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#### **ORIGINAL RESEARCH**



# Knowledge, Attitude and Practice of Oral Health Promotion among Oral Health Providers in Kingdom of Saudi Arabia

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### ABSTRACT

**Aim:** This study was to establish a baseline level of knowledge, attitude, and practice (KAP) of oral health promotion (OHP) among oral health providers in Kingdom of Saudi Arabia. The study also described and evaluated the factors that facilitate or limit the practice of OHP and examined the relationship between the level of knowledge and attitude that practitioners have of OHP and their OHP practice.

**Materials and methods:** A cross-sectional questionnaire included demographic questions and questions on the KAP of oral health promotion. Out of 365 questionnaires that were disseminated, 106 questionnaires were fully completed. Cross-tabulation was conducted to establish factors associated with KAP scores. Logistic regression analysis was conducted to determine the factors that were associated with the practice of OHP.

**Results:** The baseline level of oral health providers' knowledge and attitude toward OHP was fair. Only a few providers have integrated OHP into their practice. Age of participants was significantly associated with knowledge of OHP among the providers. Also, there was a significant difference in mean attitude scores toward OHP by education level. The practice of OHP was significantly related to education level and facility type.

**Conclusion**: Further research focusing on different cities or geographical regions in the KSA is needed to validate this finding. Also, the finding supports the need for continuous training in OHP to ensure that health providers understand and apply OHP practices in their work.

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**Corresponding Author:** Mosa Ali Shubayr, Department of Preventive Dental Science, College of Dentistry, Jazan University, Jizan, Kingdom of Saudi Arabia, e-mail: mshubayr@ jazanu.edu.sa **Clinical significance:** Due to the scarcity of data that measure OHP among oral health providers in the KSA, proper education and training programs by governmental authorities are difficult to implement. This study will provide baseline measures for future investigations for academicians and practitioners, alike.

**Keywords:** Attitude, Knowledge, Oral health promotion, Oral health providers, Practice.

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#### INTRODUCTION

Most oral diseases can be easily prevented by observing daily oral care. A healthy individual with good oral health can speak, eat, and socialize with people comfortably without being embarrassed by their oral hygiene. Promoting established oral health guidelines can ensure that individuals all over the world have good oral health. Studies have shown that oral diseases share risk factors with chronic diseases like diabetes, cancer, cardiovascular conditions, and chronic respiratory illness. The related risk factors include binge drinking, the use of tobacco, and unhealthy dieting.<sup>1</sup> Oral health behaviors have important implications for general health and oral health promotion is an important strategy that can improve health and well-being.<sup>2</sup>

Oral health knowledge is essential for favorable oral health-related behaviors.<sup>3</sup> Numerous studies found a positive relationship between oral health status and the level of knowledge one has.<sup>4</sup> Due to the fact that clinical professional students exclusively pursue health promotion and preventive information, they should have high levels of knowledge in oral health which conforms to professional recommendations. According to Mouridian, et al.<sup>5</sup> factors, such as positive attitude and

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extensive knowledge about oral health among healthcare practitioners assist in the promotion of oral health care in the community and, consequently, enhance patients' quality of life.

Many researchers have revealed conflicting results when studying the knowledge, attitude, and behavior of health promotion among health practitioners. The finding of these studies, however, contribute to developing various health education and preventive programs, and other activities related to the enhancement of the community's level of oral health. These studies provided useful information on the factors that facilitate or limit the practice of promoting oral health and suggested guidelines for improving oral health among oral health professionals.<sup>6</sup>

Various factors influence oral health practices. Some of the factors include gender, level of education attainment, and the type of training received during health professional education. A comparative study of oral health behaviors, such as toothbrushing, flossing, professional polishing, and regular dental examinations among dentists and other healthcare providers found that dentists had better levels of oral health behaviors when compared to other healthcare providers.<sup>7</sup> Other healthcare providers had better dental behaviors compared to the general public.

Furthermore, nurses and medical care providers had better dental behaviors compared with corpsmen, medics, and paramedics. Generally, the survey noted a high compliance level, particularly among dentists, on oral health measures. Some studies showed that there is an exclusive reliance by dentists on oral presentation in delivering messages related to health promotion. Few practitioners utilized more than one source for their oral health promotion campaigns. These studies indicated that the delivery of oral health promotion and prevention services was substandard.<sup>8</sup>

The aim of this study was to establish a baseline level of KAP of OHP among oral health providers in KSA. The study also described and evaluated the factors that facilitate or limit the practice of OHP and examined the relationship between the level of knowledge and attitude that practitioners have of OHP and their OHP practice.

