



ORIGINAL ARTICLE

Preoperative informed consent for mandibular third molar surgeries: A survey analysis in a subset of dentists and oral surgeons in Saudi Arabia

Mohammed Alkindi *

Department of Oral and Maxillofacial Surgery, College of Dentistry, King Saud University, Riyadh, Saudi Arabia

Received 18 September 2018; revised 17 November 2018; accepted 27 November 2018
Available online 3 December 2018

KEYWORDS

Informed consent;
Ethical standards;
Mandibular third molar surgery;
Dental malpractice

Abstract Objectives: The objective of this study was to identify patterns of obtaining preoperative informed consent from patients undergoing mandibular third molar surgeries, in a subset of general dentists and oral surgeons in Saudi Arabia, and to compare the consenting patterns based on the clinician's rank, years of experience, place of work and gender.

Methods: A prospective questionnaire based study was designed and data was obtained through an online survey from 102 participants who were selected for the study. Demographic information, clinician experience, type of informed consent obtained and information related to discussion of legal implications and complications were collected. Descriptive analysis of the obtained data and statistical comparisons using cross tabulation and Pearson Chi-Square test with a 95% significance level ($P < 0.05$) were done between the independent demographic variables and dependent variables pertaining to patterns of preoperative consenting.

Results: The survey response rate was 81.3% ($n = 83$), with 59.04% general dentists and 40.96% oral surgeons. The ratio of male to female respondents was approximately 3:1. Majority of the respondents reported a clinical experience of less than 10 years (77.11%) and were reportedly working in the private sector (73.49%). Nearly 80% of the respondents (79.52%) mentioned obtaining preoperative consent for mandibular third molar surgeries and was significantly higher (p -value = 0.018) among clinicians with more than 5 years of experience (90%). While 38.5% of the respondents indicated obtaining both a written and verbal consent, 53.01% obtained only a verbal consent. Majority of the respondents were aware of the legal implications of obtaining informed consent (81.93%) and disclosed incidental complications to their patients (91.57%). However, differences in the perceived post-operative complications associated with mandibular third molar surgeries were observed between general dentists and oral surgeons.

* Address: Department of Oral and Maxillofacial Surgery, College of Dentistry, King Saud University, Riyadh 11545, Saudi Arabia.
E-mail address: malkindi@ksu.edu.sa.

Peer review under responsibility of King Saud University.



Production and hosting by Elsevier

Conclusion: The results of this study indicate a good level of knowledge about informed consent for mandibular third molar surgery and its legal implications among the dentists and oral surgeons who were surveyed. However, to avoid painful medico-legal disputes, a written informed consent signed by patients along with a witness should be considered mandatory.

© 2018 The Author. Production and hosting by Elsevier B.V. on behalf of King Saud University. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Surgical extraction of mandibular third molars (wisdom teeth) is a common procedure carried out in the dental clinic. It is performed by oral surgeons and general dentists (with oral surgical training) for removal of non-restorable and impacted mandibular third molar teeth (Juodzbaly and Daugela, 2013). Nearly three fourths of all the mandibular third molar teeth requiring removal are impacted and fail to erupt into occlusion beyond their chronological age of eruption (Brauer, 2009; Juodzbaly and Daugela, 2013). Almost all of the mandibular third molars which are impacted and majority of those which are non-restorable require trans-alveolar or surgical extraction. Not only are these surgeries associated with varying degrees of difficulty, but also a wide range of complications have been reported following mandibular third molar surgeries (Atchison et al., 2005; Brauer, 2009).

As a result of which, mandibular third molar surgeries are associated with a greater degree of legal implications compared to other dental procedures (Hupp, 2007; Brosnam and Perry, 2009). With increasing patient awareness, it becomes the responsibility of every dentist or oral surgeon to inform their patients not only about the surgical procedures to be performed, but also about the associated risks and complications (O'Neill et al., 1996; Berian et al., 2016). Within the above context, the "informed consent" is a key ethical, legal and professional document protecting the rights of both the patient and the clinician (Main and Adair, 2015). While obtaining an informed consent from patients is a standard procedure before major surgeries, it is still considered a prerogative among oral surgeons and dentists performing mandibular third molar surgeries (Brosnam and Perry, 2009; Berian et al., 2016). In spite of it being mandated by law in a few countries (Main and Adair, 2015), there are no uniform protocols or practice guidelines being followed by dentists and oral surgeons for obtaining a consent prior to mandibular third molar surgeries (Brosnam and Perry, 2009; Ferrus-Torres et al., 2011; Badenoch-Jones et al., 2015; Chohda et al., 2015).

