

AWARENESS OF DENTAL POST-EXTRACTION INSTRUCTIONS AMONG THE GENERAL PUBLIC IN RIYADH REGION, SAUDI ARABIA

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ABSTRACT

Background: Awareness of post-extraction instruction is essential to avoid any complications and untoward events after the removal of a tooth. Hence the purpose of the study was to assess the knowledge of dental post-extraction instructions among the general public in the Riyadh region of Saudi Arabia.

Materials and method: A descriptive cross-sectional survey was conducted among the general public [n=603, (male=147, female=456)] in the Riyadh region of Saudi Arabia. A reliable and valid questionnaire consisting of demographic information and 10 questions on post-extraction instructions was prepared and an online link of the questionnaire was shared through the social media platform. The questionnaire responses were collected and analysis was performed. Descriptive statistics, chi-square test, Mann-Whitney and Kruskal-Wallis tests were applied to compare the knowledge across different groups. A level of significance was set at $p < 0.05$.

Results: An overall mean knowledge score of 5.12 ± 1.34 was observed among the study participants. Comparison of mean knowledge between male vs female (4.88 vs 5.20, $p=0.004$) showed significantly higher knowledge of post-extraction instructions among females than males. While study participants aged 15-30 years (4.90) showed significantly lower mean knowledge of post-extraction instructions compared to 31-45 years (5.36) and 46-60 years (5.42) aged subjects ($p < 0.001$). While study subjects with graduate or higher (5.28) educational level showed significantly higher knowledge of post-extraction instructions than those of high school (4.93) and secondary school (4.87) ($p=0.026$).

Conclusion: The study participants from the Riyadh region demonstrated adequate knowledge of post-extraction instructions. Female, aged (46-60 years) people and those having graduate/above the level of education had more knowledge of post-extraction instructions compared to others.

Key words: Awareness, dental extraction, post-extraction, instructions, public.

Introduction

Tooth extraction is one of the most common procedures done in daily practice at dental clinics.¹⁻⁴ Patients are seen in dental clinics seeking extraction for many reasons, such as dental caries, periodontal disease, orthodontic treatment, trauma, tooth impaction, and Interruption/alignment problems.⁵⁻⁷

In Saudi Arabia, many studies were conducted to assess the reason for a dental extraction, and it was found that dental caries was in the first place in all age groups, while the periodontal disease was found second in patients 30 years and more. Also, gender distribution indicated that males underwent more extraction than females.⁸

A dental extraction is a multi-step process starting with a pre-operative assessment of the case clinically and radiographically followed by the extraction procedure and finally, postoperative care. These steps are essential to avoid any complications arising from extraction.⁹ Post-extraction care mainly depends on patient cooperation and commitment to preventing any complications. These complications may be seen after extraction and include; prolonged bleeding, Dry socket, maxillary sinus perforation, and post-extraction swelling.^{7,10-12} However, studies have reported that the patient's awareness of post-extraction care depends on education and socio-culture. By addressing these factors, post-extraction complications can be reduced or eliminated.

Moreover, after extraction, the instructions given to the patients could play an essential role in avoiding the post-

extraction complications.^{9, 10} Hence the dentist should educate and instruct the patient in simple, clear, understandable language about maintaining oral health at the extraction site. Emphasis on instructions to prevent complications should be given to the patient.¹³⁻¹⁵ Patients should be followed up after treatment to assess appropriate self-care.

Since extraction is the most common dental procedure among the general public there is a need to assess the level of awareness of post-extraction instructions. Hence this study aimed to assess the knowledge of dental post-extraction instructions among the general public in the Riyadh region of Saudi Arabia. The data obtained from this study will identify the gaps in knowledge of post-extraction instructions and accordingly helps to develop an educational program.

Materials and methods:

Ethical consideration: The study proposal was sent to the research center of Riyadh Elm University, and ethical approval was obtained (FRP/2020/291/348). Informed consent was obtained from the study participants before the study participation. The Confidentiality of the data was assured without recording individual identifiers.