# MATERIALS AND METHODS

#### **Research Design**

The current study utilized a cross-sectional study design to examine KAP of oral health promotion among oral health practitioners in Jeddah City, KSA.

#### **Target Population**

The research project was conducted between May 2017 and April 2018. A list of the primary healthcare centers (PHCs) and hospitals which included a dental clinic was obtained from the Directorate of Health Affairs in Jeddah. A total of 44 PHCs and 9 hospitals were identified. Our study included oral health professionals (dentists, hygienists, and dental assistants) in Jeddah city, who worked in the Ministry of Health (MOH) primary healthcare clinics and hospitals with a dental component. Oral health providers in private clinics were excluded. The most recent statistics released by the MOH in 2017 do not specify oral health hygienists and dental assistants as stand-alone professional categories. Therefore, it is difficult to estimate the number of oral health providers working in Jeddah city, KSA. However, the number of dentists was 385.9

#### Procedure

A self-administered questionnaire was distributed to oral health practitioners in all 53 primary healthcare clinics (PHCs) and hospitals with dental clinics in Jeddah. After providing informed consent, the questionnaire left with the provider with expectations to complete the survey in one week.

#### **Study Instrument**

The questionnaire was developed in English and adapted with slight modifications from a previously validated and published questionnaire.<sup>10</sup> The questionnaire covered every construct that was helpful in meeting the aim and objectives of the study. The questionnaire included open and closed-ended questions. To maintain confidentiality, each participant received a unique code. A participant list that linked names and codes was maintained by the researcher.

#### Measurements

The first part of the questionnaire included questions about age, gender, nationality, education level, and work setting. The second part asked questions on knowledge about OHP. Ten statements were used to assess this variable. Correct responses received 1 point with knowledge scores ranging from 0 to 10. The scores for knowledge were grouped into three categories: low (0–6.0 points), fair (7–8 points) and good (9–10 points). In the third part of the questionnaire, respondents were asked about their attitude toward OHP. Participants rated 10 statements using a 5-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree). The maximum score for the attitude scale was 50 with higher scores indicating more positive

attitudes. Scores were classified into 3 categories: low (0–30.0 points), fair (30.1–40.0 points) and good (40.1–50 points). The final part of the survey included 11 questions about oral health promotion practice. Response options ranged from never1 to always.4 The maximum score for this scale was 44 with higher scores indicating increased OHP practice. The practice level was divided into three categories: low (0–26.4 points), fair (26.5–35.3 points) and good (35.4–44 points). Questions about direct contact with patients, language used while providing care and implementation of oral health promotion programs were added.

# **Data Analysis**

The questionnaire was precoded for entry into a database. IBM SPSS Statistics V25.0 was used to analyze the data. Scores for knowledge, attitude, and practice components were computed and categorized into 3 levels. Descriptive statistics in the form of percentages and means were utilized to provide an overview of each variable. Crosstabulation was conducted to establish factors associated with KAP scores. The significance level was set at 0.05. Logistic regression analysis was utilized to determine the factors associated with the practice of oral health promotion in the past year. Odds ratios and 95% confidence intervals were calculated.

# **Ethical Consideration**

This study was approved by the Institutional Review Boards at Meharry Medical College (NO: 17-04-708) and King Abdulaziz University (NO: 054-05-17).

# RESULTS

Out of 365 questionnaires that were disseminated, 106 questionnaires were fully completed which represents a response rate of 29.04%. There were 38.7% (n=41) participants working in hospitals and 61.3% (n=65) working in the primary healthcare centers of the participants, 61.3% were male oral health practitioners and 38.7% were female oral health providers. Majority of the oral health providers were aged between the ages of 25–30 years. The nationality of most of the study participants was Saudi Arabian representing 94.3% of the study participants while only 5.7% were not Saudis (Table 1).

