

Correlation of pharmacy students' knowledge, attitude, and practices with their oral health status in Salem city—A cross-sectional survey

Priya Deepa Lakshmi K¹, Bharath C¹, Venkatalakshmi S¹, Saravanan N¹

¹Department of Public Health Dentistry, Vinayaka Mission Sankarachariyar Dental College, Vinayaka Missions Research Foundation (Deemed to be University), Salem, Tamil Nadu, India

ABSTRACT

Background: Pharmacy is the health profession that links the health sciences with the basic sciences also contributes in health maintenance and promotion for the population. **Objectives:** The primary objective was to assess knowledge, attitude, and practice (KAP) among pharmacy students in Salem toward oral health. Secondary objectives are to correlate KAP with their oral health status. **Methods:** A descriptive cross-sectional study was carried out using self-administered 16-item pretested and pre-validated questionnaire and oral health status data were collected using the WHO oral health assessment form (1997) targeting pharmacy students Vinayaka Missions College of pharmacy. Six, four, and six questions were used to assess pharmacy students' knowledge, attitude, and practice, respectively. Data analysis was done using SPSS version 20.0 to perform the Chi-square test, Mann-Whitney, Kruskal-Wallis, Spearman's correlation, and linear regression analysis. **Results:** 386 participated in the survey (263 males and 123 females). The highest mean for knowledge was among 17–21 years of age group students (18.07 ± 3.07) and this was statistically significant when compared to another age group ($P < 0.05$). The gender difference was seen with males having a significantly ($P < 0.001$) more positive mean \pm SD oral health KAP compared to their female counterparts. KAP scores upon correlation revealed a positive relationship between knowledge-attitude ($r = 0.015$), knowledge-practice ($r = 0.016$), and attitude-practice ($r = 0.069$). **Conclusion:** Results of this study suggest that oral health KAP of students is inadequate and needs to be improved as they play an important role in the patients' counseling toward oral care.

Keywords: Attitude, knowledge, oral health, pharmacy students

Introduction

Oral health is considered an essential component of general health and poor oral health can have an adverse effect on the quality of life.^[1,2] The World Health Organization (WHO) defined oral health as “a state of being free from chronic mouth and facial pain, oral and throat cancer, oral infection, and sores,

periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing.”^[1]

Worldwide, oral diseases were highly prevalent affecting 3.9 billion people.^[3–5] Oral conditions combined accounted for 15 million disability-adjusted life years (DALYs) globally (1.9% of all years lost due to disability [YLDs]; 0.6% of all DALYs), indicative of an average health loss of 224 years per 100,000 population.^[6,7] A short analysis from 1990 to 2016 concluded that India has more burden of oral diseases when compared to other South Asian neighbors.^[8] Therefore, oral diseases are

Address for correspondence: Dr. Priya Deepa Lakshmi K, Department of Public Health Dentistry, Vinayaka Mission Sankarachariyar Dental College, Vinayaka Missions Research Foundation (Deemed to be University), Salem, Tamil Nadu, India. E-mail: karan.priya21@yahoo.com

Received: 17-12-2019

Revised: 25-12-2019

Accepted: 20-02-2020

Published: 30-04-2020

Access this article online

Quick Response Code:



Website:
www.jfmpc.com

DOI:
10.4103/jfmpc.jfmpc_1172_19

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Lakshmi KP, Bharath C, Venkatalakshmi S, Saravanan N. Correlation of pharmacy students' knowledge, attitude, and practices with their oral health status in Salem city—A cross-sectional survey. J Family Med Prim Care 2020;9:1944-9.

among the most common chronic diseases widespread and constitute a major public health problem resulting in huge health and economic burden on individuals, families, societies, and health care systems.^[1]

Promotion of health in the settings where people live, work, learn, and play is clearly the most creative and cost-effective way of improving oral health and, in turn, the quality of life.^[9] Individuals can take actions for themselves and for persons under their care to prevent disease and maintain health. Therefore, a group of the population that could easily be used for the purpose of assessing oral health awareness and practices is the professional students.^[10]

