades orales durante la pandemia del COVID-19: prevalencia y factores asociados

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ABSTRACT: This study aimed to investigate self-medication in the COVID-19 outbreak among patients attending the dental clinic of Zanjan University of Medical Sciences. The total number of patients who took part in this research was 306, and they were questioned using a 28-item questionnaire after signing a permission form. SPSS26 was used to gather and analyze the data. There were 196 women and 110 males among the patients.The results showed that the prevalence of self-medication was 53.9%, and a lower educational level was associated with self-medication. The most common problem for self-medicating was toothache, and the most frequent drug was Ibuprofen. The majority of the participants reported that their relatives/friends suggested the drugs to them. The main source of obtaining the drugs was pharmacies. The major reasons for self-medication were the high cost of dental treatments and fear of COVID-19.

KEYWORDS: Self-medication; Oral health; COVID-19.

RESUMEN: Este estudio tuvo como objetivo investigar la automedicación durante la pandemia de COVID-19 entre los pacientes que asisten a la clínica dental de la Universidad de Ciencias Médicas de Zanjan. El número total de pacientes que participaron en esta investigación fue de 306, y fueron interrogados mediante un cuestionario de 28 ítems después de firmar un formulario de autorización. SPSS26 se utilizó para recopilar y analizar los datos. Entre los pacientes había 196 mujeres y

110 varones. Los resultados mostraron que la prevalencia de automedicación fue del 53,9%, y un menor nivel educativo se asoció con la automedicación. El problema más común para la automedicación fue el dolor de "muelas", y el fármaco más frecuente fue el ibuprofeno. La mayoría de los participantes informaron que sus familiares/amigos les sugirieron los medicamentos. La principal fuente de obtención de los medicamentos fueron las farmacias. Las principales razones para la automedicación fueron el alto costo de los tratamientos dentales y el miedo al COVID-19.

PALABRAS CLAVE: Automedicación; Salud bucal; COVID-19.

INTRODUCTION

Self-medication is defined as obtaining and consuming medications without a doctor's prescription (1). Today in different countries, self-medication has become a common practice with the continued improvement in people's education, general knowledge, and socio-economic status (2). For instance, the prevalence of self-medication is 68% in Europe (1,3), 31% in India (3), 94.5% in Saudi Arabia (1), and 53% in Iran (4). Headache, coughing, fever, and pain were the most common reasons for self-medication (1). Oral and dental problems such as toothache, gingival bleeding, halitosis, and gingival enlargement were also the reasons for practicing self-medication (5).

Self-medication is frequent in Iran, with analgesics and antibiotics being the most often used medications (6). Self-medication has been linked to age, gender, location, income, educational level, and insurance status (7). Studies indicated that the main reasons for self-medication were lack of time, mild symptoms of the disease, dental fear, previous history of the illness, and lack of money (1). Although self-medication can be reasonable and complement for the dentist treatment if used wisely (8), it can have negative effects such as misdiagnosis and using contraindicated drugs, drug resistance, adverse drug reactions, drug addiction, and taking of wrong doses (5). Patients with dental problems often self-medicate with over the counter drugs, herbs, and traditional drugs to alleviate acute and chronic pain (3,9) while the majority of these patients are not aware of the side effects and contraindications of the medicines (10).

Considering the widespread growth of the COVID-19 across the world, many countries are involved in major health problems (11). In the field of dentistry, the risk of COVID-19 transmission is very high among patients, dentists, and other personnel (12) that may lead to self-medicating by dental patients and avoiding dentist visits.

Since there is little information about self-medication in Iran, this study aimed to investigate self-medication for oral health problems in COVID-19 outbreak among the patients attending the dental clinic of Zanjan University of Medical Sciences.

