



KNOWLEDGE, ATTITUDE AND PRACTISE OF PHARMACISTS REGARDING ORAL HEALTHCARE AND ORAL HYGIENE PRODUCTS IN RURAL AND URBAN AREAS OF BENGALURU CITY- A COMPARATIVE STUDY

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ABSTRACT

Objective: To assess and compare the knowledge, attitude and practise of pharmacists on oral healthcare and oral hygiene products in urban and rural areas of Bengaluru city.

Methods: This comparative study was carried out among pharmacists by using self-administered, closed-ended questionnaire. Descriptive statistics and Chi-square tests were used for the data analysis. Statistical analysis were done using SPSS version 20.

Results: A total of 310 pharmacists were included from urban and rural areas of Bengaluru city (155 from each location). Only 29.7% of the pharmacies in the rural areas had a nearby dental clinic as compared to urban (78.7%), ($p < 0.001$). Stock of oral health care products $\leq 10\%$ in urban and rural areas was 36.8% and 94.8% respectively. Toothpaste was most common among the oral healthcare products stocked in both the areas. Toothache was the most common problem seen in both the areas.

Conclusion: Overall the knowledge, attitude and practise were higher among pharmacists in urban areas as compare to rural areas. However, pharmacists in both the areas are presently an underutilized resource, and there is a definitive need to improve their training and access to information on available dental services.

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INTRODUCTION

Oral health is a part of general health and so it affects the entire well-being of individuals.. Dentists as well as other health professionals realize that oral health cannot be divorced from the general health. Pharmacy is one of active profession which is growing and changing every minute. Forty years ago, the American Dental Association stated, "The dentist and the pharmacist are partners in caring for oral health." In fact, the pharmacist sees more people with dental problems than the average dentist![1] Team working is now acknowledged as a key concept in the delivery of oral healthcare.

Community pharmacists have long served as the medication experts of the health care team and, due to their knowledge and accessibility, are frequently consulted by the public and other professionals to answer health-related questions.[2] There are a variety of ways by which the pharmacist can take a frontline approach to oral disease prevention, identification, assessment, management, and referral. These include promoting topical fluorides, especially fluoride toothpastes, encouraging effective oral hygiene practices, promoting healthy eating,

encouraging use of dental services and preventive therapies, and giving parents and other family caregivers information, motivation, confidence, and the skills to prevent oral disease.[4]. In India, it is a common practice for many people to resort to pharmacists for advice regarding health problems because of variety of reasons. Bengaluru is rapidly growing capital city with many extension areas. Pharmacies are the first to open and provide service to cater the health needs of the population even in rural areas. The pharmacist's own knowledge, attitude, and oral self care practices are major determinants for his/her role as an oral health promoter in a community setting. There are few studies evaluating the role of community pharmacists in the provision of oral health care advice. But there are no studies comparing the knowledge, attitude and practise of pharmacist in rural and urban areas. Therefore the aim of the study was to assess and compare the knowledge, attitude and practise of pharmacists on oral health care and oral hygiene products in urban and rural areas of Bengaluru city.

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MATERIALS AND METHODS

A comparative study was conducted on pharmacists in urban and rural areas of Bengaluru urban district over a period of 3 months from July 2016 to September 2016. A sample size of 310 was estimated. All the pharmacies registered in Karnataka State Pharmacy Council from urban and rural areas of Bengaluru urban district were included in the study. The sample was divided into urban and rural areas equally. A pilot study was undertaken on 10% of the study participants to check the feasibility and relevance of proforma. Informed consent was obtained from the pharmacists participating in the study before the start of the study.

Stratified simple random sampling method was used to select the pharmacies. Bengaluru Urban District comprises five Taluks, namely Bengaluru North, Bengaluru North(Addl.), Bengaluru South, Bengaluru East and Anekal. There are 668 villages in Bengaluru urban district. These villages were considered as rural areas.

A close ended questionnaire was filled by the pharmacist. The questionnaire was divided into five sections: Section I: dealt with details regarding the vicinity of the dentist to the pharmacy, Section II: focused on the range of dental products stocked in the pharmacy, Section III: dealt with the advice given by the pharmacist to customers regarding oral hygiene products and oral health, Section IV: dealt with the pharmacist's source of information regarding oral health and oral hygiene, Section V: focused on the dental patients attending the pharmacies; their number, common complaints, and advices sought out by them regarding dental problems.

Data was collected by a single investigator, who personally met the pharmacists and explained them the purpose of the study. Main domains identified were socio-demographic characteristics, questions to assess knowledge, attitude and practice regarding oral healthcare and oral hygiene products were included. The proforma was validated using construct and content validity. [5] The collected data were thoroughly screened and entered into MS-Excel spread sheets and analysis was carried out using Statistical Package for Social Sciences (SPSS) version 20. Descriptive statistics and Chi- square test was used to assess statistical significance of differences observed. $p\text{-value} \leq 0.05$ was considered statistically significant.