Pharmacy is the health profession that links the health sciences with the basic sciences and now has been recognized as an important profession in the multidisciplinary provision of health care.^[11,12] They play a dynamic part in the delivery of health care worldwide. “The seven-star pharmacist” as identified by the WHO and International Pharmaceutical Federation (FIP) recommended that the basic role of the pharmacist includes care-giver, decision-maker, communicator, leader, manager, life-long-learner, and finally a teacher. This WHO working group also mandated that future pharmacists must possess specific knowledge, attitude, skill, and behavior in order to support their roles.^[12-15] They are often the first point of contact for the public to seek general health advice or oral health advice. In fact, the pharmacists actually have direct interactions with more people with dental problems than an average dentist does. The transition of traditional role (dispensing medications) of pharmacists to the expanded role has evolved to include a broader range of functions associated with primary health care. Therefore, pharmacists are now an important member of the primary health care team and hold great potential to expand their role in oral health promotion. To best of our knowledge, no study was conducted in Salem city among pharmacy students to evaluate their knowledge, attitude, and practices (KAP) of oral health and its correlation with oral health status.

Materials and Methods

The study was presented following the STROBE guidelines.^[16]

Study design

This cross-sectional study was conducted between January 2019 and August 2019 among B. Pharm students of Vinayaka Missions College of Pharmacy, Salem, Tamil Nadu. Prior permission was obtained from the principal of pharmacy college through a formal letter explaining the purpose of the study.

Sample size calculation

During the data collection phase, the chief investigator approached the cohort of pharmacy students to provide information about the study and obtained written informed consent before distributing the questionnaires to the students. This minimal sample of 197 pharmacy students was targeted

and this would give adequate power for analyses to be carried out. Epi Info software was used to determine the minimum required sample size. Based on the calculation with a 5% margin of error, 95% confidence level, and 50% response distribution, at least 197 students were needed out of a total of 400 students involved. By the end of the data collection phase, 386 completed questionnaires were collected from the participants.

Ethical approval

This study was approved by the institutional research and ethics committee of Vinayaka Missions Sankarachariyar Dental College. (Ref: VMSDC/IEC/Approval No: 147)

Pretesting of questionnaire

A self-administered structured questionnaire was developed and tested among a convenience sample of 30 students, who were interviewed to gain feedback on the overall acceptability of the questionnaire in terms of length and language clarity. Based on their feedback, the questionnaire did not require any corrections. Cronbach's coefficient was found to be 0.9, which showed internal reliability of the questionnaire.

Questionnaire

The questionnaire comprised four sections. Section I solicited demographic details regarding age, gender, year of study. Section II integrated six questions to collect information about knowledge relating about a number of teeth, causes of dental caries, gingivitis, and goal of brushing. Section III comprised four questions that aimed to assess the attitude toward the importance of oral health, teeth loss, replacement of missing teeth, and proper tooth brushing. Section IV consisted of six questions exploring the participant's oral health practices such as brushing frequency, frequency of changing toothbrush, type of toothbrush, other aids used, dental visits, and reason for not visiting the dentist. The students took an average of 15 min to complete the questionnaire. The anonymity of the respondents was maintained.

Oral examination

The oral examination of the students was conducted simultaneously under natural light which was carried out by single pre-trained and pre-calibrated examiner to limit the intra-examiner variability (Kappa coefficient is 0.99). Dental caries was recorded according to the WHO diagnostic criteria^[17] and the Decayed Missing Filled Teeth (DMFT) index was calculated as the sum of the three components. The periodontal status was recorded by using the Community Periodontal Index (CPI) scores as described by WHO (1997).^[17] On average, it took 5–6 min to complete the oral examination of each student.

Statistical analysis

Completed questionnaires were coded and spreadsheets were created for data entry. The data were analyzed using the IBM Statistical Package for the Social Sciences version 20 (SPSS Inc, Chicago, IL, USA).