Study design: A descriptive cross-sectional study was conducted among the general public in the Riyadh region of Saudi Arabia. A structured, close-ended, and self-administered online questionnaire was utilized in this study.

Study sample: The study sample included male and female adults aged 15 years and above who were active on social media (WhatsApp, Twitter, and Facebook).

Sample size: A minimum required sample of 384 was calculated by considering the margin of error 5%, confidence interval of 95%, and assuming a response distribution of 50%. However, 603 eligible subjects responded to the questionnaire without missing any of the questionnaire items.

Questionnaire content: The questionnaire consisted of participants' demographics (age, gender, and educational level) and the 10 items to assess the knowledge of dental post-extraction instructions. The questionnaire was constructed in Arabic and English languages by bilingual experts from the general dentistry department. The questionnaire included items on biting on gauze, duration of biting on gauze, correct method of biting on gauze to control

post-extraction bleeding, food, and beverages to be taken after extraction, duration of avoidance of smoking, rinsing and spitting blood, brushing of teeth, prevention of swelling and time to visit a dentist after tooth extraction. Face validity of the questionnaire was obtained by taking the opinion of the general dentist. While the reliability of the questionnaire was established by repeated administration of the questionnaire to twenty participants (Cronbach's $\alpha=0.80$).

Questionnaire administration: An electronic version of the questionnaire was developed by utilizing online Google forms, and the content authenticity was tested by the investigators. Once the content and responses were verified, the electronic link of the questionnaire was shared on the social media platform (WhatsApp, Twitter, and Facebook) to obtain the knowledge of post-extraction instruction. The correct response to a questionnaire item was scored one, and the incorrect responses were scored 0. Based on ten questionnaire items a scale ranging from 0-10 was constructed to assess the knowledge post-extraction instructions. The further scale is divided into two parts (0-5) indicating inadequate and (5.1-10) adequate knowledge of post-extraction instructions.

Statistical analysis:

All the questionnaire responses were downloaded and coded into the excel program. All the data was then transferred into the statistical analysis software (SPSS version 25, Armonk, NY, USA). The normality test indicated the non-normal distribution of the data. Descriptive statistics of frequency distribution, percentages, and mean \pm SD values were calculated for the variables. Categorical variables were analyzed by applying the Chi-square test. The mean knowledge score was compared among different demographic variables by applying non-parametric Mann-Whitney and Kruskal-Wallis tests. A p-value of less than 0.05 will be considered significant for all statistical purposes.

Results

Characteristics		n	%
Gender	Male	147	24.4%
	Female	456	75.6%
	Total	603	100.0%
Age	15 - 30 years	323	53.6%
	31- 45 years	165	27.4%
	46- 60 years	115	19.1%
	Total	603	100.0%

Education	Secondary	63	10.4%
	High school	197	32.7%
	Graduated and Above	343	56.9%
	Total	603	100.0%

Table 1: Characteristics of the study participants (n=603)

The characteristics of the study participants are displayed in Table 1. A total of 603 subjects participated in this study. The majority of the study participants were females 456 (75.6%), aged 15 - 30 years 323 (53.6%) having graduated and above the level of education 343 (56.9%).

The responses to the questionnaire items varied amongst the study participants. Most of the subjects 358 (59.4%) said that after tooth extraction one should bite on gauze for 30 minutes and 539 (89.4%) identified the correct way on biting

the gauze after tooth extraction (Figure 1). The majority of the participants 420 (69.7%) mentioned that the first meal should be taken after two hours of the tooth extraction. While 533 (88.4%) participants agreed that the cold and soft food and beverages should be taken after tooth extraction. More than half 322 (53.4%) agreed that smoking after tooth extraction should be avoided at least for 24 hours. Most of the subjects 434 (72.0%) said that rinsing and spitting after tooth extraction should be avoided for six hours. While the majority 567 (94.0%) of the subjects would like to spit out bloody saliva. When enquired about oral hygiene after tooth extraction less than half 273 (45.3%) agreed for usual brushing of teeth with rinsing by salt and warm water. The majority of the participants 515 (85.4%) agreed to visit their doctor if the bleeding did not stop after 24 hours after the extraction. However, less than half 283 (46.9%) of the subjects knew about the use of cold packs to prevent facial swelling after tooth extraction (Table 2).