Although mandibular third molar surgeries have been reportedly associated with a large number of medical malpractice claims in Saudi Arabia (Al-Ammar and Guile, 2000), there is no data available in the literature regarding patterns of informing and obtaining consent from patients for such procedures. This is in spite of the fact that a majority of Saudi patients in the age group of 20–45 years had reportedly sought oral surgical treatment for removal of mandibular third molars (Hassan, 2010). Therefore the aim of the present study was to identify patterns of obtaining preoperative informed consent from patients undergoing mandibular third molar surgeries, through a survey analysis in a subset of general dentists and oral surgeons in Saudi Arabia, and to compare the consenting

patterns based on the clinician's rank, years of experience, place of work and gender.

2. Materials and methods

Following ethical approval from the institutional ethical committee, a descriptive cross-sectional survey was conducted among a subset of general dentists and oral surgeons in Saudi Arabia. The survey questionnaire was designed in two parts by the author based on previously reported studies (Brauer, 2009; Naidoo, 2010; Ferrus-Torres et al., 2011; Badenoch-Jones et al., 2015) and was tested for internal consistency by 3 independent observers. Furthermore, the reliability and validity of the questionnaire was evaluated using a pilot survey of 10 participants. The first part of the survey was designed to collect data pertaining to demographic details of the participants, clinical rank, and place of work and years of experience. The second part of the survey was aimed at identifying the patterns of preoperative consenting among the participants such as the nature of consent, informing patients about complications, awareness about legal implications and common postoperative complications informed to the patients and for which consent was obtained. (Fig. 1)

The sampling frame included the alumni who had graduated from the College of Dentistry, King Saud University, Saudi Arabia, between January 2000 and December 2014. In order to achieve randomization, an invitation to participate in the survey was electronically distributed to the entire sampling frame and survey participants were selected based on the following inclusion criteria:

- Completion of at least one full year of clinical work experience after internship training at College of Dentistry, King Saud University, Saudi Arabia.
- Self-reported ability to perform mandibular third molar surgeries under local anesthesia.
- Registered with the local health accreditation body (Saudi Commission for Health Specialties) either as a general dentist or as an oral surgeon.

Following selection of the study sample, an electronic survey questionnaire (Google Forms, Google LLC, Mountain View, CA, USA) was distributed to the selected sample along with a request to respond within a period of 2 weeks from the date of receipt of the questionnaire. The survey response data obtained from the electronic survey instrument, was entered into a Spreadsheet software (Microsoft Excel 2010, Microsoft Corporation, Redmond, WA, USA) using a coding sheet. Descriptive and comparative statistical analysis of the data was done using statistical software package (IBM SPSS Statistics Version 20, IBM Corporation, Armonk, NY, USA). Demographic details of the respondents, namely clinical rank,

A survey among dental practitioners to assess informed consent obtained for mandibular third molar surgeries in Saudi Arabia.

Dear colleague,

We are conducting a survey analysis to gather information about the patterns and practices of obtaining pre-operative informed consent for mandibular 3rd molar surgeries in Saudi Arabia.

The questionnaire would take about 2 minutes to complete. Please provide your responses to the questionnaire based on what you practice in your clinical setting.

Your responses and feedback are highly appreciated within 2 weeks time. In case of any queries or comments regarding the survey, you may contact the research team, whose contact details are given below.

Sincerely,

Research Team

Dr. Mohammed Alkindi (05*****)
 Dr. Yasser Al Ali (05*****)
 Dr. Ahmed Al Harbi (05*****)
 College of Dentistry, King Saud University

Demographic Data: (Please select whichever is applicable)

Years of experience	Gender	Clinical Rank	Place of Work
<input type="radio"/> <5 years	<input type="radio"/> Male	<input type="radio"/> General Dentist	<input type="radio"/> Private
<input type="radio"/> 5-10 years	<input type="radio"/> Female	<input type="radio"/> Oral Surgeon	<input type="radio"/> Government
<input type="radio"/> > 10 years			<input type="radio"/> Academic