For assessing knowledge, correct answers were given a score of one whereas the incorrect answers and "I don't know" were given a score of zero. Participants who scored 3 or more were categorized as belonging to a high knowledge group and those who are below 3 were considered to be in low knowledge group. Positive attitude responses were given a score of 1 and negative responses were given a score of negative one (-1) and I don't know responses were given zero scores. Those who scored two or more were considered to be having a positive attitude and those scoring less than two were considered having a negative attitude towards oral health. Correct answers in practice were given a score of one whereas incorrect answer was given a score of zero. Those scores three or higher were thought of as having adequate oral health care practices.

Descriptive statistics were used to calculate the frequencies and Chi-square test used to compare the proportions. Comparison of mean oral health KAP score between the genders was done using Mann-Whitney, age group was done by Chi-square test and year of a study done by Kruskal-Wallis test. Spearman's correlation test was applied to assess the correlation between KAP. The linear regression analysis was used to find the relationship of oral health knowledge with the attitude and practices and to find whether dental caries and periodontal status is dependent on the oral health KAP of the students. Statistical significance was set at 0.05.

Results

Sociodemographic details

Out of 386 pharmacy students, 263 (68.1%) were male and 123 (31.9%) were female with a mean \pm SD age of 21.5 ± 2.87 years. The student's age was between 17 and 26 years. Based on year of study, 24.6% ($n = 95$) of students

were first year, 25.9% ($n = 100$) in second and third respectively and 23.5% ($n = 91$) were fourth year.

Perceived knowledge, attitude, practice

A comparison of the correct knowledge responses, based on gender revealed that the question (Q4) regarding dental plaque was statistically significant ($P < 0.001$). When the year of study was considered, a significant difference was noted for the question (Q1) ($P < 0.001$). Comparison of the attitude responses based on gender, the difference was significant ($P < 0.001$) for question Q8. Based on the year of study, the significant difference was not found for any of the attitude questions. When good practice responses regarding oral health were measured and compared according to gender, a significantly more positive response was shown for questions Q11, Q 14, and Q15 [Table 1].

When the level of correct knowledge was considered, the majority of the students ($n = 275$, 71.2%) had inadequate knowledge and only 111 (28.8%) with adequate knowledge.

Association of demographic characteristics, dental caries, and periodontal status with KAP

Table 2 illustrates that the highest mean for knowledge was among 17–21 years age group students (18.07 ± 3.07) and this was statistically significant when compared to another age group ($P < 0.05$). However, comparison based on age groups in the mean of attitude scores did not reveal any significant difference ($P = 0.5$). Similarly, even the mean practice score did not reveal any significant difference ($P = 0.67$).

The gender difference was seen with males having a significantly ($P < 0.001$) more positive mean \pm SD KAP toward oral health compared to their female counterparts. Likewise, based on year of study, second-year students showed a significantly ($P < 0.001$)

Table 1: Questions asked for the assessment of knowledge, attitude, and practice (KAP) responses among the students stratified based on gender and year of study

Question	P	
	Gender	Year of study
How many permanent teeth are there in adult's mouth?	0.12	<0.001*
How do you notice tooth decay?	0.62	0.11
What causes tooth decay?	0.16	0.15
What is dental plaque?	<0.001*	0.03
What is gingivitis?	0.26	0.03
What is the goal when we brush our teeth?	0.22	0.51
Do you think, oral health is important for general health?	0.21	0.34
Do you think that tooth loss is a normal part of growing old?	<0.001*	0.02
Do you think the replacement of missing teeth is important for oral health?	0.39	0.30
I know the proper method of tooth brushing?	0.70	0.44
How many times do you brush your teeth daily?	<0.001*	0.60
What kind of toothbrush do you use?	0.40	0.48
In addition to toothbrush and toothpaste, what do you use?	0.56	0.04
How often do you change your toothbrush?	<0.001*	0.23
When was your last dental visit?	<0.001*	0.58
What was the reason for not visiting the dentist?	0.22	0.26

* $P \leq 0.05$

higher mean \pm SD knowledge score (18.83 ± 2.93) than other year students.