MATERIALS AND METHODS

This study was a cross-sectional study. Convenient sampling was performed to recruit adult patients attending Zanjan University of Medical Sciences dental clinic between October 2020 and April 2021.Inclusion criteria were age from18 to 70 years who experienced dental problems. Patients who were unable to speak/understand Persian language, dentists, doctors, pharmacists, and the ones who wouldn't cooperate in filling the questionnaire were excluded from the study. Based on the expected prevalence of self-medication (53%) (4) with the accuracy of 56% and confidence level of 95%, the volume of

the study was 306 people. The questionnaire was developed by reviewing Simon *et al*. study (3). It was prepared in Persian language. The first section of the questionnaire consisted of 10 questions that elicited demographic information such as age, gender, occupation, residence, education level, marital status, and monthly family income, while the second section consisted of 10 questions that covered attitudes and practices related to self-medication. Participants who did not practice self-medication were asked not to proceed with the second section of the questionnaire. The third section had 8 questions about suggesting drugs, information on damages of self-medication, and whether or not they were infected with COVID-19.

All participants were assured of the confidentiality of their personal information. Ethical approval was obtained from the Ethics Committee of Zanjan University of Medical Sciences (IR.ZUMS.REC.1399.270). The objectives of the study were explained to the participants, and their written consent was obtained. Data collection was performed by interviewing the participants. It took 5-6 minutes to fill each questionnaire, and the data were analyzed using SPSS26 software.

RESULTS

A total of 306 participants in the study consisted of 196 women and 110 men, and the mean age of participants was 34.9 years. The majority of respondents were married, unemployed, and townspeople, with the diploma and monthly family incomes between 2 and 5 million Tomans and without any systemic disease. The sociodemographic characteristics of respondents are presented in Table 1.

In terms of education level, participants with diplomas comprised the largest group of those practicing self-medication. Among 306 respondents, 92.2% would visit a dentist only in case of a problem, and 55.2% experienced a dental visit during the last year.

53.9% (165) of respondents reported practicing self-medication in the COVID-19 outbreak, and majority of them (98 respondents) undertook self-medication only one time. The most frequently used agents were Ibuprofen (23.6% of responses) and salt with water mouthwash (20.9% of responses), and the most frequent problem was toothache (86.5% of responses) (Table 2).

98 respondents had self-medicated for one week, and 154 of them reported temporary pain relief that continued for several hours. The majority of respondents (39.1%) said that their family/friends recommended the medicine for self-medication, and that pharmacy was their primary source of medication (45.1 %).Regarding the main reasons for self-medication, respondents indicated that it was in terms of the high cost of dental treatment (26.2%) and fear of being infected with COVID-19 (20.4%) (Table 3).

Table 1. Sociodemographic characteristics of the participants.

Variable	Character	Frequency (n=306)	P-value
Age	18-70	Mean: 34.9	0.192
Gender	Male	110 (35.9%)	0.687
	Female	196 (64.1%)	
Marital Status	Single	93 (30.4%)	0.433
	Married	213 (69.6%)	
Education	Less than Diploma	68 (22.2%)	0.022*
	Diploma	122 (39.9%)	
	Bachelor	81 (26.5%)	
	Master	27 (8.8%)	
	Doctorate	8 (2.6%)	
Occupation	Unemployed	132 (43.1%)	0.431
	Employee	46 (15%)	
	Freelance	92 (30.1%)	
	Student	36 (11.8%)	
Monthly Family Income	<20 M Rial (<474$)	51 (16.7%)	0.873
	20-50 M Rial (474-1185)	154 (50.3%)	
	>50 M Rial (1185$)	101 (33%)	
Residence	Rural	22 (7.2%)	0.951
	Urban	284 (92.8%)	
Systemic Disease	Yes	51 (16.7%)	0.281
	No	255 (83.3)	

Table 2. Factors associated with self-medication.