Additionally, 55.7% had a Bachelor's degree. Nearly 20% had less than a Bachelor's degree (e.g. diplomas and certificates). In consideration of the oral health practitioners experience, 45.3% of the participants had 5 years or less experience. About 5% had more than 20 years of experience. Almost all of the participants (84%) received undergraduate dental education on

Table 1: Characteristics	of study participa	nts (n = 106)
Variables	Frequency	Percentage
Gender		
Male	65	61.3
Female	41	38.7
Age		
25–30	46	43.4
36–40	30	28.3
41–45	16	15.1
46–50	5	4.7
51–55	7	6.6
Nationality		
Saudi	100	94.3
Non-Saudi	6	5.7
Educational level		
< Bachelor's	21	19.8
= Bachelor's	59	55.7
>Bachelor's	26	24.5
Current working facility	20	
Hospitals	41	38.7
PHCs	65	61.3
Vears of experience (oral be	alth profession)	01.0
0-5 vears	48	45.3
6-10 years	32	30.2
11 15 years	15	1/ 1
16 20 years	6	57
	5	J.7
ZU years	C deveraduate laval	4./
Education about OHP at un		04.0
Yes	89	84.0
		16.0
Education about OHP at po	stgraduate level	00.0
Yes	24	22.6
NO	82	//.4
Received OHP training	00	
Yes	32	30.2
No	74	69.8
Received OHP certificate		
Yes	23	21.7
No	83	78.3
Facilities development and	implementation of	
oral healthcare programs		
Yes	67	63.2
No	39	36.8
Participation in oral healthc	are activities in the	e past 12 months
Yes	66	62.3
No	40	37.7
Knowledge about OHP		
Low	48	45.0
Fair	56	53.0
Good	2	2.0
Attitude toward OHP		
Low	7	7.0
Fair	53	50.0
Good	46	43.0
Practice of OHP		
Low	67	63.0
Fair	37	35.0
Good	2	2.0
Abbreviations: OHP oral health	promotion: PHCs n	rimary healthcare
centers	ρισποιοπ, εττοδ, μ	annary nearrieare

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oral health promotion. Only 22.6% of the participants reported receiving instruction on oral health promotion during postgraduate education. A large majority (69.8%) of the practitioners indicated that they had never received any training in oral health promotion. Only 21.7% reported receiving a certificate in oral health promotion. Participants were asked whether their facilities developed and implemented community oral healthcare programs and activities for the public. The results indicated that 63.2% of the participants reported that their facilities developed oral health programs for the public. When asked whether they had participated in any oral healthcare promotion activities in the past 12 months, 62.3% reported that they had (Table 1). The overall arithmetic mean and standard deviation (SD) of knowledge of oral health promotion was 6.25 and 1.80.

Cronbach's alpha was 0.76 for knowledge in this sample. The overall knowledge about oral health promotion among the respondents was fair. Most (53%) of the responding oral healthcare practitioners had fair knowledge, 45% had low knowledge, and only 2% had good knowledge about oral health promotion. In addition, the overall arithmetic mean and standard deviation of the attitude toward OHP was 39.40 and 5.55. Cronbach's alpha was 0.72 for attitude in this sample. The level of overall attitude toward OHP among the practitioners in the study was fair. The table also shows that 43% of the individual oral healthcare practitioners had a good level of attitude toward oral health promotion and 50% of practitioners had a fair level of OHP. Consequently, 7% of the oral health care practitioners had a low attitude toward OHP. Moreover, the overall arithmetic mean and standard deviation of the variable oral health promotion practice was 23.40 and 6.06, respectively. Cronbach's alpha was 0.76 for attitude in this sample. The level of overall practice on OHP among the practitioners in the study was low. Most (63%) of the responding oral healthcare practitioners had a low level of practice and 35% had fair practice and only 2% had a good practice of OHP (Table 2).

Table 3 shows results of independent t-test and one-way ANOVA test to determine if there are significant difference in mean oral health knowledge, attitude and practice scores based on experience as oral health practitioners, gender, age, education level, education in OHP, and type of facility. Only the age of participant was significantly associated with knowledge of OHP among oral health practitioners in KSA (p = 0.0.5). This result indicates that the older age group showed significantly better knowledge than the younger age group [ $\leq$  35 years:  $\% = 71.7, \mu = 6.03, SD = 1.93$ ) and >35 years:  $\% = 28.3, \mu =$ 6.80, SD = 1.32)]. Only the participant's level of education was significantly associated with attitude toward oral health promotion (p = 0.01). The providers with less than a bachelor's degree ( $\mu = 41.90$ , SD = 5.84) showed significantly better attitudes than the group with a bachelor's ( $\mu$  = 39.51, SD = 4.66) and more degree ( $\mu$  = 37.12, SD = 6.40). The study also found that the education level and facility type were significantly associated with the practice of oral health promotion (p < 0.05). The providers with less than a bachelor's degree exhibited significantly better practice of OHP ( $\mu$  = 26.33, SD = 6.61) compared to the group with a bachelor degree ( $\mu = 22.56$ , SD = 5.73) or more than a bachelor degree ( $\mu$ = 22.92, SD= 5.82). In addition, results indicate that providers who worked in PHCs ( $\mu$ = 24.40, SD= 5.91) had a better practice of OHP than the providers who worked in hospitals ( $\mu = 21.80$ , SD = 6.03). Gender (p = 0.31), age (p = 0.69), experience as oral health providers (p = 0.59), and education in OHP (p = 0.93) were not significant as influential factors of the practice of oral health promotion among oral health providers in KSA.

