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Factors Associated with Knowledge, Practice, and Prevention of Complication from Impacted Third Molar Surgery by General Dental Practitioners

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Abstract

Background: The goal of the study was to identify factors associated with awareness and general dental practitioners' practices toward managing complications from impacted third molar surgeries. As the jaw size is shrinking and third molar impactions are increasing, dentists should perform this de-impaction process without complications.

Materials and method: The current study used a descriptive, cross-sectional questionnaire design. The study involved dentists who worked at dental facilities in Jaipur city. By using a stratified random sampling procedure, the study samples were chosen. **Results:** The study comprised 147 dentists in all from 100 clinics. Results: It was found that the majority of research participants had intermediate awareness scores (65, 44.21%) and poor practice scores (79, 53.74%). The number of impaction surgeries performed each week (p=0.05*) and the number of impaction surgeries performed in your clinic (p=0.00*) were both strongly correlated with the study participants' practice.

Conclusion: Age and the average number of OPD visits per week were substantially correlated with participants' knowledge of how to handle complications from third molar surgeries. The number of impaction surgeries performed each week and surgeries performed in a clinic were strongly correlated with study participants' practices.

Keywords: Awareness, Complication, Dental, Practice, Prevention

Introduction

Impaction of the third molar, which is characterized as a pathological scenario when a tooth fails to acquire its normal functional position, is one of the most prevalent

dental issues experienced by a significant number of individuals. The research makes it clear that third molar impaction rates are greater than those for other teeth in the oral cavity. The most frequent cause of impaction of the mandibular third molar is insufficient space between the second mandibular molar and the anterior edge of the ramus of the jaw.[1]

In the realm of oral and maxillofacial surgery, extraction is the primary method of treating impacted third molars. Acute or chronic pericoronitis, the presence of a cyst or tumor, periodontal issues, and carious lesions in the second or third mandibular molars are all causes for tooth extraction.[2]

Third molars that are impacted can be surgically removed, although doing so can be extremely painful, swollen, and dysfunctional.[3] The causes of these sequelae are complicated, but many of them are linked to the inflammatory response brought on by the surgical trauma. Thoughtful surgical methods will slow this process down but not stop it.

The removal of impacted third molars may cause additional issues, some of which may be temporary or permanent, in addition to discomfort, edema, and trismus. Hemorrhage, alveolar osteitis, and damage to the inferior alveolar nerve are a few of the more frequent possible side effects. Other potential issues include oroantral communication and fistula, infection as a result of traumatic extraction, potential damage to neighboring teeth, excessive or incorrect force that can result in fracture of the maxillary tuberosity or at the angle of the mandible, and if sutures are not used appropriately that can result in periodontal pocket formation distal to second molar.[4-7]

It appears that the last problem described above is related to the surgical procedure.[8] The majority of these issues are transient, although paresthesia may occasionally become persistent and lead to other issues.[8-10]

In order to avoid difficulties following the extraction of an impacted third molar, dental surgeons are crucial. However, they should be properly aware of the signs and symptoms, and they should plan and handle such situations during and after surgery appropriately. Failure to do so might result in dire repercussions, including death.[11]

A previous study[12] revealed that dental professionals had a low level of knowledge and comfort regarding the extraction of an impacted third molar, whereas a subsequent study[13] by Farhadi F et al. found that general dentists had a moderate level of awareness regarding the risks associated with impacted third molar surgeries. The goal of the study is to identify factors associated with awareness and general dental practitioners' practices toward the management of complications from Impacted third Molar Surgeries because there hasn't been a study done to explore various factors related to dental practitioners' awareness and practice.

Materials And Method

The current study utilized a cross-sectional, questionnaire-based, descriptive design. The NIMS Dental College and Hospital in Jaipur, Rajasthan, provided the institutional ethics committee with the ethical authorization necessary to carry out the study. The study involved dentists who worked at dental facilities in Jaipur city. By using a stratified random sampling procedure, the study samples were chosen. North, south, east, west, and centre are the first five directions that are established for the city. Only general dental practitioners-run clinics were chosen from each direction's 20 clinics. The research consisted of 147

individuals from 100 clinics in total. The study was conducted during November and December of 2022.

