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Original Research Article

Prevalence and patterns of self-medication for oral health problems among dental college patients in Mangalore, Karnataka: a cross-sectional study

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ABSTRACT

Background: Self-medication for dental problems is a widely prevalent practice, particularly in developing countries, yet localized evidence from urban dental settings in India remains limited. This study aimed to assess the prevalence, patterns, and determinants of self-medication for oral health problems among patients attending a dental college hospital in Mangalore, Karnataka.

Methods: A hospital-based cross-sectional questionnaire study was conducted among 262 patients attending the outpatient department of a dental teaching hospital. Data were collected over a two-month period using a structured and pre-validated questionnaire and analysed using descriptive statistics.

Results: Self-medication was reported by 65.3% of participants. Toothache (71.3%) was the most common reason, followed by sensitivity (13.5%) and oral ulcers (11.1%). Home remedies (38.6%) and analgesics (33.9%) were most frequently used, while 16.4% reported antibiotic use. Pharmacies (56.7%) and the internet (29.2%) were the main sources. Although 63.2% eventually consulted a dentist, awareness regarding risks such as antibiotic resistance (37.8%) remained limited.

Conclusions: Self-medication for dental problems is highly prevalent, with notable antibiotic misuse and poor awareness. Public education, improved access to affordable dental care, and stricter regulation of drug sales are needed.

Keywords: Self-medication, Oral health, Dental pain, Antibiotic resistance, Public health

INTRODUCTION

Self-medication refers to the practice in which individuals diagnose and treat their own health issues by using medications without consulting a healthcare professional.[1,2] It involves the use of drugs that are considered safe and effective for common illnesses, as well as the continued or intermittent use of medications previously prescribed by a doctor for chronic or recurring conditions or symptoms.[3] Medications used for self-treatment are often called non-prescription or "over-the-counter" (OTC) drugs.[2,4] Although they are readily available, improper use can result in serious issues, such as exacerbation of the illness, damaging side effects, and development of resistance, especially when used irrationally or inappropriately.[5] Antibiotic misuse is a major contributor to antimicrobial resistance, as there are no strict regulations on self-medication.[6] Dental diseases are among the most common reasons for self-medication, particularly in response to acute or chronic dental pain.[3,7]

Patients frequently resort to OTC drugs for pain relief, despite limited awareness of their contraindications and side effects. Acute dental pain is also a frequent complaint encountered by primary care physicians.[8,9] Gilbert et al reported that dental self-care behaviours often include dietary changes, the use of OTC pain relievers, and home-made remedies to manage toothache and bleeding gums.[10] Globally, antibiotics remain the most widely used drugs for self-medication, and their frequent use in dentistry highlights the importance of addressing this issue.[11]

Self-medication for oral health problems is a widespread practice globally, particularly in areas with limited access to dental professionals and low public awareness of dental health.[12] This behaviour is prevalent in various regions, including rural India, coastal Karnataka, Riyadh, Sharjah, Malaysia, and Nepal.[13-15] The reasons for self-medication are multifaceted, ranging from socioeconomic factors and convenience to a lack of understanding of potential health risks.[16] In rural India, studies have shown that individuals often self-medicate without comprehending the possible consequences of improper drug use, making it a significant public health concern.[16]

Similarly, in coastal Karnataka, patients attending oral health outreach programs frequently engage in self-medication, highlighting a gap between public dental education and awareness. Among the low socioeconomic groups in rural India, dental pain is commonly managed through independent self-care practices, without professional guidance. In India, dental care is included in primary health services; however, patients typically have to pay for treatments themselves, as insurance does not cover these expenses[17].

Individuals living in low-income rural areas encounter many obstacles in accessing oral health care, often leading them to resort to alternative methods, skip treatments, or rely on self-care solutions to alleviate dental pain[13]. These practices may be further influenced by cultural beliefs, lack of time, or fear of dental procedures, contributing to the normalization of self-medication.

While global and national data on this issue exist, there is a lack of localized evidence focusing on dental college patients in urban Indian settings such as Mangalore. Understanding self-medication practices in this population is crucial for developing targeted educational and preventive strategies. Dental college patients represent a unique demographic, often comprising young adults with varying levels of health literacy and access to information.

Their behaviours and attitudes towards self-medication can provide valuable insights into emerging trends and inform future public health interventions. Therefore, this study aimed to evaluate the prevalence, patterns, and determinants of self-medication for oral health issues among dental college patients in Mangalore, Karnataka, using a cross-sectional questionnaire-based approach

METHODS

This study was a hospital-based cross-sectional questionnaire survey conducted among patients attending the outpatient department of the A.J. Institute of Dental Sciences, Mangalore. The study participants were selected from patients visiting the hospital, and only those who fulfilled the eligibility criteria and provided informed consent were included. The study was conducted over a period of six months, from May 2025 to October 2025. Data collection was carried out over two months, from June to July 2025, among participants who provided informed consent.