RESULTS

Mean age of pharmacist was $39.92(\pm 10.412)$ years in rural area and $36.84(\pm 9.751)$ years in urban areas. 78.7% and 84.5% of the pharmacists were male in urban and rural areas respectively. Very few had a master's degree in both urban (7.10%) and rural (2.60%). Most of the pharmacists were diploma holders in rural areas. Most of the pharmacies were individually owned by the pharmacist, i.e. there were 111 (71.6%) in urban areas and 137 (88.4%) in rural area. 78.7% pharmacists in urban areas and 29.7% pharmacist in rural areas had a nearby dental clinic. ($p < 0.001$). Among them only 56 (45.9%) in urban areas and 20 (43.47%) in rural areas knew about the working time of the nearby dental clinic. ($p > 0.05$). 57(36.8%) of the pharmacist in urban and 147(94.8%) pharmacist in rural area reported that oral health care products represents $\leq 10\%$ of the total stock in the pharmacy. Statistically significance difference was found out between urban and rural areas ($p < 0.001$). Toothpaste followed by toothbrush was the most common oral health product available

in the pharmacies, in both rural and urban areas. ($p < 0.001$). 86 (55.5%) pharmacist in urban areas and 51(32.9%) in rural areas said that they recommended on the basis of personal experience, 60(38.7%) in urban areas and 93(60.0%) in rural areas said that they recommended on the basis of dentist opinion. Very few in recommendations were given based on knowledge of oral health care and products. ($p < 0.001$). (Table 1).

When attitude was assessed, 54.2% in urban and 39.4% in rural areas were interested in giving oral health care advice. ($p < 0.05$). 54.8% in urban and only 40.6% in rural areas were interested in attending courses on oral health programs. ($p < 0.001$). (Table 2). 98.1% and 1.9% pharmacist in urban and rural areas respectively, reported that >10 patients per day visited the pharmacy complaining about oral health problem. Statistically significance difference was found out between urban and rural areas ($p < 0.001$). Toothache was the most common problem experienced by the patients, reported to the pharmacist in both urban and rural areas. Although no statistical difference was found our between urban and rural areas ($p > 0.05$). 71.0% pharmacist in urban and 54.8% pharmacists in rural areas advised the patient to consult a nearby dentist, after dispensing medications ($p < 0.05$). (Table 3).

No statistical difference was found among urban and rural pharmacists when asked about the benefits of fluoride in toothpaste. 59.4% in urban and 66.5% rural areas did not know about fluoride in toothpaste (Table 2).

Table 1 Distribution of study subjects according to knowledge

Sl. No.	QUESTION	URBAN	RURAL	p-value*
	Do you have any nearby dental clinic?			
a)	Yes	122 (78.7%)	46 (29.7%)	$p < 0.00\#$
b)	No	33 (21.3%)	109 (70.3%)	
	Do you know the working time of the dentist near your pharmacy?			
a)	Yes	56 (45.9%)	20 (43.47%)	$p > 0.05$
b)	No	66 (54.01%)	26 (56.52%)	
	On what basis you recommend the oral hygiene products?			
a)	Knowledge of product	9(5.8%)	4(2.6%)	$p < 0.001\#$
b)	Personal experience	86(55.5%)	51(32.9%)	
c)	Dentist opinion	60(38.7%)	93(60.0%)	
d)	Advertisement	0(0.0%)	4(2.6%)	
e)	Popularity of product	0(0.0%)	0(0.0%)	
f)	Others	0(0.0%)	0(0.0%)	
g)	All products are same	0(0.0%)	3(1.9%)	
	Do you know different types of toothbrush?			
a)	Yes	144(92.9%)	109(70.3%)	$p < 0.001\#$
b)	No	11(7.1%)	46 (29.7%)	

*chi-square test, # $p < 0.05$ -significant

Table 2 Distribution of study subjects according to attitude

Sl. No.	QUESTION	URBAN	RURAL	p-value*
1.	Are you interested in giving oral health care advice to patients?			
a)	Yes	84(54.2%)	61(39.4%)	$p < 0.05\#$
b)	No	71(45.8%)	94(60.6%)	
2.	Do you think courses on oral health programs should be conducted?			
a)	Yes	85(54.8%)	63(40.6%)	$p < 0.001\#$
b)	No	70(45.2%)	92(59.4%)	
3.	Do you think fluoride in toothpaste is beneficial?			
a)	Yes	61(39.4%)	49(31.6%)	$p > 0.05$
b)	No	2(1.3%)	3(1.9%)	
c)	Don't know	92(59.4%)	103(66.5%)	
4.	What do you feel are the barriers for patient visiting the dental clinic?			
a)	Financial constraints	134(86.5%)	120(77.4%)	$p < 0.001\#$
b)	Difficult in getting appointment	13(8.4%)	0(0.0%)	

c)No nearby dental clinic 8(5.2%) 35(22.6%)
 *chi-square test, #p<0.05-significant