A pilot research was carried out before to the start of the project to assess its viability and pretest the questionnaire. The internal consistency and reliability of the questionnaires were found to be (Chronbachs-Alpha = 0.81), according to the pilot research.

A closed-ended questionnaire was created to assess the general dentistry practitioners' awareness and practice. It is divided into three sections, the first of which includes demographic information and the number of patients seen and impacts performed each month. The second portion comprises nine questions about dental professionals' awareness, while the third part has six questions about practice. The scoring system for data analysis was 1 mark for a right response and 0 for an incorrect answer or a query that went unanswered. Concerning the practice questions The total score was between 0 and 24.

Statistical analysis

Demographic factors, awareness and practice scores were determined using a descriptive analysis, and data was presented as a number and a percentage. The chi square test was used to examine the relationship between dental professionals' knowledge and practice scores and their demographic characteristics. The p value remained around 5%.

Results

According to Table 1, 50 (34.01%) of the study's participants were between the ages of 29 and 33. 95 (64.62%) more men than women participated in the current study. 61 (41.49%) of the research participants had an average of 1 to 15 patients each week. 93 (63.26%) dental practitioners performed 0–5 impactions per week.

The majority of research participants, 79 (53.74%), have dealt with one to five issues. The most common side effect of impaction was dry socket, which was also mentioned by 51 (34.69%) of research participants. (table 2)

According to Table 3, out of the total study participants, 130 (88.44%) were aware of the potential difficulties following wisdom tooth extraction, whereas 59 (40.14%) of the dental professionals were aware of the various soft tissue concerns. After extraction, there was a 0.9%–6.7% probability of hemorrhage, according to 65 (44.33%) research participants. The most often impacted nerve following extraction of the third molar was the inferior alveolar nerve, which was 96 (65.30%). 104 people (70.76%) utilized zinc oxide eugenol to avoid dry socket. 51 (34.69%) of study participants handled complications after extraction on their own depending on the case done, while 76 (51.07%) of study participants recorded a complete case history with a thorough clinical and radiographic examination before planning de-impaction of wisdom teeth.

Table 4 displays the research participants' awareness and practice scores. It was found that the majority of research participants had intermediate awareness scores (65, 44.21%) and poor practice scores (79, 53.74%).

Applying the Chi-square test, Table 5 demonstrates a significant relationship between age (p=0.01*) and the average number of outpatient visits per week (p=00*) in the knowledge of research participants about the management of complications from Impacted third Molar Surgeries.

Discussion

As in the current study, which identifies several elements related to dental professionals' knowledge and practice, this is crucial in enhancing dentists' capacity to

manage potentially fatal complications following wisdom tooth extraction.

The majority of dental professionals in the current survey were males between the ages of 29 and 33, with an average amount of experience of 6 to 10 years. Most research participants in the Alenazy A et al. study[12] were male and between the ages of 24 and 30. The bulk of research participants had 1-6 years of job experience.

Osteitis was the primary problem found in the current investigation among dental practitioners. Studies by Muhonen A[14] et al. and Blondeau F[15] et al., in which osteoitis was the primary consequence, had similar findings.

The primary issues in the current study that contributed to the third molar's displacement were the surgeon's lack of expertise, the tooth's angulation, excessive or uncontrolled force, and insufficient clinical and radiographic exams. The same outcomes were observed in studies by Nusrath MA[16] and Esen E.[17] According to the majority of research participants, the inferior alveolar nerve was the nerve most frequently affected by the third molar's impaction in the current study. According to research by Blackburn CW et al[18], and Valmaseda-Castellon E[19] the inferior alveolar nerve (IAN), lingual, and mental nerves are the most vulnerable to damage. The lingual nerve is the most impacted in the research by Khan A et al [20]. The majority of research participants in the current study utilized dexamethasone to reduce edema and trismus after extraction. Similar findings were found in the study by Darawade DA et al.[21]

The majority of research participants in the current study had moderate awareness scores, and awareness was substantially correlated with age and the average OPD per week. The same outcomes were seen in the study by Farhadi F et al[13]. No significant correlation between awareness and age, gender, or job experience was found in the same research.