Logistic regression was conducted to establish the factors that influence the practice of oral health promotion in the past year among oral health providers (Table 4). The factors that were examined include; gender, age, education level, education in oral health promotion, type of facility, knowledge, and attitude toward OHP. The education level, education in OHP, type of facility, and

Variable	Level	Frequency	Percent	Mean	SD	
Knowledge				6.25	1.80	
	Low	48	45.3			
	Fair	56	52.8			
	Good	2	1.9			
Attitude				39.40	5.55	
	Low	7	6.6			
	Fair	53	50.0			
	Good	46	43.4			
Practice				23.40	6.06	
	Low	67	63.0			
	Fair	37	35.0			
	Good	2	2.0			

Table 3: Knowledge, attitude and practice of oral health promotion by gender, age, education level, experience as oral health providers, education in oral health promotion and type of facility

			,			51	,	
			Knowledge		Attitude		Practice	
Variables		N (%)	Mean (SD)	p value	Mean (SD)	p value	Mean(SD)	p value
Gender	Male	65 (61.3)	6.38 (1.72)	0.32 <sup>a</sup>	38.62 (5.52)	0.07 <sup>a</sup>	22.92 (5.54)	0.31 <sup>a</sup>
	Female	41 (38.7)	6.02 (1.93)		40.63 (5.44)		24.15 (6.81)	
<b>A c c</b>	≤35 years	76 (71.7)	6.03 (1.93)	0.05 <sup>a</sup>	38.80 (5.83)	0.08 <sup>a</sup>	23.25 (6.04)	0.69 <sup>a</sup>
Age	>35 years	30 (28.3)	6.80 (1.32)		40.90 (4.50)		23.77 (6.19)	
	< Bachelor's	21(19.8)	5.86(1.91)	0.27 <sup>b</sup>	41.90 (5.84)	0.01 <sup>b</sup>	26.33 (6.61)	0.04 <sup>b</sup>
Education Level	= Bachelor's	59 (55.7)	6.19(1.78)		39.51 (4.66)		22.56 (5.73)	
	> Bachelor's	26 (24.5)	6.69 (1.76)		37.12 (6.40)		22.92 (5.82)	
Experience	≤10 years	80 (75.5)	6.09 (1.88)	0.12 <sup>a</sup>	38.84 (5.81)	0.07 <sup>a</sup>	23.21 (6.01)	0.59 <sup>a</sup>
Experience	>10 years	26 (24.5)	6.73 (1.46)		41.12 (4.30)		23.96 (6.29)	
Education in OHP	Undergrad	59 (55.7)	6.17 (1.88)	0.63 <sup>a</sup>	39.39 (5.61)	0.99 <sup>a</sup>	23.44 (6.40)	
	Higher	47 (44.3)	6.34(1.72)		39.40(5.54)		23.34 (5.67)	0.93 <sup>a</sup>
Facility Type	Hospitals	41(38.7)	6.29 (1.94)	0.83 <sup>a</sup>	38.80(5.13)	0.39 <sup>a</sup>	21.80 (6.03)	0.008
	PHCs	65 (61.3)	6.22 (1.73)		39.77(5.80)		24.40 (5.91)	0.03

Abbreviations: PHCs, primary healthcare centers; OHP, oral health promotion; SD, standard deviation at-test used for significance; <sup>b</sup>ANOVA test used to test for significance

Table 4: Participation in oral health promotion activity in past 12 months by gender, age, education level, experience as oral health providers, education in OHP and type of facility (n = 106)