Table 3 Distribution of study subjects according to practise

Sl. No.	QUESTION	URBAN	RURAL	p-value*
	What is the common oral health problems experienced?			
a)	Toothache	155(100%)	154(99.3%)	
	Gum problem (bleeding gums)	18(11.6%)	18(11.6%)	
c)	Mouth malodor	0(0.0%)	0(0.0%)	p>0.05
d)	Ulcers	0(0.0%)	0(0.0%)	
e)	Dental abscess	0(0.0%)	0(0.0%)	
f)	Teething	0(0.0%)	0(0.0%)	
	How many patients visit to your pharmacy complaining about oral health problem?			
a)	<10	101(65.2%)	152(98.1%)	p<0.001#
b)	>10	54(98.1%)	3(1.9%)	
	What is the percentage of oral health products in your pharmacy?			
a)	<=10%	57(36.8%)	147(94.8%)	p<0.001#
b)	10-20%	47(30.3%)	6(3.9%)	
c)	>20%	51(32.9%)	2(2.3%)	
	Different oral health care products that you have in your pharmacy includes: (can tick more than one)			
a)	Tooth paste	154(99.3%)	153(98.7%)	
b)	Tooth brush	141(90.7%)	124(80%)	
c)	Mouthwash	130(83.9%)	27(17.4%)	p<0.001#
d)	Dental floss	111(71.6%)	4(2.6%)	
	Denture care products	102(65.8%)	33(21.2%)	
f)	Others	4(2.6%)	0(0.0%)	
	What advice do you give to your patients?			
	Ask to consult a nearby dentist, after dispensing medications	110(71.0%)	85(54.8%)	
	Dispense medication(pain killer and antibiotic	14(9.0%)	28(18.1%)	p<0.05#
	Ask to consult a dentist without medication	31(20%)	42(27.1%)	

*chi-square test, #p<0.05-significant

DISCUSSION

Team working is important in the delivery of oral healthcare. Pharmacists are now an important member of the primary healthcare team and hold a great potential to expand their role in oral health promotion.[3] There are a variety of ways by which the pharmacist can take a frontline approach to oral disease prevention, identification, assessment, management, and referral.

This cross-sectional comparative study was conducted to assess and compare the knowledge, attitude and practise of pharmacists on oral healthcare and oral hygiene products in urban and rural areas of Bengaluru city. 310 pharmacies were randomly selected from the list of all the registered private pharmacies in Bengaluru urban district.

In the present study, more number of male pharmacist was seen in both urban (78.7%) and rural (84.5%) areas of Bengaluru city. Similar results were seen in a study done by Baseer MA *et al.* [6] Mean age was approximately 40±10 years in rural areas and 27±9.7 years in urban areas. Mean age in a study done by Bawazir OA[2] was 32±5 years.

In India pharmacies are either owned by individuals, attached to network of pharmacies or hospitals. In the current study most of the pharmacies were owned by individuals in both urban (71.6%) and rural (88.4%) areas. In the present study very few pharmacist had a master degree of pharmacy in both urban (7.1%) and rural areas (2.6%). Similar results were seen in a study done by Bawazir OA. [2] Most of the pharmacists were diploma holder in both the locations. In the present study, 78.7% and 21.3% of the pharmacies in rural and urban areas respectively said that they had a nearby dental clinic. Among

them most of them did not know the working timings of the dentist in both rural and urban areas. Even though there are many dental clinics near the pharmacies in urban areas, the pharmacists knew very little about the timings of the dental clinic. Similar results were seen in study done by Maunder *et al.*,⁸ which was done in rural settings and Hamissiet *al.* [7] Bawazir OA, [2] Priya *et al.*, [4] showed similar results in urban area. Pharmacists develop a relationship with their local dental practitioners and should always be a part of the primary health care team and Studies have shown that pharmacists should be a part of interdisciplinary team meetings and together they should create a joint pathway of care to meet the needs of the local population. [4]

Stocks of oral health care products in the pharmacies were also assessed in the present study. The proportion of oral health products in the stock was low when compared to general healthcare products. Significant difference was seen in the stock of oral health products between urban and rural areas. 32.9% of the pharmacies in urban areas had >20% of oral health product stocks, where as only 2% of the pharmacies in rural areas had >20% of oral health product stocks. Similar results were seen in study conducted by Bawazir OA, [2] Priya, *et al.*[4] Assessment of the stocks of oral healthcare products in pharmacies revealed that toothpastes were the most common product stocked in both rural and urban areas. Contrast results were seen in study done by Maunder *et al.*,⁸ where toothbrushes comprised nearly 58% of the stock of oral health care products. The reason for this difference might be because of the fact that, in India, most of the oral health care products are sold not just in pharmacies but is also available in all small shops and supermarkets.