• Do you perform surgical removal of mandibular 3rd molar teeth in your clinic?
 A. Yes B. No

If your answer is yes to the previous question please answer the below questions:

• Pre-operatively, do you obtain an informed consent from your patient regarding the possible complications of removing mandibular 3rd molar teeth?
 A. Yes B. No C. Sometimes

• Which mode of communication do you use to obtain an informed consent from your patient?
 A. written B. verbal C. Both

• Do you routinely have a person as a witness while obtaining informed consent from your patient?
 A. Yes B. No C. Sometimes

• Do you discuss with your patient the different treatment options including conservative management for mandibular 3rd molars?
 A. Yes B. No C. Sometimes

• Do you provide your patient with a contact number or an email to contact you in case of any post-operative problems?
 A. Yes B.No C. Sometimes

• In the event of an unexpected complication during surgery, either manageable by you or by another specialist, would you reveal it to your patient?
 A. Yes B. No C. Sometimes

• What are the possible complications of mandibular 3rd molar surgery that you inform your patient at the time of obtaining consent? (Please select as many as you think are applicable)

- Incomplete removal of tooth fragments.
- Bleeding and/or bruising.
- Pain.
- Swelling.
- Infection.
- Dry socket.
- Allergic reaction to local anesthetic/medications.
- Soft tissue injury e.g cheek laceration.
- Fractured jaw or maxillary tuberosity.
- Fractured roots or Fractured bone fragments.
- Trismus.
- Nerve injury.
- Adjacent tooth injury.

• Are you aware of the legal implications of obtaining an informed consent from your patient?
 A. Yes B. No

Fig. 1 Specimen survey questionnaire used to generate the electronic survey.

gender, years of experience and place of work were considered as the independent variables. Data from the questionnaire responses related to the patterns of preoperative consenting (obtaining consent, nature of consent, witness for consent, disclosing complications, and knowledge about legal implications) were regarded as the dependent variables. Cross-tabulation with Pearson Chi-square test was used to identify any statistically significant associations ($p < 0.05$) between the independent and dependent variables.

3. Results

A total of 477 alumni who graduated between January 2000 and December 2014 were identified from the old students' register of the College of Dentistry, King Saud University and were invited to participate in the present study. The invitations were accepted by 324 alumni and among them 102 (General dentists – 60; Oral surgeons – 42) were selected to participate in the survey, based on the inclusion criteria. Within the stipulated time of 2 weeks, the survey response rate was 81.3% ($n = 83$). More than half of the respondents were general dentists ($n = 49, 59.04%$) and the remaining were oral surgeons ($n = 34, 40.96%$). The ratio of male to female respondents was approximately 3:1 (males – $n = 64, 77.11%$; females – $n = 19, 22.89%$). Majority of the respondents reported a clin-

ical experience of less than 10 years ($n = 64, 77.11%$) and were reportedly working in the private sector ($n = 61, 73.49%$). Demographic characteristics of the survey respondents are detailed in Table 1.

Table 1 Demographic characteristics of the respondents.

Demographic data (N = 83)	
Clinical rank	
• General dentists	49 (59.04%)
• Oral surgeons	40.96%)
Gender	
• Males	64 (77.11%)
• Females	19 (22.89%)
Years of experience	
• Less than 5 years	33 (39.76%)
• Between 5 and 10 years	31 (37.35%)
• More than 10 years	19 (22.89%)
Place of work	
• Academic	5 (6.02%)
• Government	17 (20.48%)
• Private	61 (73.49%)

Table 2 Cross tabulation of independent and dependent variables.