The Spearman correlation depicts positive linear relationship between knowledge-attitude ($r = 0.015$), knowledge-practice ($r = 0.016$), and attitude-practice ($r = 0.069$). This result reaffirms the relationship between KAP on oral health [Table 3].

As demonstrated in Table 4, the regression analysis for mean DMFT score on KAP was dependent on the attitude, but no significant relationship with the knowledge and practice. The regression analysis for mean CPI scores on KAP has a linear relationship with the attitude, but no significant relationship with the knowledge and practice.

Discussion

As India strives to achieve universal health coverage, enhancement in oral health care delivery through the availability of skilled and determined health professional workers is essential. Therefore, health care professionals should work together in order to plan evidence-based oral health promotion policies allowing them to play a role in prevention, early intervention or referral to specialized oral health care services.

This study presented a comprehensive overview of oral health KAP of pharmacy students in Salem city, Tamil Nadu. Knowledge of the question Q1 (number of permanent teeth in adults' mouth) was highly acceptable (87.3%) which was similar to the study done by Kakkad *et al.*^[18] among engineering students in Bangalore city. The knowledge of Q2 (Notice of dental caries) in this group of Indian pharmacy students was quite alarmingly low (21.0%) as compared to medical students (79.8%) in Saudi Arabia.^[19] Nearly 60% of the students responded correctly to the Q3 (causes of dental caries). This was in contrast with the findings of a study conducted by Hakansson *et al.*^[20] on the nursing population in Zambia. However, 6.7% gave the answers as don't know, which males were predominant.

Surprisingly, only 28.8% of the students had adequate oral health knowledge. Similar findings were noted in the study by Bashiru and Omotoia^[10] among Nigerian pharmacy students. On the other hand, a study by Rajiah and Ving^[21] among

another cohort of pharmacy students in Malaysia revealed that there was a lack of knowledge. Also, comparison with other population clusters came to show that the levels of poor knowledge were reported among 18–24 years old nonmedical students of Udaipur city by Wasabi *et al.*,^[22] Sharda and Shetty,^[3] and Doshi *et al.*^[23] among medical, dental, and engineering students. Some studies were done by Baseer *et al.*^[24] showed average knowledge among pharmacists in Riyadh Provinces and high knowledge by Wahengbam *et al.*^[25] among adolescents in northeastern India. This is not surprising since pharmacy students are provided with very few courses or lecture sessions relating to oral health and health care during their undergraduate program and thus the need for incorporation of oral health into their curriculum is very essential. This is in agreement with the findings of Hajj *et al.*, Priya *et al.*, Anderson *et al.*, and Chessnutt *et al.*^[26-29]

In this study, the attitude of the students was satisfactory except Q7 in which most of the students (90.9%) believed that oral health is important for overall health. This was in-line with the study by Hakansson *et al.*,^[20] in which 95.7% of nursing students said that the treatment of the oral cavity equally important as in other parts of the body. Other studies by Usman *et al.*,^[30] in which 85% of paramedical students considered oral health is important for general health. Then Q8 (tooth loss is a normal part of growing old) which was reported by them as normal (60.1%) and nearly similar results were shown by Farsi *et al.*,^[31] where 49.8% agreed that tooth loss is natural. A maximum number of students displayed a negative attitude which was consistent with the findings of Baseer *et al.*,^[24] and contrary to Buxcey *et al.*^[32]

Data analysis on the practice section revealed that only 1.8% of students brushed their teeth after every meal and more than half brushed their teeth twice daily. This was comparable to the results reported by Emmanuel *et al.*,^[33] and contrast to Wayne *et al.*,^[34] and Alijaris *et al.*,^[35] who reported higher percentage (60.5%) of brushing their teeth after every meal. Analysis of the questions showed an equal distribution of adequate and inadequate practice toward oral health.

In this study, a successful comparison was made between variables like age group, gender, and year of study with KAP.