Future research should focus on other variables, including as drinking, smoking, and allergy history, in addition to other aspects of an individual's background.

It is imperative to carry out the de-impaction without incident in the modern day, when jaw size is shrinking and third molar impacts are growing more frequent. Compilations that result from de-impaction must be avoided since they may be harmful to a person's dental health, overall health, and occasionally even their life. Dentists in practice should frequently refresh their expertise to ensure that impacted third molar extractions go well.

Conclusion

According to the findings of the current study, dental practitioners have insufficient knowledge and practices for preventing post-operative complications after third molar extraction. Age and the average number of OPD visits per week were substantially correlated with participants' knowledge of how to handle complications from third molar surgeries. The number of impaction surgeries performed each week and surgeries performed in a clinic were strongly correlated with study participants' practices.

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Legend Tables

Table 1: Demographic details of study participants. (n=147)

Demographic Variables		Number (n)	Percentage (%)
Age in years	24-28 Years	43	29.25
	29-33 Years	50	34.01
	34-37 Years	28	19.04
	38-42 Years	26	17.70
	Total	147	100%
Gender	Male	95	64.62
	Female	52	35.38
	Total	147	100%
Year of Practice	1-5 years	57	38.77
	6-10 years	61	41.49
	More than 10 years	29	19.74
	Total	147	100%
Socioeconomic class	Upper	43	29.25
	Middle	62	42.17
	lower	42	28.58
	Total	147	100%
Average Number of OPD per week.	1-15	61	41.49
	16-30	48	32.65
	More than 30	38	25.86
	Total	147	100%
Average number of impaction surgery done per week.	0-5	93	63.26
	6-10	33	22.44
	More than 10	21	14.30
	Total	147	100%
Impaction surgery done in your clinic by	Self	65	44.21
	Oral Surgeon	54	36.73
	Other dental practitioners	28	19.06
	Total	147	100%

Table 2: Number of cases, severity of complications and type of complications.

		N (%)
How many cases post-extraction of wisdom teeth you had handled till now.	1-5	79 (53.74)
	6-10	48 (32.65)
	11-15	20 (13.61)
	Total	147 (100)
What are the severity of complication	High	11(7.47)
	Moderate	91 (61.90)
	low	45 (30.63)
	Total	147 (100)
What are main type of complications you encounter.	Nerve disturbances	06 (4.08)
	Hemorrhages	46 (31.29)
	Dry socket	51 (34.69)
	infection	44 (29.94)
	Total	147 (100)

Table 3: Awareness and practice of study participants towards prevention of complication from impacted third molar surgeries.

Awareness of complication among study participants		N (%)
What are the different post-operative complications associated with extraction of wisdom teeth?	Hard tissue	1 (0.68)
	Soft tissue	3 (2.04)
	Nerve related complication	10 (6.80)
	Sinus related complication	3 (2.04)
	All the above	130 (88.44)
	Total	147 (100)
What are the reasons behind displacement of lower third molar?	Angulation of the tooth	22 (14.96)
	Excessive or uncontrolled force	14 (9.52)
	Lack of experience of the surgeon	31 (21.08)
	Inadequate clinical and radiographic examinations	11 (7.48)
	All of the above	69 (46.96)
	Total	147 (100)
What are the different soft tissue complication during impaction of 3rd molar.	Bichat's fat pad	0 (0.0)
	hemorrhage and Hematoma formation	37 (25.17)
	surgical emphysema	51 (34.69)
	All the above	59 (40.14)
	Total	147 (100)