Dependent variables (Responses to the survey questionnaire)		Overall data (N = 83)		Independent variables (Demographic characteristics of the participants)																	
				Clinical rank				Gender				Years of experience						Place of work			
				General dentists (n = 49)		Oral surgeons (n = 34)		Males (n = 64)		Females (n = 19)		< 5 years (n = 33)		5–10 years (n = 31)		> 10 years (n = 19)		Government (n = 22)		Private (n = 61)	
				n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Obtain preoperative informed consent from the patient	Yes	66	<i>79.52</i>	35	<i>71.4</i>	31	<i>91.2</i>	51	<i>79.7</i>	15	<i>78.9</i>	21	<i>63.6</i>	29*	93.5	16*	84.2	15	68.2	51	83.6
	No	5	<i>6.02</i>	4	<i>8.2</i>	1	<i>2.9</i>	4	<i>6.3</i>	1	<i>5.3</i>	5	<i>15.2</i>	0	<i>0.0</i>	0	<i>0.0</i>	2	9.1	3	4.9
	Sometimes	12	<i>14.46</i>	10	<i>20.4</i>	2	<i>5.9</i>	9	<i>14.1</i>	3	<i>15.8</i>	7	<i>21.2</i>	2	<i>6.5</i>	3	<i>15.8</i>	5	22.7	7	11.5
Nature of preoperative informed consent obtained	Written	7	<i>8.43</i>	4	<i>8.2</i>	3	<i>8.8</i>	5	<i>7.8</i>	2	<i>10.5</i>	2	<i>6.1</i>	5	<i>16.1</i>	0	<i>0.0</i>	2	9.1	5	8.2
	Verbal	44	<i>53.01</i>	25	<i>51.0</i>	19	<i>55.9</i>	36	<i>56.3</i>	8	<i>42.1</i>	18	<i>54.5</i>	16	<i>51.6</i>	10	<i>52.6</i>	8	36.4	36	59.0
	Both	32	<i>38.55</i>	20	<i>40.8</i>	12	<i>35.3</i>	23	<i>35.9</i>	9	<i>47.4</i>	13	<i>39.4</i>	10	<i>32.3</i>	9	<i>47.4</i>	12	54.5	20	32.8
Witness for preoperative informed consent	Yes	23	<i>27.71</i>	12	<i>24.5</i>	11	<i>32.4</i>	15	<i>23.4</i>	8	<i>42.1</i>	8	<i>24.2</i>	10	<i>32.3</i>	5	<i>26.3</i>	7	31.8	16	26.2
	No	22	<i>26.51</i>	12	<i>24.5</i>	10	<i>29.4</i>	19	<i>29.7</i>	3	<i>15.8</i>	7	<i>21.2</i>	8	<i>25.8</i>	7	<i>36.8</i>	8	36.4	14	23.0
	Sometimes	38	<i>45.78</i>	25	<i>51.0</i>	13	<i>38.2</i>	30	<i>46.9</i>	8	<i>42.1</i>	18	<i>54.5</i>	13	<i>41.9</i>	7	<i>36.8</i>	7	31.8	31	50.8
Disclosing complications of treatment to the patient	Yes	76	<i>91.57</i>	46	<i>93.9</i>	30	<i>88.2</i>	57	<i>89.1</i>	19	<i>100.0</i>	32	<i>97.0</i>	28	<i>90.3</i>	16	<i>84.2</i>	18	81.8	58*	95.1
	No	0	<i>0.00</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>	0	0.0	0	0.0
	Sometimes	7	<i>8.43</i>	3	<i>6.1</i>	4	<i>11.8</i>	7	<i>10.9</i>	0	<i>0.0</i>	1	<i>3.0</i>	3	<i>9.7</i>	3	<i>15.8</i>	4	18.2	3	4.9
Knowledge about legal implications of informed consent	Yes	68	<i>81.93</i>	39	<i>79.6</i>	29	<i>85.3</i>	53	<i>82.8</i>	15	<i>78.9</i>	24	<i>72.7</i>	28	<i>90.3</i>	16	<i>84.2</i>	7	31.8	61#	100.0
	No	15	<i>18.07</i>	10	<i>20.4</i>	5	<i>14.7</i>	11	<i>17.2</i>	4	<i>21.1</i>	9	<i>27.3</i>	3	<i>9.7</i>	3	<i>15.8</i>	15	68.2	0	0.0

The italic text represents the percentage.

The bold text represents sample number with statistical significance.

The bold italic text represents the corresponding percentage with statistical significance.

* $p < 0.05$.

$p < 0.01$.

Table 3 Cross tabulation between preoperative informed consenting and dependent variables.