Variable	Response	Frequency	P-Value
Visit Dentist in COVID	Yes	192 (62.7%)	0.000*
	No	114 (37.3%)	
Likelihood of Self-Medication within next 6 month	Very Likely	30 (9.8%)	0.000*
	Likely	97 (31.7%)	
	Not Sure	24 (7.8%)	
	Unlikely	81 (26.5%)	
	Very Unlikely	74 (24.2%)	
Suggest Drugs to Family/ Friends	Yes	83 (27.1%)	0.062
	No	223 (72.9%)	
COVID-19 Infection	Participant	83 (27.1%)	0.748
	Participant's Family	160 (52.3%)	0.770

Table 3. Self-medication; types, sources, durations, reasons, results, information.

Type of medication used	Ibuprofen	88 (23.6%)
	Acetaminophen	40 (10.7%)
	Novafen	10 (2.7%)
	Mefenamic acid	7 (1.9%)
	Amoxicillin	66 (17.7%)
	Metronidazole	11 (2.9%)
	Penicillin	1 (0.3%)
	Salt and water mouthwash	78 (20.9%)
	Others (herbs, garlic, onion, honey, lime juice, local analgesics, local salt, lidocaine, Dentol)	72 (19.3%)
Source of advice	Pharmacist	8 (4.5%)
	Relatives/Friends	70 (39.1%)
	Previous successful experience	62 (34.6%)
	Personal knowledge	26 (14.5%)
	Internet	12 (6.7%)
	Herbalist	1 (0.6%)
Source of medicine	Pharmacy	79 (45.1%)
	Relatives/Friends	5 (2.9%)
	Leftovers of previous prescriptions	78 (44.6%)
	Herbal store	13 (7.4%)
Reasons for self-medication	Minor symptoms	40 (18.1%)
	Dentist not available	22 (10%)
	Long waiting list at dental clinics	8 (3.6%)
	Lack of insurance	4 (1.8%)
	Lack of money	58 (26.2%)
	Lack of time	40 (18.1%)
	Fear of dentist	4 (1.8%)
	Fear of COVID-19 infection	45 (20.4%)
Oral problems triggering self-medication	Toothache	154 (86.5%)
	Gingival bleeding	7 (3.9%)
	Halitosis	1 (0.6%)
	Gingival enlargement	4 (2.2%)
	Oral lesions (abscess, aphtus)	10 (5.6%)
	Others	2 (1.1%)
Result of self-medication	Symptom recovery	154 (93.3%)
	No changes	11 (6.7%)
Awareness about self-mediation damages	Not dangerous	69 (13.2%)
	Worsening of current illness	59 (11.3%)
	Damaging body organs	135 (25.9%)
	Brain damage	23 (4.4%)
	Worsening of systemic disease	43 (8.2%)
	Addiction	56 (10.7%)
	Drug resistance	70 (13.4%)
	Poisoning	59 (11.3%)
	Death	8 (1.5%)
Source of information about damages	School/College	28 (7.9%)
	Hospital	7 (2%)
	Dentist	19 (5.3%)
	Pharmacist	4 (1.1%)
	Friends/Relatives	51 (14.3%)
	Advertisement/Brochures	71 (19.9%)
	Internet	55 (15.4%)
	No source	121 (34%)

Only 27.1% of participants suggested drugs to their relatives/friends. 25.9% of the respondents believed that self-medication would damage body organs, while 13.2% of them believed that self-medication was not dangerous. When asked where they got their knowledge about the dangers of self-medication, 34% said they didn't know, 19.9% said they got it from advertisements or pamphlets, and 15.4% said they got it from the internet. About 41.5% of the respondents said that they were likely or very likely to undertake self-medication for dental problems in the next 6 months.

62.7% of the participants visited a dentist in the COVID-19 pandemic, while 96.8% of those who visited a dentist, had received dental treatment. 83 respondents reported a history of COVID-19 infection, and 160 of them reported their family infection.

The prevalence of self-medication was higher among the participants who visited a dentist in the COVID-19 epidemic, and self-medication was associated with the likelihood of practicing self-medication in the next 6 months.

Among patients who self-medicated because of the fear of COVID-19 infection, had visited a dentist less than those who self-medicated in terms of other reasons (P-value: 0.009).