A structured and pre-validated questionnaire was used to assess self-medication. Data were collected through direct interviews or self-administered forms, depending on the literacy level and preference of the participants. A convenient sampling method was employed to recruit participants, and written informed consent was obtained before inclusion. Adults aged between 18 and 65 years, who were patients currently receiving treatment or services from the hospital and were willing and able to provide informed consent, were included. Patients younger than 18 years, those unwilling or unable to provide written informed consent, and individuals with mental or cognitive conditions that significantly impaired their ability to understand the study, the questions, or the implications of participation were excluded from the study. The estimated sample size for this study was 262 participants[3]. Ethical clearance was obtained from the AJIDS Ethics Committee.

Statistical analysis

The data collected were examined and condensed, and the findings displayed in the tables and figures. Statistical analyses were performed using SPSS software version 23. Descriptive statistics, including frequency distributions, were used to characterize the variables.

RESULTS

A total of 262 participants were enrolled in the study. Overall, self-medication was reported by 65.3% (n=171) of participants.

The majority belonged to the 18–26 years age group (44.7%), followed by 26–35 years (23.7%), 36–46 years (17.2%), and 45–60 years (14.5%). Females constituted 57.3% of the study population, while males accounted for 42.7%.

With respect to educational status, most participants were undergraduates (54.9%), followed by those with secondary education (19.8%), postgraduates (17.6%), primary education (5.7%), and no formal education

(1.9%). In terms of occupation, students (34.0%) and employed individuals (32.1%) formed the majority, followed by homemakers (15.6%), self-employed individuals (14.9%), unemployed (1.9%), and retired participants (1.5%). Urban residents comprised 65.3% of the study population, while 34.7% were from rural areas.

Table 1. Demographic characteristics of study participants (n=262).

Characteristic	Category	n (%)
Age group (in years)	18–26	117 (44.7)
	26–35	62 (23.7)
	36–46	45 (17.2)
	45–60	38 (14.5)
Gender	Female	150 (57.3)
	Male	112 (42.7)
Education	Primary	15 (5.7)
	Secondary	52 (19.8)
	Undergraduate	144 (54.9)
	Postgraduate	46 (17.6)
	No formal education	5 (1.9)
Occupation	Student	89 (34.0)
	Employed	84 (32.1)
	Self-employed	39 (14.9)
	Homemaker	41 (15.6)
	Retired	4 (1.5)
	Unemployed	5 (1.9)
Residence	Urban	171 (65.3)
	Rural	91 (34.7)

Table 2: Knowledge and awareness regarding self-medication (n=262).

Parameter	Category	n (%)
Perceived harmfulness of self-medication	Yes	88 (34.1)
	No	64 (24.4)
	Not sure	110 (41.5)
Awareness of antibiotic resistance	Yes	99 (37.8)
	No	79 (30.2)
	Not sure	84 (32.1)
Reading dosage instructions	Always	121 (46.2)
	Sometimes	109 (41.6)
	Never	32 (12.2)
Experience of side effects	Yes	14 (5.5)
	No	181 (71.0)
	Not sure	52 (20.3)

A total of 79.4% of participants reported experiencing dental problems within the previous 12 months, while 20.6% reported no such issues. Among the reported conditions, toothache was the most common complaint (49.8%), followed by tooth sensitivity (16.0%), oral ulcers (8.9%), gum swelling (6.3%), and halitosis (4.5%). Other conditions were reported by 14.5% of participants. During the same period, 64.1% of participants had visited a dentist, whereas 35.9% had not sought professional dental care. The distribution of dental complaints and medication types used for self-medication is shown in Figure 1.

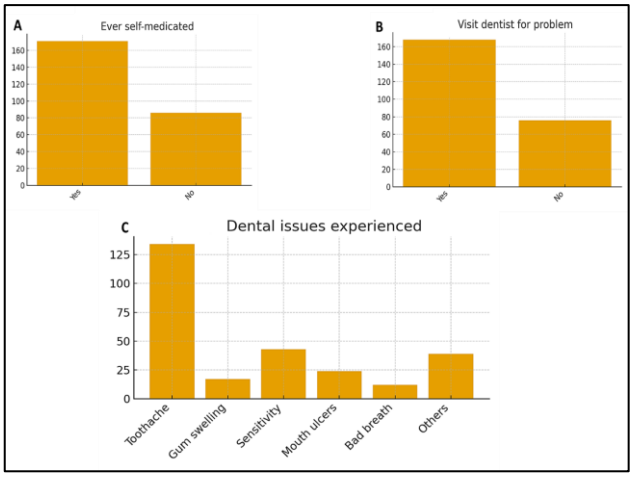

Figure 1: Prevalence of self-medication practices and dental complaints among study participants.