Dependent variables (Responses to the survey questionnaire)		Obtain preoperative informed consent from the patient					
		Always		Never		Sometimes	
		n	%	n	%	n	%
Nature of preoperative informed consent obtained	Written	6	<i>9.1</i>	1	<i>20.0</i>	0	<i>0.0</i>
	Verbal	34	<i>51.5</i>	3	<i>60.0</i>	7	<i>58.3</i>
	Both	26	<i>39.4</i>	1	<i>20.0</i>	5	<i>41.7</i>
Witness for preoperative informed consent	Always	18	<i>27.3</i>	2	<i>40.0</i>	3	<i>25.0</i>
	Never	14	<i>21.2</i>	2	<i>40.0</i>	6	<i>50.0</i>
	Sometimes	34	<i>51.5</i>	1	<i>20.0</i>	3	<i>25.0</i>
Disclosing complications of treatment to the patient	Always	60	<i>90.9</i>	4	<i>80.0</i>	12	<i>100.0</i>
	Never	0	<i>0.0</i>	0	<i>0.0</i>	0	<i>0.0</i>
	Sometimes	6	<i>9.1</i>	1	<i>20.0</i>	0	<i>0.0</i>
Knowledge about legal implications of preoperative consent	Yes	55	<i>83.3</i>	4	<i>80.0</i>	9	<i>75.0</i>
	No	11	<i>16.7</i>	1	<i>20.0</i>	3	<i>25.0</i>

The italic text represents the percentage.

3.1. Bivariate analysis of the dependent and independent variables

The results of the bivariate analysis comparing the different dependent and independent variables are shown in [Tables 2](#) and [3](#).

3.1.1. Obtaining preoperative informed consent from the patient

Preoperative consent for mandibular third molar surgeries was obtained by majority of the survey respondents (79.52%, n = 66). 12 out of the 83 respondents (14.46%) reportedly obtained consent from patients only sometimes. Interestingly, a very small fraction of the participants (6.02%, n = 5) never obtained preoperative consent from their patients. Comparing the proportion of participants who always obtained consent, to the independent variables, no significant differences were observed between males (79.7%) and females (78.9%). While oral surgeons (91.2%) and private practitioners (83.6%) exhibited a greater tendency to preoperatively consent their patients, no statistically significant associations could be established. However, the years of experience of the participants showed statistically significant differences in the patterns of preoperative consenting amongst the participants ($p < 0.05$). Although 84.2% of participants with experience greater than 10 years and 93.5% of participants with experience between 5 and 10 years reported obtaining preoperative consent for all mandibular third molar surgeries, only 63.6% of participants with less than 5 years of experience agreed doing so ([Table 2](#)).

3.1.2. Nature of preoperative informed consent obtained

According to the respondents, preoperative consent was obtained either verbally (53.01%, n = 44) or in writing (8.43%, n = 7) or in combination (38.55%, n = 32). Comparing the reported nature of obtaining preoperative consent to the independent variables, no statistically significant differences were observed. With the exception of females (57.9%) and respondents working in governmental centers (63.6%), majority of the respondents irrespective of their clinical rank, gender, experience and place of work predominantly made

use of the verbal mode of preoperative consenting for mandibular third molar surgeries ([Table 2](#)). Even among those who reportedly obtained pre-operative consent for all patients with third molar surgeries, more than half of them (51.5%) obtained a verbal consent only ([Table 3](#)).

3.2. Witness for preoperative informed consent

Only 27.71% (n = 23) of the survey respondents, reportedly sought the presence of a witness during the time of preoperative consenting for mandibular third molar surgeries. Majority of them responded to having a witness for consent only at sometimes (45.78%, n = 25) and nearly a fourth of them (26.51%, n = 22) never sought the presence of a witness for consent. While no statistically significant differences in the responses towards witness for consenting were observed between the different categories of independent variables, most of the participants responded as never seeking a witness for preoperative consent or doing so only at sometimes ([Table 2](#)). Surprisingly, even among the respondents who always obtained a consent prior to mandibular third molar surgeries, only 27.3% (n = 18) realized the importance of witness for consent by seeking their presence at all instances ([Table 3](#)).

3.3. Disclosing complications of treatment to the patient

Nearly all of the respondents agreed to revealing complications of mandibular third molar surgeries, if any, to their patients. While 91.57% (n = 76) of the respondents disclosed complications to their patients always, 8.43% agreed doing so only at sometimes. Comparison between the responses relating to disclosure of treatment complications to the patient and the different categories of the independent variables revealed no statistically significant differences. However, general dentists (93.9%), female respondents (100%), junior practitioners with experience below 5 years (97%) and those working in private centers (95.1%) exhibited a greater likelihood for disclosing complications compared to the others ([Table 2](#)). Among respondents who always obtained a preoperative consent,

90.9% (n = 60) of them, always disclosed complications to their patients. Interestingly, 4 out of the 5 respondents who reportedly never obtained a preoperative consent for mandibular third molar surgeries agreed that they reveal complication to their patients at all times (Table 3).