Items	Questions	n	%	
1	After tooth extraction, one should bite on gauze for	30 minutes	358	59.4%
		1 hour	160	26.5%
		2 hours	85	14.1%
2	The proper way to bite on the gauze after tooth extraction (Figure 1)	A	539	89.4%
		B	64	10.6%
3	The first meal should be taken after tooth extraction	After 30 minutes	49	8.1%
		After 2 hours	420	69.7%
		After 6 hours	134	22.2%
4	Type of food and beverages allowed after tooth extraction	Hot and Hard	16	2.7%
		Cold and soft	533	88.4%
		Any type of food and beverages are allowed	54	9.0%
5	Smoking after tooth extraction should be avoided at least for	24 hours	322	53.4%
		48 hours	161	26.7%
		72 hours	120	19.9%
6	Rinsing and spitting after tooth extraction should be avoided for	6 hours	434	72.0%
		12 hours	85	14.1%
		24 hours	84	13.9%
7	In case there are bloody saliva one should	Spit this saliva out	567	94.0%
		Swallow it	36	6.0%
8	The day after tooth extraction patient should	Brush teeth as usual with rinsing by warm water and salt	273	45.3%
		Brush teeth only	70	11.6%
		Rinse with warm water and salt only	260	43.1%

9	When the patient should return to his/her doctor	If bleeding did not stop after 24 hours	515	85.4%
		If there is mild pain	14	2.3%
		If there are mildly swelling in the area	74	12.3%
10	To prevent facial swelling use	Warm pack	171	28.4%
		Cold pack	283	46.9%
		No need for any packs	149	24.7%

Table 2: Questionnaire items and responses (n=603)