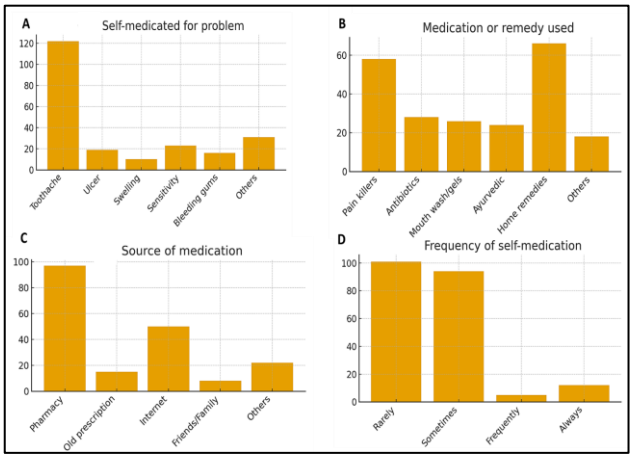

Figure 2: Self-medication practices among study participants.

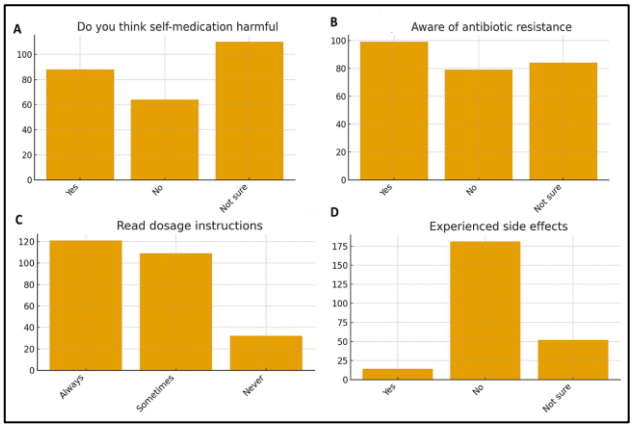

Figure 3: Knowledge,attitudes and experiences related to self-medication.

Among the 171 participants who practiced self-medication, toothache was the most common indication (71.3%), followed by tooth sensitivity (13.5%), oral ulcers (11.1%), bleeding gums (9.4%), and gum swelling (5.8%). Other complaints were reported by 18.1% of participants. The most commonly used remedies were home treatments (38.6%) and analgesics (33.9%), followed by antibiotics (16.4%), medicated mouthwashes or gels (15.2%), Ayurvedic preparations (14.0%), and other substances (10.5%). Pharmacies were the primary source of medications (56.7%), followed by the internet (29.2%), old prescriptions (8.8%), family or friends (4.7%), and other sources (12.9%). With respect to frequency, self-medication was reported as rare (59.1%), sometimes (55.0%), frequently (2.9%), and always (7.0%), with multiple responses permitted. Following self-medication, 63.2% of participants subsequently sought professional dental care, whereas 36.8% did not. Self-medication practices are summarised in Figure 2.

Only 34.1% of participants perceived self-medication as harmful, whereas 24.4% considered it harmless and 41.5% were uncertain. Awareness of antibiotic resistance was reported by 37.8% of participants, while 30.2% were unaware and 32.1% were uncertain. With regard to medication practices, 46.2% of participants reported always reading dosage instructions, 41.6% reported doing so sometimes, and 12.2% reported never reading them. Adverse effects were reported by 5.5% of participants, while 71.0% reported no side effects and 20.3% were unsure. Table 2 presents knowledge and awareness regarding self-medication.

The most common reason for self-medication was the perception of the dental problem as minor (35.7%), followed by time constraints or distance to the clinic (32.7%), cost of treatment (25.1%), fear of dental treatment (16.1%), prior experience (11.7%), and other reasons (15.8%). Regarding preference for home remedies, 17.0% of participants always preferred them, 66.0% sometimes preferred them, and 17.0% never preferred them. With respect to cost perception, 55.3% considered dental treatment expensive, 21.1% considered it affordable, and 23.6% were uncertain. The perceived effectiveness of self-medication and subsequent dental consultation are illustrated in Figure 3.