3.4. Knowledge about legal implications of informed consent

Only 81.93% (n = 68) of the respondents were aware about the legal implications of obtaining a preoperative consent for mandibular third molar surgeries. A statistically significant difference between the knowledge about legal implications of consenting was found between respondents working in governmental (31.8%) and private centers (100%) ($p < 0.01$). Although statistically insignificant, oral surgeons (85.3%), male respondents (82.8%) and practitioners with 5–10 years of experience (90.3%) revealed better awareness about the legal implications of preoperative consenting in patients undergoing mandibular third molar surgeries (Table 2). While 16.7% of the respondents who always obtained a preoperative consent were unaware of its legal implications, 4 out of the 5 respondents who never obtained a preoperative consent were still aware of its legal implications (Table 3).

3.5. Perceived complications associated with mandibular third molar surgery

Among complications commonly associated with mandibular third molar surgeries, the respondents reportedly perceived postoperative pain (94%), mandible fracture (85.5%), allergic reactions to local anesthetic drugs (81.9%), fractured tooth or roots (79.5%), injury to adjacent teeth (79.5%) and infection (77.1%) as the most common. Dry socket (59%), injury to nerves (60.2%), post-operative swelling (61.4%), bleeding and bruising (62.7%) and postoperative trismus (73.5%) were perceived as less common. Interestingly, majority of the participants disregarded soft tissue injury (65.1%) as a complication associated with mandibular third molar surgeries. Statistically significant differences were not observed between general dentists and oral surgeons regarding their perceptions towards complications associated with mandibular third molar surgeries. However, a greater proportion of oral surgeons perceived infection and mandible fracture as potential complications in comparison to general dentists. Similarly, general dentists perceived bleeding, postoperative pain, dry socket and injury to nerves as greater potential complications than that perceived by oral surgeons.

4. Discussion

The results of the present study showed that most of the participants (93.98%) obtained a consent from their patients prior to mandibular third molar surgeries, either always (79.52%) or at least sometimes (14.46%). This was in coherence to studies reported from other parts of the world, wherein majority of the clinicians reportedly obtained consents prior to surgical extractions of the mandibular third molar (Badenoch-Jones et al., 2015; Chohda et al., 2015). The informed consent has been regarded as the most pertinent legal document obtained by a clinician from his or her patient and should be ideally in a written format (Ferrus-Torres et al., 2011; Chohda et al., 2015). In

the present study, more than half of the participants (53.01%) obtained only a verbal consent and the remaining participants either obtained a written consent or a combination of both written and verbal consents. Interestingly, 63.6% of participants who worked in a governmental clinical center obtained written consents, possibly mandated by workplace requirements. Lopez-Nicolas et al. (2007), reported that legally permissible verbal informed consent resulted in considerable degree of misinterpretation among clinicians in Spain and is only useful in providing information to the patient regarding the surgical procedure and its associated risks, and not legal enough to counter medical malpractice claims. Based on a study conducted in Switzerland, Kessler et al. (2000) reported that the process of combining written and oral information while obtaining informed consent resulted in better understanding and greater patient satisfaction.

In order to build a trustworthy relationship, clinicians must provide opportunities to the patients to be a part of their treatment decision making (Kessler et al., 2000; Coulter, 2002). In terms of written consent, the patient can read the printed information several times, show it to and discuss it with relatives and friends, and even use it as a guide through surgery (Edwards, 1990). Studies have shown that written consent has a high beneficial effect, and it helps to improve the patient's ability to understand the treatment procedure and the rationale behind it (Williams et al., 1995; Ghulam et al., 2006). Nevertheless, It is imperative that any clinical informed consent from the patient be obtained in the presence of a witness, who could either be the patients' bystander or a member of the clinical team other than the clinician himself or herself (Goodwin, 2004). The presence of a witness at the time of consenting enables fulfillment of legal responsibilities and ethical expectations. In the present study, only a minority of the participants (27.71%) sought the presence of a witness while obtaining consents from their patients. While healthcare institutional policies world-over have been emphasizing the importance of informed consent prior to any clinical procedure and the importance of the consent being legally witnessed, only 18 participants in this study reportedly realized the importance of the presence of a witness.

