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Evaluation of the knowledge, attitude, and practice of patients visiting Zanjan dental school about oral and dental hygiene in 2021

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ABSTRACT

Introduction: Oral health is one of the most important components of health and has a great impact on the quality of life. One of the strategies to promote oral health is to increase knowledge, attitude, and practice among people in the community. The aim of this study was to evaluate the level of knowledge, attitude, and practice of oral health in patients referred to Zanjan Dental School.

Materials and Methods: This cross-sectional study was performed on 196 patients referred to Zanjan Dental School and their knowledge, attitude, and practice regarding oral health were assessed using a valid and reliable questionnaire. After the necessary time to answer the questions, the questionnaires were collected and the obtained data were entered into the statistical software SPSS version 22. T-test, ANOVA, and Pearson correlation were used to determine the effect of gender, level of education, and age on patients' knowledge, attitude and practice, respectively. Significance level was also considered 0.05.

Results: The mean age of patients was 32.52±12.81 years and 97 patients (49.5%) were male. The mean and standard deviation of the knowledge score was 3.27±1.31 (moderate). This rate was 19.23±2.63 for attitude (good) and 3.25±1.38 (moderate) for performance. Patients' knowledge and practice were significantly higher in females (P=0.020 and P=0.009, respectively). Also, patients with university education provided higher knowledge, attitudes, and practice (P<0.001). Patients' age also had a significant but inverse relationship with knowledge, attitude, and practice (P<0.001).

Conclusion: The knowledge and practice of patients referred to Zanjan Dental School was moderate; although their attitude was at a good level. In order to increase patients' knowledge and practice, there is a need to provide solutions such as educational programs to different parts of society.

Keywords: Oral hygiene; Knowledge; Attitude; Practice.

Introduction

Oral and dental diseases are the most common human diseases and most people experience them during their lifetime [1]. Humans are very prone to dental caries due to their eating habits and lifestyle so that 99% of people suffer from dental caries with varying degrees during their lifetime. Moreover, 37% of teeth are lost due to dental caries [2,3]. Researches have shown that there is a significant correlation between the incidence of

teeth are lost due to dental caries [2,3]. Researches have shown that there is a significant correlation between the incidence of oral diseases and the occurrence of systemic diseases such as diabetes, cardiovascular disease, rheumatoid arthritis, renal function, and pneumonia. Oral disease costs governments dearly, accounting for between 5 and 10 percent of total health care costs [4,5]. Since dental plaque plays a major role in the etiology of gingival disease and dental caries, oral hygiene is very important to control dental diseases. Factors such as irregular brushing, dietary changes, easy access to carbohydrates, and reduced use of fluoride-containing toothpaste have accelerated the process of tooth decay in developing countries [6].

Oral health has a great impact on the quality of life. In this regard, the World Health Organization (WHO) repeatedly warns of the burden of oral problems and diseases in all countries and also emphasizes the reorientation of oral health care systems by focusing more on prevention programs [7]. Proper and acceptable oral health habits such as brushing (at least twice a day) are crucial in preventing dental and gingival diseases as well as maintaining oral health [8]. Oral health is one of the most important factors affecting the general health of any society. Currently, one of the problems of our society is not having enough knowledge and practice about oral health which is due to the inappropriate or insufficient regular programs promoting oral health awareness and behavior [9]. One of the strategies to promote oral health is to improve health knowledge. Improving the level of knowledge not only affects oral health but also the quality of life of individuals [10].

Numerous studies show different oral health awareness, attitudes, and practices in the community. Marneedi et al. described the knowledge, behavior, and attitudes of adult patients referred to dental clinics toward dental health as poor [11]. Rauniyar et al observed good knowledge but the low practice of patients referred to medical centers [12]. Abu-Gharbieh et al. showed appropriate awareness and dental health behavior in adults [13]. The results of studies by Vinodha et al. [14], Kapoor et al. [15], and Hussain et al. [16] also showed a low level of knowledge, attitude, and practice of oral health in the community. Because oral diseases have a high cost for governments and patients; the knowledge, attitude, and practice of individuals in society, especially patients, play an important role in shaping oral health beliefs. In addition, most studies have shown low attitudes and practices of oral health among patients. In the present study, the level of knowledge, attitude, and practice of patients referred to Zanjan Dental School regarding oral health was evaluated.