What are the chances of hemorrhage after 3rd molar surgery.	1.2%-7.4%	54 (36.73)
	0.2%-5.8%	28 (19.04)
	0.9%-6.7%	65 (44.33)
	Total	147 (100)
Most common nerves effected during impaction of 3rd molar.	Lingual nerve	21 (14.28)
	Inferior alveolar nerve	96 (65.30)
	Mental nerve	30 (20.42)
	Total	147 (100)
What is the most common method to prevent hemorrhage after 3rd molar surgery.	Intraoral gauze placement	67 (45.57)
	Suture placement	68 (46.25)
	Anti-Hemorrhage drugs	12 (8.18)
	Total	147 (100)
What is most common medicine given to prevent post-operative swelling.	Dexamethasone	121 (82.31)
	NSAIDs	21 (14.28)
	Methylprednisolone	05 (3.41)
	Total	147 (100)
Most common medicine given to prevent post-operative trismus	Dexamethasone	77 (52.38)
	NSAIDs	38 (25.85)
	Methylprednisolone	06 (4.08)
	No treatment	26 (17.68)
	Total	147 (100)
Most common medicine to prevent post-operative dry socket	Amoxicillin and Clavulanic acid	31 (21.08)
	Chlorhexidine mouth rinse	12 (8.16)
	Zinc oxide eugenol	104 (70.76)
	Total	147 (100)
Practice		
I record complete case history with clinical and radiological examination before planning extraction of wisdom teeth	Never	12 (8.16)
	Sometimes	76 (51.07)
	Depend on the case	41 (27.89)
	Always	18 (12.88)
	Total	147 (100)
I manage complication myself post extraction.	Never	28 (19.04)
	Sometimes	47 (31.97)
	Depend on the case	51 (34.69)
	Always	21 (14.3)

	Total	147 (100)
I take suggestion from senior dentist or Oral surgeon before starting the case.	Never	14 (9.52)
	Sometimes	92 (62.58)
	Depend on the case	31 (21.08)
	Always	10 (6.80)
	Total	147 (100)
I attend conferences, workshops related to prevention of complication of post-surgery.	Never	76 (51.70)
	Sometimes	44 (29.93)
	Depend on the case	20 (13.60)
	Always	07 (4.77)
	Total	147 (100)
I read articles, case report, books to improve my skills.	Never	85 (57.82)
	Sometimes	42 (28.57)
	Depend on the case	17 (11.56)
	Always	03 (2.05)
	Total	147 (100)
I explain in detail using simple language to patient regarding the complications before surgery.	Never	44 (29.93)
	Sometimes	36 (24.48)
	Depend on the case	49 (33.33)
	Always	18 (2.26)
	Total	147 (100)

Table 4: Awareness, Practice scores of study participants. (n=147)

Variables	Number of subjects	Percentage of subjects n (%)
Awareness	0-2 (Low)	51 (34.69)
	3-6 (moderate)	65 (44.21)
	7-9 (high)	31 (21.10)
	Total	147 (100%)
Practice	0-8(poor)	79 (53.74)
	9-16(fair)	46 (31.29)
	17-24(good)	22 (14.97)
	Total	147 (100%)

Table 5: Correlation analysis of demographic variables with awareness and practice of Dental professionals by using Chi-square test.

Demographic Variables	AWARENESS		PRACTICE	
	X^2value	p-value	X^2value	p-value
Age in years	3.409	0.01*	1.299	0.38
Gender	0.111	0.33	0.427	2.48
Year of Practice	2.189	1.29	1.823	0.24
Socioeconomic class	1.023	1.04	0.987	1.59
Average Number of OPD per week.	0.009	0.00*	2.590	0.55
Number of impaction surgery done per week.	0.365	0.94	1.345	0.05*
Impaction surgery done in your clinic by	4.559	1.02	3.398	0.00*

p value ≤ 0.05*