Table 2: Association of demographic characteristic with knowledge, attitude, and practices

Variable		Knowledge	P	Attitude	P	Practices	P
		Mean \pm SD		Mean \pm SD		Mean \pm SD	
Age groups	17-21 years	18.07 \pm 3.07	0.000*	5.62 \pm 1.38	0.572	10.62 \pm 1.48	0.674
	22-26 years	17.93 \pm 3.03		5.52 \pm 1.35		10.48 \pm 1.31	
Gender	Male	18.32 \pm 3.23	0.000*	5.62 \pm 1.38	0.000*	10.67 \pm 1.53	0.000*
	Female	17.47 \pm 2.58		5.59 \pm 1.36		10.44 \pm 1.28	
Year of study	First year	17.54 \pm 3.04	0.001*	5.83 \pm 1.45	0.084	10.62 \pm 1.64	0.948
	Second year	18.83 \pm 2.93		5.52 \pm 1.31		10.58 \pm 1.31	
	Third year	17.47 \pm 2.86		5.35 \pm 1.28		10.58 \pm 1.41	
	Final year	18.36 \pm 3.23		5.75 \pm 1.42		10.60 \pm 1.46	

* $P \leq 0.05$

Table 3: Spearman's correlation between KAP scores

Variables	Knowledge	Attitude	Practice	DMFT	CPI
Knowledge	1.000	0.015	0.016	0.960	0.063
Attitude	0.015	1.000	0.069	-	-
Practice	0.016	0.069	1.000	0.514	0.830

DMFT: decayed missing filled teeth

Table 4: Multivariable analysis: Linear regression taking DMFT score and CPI score as the dependent variable and taking the oral health KAP as an independent variable

Variable	Unstandardized beta	Standardized beta	P
Linear regression taking the DMFT score as the dependent variable			
Knowledge score	-0.002	0.029	0.951
Attitude score	0.145	0.064	0.024*
Practice score	0.33	0.060	0.586
Linear regression taking the DMFT score as the dependent variable			
Knowledge score	0.028	0.062	0.582
Attitude score	0.137	0.139	0.007*
Practice score	-0.062	0.131	0.222

DMFT: decayed missing filled teeth. CPI: community periodontal index. *P≤0.05

When gender comparison was done, a higher significant mean score was observed among males as compared to females. Our study showed that KAP had a positive correlation with each other but not significant. This was strikingly in agreement with the study by Jain *et al.*^[36] showing a significant positive correlation with KAP among nursing personnel in Bangalore city.

In-line with the results of some previous studies by Sharda and Shetty,^[3] David *et al.*,^[37] and Peng *et al.*,^[38] in the current study the DT score (Mean \pm SD = 0.89 \pm 1.59) dominated the DMFT score among the students, indicating a high rate of unmet treatment needs. Results of the present study showed the mean DMFT and CPI scores were dependent on the oral health attitude. Hence, attitude toward oral health determines the condition of the oral cavity. Along with the knowledge, positive attitude, and practices, reinforcement can bring drastic improvement in the oral health of pharmacy students.

Limitations

This study is limited to only pharmacy students of a private university, the sample size is relatively small, and, therefore, results cannot be generalized to a larger population, hence, it is recommended to conduct further studies using larger samples at various institutions in India. Even though the questionnaire utilized in the study was pretested it may limit the comparability of our results with other studies. Moreover, the use of a questionnaire may not be always accurate: problems in question understanding, question-wording, recall deficiency, and over or under evaluating the questions/knowledge can lead to possible information bias.

Conclusion

In summary, these study results indicate that the lack of knowledge influences the attitude leading to inadequate practices. Further emphasis on oral health is necessary for undergraduate training of pharmacy professionals. These students who play a dynamic part in the delivery of primary health care will act as role models for oral health education both at the individual and community levels.

Recommendations

Oral health-related seminars, workshops, continuing professional development programs/courses organized by dental organizations and manufacturers to update the pharmacy profession oral health knowledge followed by incorporation of oral health subjects into the curriculum of pharmacy students.