Materials and Methods

This study was a descriptive-analytical cross-sectional study in which a questionnaire was used to assess patient's knowledge, attitude and practice. The study population included patients referred to Zanjan Dental School in 2021. The results of Rauniyar et al.'s study [12] were used to calculate the sample size. The maximum sample size was estimated to be 196 patients with a 95% confidence level. The patients were chosen by convenience sampling. Inclusion criteria included patients referred to Zanjan Dental School. Also, patients who did not want to participate in the study were excluded.

In this study, the questionnaire by Rauniyar et al. [12] was used to assess patient's knowledge, attitude, and practice. The face and content validity of the questionnaire were evaluated qualitatively by asking 5 dental specialists. After grammatical considerations and using appropriate words, the content validity ratio (CVR) and content validity index (CVI) were calculated by considering the responses of 10 dental specialists. Then, the questionnaire was given to 20 patients, and to evaluate the reliability, Cronbach alpha was calculated. All the questions had acceptable validity ratio and index. Cronbach alpha coefficient was 0.95 which was acceptable. After obtaining written consent, the questionnaire was given to patients.

The questionnaire consisted of four separate sections. The first section was related to general information of patients including age, gender, and level of education. In the second section, patient's knowledge about oral health was assessed. In the third and fourth sections, there were questions to evaluate patients' attitudes and practice [12]. The knowledge section consisted of 6 three choice questions and for each correct answer, 1 point was considered. Also, for better understanding, each person's scores and patients' overall score were divided into three categories: poor knowledge (scores zero to 2), moderate knowledge (scores greater than 2 to 4), and good knowledge (scores greater than 4 to 6). The attitude section consisted of the 5 options Likert scale from strongly agree to strongly disagree, which were scored from 5 to 1. As this section contained 5 questions, the maximum score of attitude for each person was 25 and the minimum was 5. Also, for better understanding, each person's scores and the overall score of the patients were divided into three categories: poor attitude (scores 5 to 11.66), moderate attitude (scores higher than 11.66 to 18.32), and

good attitude (scores higher than 32/18 to 25). For the practice section, each question that was answered correctly was given a score of 1 and the question that was not answered properly or not answered was considered a score of zero. Given that this section consisted of 8 questions, the total score was 8. Also, for better understanding, the scores of each person and the overall score of the patients were divided into three categories: poor performance (scores zero to 2.66), moderate performance (scores higher than 2.66 to 5.33), and good performance (scores higher than 5.33 to 8).

Each patient was given time to read the questionnaire and answer the questions. Then, the questionnaires were collected and the data were entered into SPSS ver24 software. Qualitative data were presented as frequency (and percentage) and quantitative data as mean±standard deviation (SD). T-test was used to compare the means between the two groups and ANOVA (with LSD post hoc test) was used to compare more than two groups. Pearson correlation test was used to evaluate the effect of age on patients' knowledge, attitude, and practice. Significance levels in all statistical tests were considered less than 0.05.

Results

In this study, 196 patients with a mean age of 32.52 ±12.81 years were included. The minimum age was 14 and the maximum age was 67 years. In terms of gender distribution, 97 (49.5%) of patients were male and the rest of the participants were female. Only 30.6% of patients had academic education while 24.5% had diploma and 9.44% had sub-diploma education levels. The average knowledge, attitude, and practice of the participants in the study were calculated and the results are presented in Table 1. The mean and standard deviation of knowledge score was 3.27±1.31. This rate was 19.23±2.63 for attitude and 3.25±1.38 for practice. The results showed that the knowledge of the patients was moderate. Similarly, attitudes were in the good range while practice was in the moderate range.

In addition, the frequencies of patient's knowledge, attitude, and practice in terms of classification (poor, moderate, and good) were also calculated and the results are shown in Table 2. It is found that the frequency of patients with moderate knowledge, good attitude, and moderate performance was higher among patients. Then, the effect of gender on knowledge, attitude, and practice was assessed using t-test. The results are presented in Table 3. The mean score of awareness in females was 3.49 and in males was 3.06. This difference was statistically significant (P=0.020). The mean attitude score was 19.45 in females and 19.02 in males. This difference was not statistically significant (P=0.251). Finally, the average practice score in females and males were 3.51 and 3.00 respectively. This difference was statistically significant (P=0.009).