	N (%)				
Variables	Yes	No	p- value	OR	95 % C.I.
Gender					
Male	44 (41.5)	21 (19.8)	0.15	1.94	(0.701-5.32)
Female	22 (20.8)	19 (17.9)			
Age					
≤35 years	51 (48.1)	25 (23.6)	0.10	2.95	(1.00-8.71)
>35 years	15 (14.2)	15 (14.2)			
Education level					
< Bachelor's	15 (14.2)	6 (5.7)	0.5	8.87	(1.34–58.79)
=Bachelor's	34 (32.1)	25 (23.6)		1.94	(0.52-7.19)
> Bachelor's	17 (16.0)	9 (8.5)			
Experience					
≤10 years	50 (47.2)	30 (28.3)	0.93		
>10 years	16 (15.1)	10 (9.4)			
Education in OHP					
Undergraduate	31 (29.2)	28 (26.4)	0.02	0.35	(0.13-0.97)
More	35 (33.0)	12 (11.3)			
Facility type					
Hospitals	30 (28.3)	11 (10.4)	0.07	0.31	(0.10-0.94)
PHCs	38 (34.0)	29 (27.4)			
Knowledge of OHP	66 (62.3)	40 (37.7)	0.10	1.79	(1.28 - 2.51)
Attitude toward OHP	66 (62.3)	40 (37.7)	0.10	0.95	(0.86 -1.04)

Abbreviations: PHCs, primary healthcare centers; OHP, oral health promotion; OR, odd ratio; CI, confidence interval

knowledge were all associated with the practice of oral health promotion in the past 12 months among oral health providers in KSA. Adjusted for all other factors, the odds of practicing oral health promotion in the past year was about 9 times higher among participants with less than a bachelor's degree (OR, 8.87; 95% CI, 1.34-58.79) compared to those who have greater than a bachelor's degree. The odds of practicing oral health promotion in the past year is 65% less in participants who received OHP education in undergraduate studies compared to those who reported having OHP education during postgraduate studies after adjusting for other covariates (OR, 0.35; 95% CI, 0.13-0.97). Also, the odd of practicing oral health promotion in the past year is 69 % less among providers who worked in hospitals (OR, 0.31; 95% CI, 0.10 – 0.94) compared to providers who worked in PHCs. Lastly, as OHP knowledge increases, the odds of practicing OHP in the past year increase approximately 2 times (OR, 1.79; 95% CI, 1.28 - 2.51).

#### DISCUSSION

This study was the first study that evaluated KAP among oral health providers regarding oral health promotion in KSA. Therefore, the results of the present

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study were compared to the health promotion or oral health knowledge, attitude and practice of other health professionals.

Despite most of the participants indicating that they have participated in oral health promotion activities within the past 12 months, the study found that a relatively large proportion (37.7%) of the oral health practitioners did not participate in oral health promotion activities in the past 12 months. This is also replicated in health facilities strategies of developing and implementing community oral health activities and programs for the public in this study, where a large number (36.8%) of facilities did not develop or implement such activities and programs. This finding indicates that a high number of oral health providers in KSA do not take part in health promotion activities. This finding is consistent with various studies that have indicated that the level of awareness and preventative oral health care are low due to an inadequate level of organized oral health prevention and education programs as well as awareness campaigns among public and health providers.<sup>11-13</sup>

Healthcare facilities should develop and implement a variety of oral health promotion programs and activities to ensure public awareness, reduction in the number of oral health cases, and improve maintenance of oral hygiene habits. This is consistent with the suggestion by El Bcheraoui et al.<sup>12</sup> that MOH should develop and increase the implementation of education programs directed towards improving public awareness concerning oral health.

Based on the descriptive results of the study variables, the level of perceived knowledge of OHP among the surveyed oral health providers was fair. The finding of this study is better than the result in the study established by Baseer et al.<sup>11</sup> who found out that oral health knowledge was low among health professionals. Additionally, the study established that the level of perceived attitude towards oral health promotion among the practitioners in the study was also fair. This finding concurs with Baseer et al.<sup>14</sup> result that the participants had a negative attitude toward oral health. This study also established that the level of practice of oral health promotion among oral health practitioners in the study was low. This is consistent with the finding by Taukobong et al.<sup>10</sup>who found that a few of the physiotherapists actually incorporated health promotion activities while undertaking their practice. It can be speculated that the fair level of oral health promotion knowledge and attitude among oral health providers could be the main reason for low levels of practice.

Regarding the factors that influence KAP, this study found a significant difference in mean OHP knowledge by age of participants. Older participants had higher knowledge compared to younger participants. This finding is in alliance with the result of the study done by Taukobong et al.<sup>10</sup> This finding highlights the need for more educational programs for newly graduating dentists to extend the current knowledge regarding OHP. Additionally, there is a significant difference in the mean attitude and practice of OHP by education level. Our findings showed favorable attitude and higher practice of OHP among participants with less than a bachelor degree. This result might be related to the fact that most of these oral health providers with less than a bachelor's degree are either hygienists or dental assistants who tend to engage in oral health prevention services more than dentists and specialists do. Dentists and specialists in fields other than dental public health may be less likely to practice OHP and, hence, have less favorable attitudes towards the practice OHP. This result is in contrast to the result of the study done by Ahmed et al.<sup>6</sup> which found higher KAP of oral health with increasing academic year among dental students.