Further research could be conducted to examine the demand and possibilities of opportunistic oral health advice in pharmacies, in order to increase the comprehensiveness and expectations of services that could be provided to customers by students in their future career.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

1. World Health Organization. World Oral Health Report 2003. Published 2003. [Last accessed on 2018 Nov 09].
2. Sheiham A, Watt RG. The common risk factor approach: A rational basis for promoting oral health. *Community Dent Oral Epidemiol* 2000;28:399-406.
3. Sharda AJ, Shetty S. Relationship of periodontal status and dental caries status with oral health knowledge, attitude and behavior among professional students in India. *Int J Oral Sci* 2009;1:196-206.
4. Pradhan D, Kumar J, Shavi G, Pruthi N, Gupta G, Singh D. Evaluating the oral hygiene KAP among dental and medical students in Kanpur City. *Natl J Integr Res Med* 2016;7:73-6.
5. Richards D. Oral diseases affect some 3.9 billion people. *Evid Based Dent* 2013;14:35.
6. Marcenes W, Kassebaum NJ, Bernabe E, Flaxman A, Naghavi M, Lopez A, *et al.* Global burden of oral conditions in 1990-2010: A systematic analysis. *J Dent Res* 2013;92:592-7.

7. Bourgeois DM, Llodra JC. Global burden of dental condition among children in nine countries participating in an international oral health promotion programme, 2012-2013. *Int Dent J* 2014;64(Suppl 2):27-34.
8. Balaji SM. Burden of dental diseases in India as compared to South Asia: An insight. *Indian J Dent Res* 2018;29:374-7.
9. Petersen PE. Challenges to improvement of oral health in the 21st century-The approach of the WHO Global Oral Health Programme. *Int Dent J* 2004;54:329-43.
10. Bashiru BO, Omotola OE. Oral health knowledge, attitude and behavior of medical, pharmacy and nursing students at the University of Port Harcourt, Nigeria. *J Oral Res Rev* 2016;8:66-71.
11. Azhar S, Hassali MA, Ibrahim MI, Ahmad M, Masood I, Shafie AA. The role of pharmacists in developing countries: The current scenario in Pakistan. *Hum Resour Health* 2009;7:54.
12. WHO: New tool to enhance role of pharmacists in health care, 2006. [Last accessed on 2018 Nov 15].
13. The World Health Organization (WHO). The Role of the Pharmacist in the Health Care System, Preparing the Future Pharmacist: Curricular Development. Report of a third WHO Consultative Group on the Role of the Pharmacist. Vancouver, Canada; 1997. [Last accessed on 2018 Nov 15].
14. FIP/WHO. Good Pharmacy Practice. Joint FIP/WHO guidelines on GPP: Standard for quality of pharmacy services. The Hague, Netherlands: International Pharmaceutical Federation (FIP); 2012. [Last accessed on 2018 Nov 15].
15. Li S, Azhar S, Murtaza G, Bin Asad MH, Shah SH, Karim S, *et al.* Perception of academic pharmacists towards their role in healthcare system of a developing country, Pakistan: A quantitative sight. *Acta Pol Pharm* 2015;72:377-82.
16. Vandenbroucke JP, von Elm E, Altman DG, Gøtzsche PC, Mulrow CD, Pocock SJ, *et al.* Strengthening the Reporting of Observational studies in Epidemiology (STROBE): Explanation and Elaboration. *PLoS Med* 2007;4:1628-54.
17. World Health Organization. Oral Health Surveys- Basics Methods. Geneva: World Health Organization; 1997.
18. Kakkad DN, Murali R, Krishna M, Yadav S, Yalamalli M, Kumar AV. Assessment of oral hygiene knowledge, attitude, and practices among engineering students in north Bangalore: A cross-sectional survey. *Int J Sci Stud* 2015;3:84-9.
19. Mulla RO, Omar OM. Assessment of oral health knowledge, attitude and practices among medical students of Taibah University in Madinah, KSA. *Br J Med Med Res* 2016;18:1-10.