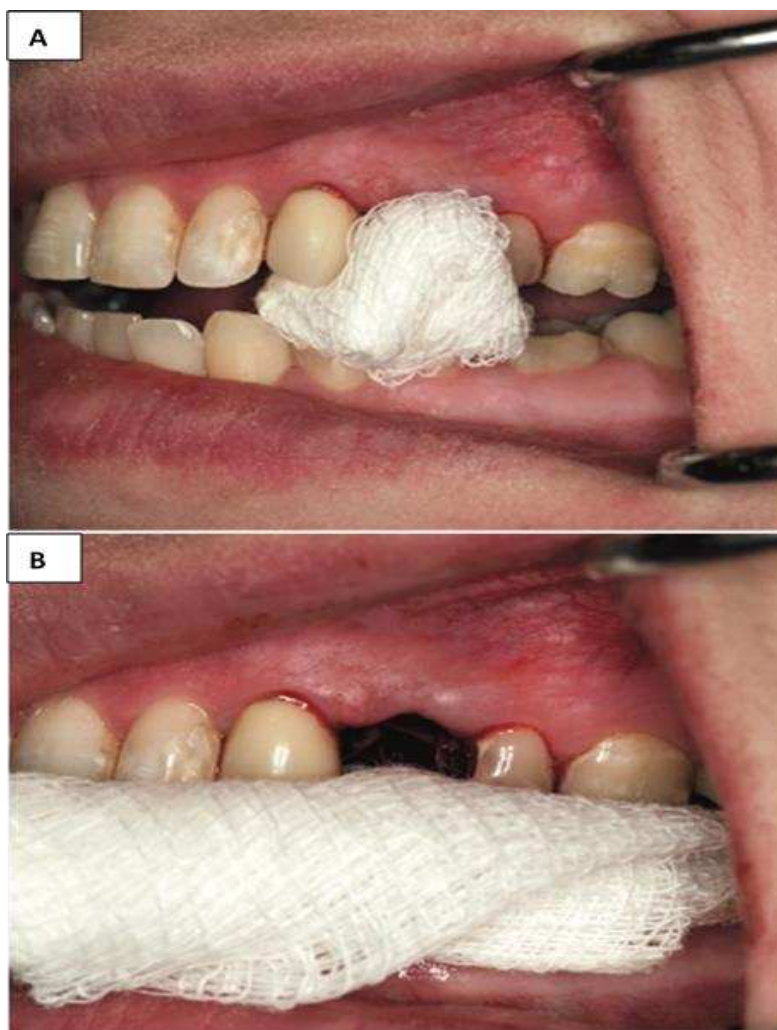


Figure 1: The proper way to bite on the gauze after tooth extraction (A=correct, B=Incorrect)

Items		Gender		Age (Years)			Education		
		Male	Female	15 -30	31- 45	46- 60	Sec	HS	≥Grad
Item 1	Incorrect %	81.0	87.5	87.6	81.8	87.0	92.1	87.8	83.7
	Correct %	19.0	12.5	12.4	18.2	13.0	7.9	12.2	16.3
	p	0.047*		0.206			0.137		
Item 2	Incorrect %	10.2	10.7	11.1	9.1	11.3	23.8	8.1	9.6
	Correct %	89.8	89.3	88.9	90.9	88.7	76.2	91.9	90.4
	p	0.853		0.757			0.001*		

Item 3	Incorrect %	44.2	25.9	35.6	21.8	27.8	36.5	30.5	29.2
	Correct %	55.8	74.1	64.4	78.2	72.2	63.5	69.5	70.8
	p	<0.001*			0.006*			0.506	
Item 4	Incorrect %	17.7	9.6	15.2	8.5	6.1	11.1	13.2	10.8
	Correct %	82.3	90.4	84.8	91.5	93.9	88.9	86.8	89.2
	p	0.008*			0.011*			0.696	
Item 5	Incorrect %	49.0	45.8	54.2	37.0	39.1	39.7	48.2	46.9
	Correct %	51.0	54.2	45.8	63.0	60.9	60.3	51.8	53.1
	p	0.506			<0.001*			0.488	
Item 6	Incorrect %	82.3	87.3	88.2	81.8	86.1	90.5	92.9	81.3
	Correct %	17.7	12.7	11.8	18.2	13.9	9.5	7.1	18.7
	p	0.130			0.153			0.001*	
Item 7	Incorrect %	89.8	95.4	94.7	92.1	94.8	88.9	95.9	93.9
	Correct %	10.2	4.6	5.3	7.9	5.2	11.1	4.1	6.1
	p	0.013*			0.478			0.119	
Item 8	Incorrect %	68.0	50.4	51.1	63.0	53.0	50.8	54.8	55.4
	Correct %	32.0	49.6	48.9	37.0	47.0	49.2	45.2	44.6
	p	<0.001*			0.040*			0.796	
Item 9	Incorrect %	15.6	14.3	18.3	12.1	7.8	19.0	18.8	11.4
	Correct %	84.4	85.7	81.7	87.9	92.2	81.0	81.2	88.6
	p	0.678			0.014*			0.036*	
Item10	Incorrect %	54.4	52.6	54.2	56.4	45.2	60.3	56.3	49.9
	Correct %	45.6	47.4	45.8	43.6	54.8	39.7	43.7	50.1
	p	0.705			0.155			0.165	
Sec=Secondary, High school=HS, Grad+ Graduates, *p<0.05									

Table 3: Comparison of questionnaire responses across different demographic variables