Then, the effect of education level on patient's knowledge, attitude, and practice was investigated. ANOVA test was used for comparison between the study groups. The knowledge of patients based on their educational levels is given in Table 4. There was a significant difference between the study groups (P<0.001). The results of the LSD post hoc test also showed that there was no significant difference between the two groups of sub-diploma and diploma (P=0.493). However, the differences between the academic group with sub-diploma and diploma were significant (P<0.001). The attitude of patients based on their educational levels is given in Table 5. There was a significant difference between the study groups (P<0.001). The results of the LSD post hoc test also showed that there was no significant difference between the two groups of sub-diploma and diploma (P=0.493). However, the differences between the academic group with sub-diploma and diploma were significant (P<0.001).

The practice of patients based on the educational levels is also given in Table 6. There was a significant difference between the study groups (P<0.001). The results of the LSD post hoc test showed that there was no significant difference between the two groups of sub-diploma and diploma (P=0.903). However, the differences between the academic group with sub-diploma and diploma were significant (P<0.001). Pearson correlation test was used to evaluate the effect of age on knowledge, attitude, and practice. The results are presented in Table 7. Pearson correlation coefficients for knowledge, attitude, and practice were -0.327, -0.277, and -0.369, respectively. A negative correlation coefficient indicates the inverse relationship between age and each of the factors of knowledge, attitude, and practice, which means that with age, knowledge, attitude, and practice decreased and this correlation was also significant (P<0.001).

Table 1. The results of knowledge, attitude, and practice of the study population.

Variable	Frequency	Min	Max.	Mean	SD	Range
Knowledge	196	0	6	3.27	1.31	Moderate
Attitude	196	13	25	19.23	2.63	Good
Practice	196	1	8	3.25	1.38	Moderate

Table 2. The frequency of patients based on knowledge, attitude, and practice categories.

	Poor		Moderate		Good	
	Frequency	%	Frequency	%	Frequency	%
Knowledge	51	26	137	69.9	8	4.1
Attitude	0	0	84	42.9	112	57.1
Practice	56	28.6	130	66.3	10	5.1

Table 3. The effect of gender distribution on knowledge, attitude, and practice.

Variable	Gender	Frequency	Mean	SD	Mean difference	P value
Knowledge	Female	97	3.49	1.24	0.43	0.020
	Male	99	3.06	1.35		
Attitude	Female	97	19.45	2.82	0.43	0.251
	Male	99	19.02	2.42		
Practice	Female	97	3.51	1.37	0.51	0.009
	Male	99	3.0	1.34		

Table 4. The effect of educational level on patients' knowledge.

Educational level	Frequency	Mean	SD	P value
Sub-diploma	88	2.78	1.28	<0.001
Diploma	48	3.14	1.11	
Academic	60	4.10	1.31	

Table 5. The effect of educational level on patients' attitude.

Educational level	Frequency	Mean	SD	P value
Sub-diploma	88	18.62	2.65	<0.001
Diploma	48	18.93	2.36	
Academic	60	20.36	2.48	

Table 6. The effect of educational level on patients' attitude.

Educational level	Frequency	Mean	SD	P value
Sub-diploma	88	2.90	1.43	<0.001
Diploma	48	2.93	1.93	
Academic	60	4.01	1.22	

Discussion

The results of the present study showed that patients referred to Zanjan Dental School have moderate knowledge about oral health while their attitude toward oral health was good. In addition, the practice of patients in terms of oral hygiene was moderate. Most patients were aware of the role of toothbrushes and their importance in oral health. However, only 50% of patients were aware of the importance of dental floss and 30% of them were aware of the importance of fluoride in oral health. The least knowledge was related to the role of sugar-free chewing gum after each meal to prevent dental caries, of which only 18% of patients were aware. Consistent with our study, Rauniyar et al. showed that 47% of patients referred to a medical center in Nepal were not sufficiently aware of flossing [12]. The rate in the study by Hoobi et al., which was performed on women referred to dental clinics in Baghdad, was 59%. They also showed that 40% of the women were not aware of fluoride mouthwashes [17]. Varies in awareness of flossing and fluoride use in different studies may be due to the differences in the study population.