Earlier studies have shown that though the number of people seeking general health advice per week was over 100, the number asking for advice on oral health matters was usually around 11.[8] In the present study, 65.2% in urban and 98.1% in rural areas said that less than 10 patients a day seek advice regarding oral health. Similar results were seen in studies done by Bawazir OA, [2] Priya *et al.* [4] reported that 84% of pharmacists provided advices to <10 patients/day in India. This could be attributed to the information level of the public and the utilization of community pharmacies in developed counties. People do not use the pharmacy at present for oral health advice as frequently as they may for their general health. This shows the under utilization of community pharmacies by the public for oral health problem.

In the present study most common oral health complaints experienced by pharmacist was toothache in both rural and urban areas and most of the pharmacist managed by dispensing medication along with advising them to consult dentist. Similar results were seen in studies done by Bawazir OA, [2] Priya *et al.* [4] Maunder *et al.*,⁸ and Hamissi *et al.*[7] This is a matter of concern since short-term pain relief might mean that the patient will postpone consulting a dentist and, thereby, an opportunity to diagnose a disease in its early stage may be lost.

Personal experience and dentist opinion was the basis for recommendation of specific oral health care products by pharmacists in both urban and rural areas. However, when asked about the benefit of fluoride in tooth paste, 59.4% and 66.5% in urban and rural areas did not know. Bawazir OA, [2] Priya *et al.*[4] Maunder *et al.*,⁸ and Hamissi *et al.*[7] showed similar results. Recommendations of oral health products were

depended on the limited knowledge of the pharmacist. This shows that there is a serious lack of knowledge regarding oral health care products, which has to be addressed. This demonstrates that pharmacists are an underutilized, but potentially valuable, oral healthcare resource. Pharmacist can work in collaboration with dentist and hold meetings that can improve team spirit which will reflect on the delivery of oral health care.

Our research showed that most of the respondents in both urban and rural felt that financial constraints were the main reason for patients approaching the pharmacist for advice. Studies have shown that the reason given by patients for approaching a pharmacist for advice instead of a doctor was that there was no need to bother the doctor; moreover, no appointment was required to see the pharmacist.[10] 54.2% pharmacist in urban areas and only 39.4% of pharmacist were interested in giving oral health care advice to patients. Pharmacist in the urban areas was more interested to play a more active role in health promotion. Similar results were seen in studies done by Bawazir OA, [2] Priya *et al.*, [4] and Maunder *et al.* [8] There is a need to support the pharmacists in this respect, especially during national campaigns. Their expectations by way of such support are the provision material such as relevant information leaflets, pamphlets, posters, etc.; this is not financially demanding. 54.8% and 40.6% interested in attending oral healthcare courses or oral health programs given by dental professionals in urban and rural areas respectively. Contrast results were seen in Bawazir OA, [2] Priya *et al.*, [4] and Maunder *et al.* [8] where more number of pharmacist were interested in attending courses on oral health care. This shows a negative attitude of pharmacist in the present study. This may be due to expense, timing and location of courses.

Overall the knowledge, attitude and practise were higher among pharmacists in urban areas as compare to rural areas. However, pharmacists in both the areas are presently an underutilized resource, and there is a definitive need to improve their training and access to information on available dental services. The pharmacists exhibited negative attitude and inadequate self care practices toward oral health. It can be speculated that the average oral health knowledge among pharmacists could be the main reason for such a finding.

The strengths of the present study were a sufficient sample size and the varied oral health related questions designed to disclose an existing level of oral health knowledge, attitude, and self care practices. The limitations of the present study include the lack of a standard questionnaire for measuring the oral health knowledge and the non availability of any reported comparable study instrument. Moreover, the results of present study rely on self reported data; The oral health information may have been biased through over and underreporting due to social desirability.

CONCLUSION

The data in the present study showed the important role and contribution of the pharmacist in improving oral health. Pharmacists in urban area are keen to expand their knowledge through training programs when compared to rural areas. Overall the knowledge, attitude and practise of pharmacist in rural area is lower when compare to urban areas. However, pharmacists in both the areas are presently an underused resource. Pharmacists should be insisted not to dispense

medicine without the prescription, as dispensing antibiotic without knowing the nature of disease might lead to antibiotic resistance as well as patient might not visit the dentist. There is a definitive need for training of pharmacists and providing them with access to information on available dental services. The pharmacists trained in oral health can advise the public on the most appropriate choices of dental products and the use of fluoride supplements. Government should take initiatives to help the pharmacists to take a more active and integrated role as part of a primary oral healthcare team.

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