20. Håkansson S, Sturesson A, Andersson P, Mårtensson C. Oral hygiene experience, knowledge of oral health and oral diseases and attitudes about oral health care-A questionnaire study among students of nursing in Zambia School of Health and Society Dental Hygienist Programme. *Essay in Oral Health* 2010, Grundnivå, Stockholm University; 2010.
21. Rajiah K, Ving CJ. An assessment of pharmacy students knowledge, attitude and practice towards oral health: An exploratory study. *J Int Soc Prev Community Dent* 2014;4(Suppl 1):S56-62.
22. Al-Wesabi AA, Abdelgawad F, Sasahara H, El Motayam K. Oral health knowledge, attitude and behaviour of dental students in a private university. *BDJ Open* 2019;5:1-5.
23. Doshi D, Baldava P, Anup N, Sequeira PS. A comparative evaluation of self-reported oral hygiene practices among medical and engineering university students with access to health-promotive dental care. *J Contemp Dent Pract* 2007;8:68-75.
24. Baseer MA, Alenazy MS, AlAsqah M, AlGabbani M, Mehkari A. Oral health knowledge, attitude and practices among health professionals in King Fahad Medical City, Riyadh. *Dent Res J* 2012;9:386-92.
25. Wahengbam PP, Kshetrimayum N, Wahengbam BS, Nandkeoliar T, Lyngdoh D. Assessment of oral health knowledge, attitude and self-care practice among adolescents-A state wise cross-sectional study in Manipur, North Eastern India. *J Clin Diagn Res* 2016;10:ZC65-70.
26. Hajj A, Hallit S, Azzo C, Abdou F, Akel M, Sacre H, *et al.* Assessment of knowledge, attitude and practice among community pharmacists towards dental care: A national cross sectional survey. *Saudi Pharm J* 2019;27:475-83.
27. Priya S, Madan Kumar PD, Ramachandran S. Knowledge and attitudes of pharmacists regarding oral health care and oral hygiene products in Chennai city. *Indian J Dent Res* 2008;9:104-8.
28. Anderson C. Health promotion in community pharmacy: The UK situation. *Patient Educ Couns* 2000;39:285-91.
29. Chessnutt IG, Taylor MM, Mallinson EJ. The provision of dental and oral health advice by community pharmacists. *Br Dent J* 1998;184:532-4.
30. Usman S, Bhat SS, Sargod SS. Oral health knowledge and behavior of clinical medical, dental and paramedical students in Mangalore. *J Oral Health Comm Dent* 2007;1:46-8.
31. Farsi JMA, Farghaly MM, Farsi N. Oral health knowledge, attitude and behavior among Saudi school students in Jeddah city. *J Dent* 2004;23:47-53.
32. Buxcey AJ, Morgaine KC, Meldrum AM, Cullinan MP. An exploratory study of the acceptability of delivering oral health information in community pharmacies. *N Z Dent J* 2012;108:19-24.
33. Emmanuel A, Chang'endo E. Oral health related behaviour, knowledge, attitudes and beliefs among secondary school students in Iringa municipality. *Dar Es Salaam Med Stud J* 2010;17:24-30.
34. Wyne AH, Chohan AN, Al-Abdulsalam Z, Al-Qedrah A, Al-Qahtani S. Oral health knowledge and sources of information among male secondary school children in Riyadh. *Saudi Dent J* 2005;17:140-5.
35. Aljrais MM, Ingle N, Assery MK. Oral-dental health knowledge, attitude and practice among dental and pharmacy students at Riyadh Elm University, KSA. *J Int Oral Health* 2018;10:198-205.
36. Jain R, Hiremath SS, Puranik MP, Puttaswamy B, Gaikwad R, Dupare R. Oral health related knowledge, attitude and practices among nursing students in Bangalore, India. *Nurs Midwifery Res J* 2015;11:87-95.
37. David J, Wang NJ, Astrom AN, Kuriokose S. Dental caries and associated factors in 12- year-old school children in Thiruvananthapuram, Kerala, India. *Int J Paediatr Dent* 2005;15:420-8.
38. Peng B, Peterson PE, Fan MW, Tai BJ. Oral health status and oral health behaviour of 12-year-old urban school children in the People's Republic of China. *Community Dent Health* 1997;14:238-44.