This study found that education level, education in OHP, type of facility and knowledge were significant in influencing the practice of OHP in the past 12 months. Providers who had less than a bachelor's degree, more continuous courses or training in OHP, worked in PHCs rather than hospitals and had higher OHP knowledge level, were more likely to report participating in OHP activities in the past year. Clearly, having more knowledge about OHP and participating in continuous education courses and training in OHP beyond undergraduate levels will promote the practice of OHP. The finding that oral health professionals with less than a bachelor's degree report more participation in OHP in the past year compared to professionals with a bachelor's degree or more confirms the earlier thought that hygienists who have associate degrees are more likely to practice OHP than dentists or dental specialists. Finally, since PHCs are rooted in providing primary prevention, one expects more preventive oral health care practices among providers in PHCs compared to those employed in hospitals which tend to provide services targeted at secondary or tertiary prevention of oral disease.<sup>15</sup>

There were several strengths of this study. This study was a cross-sectional study that allowed researchers to capture a snapshot of the target population regarding the KAP of OHP. Cross-sectional studies provide a quick and inexpensive method of collecting useful information. This study is particularly useful in informing the planning of education and training in OHP and allocating resources for its practice.

There are several limitations that should be considered when utilizing the results of this study. First, our data are cross-sectional and, hence, can be interpreted only as an association rather than a cause-effect relationship. Second, the study was conducted within a single city healthcare setting; hence, the findings of the study may not be generalizable to other populations of oral healthcare providers in other cities in KSA. However, since MOH providers have similar systems across all regions in the country, our study may represent the majority of MOH dental providers. Finally, the low response rate (29.04%) that was experienced based on the total number of a disseminated questionnaire to the initial sample of oral health practitioners. The time pressures of day-today work may impede the participation of oral health providers. This combined with a lack of incentives for participation may have been partly responsible for the low response rates. Although this response rate is low, it is approximately similar to the response rate (31.66%) in the study done by Raheel and Kujan<sup>16</sup> which was among health professionals in Riyadh, KSA.

Researchers should investigate effective strategies and training for improving oral health providers' participation in oral health promotion as the current study established that a relatively large proportion of oral health providers in KSA do not participate in oral health promotion annually. This can be supported by Taukobong, et al.<sup>10</sup> who highlighted the need for continuous training in health promotion so the health providers will be able to understand and apply health promotion practices in their work. Besides, exploring the knowledge, attitude, and practice of oral health promotion from the perspectives of the patients and family and the role they perceive to play, represents an important area for future research. It will go a long way in furthering our understanding of oral health awareness and promotion in the out-of-hospital setting.

# CONCLUSION

The baseline level of knowledge and attitude of OHP in KSA can be viewed as fair, as only a few practitioners have integrated OHP into their practice. Besides, high levels of KAP contribute significantly to increased activities and practices of OHP among oral health providers in the KSA. Age of participants was a significant predictor of knowledge of OHP among the practitioners. The education level of participants was associated with attitude toward OHP. And, the practice of OHP was significantly associated with education level and facility type. Lastly, this study found that education level, education in OHP, type of facility and knowledge were significant in influencing the practice of OHP in the past 12 months adjusted for all other factors. Further research focusing on different cities or geographical regions in the KSA is needed to validate these findings.

# SIGNIFICANCE OF THE STUDY

To the best of the researcher's knowledge, this study was the first study to evaluate knowledge, attitude, and practices of OHP among oral health providers in the KSA. So, there is no published research to explain the KAP of oral health promotion in the country. Due to the scarcity of data that measure OHP among oral health providers in the KSA, proper education and training programs by governmental authorities are difficult to implement. Thus, this study will provide baseline measures for future investigations for academicians and practitioners, alike. The authors hope to identify gaps that exist in the actual practice of OHP. Further, it is hoped that the findings of this study will benefit oral health professionals by enhancing the scope of oral health practice and related policies. This enhancement will reflect on improving oral health status among the population in the KSA. Finally, since maintaining consistent oral hygiene habits is not common among people in KSA, along with the limited use of healthcare services for oral disease prevention, there is a significant need for the promotion of oral health.12

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