DISCUSSION

The present cross-sectional questionnaire-based study was conducted to assess the prevalence, patterns, and determinants of self-medication practices for oral health problems among patients attending a dental teaching hospital in Mangalore, Karnataka. The demographic profile of participants revealed that younger adults (18–26 years) constituted the largest proportion of the study population, with a higher tendency towards self-medication compared to older age groups. The majority of the participants were undergraduate students, and there was a positive correlation between higher levels of education and the likelihood of self-medicating. This is consistent with existing research indicating that individuals with more education tend to have better access to health information, more confidence in handling minor health concerns, and easier access to pharmacies compared to those with less education.[18] However, it is important to note that while education enhances awareness, it can also inadvertently encourage inappropriate self-prescription, particularly in the absence of professional guidance.

The predominance of urban participants in the study underscores a significant contextual element. The easier access to pharmacies, the widespread availability of non-prescription drugs, and the heightened health awareness among city dwellers might account for the higher incidence of self-medication in this group.[19] In contrast, the lower participation rate from rural areas could indicate not only logistical challenges in joining the study but also limited access to medications in these non-urban regions.

In this study, a significant number of participants (79.4%) indicated that they had encountered dental issues over the past year, with toothache being the most commonly mentioned problem. This observation aligns with earlier research that has consistently highlighted toothache as the main reason for self-medication in dental matters.[20] Tooth sensitivity, oral ulcers, and gum-related problems were also common complaints, which are often perceived as minor, self-limiting, and manageable with easily available over-the-counter remedies. Although dental issues are quite common, only 64.1% of the individuals sought professional dental services, with over a third opting not to visit a dentist. This pattern suggests a tendency towards self-care, possibly influenced by factors like convenience, financial considerations, time constraints, or the perception that the issue does not require professional intervention.[10] Notably, among those who engaged in self-medication, toothache and sensitivity remained the leading reasons, underscoring the tendency to address symptomatic relief rather than seeking definitive treatment.[21]

The medication usage pattern identified in this study underscores significant public health issues. Home remedies and pain relievers were the most commonly utilized, indicating their easy accessibility and cultural acceptance. Notably, the use of antibiotics (16.4%) without a professional prescription is concerning, as it can lead to antimicrobial resistance, incorrect dosing, and the potential concealment of underlying health problems.[22] The preference for Ayurvedic treatments and medicated mouthwashes/gels further illustrates the blend of traditional and modern healthcare practices in India.

Pharmacies were identified as the predominant source of medications (56.7%), which is consistent with findings from other studies where pharmacists often serve as the first point of consultation in oral health problems. The

internet, serving as a secondary source at 29.2%, underscores the increasing impact of online health information on patient choices.[23] Although this trend enhances access to information, it also poses the risk of spreading misinformation and the improper use of medications. Regarding how often self-medication is used, the majority of participants indicated that they engage in this practice sporadically, implying it is typically reserved for acute or recurring symptoms rather than being a regular routine. Notably, 63.2% ultimately sought professional dental care, highlighting that although self-medication might offer temporary relief, it does not replace the necessity for definitive treatment. Overall, the findings underscore the dual nature of self-medication: while it may serve as an immediate and accessible solution for minor dental complaints, it also carries risks such as delayed diagnosis, inappropriate drug use, and the potential for complications.

The perceived expense of dental care emerged as a crucial factor affecting individuals' decisions to seek treatment. Over half of the respondents (55.3%) viewed dental care as costly, whereas only about 20% found it to be within their financial reach. This perception of high costs could serve as a significant obstacle to seeking timely professional help, leading people to opt for self-treatment or home remedies to address their oral health concerns. Uncertainty regarding affordability among nearly one-fourth of participants further highlights gaps in awareness about the actual costs and accessibility of dental care services. These findings suggest that cost perceptions, whether real or assumed, play a crucial role in shaping health-seeking behavior and may inadvertently promote reliance on self-medication as a more convenient and economically feasible alternative.

Limitations

This study has certain limitations. Being a hospital-based study, the findings may not be generalizable to the wider community. The use of self-reported data may also introduce recall bias. Additionally, the cross-sectional design limits the ability to establish causal relationships.

Implications

The findings highlight the need for targeted awareness programs, stricter regulation of over-the-counter drug sales, and improved accessibility to affordable dental care services to reduce inappropriate self-medication practices.

CONCLUSION

Self-medication for dental problems is highly prevalent among patients attending our hospital, with nearly two-thirds of participants reporting the practice. Toothache was the dominant driver, and home remedies and analgesics were the most common approaches; however, antibiotic use without prescription reported by one in six participants represents the most clinically significant concern, given its direct contribution to antimicrobial resistance. Awareness of this risk remains low, with fewer than four in ten participants able to identify it.

These findings highlight the need for targeted dental health education at the community level, stricter enforcement of prescription requirements for antibiotics at pharmacies, and expanded access to affordable dental care to reduce the cost barrier that drives many patients toward self-treatment. Future research is required to evaluate the effectiveness of such interventions in similar urban dental settings across India.

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