A significantly higher percentage of male compared to the females correctly answered post-extraction instruction to the item no 1 (19.0% vs. 12.5%, $p=0.047$), item no 7 (10.2% vs 4.6%, $p=0.013$). While significantly higher percentage of females correctly answered the item no 3 (55.8% vs 74.1%, $p<0.001$), item 4 (82.3% vs 90.4%, $p=0.008$) and item 8 (32.0% vs 49.6, $p<0.001$). Similarly, correct responses to the questionnaire items varied across different age groups. The study participants in age groups of 15 -30 years, 31- 45 years and 46- 60 years showed significant difference in knowledge of post-extraction with regards to the item 3 (64.4% vs 78.2%

vs 72.2, $p=0.006$), item 4 (84.8% vs 91.5% vs 93.9%, $p=0.011$), item 5 (45.8% vs 63.0% vs 60.9%, $p<0.001$), item 8 (48.9% vs 37.0% vs 47.0%, $p=0.040$) and item 9 (81.7% vs 87.9% vs 92.2%, $p=0.014$). The educational level (Secondary, High school and \geq Graduates) of the study participants also showed significant differences with regards to the percentage of correct responses to the item 2 (76.2% vs 91.9 vs 90.4, $p=0.001$), item 6 (9.5% vs 7.1% vs 18.7%, $p=0.001$) and item 9 (81.0% vs 81.2% vs 88.6%, $p=0.036$), as shown in (Table 3).

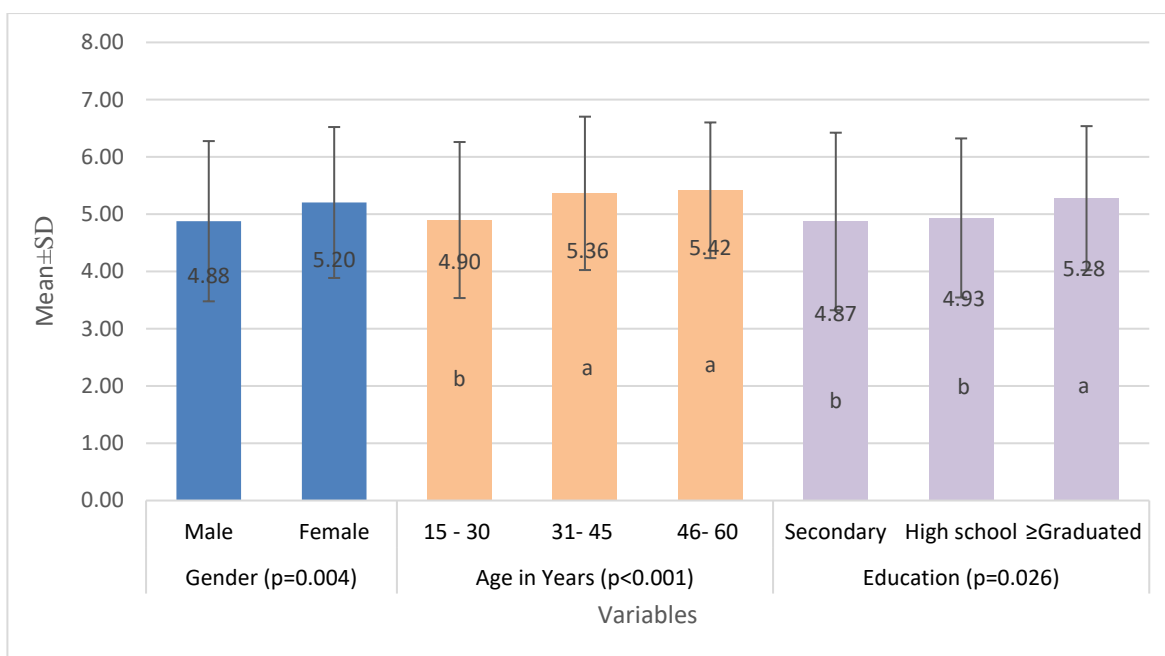


Figure 2: Comparison of mean knowledge score across different demographic variables

An overall mean knowledge score of 5.12 ± 1.34 was observed among the study participants. Comparison of mean knowledge between male vs female (4.88 vs 5.20, $p=0.004$) showed significantly higher knowledge of post-extraction instructions among females than males. While study participants aged 15-30 years (4.90) showed significantly lower mean knowledge of post-extraction instructions compared to 31-45 years (5.36) and 46-60 years (5.42) aged subjects ($p<0.001$). While study subjects with graduate or higher (5.28) educational level showed significantly higher knowledge of post-extraction instructions than those of high school (4.93) and secondary school (4.87) ($p=0.026$), as shown in (Figure 2).