In terms of practice, our study showed that 90% of patients brush their teeth at least once a day. About 28% of patients also brushed their tongues, and only 13% used dental floss to clean the interdental space. Similar to our study, Rauniyar et al. also showed that more than 90% of patients referred to a medical center in Nepal use a toothbrush to clean their teeth. However, they reported that 45% of patients flossed to clean the interdental areas, which was higher than in our study [12]. In cases of poor oral hygiene, a grayish-white deposit forms on the tongue, which is the main cause of bad breath and may also play a role in dental caries and periodontal disease. Therefore, cleaning the tongue is one of the most important issues in maintaining oral health [11]. Differences in items such as the study population, sample size, environmental factors, and training received can be the cause of differences in patient practices in previous studies.

Oral hygiene and awareness depend largely on the socio-economic situation. Goodarzy et al. also showed that the Iranian student's knowledge about oral health is moderate [18]. In countries with lower socioeconomic status, awareness and practice of oral hygiene have been lower. In this regard, Marneedi et al. showed poor knowledge, behavior, and attitude towards dental health in adult patients referred to dental clinics in India [11]. In contrast, Abu-Gharbieh et al. reported that adult's knowledge and behavior toward dental health in the United Arab Emirates was appropriate [13]. These studies show that nationality, which reflects the socio-economic status of a country, plays an important role in awareness and practice of oral health, and countries with better socio-economic status have higher awareness due to oral health education programs as well as better social status [13]. Finally, it seems that the level of knowledge, attitude, and practice of our patients is consistent with the socio-economic situation in our society. Oral health is also important for the overall health system. It should also be noted that the ultimate way to prevent oral diseases and other systemic conditions begins with educating patients [19]. The results of the present study showed that gender has a significant effect on patient's knowledge and practice regarding oral health so that in females, awareness and practice were higher. Abu-Gharbieh et al. also showed that adult patient's knowledge and behavior related to dental health are higher in females than males [13]. Lower awareness and practice in male patients can be related to their jobs as in Iran, many patients are workers who do not have enough time and interest to benefit from preventive oral health education.

Our study showed that the level of education has a significant and direct relationship with the scores of knowledge, attitude, and practice of patients. As patients education level increased, patient's knowledge, attitude, and practice also increased. In line with our study, Abu-Gharbieh et al. also showed that with increasing levels of education, patient's awareness and behavior towards oral health also increases [13]. Similar results were observed in the study of Gheibipour et al. [4]. As education increases, people have a better and more understanding of education and health programs and are better able to apply them in their lives as well as increase their awareness of health. The results of the present study showed that age has a significant and inverse effect on the knowledge, attitude, and practice of patients, and with increasing age, knowledge, attitude, and practice of patients were reduced. These results are consistent with the study by Abu-Gharbieh et al. [13] and the study by Gheibipour et al. [4]. The inverse effect of age on patient's knowledge, attitude, and practice may be due to the fact that older people are usually less literate and the level of literacy is directly related to knowledge, attitude, and practice [13]. Given that gender, education level, and age have a significant relationship in patient's knowledge and practice of oral health; it is better to consider these factors when providing oral health educational programs by governors as well as

presenting health programs by dentists [13]. One of the advantages of our study is the simultaneous evaluation of patients› knowledge, attitude, and practice. However, a questionnaire may not cover all topics related to oral health. In addition, this study was conducted as a single-center, and only the knowledge, attitude, and practice of patients referred to Zanjan Dental School were examined. It is suggested that the same study be conducted with the focus on multicenter in various regions of the country. Finally, multivariable tests were not used for the analysis to control the confounding variables. However, due to the limited number of variables in which knowledge, attitude, and practice have been reported based on them, the use of multivariable tests does not cause a significant change in the results.

Conclusion

According to the results of the present study, the knowledge and practice of patients referred to Zanjan Dental School were moderate; although their attitude was at a good level. In order to raise the knowledge and practice of the patients, there is a need to provide approaches such as preparing and distributing educational pamphlets among patients, providing oral health principles in schools, etc., which requires general policies by governments. Such programs reduce oral disease, including chronic diseases, especially periodontitis, which ultimately reduces health costs for both the government and the community.

Conflict of Interest

There is no conflict of interest to declare.

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