Those who self-medicated because of the fear of COVID-19 infection, reported that their family members had already infected with COVID-19 compared to those who self-medicated in terms of other reasons (P-value: 0.042).

DISCUSSION

This study investigated the prevalence of self-medication and its associated factors. Based on the results of this study, the prevalence of self-medication was 53.9%, which is somehow similar to the study of Azami *et al*. (4) in which the prevalence of self-medication in Iran was 53%. Self-medication was found to be between 50% and 90% in various research conducted across the globe. This disparity might be due to differences in cultures, socioeconomic levels, and health-care systems among nations (13-16).The most reported problem for which the patients practiced self-medication, was toothache similar to previous studies (1,9, 17-19).

According to the findings of this study, Ibuprofen and salt/water mouthwash was the most common agent used for self-medication, which was predictable because toothache was the most frequent problem. Previous studies reported that analgesics were the most frequent agents used for self-medication (1,20,21).

The most common source of advice for self-medication was friends/relatives and previous experience. AlQahtani *et al*. and Agbor et al. studies reported that the most common source of advice for self-medication was the participants' relatives (5,9).

The majority of the respondents had obtained the drugs from pharmacies. This finding may indicate that there is not an appropriate monitoring system on pharmacies in Iran, and many pharmacies sell drugs without a doctor's prescription.

The first reason for self-medication was the high cost of dental treatments and the second reason was fear of being infected with the COVID-19. Thus, even in COVID-19 pandemic, many people prefer to postpone dental visits in terms of financial issues and fear of COVID-19 infection. This finding was similar to Agbor *et al*. study (5) in which the main reason for self-medication was lack of money, and it was in contrast with Baptist *et al*. study (10) where the main reason was lack of time.

The majority of participants believed that the most probable damage of self-medication was damaging body organs, and most of them had no source for their information, while many of them had received their information from advertisement/brochure and the Internet. Therefore, media can play a major role in a warning and informing people about practicing self-medication, drugs, and their damage if taken without consulting a specialist. In Simon *et al*. study (3), damaging the body organs was reported as the most probable damage of self-medication, but the main source of information was the respondents' family/friends.

Self-medication had no statistically significant relationship with age, gender, marital status, employment, domicile, income level, or having a systemic disease.This finding may result from unequal subgroups in each of sociodemographic characteristics. Anyanechi *et al*. (21) reported that age and gender were not associated with self-medication, while Agbor et al (5) indicated that self-medication is associated with age, marital status and residence.

An increase in self-medication was associated with a lower educational level. This may be due to the fact that people with higher educational levels are more aware of the side effects and risks of self-medication. In the study by AlQahtani *et al*. (9) participants with a bachelor's degree comprised the largest group of those practicing self-medication. This may be in terms of higher proportion of participants with a bachelor's degree in their study.

Participants who self-medicate were more likely to self-medicate in the future, according to the findings of this study, raising the risk of pharmaceutical side effects such as increased bacterial resistance in the general population and organ damage in the self-medicate. The findings of this study indicate that even in the COVID-19 epidemic, a lot of people visited a dentist for their dental problem, but the majority of them prefer self-medicating prior to a dental visit, especially those who fear COVID-19 infection.

The limitations of this study are that the sample was recruited only among adults attending a dental hospital in Iran. Further studies regarding self-medication are recommended to cover other populations in Iran.

CONCLUSION

This study indicated that the prevalence of self-medication in this population was 53.9%, and a higher educational level was less likely associated with self-medication. Self-medication for oral health problems is rising in Iran in terms of financial issues. Therefore, it requires awareness creation and the introduction of preventive interventional programs. Developing an official government policy on prescription and over-the-counter medications is recommended.

AUTHOR CONTRIBUTION STATEMENT

Conceptualization and design: M.A.N., K.M., and M.G.
Methodology and validation: M.A.N., K.M., and M.G.
Investigation and data collection: M.A.N., K.M., and M.G.
Formal analysis: M.A.N., K.M., and M.G.
Writing-review & editing: M.A.N., K.M., and M.G.

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