Discussion

Oral health is an important part of general health and everyone is concerned about it. The most widely done surgical operation in dental hospitals is the extraction of non-restorable/retainable teeth. Comprehension and commitment to post-extraction care instructions are essential factors that affect the healing phase following extraction. In common post-extraction problems are limited. However, patients often suffer from neglect or lack of adequate post-extraction instructions. In such situations, most dentists are to be blamed for the issues. Hence the dentist should pass information about the post-extraction problems and their prevention. Dentists can also have written reports on post-extraction problems to avoid them. Verbal and written

details of post-extraction instructions should be provided to the patients to avoid any complications.¹³

The present cross-sectional study investigated the knowledge of dental post-extraction instructions among the general public in the Riyadh region of Saudi Arabia. A total of 603 subjects participated in this study. The results of the study showed an overall mean score of 5.12 ± 1.34 indicating adequate knowledge of post-extraction instruction.

As far as gender is concerned, females showed significantly higher mean knowledge scores towards post-extraction instructions than male participants. This may be because females are considered to be more conscious of their oral health than males. So they pay more attention and practice to prevent any post-extraction complications.¹⁴ Past research has observed that the females were more particular about their oral health and paid more attention to instructions. They also practiced oral hygiene instructions regularly.^{11,13} Our finding is similar to that reported by Jafar and Nor in which females showed higher knowledge of post-extraction instruction compared to the male.¹⁶ Moreover studies also found that the anxiety levels were higher among women than men.^{17,18} Hence, females demonstrated higher knowledge of post-extraction instructions than males.

In this study, participant's age is categorized into 15 -30 years, 31- 45 years, and 46- 60 years. As the age increased the mean knowledge score toward post-extraction instruction also increased suggesting higher knowledge among the elderly group. This could be explained by the fact

that elderly people more likely to undergo extraction and receive post-extraction information. While younger age groups were less likely to undergo extraction receive post-extraction information. Hence it can be observed that the mean knowledge score was significantly lower among younger age groups. Our finding is contrary to that reported by Al Sahafi et al, in which study subjects aged 31-45 years showed better knowledge of post-extraction instructions.¹⁴ More likely reason for their finding was that subjects above 31 years are more afraid of post-extraction complications and raised several concerns about the prevention of unpleasant happening and poor information recall.^{19,20}

In this study, participants having a graduate or higher education level demonstrated significantly higher mean knowledge of post-extraction instructions compared to secondary and high school educated subjects. This could be because the graduates or higher level educated participants were more likely to comprehend easily and pay more attention to the dentist's advice. On the contrary lower educated individuals come from lower socioeconomic class and more likely to have many health issues making it difficult to focus on post-extraction instructions given by the health professionals.^{21,22}

The present study findings have limited generalizability as it was targeted to the lay people from the Riyadh region only. Secondly, the cross-sectional nature of the study will not provide causal inference.²³ Further available evidence suggests that post-operative instructions after minor surgical procedures that target the lay people have low quality and cite articles of moderate-low level evidence to support their content.²⁴ Despite these limitations, this study has disclosed the current knowledge of laypersons towards post-extraction instructions. Further studies with a large sample size from Saudi Arabia are needed to explore the post-extraction concerns and confirm the present study findings.

Conclusion:

Within the study limitations, it can be concluded that the study participants from the Riyadh region demonstrated adequate knowledge of post-extraction instructions. Female, aged (46-60 years) people and those having graduate/above the level of education had more knowledge of post-extraction instructions compared to others.

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