The primary purpose of obtaining an informed consent from the patient before any clinical procedure is to educate the patient about the proposed procedure, its nature and associated benefits and risks (Pape, 1997; Bates, 2001; Badenoch-Jones et al., 2015). While informed consent is a universally prescribed legal requirement, knowledge about its implications varies among clinical practitioners worldwide (Pape 1997; Badenoch-Jones et al., 2015; Main and Adair, 2015). In a study conducted by Badenoch-Jones et al. (2015) in Australia and New Zealand, the authors observed several inconsistencies regarding risk disclosure in informed consent among oral and maxillofacial surgeons, the largest group of clinicians performing mandibular third molar surgeries. Similarly, Chohda et al. (2015) reported very poor levels of adherence to consenting norms among clinicians in a district general hospital in the United Kingdom (UK), in spite of it being mandated by UK law (Main and Adair, 2015).

Although majority of the participants in the present study (81.9%) were aware of the legal implications of informed consent for third molar surgeries, participants working in private health care centers were significantly aware of the legal implications than those working in governmental health care

centers. Similarly, oral surgeons, male clinicians and clinicians with more than 5 years of experience reported greater knowledge about the legal implications of informed consent. Interestingly, obtaining an informed consent for mandibular third molar surgeries is merely a legal obligation and is not mandated by the law in Saudi Arabia (Al-Ammar and Guile, 2000; Aljarallah and Alrowaiss, 2013). Therefore, the threat of potential medical malpractice claims and subsequent stress and burden could be the reason behind clinicians in private centers being significantly aware about the legal implications of consent.

The responsibility of a clinician is not only to forewarn patients about impending risks and complications associated with a surgical procedure, but also to inform the patient about any complications that might occur during the procedure (Dym, 2012). Most of the participants (91.6%) in the present study always disclosed incidental complications to their patients. Surprisingly, general dentists with oral surgical experience and clinicians with less than 5 years of experience reported disclosing complications to their patients more often than oral surgeons and senior clinicians. It would be alluring to hypothesize that oral surgeons and senior clinicians tend to overlook the acceptance of minor complications by patients as a sign of tolerance and not leading to medico-legal issues. Nevertheless, clinicians performing mandibular third molar surgeries must be made aware of the fact that adverse outcomes following oral surgical procedures are reportedly associated with greater risk of litigation in comparison to other dental procedures worldwide (Dym, 2012) and in Saudi Arabia too (Al-Ammar and Guile, 2000). In light of the above evidence from literature, it is obligatory for the clinicians to always disclose incidental complications to their patients.

Differences in the perceptions between oral surgeons and general dentists, regarding possible complications associated with mandibular third molar surgeries were observed in this study. While bleeding, pain and injury to nerves were perceived as the most commonly associated complications by the general dentists, infection and mandibular fracture were regarded as the greatest risks by oral surgeons. This is in coherence to studies reported in the literature, wherein, only 30–60% of the oral and maxillofacial surgeons informed their patients pre-operatively about nerve injuries following mandibular third molar surgeries (Williams, 1996; Caissie et al., 2005; Ferrus-Torres et al., 2011). Although nerve injuries are not always associated with mandibular third molar removal, unfavorable anatomic location of the lingual and inferior alveolar nerves could be a cause for injury and significant post-operative neurosensory deficit (Swanson, 1991; Williams, 1996; Caissie et al., 2005; Boffano et al., 2012). While pain, hemorrhage, post-operative swelling and infection are possible complications associated with any oral surgical procedure, unusual complications such as immediate and delayed mandibular fracture, soft tissue injury to the lips, cheek, tongue or floor of the mouth, fascial space infections, trismus, iatrogenic nerve injury, displacement of teeth and instruments and soft tissue emphysema have also been reported following mandibular third molar surgeries (Yoshii et al., 2001; McGrath et al., 2003; Brauer, 2009; Boffano et al., 2012). Therefore, it is crucial that all clinicians performing mandibular third molar surgeries be aware of the gamut of complications that could arise as a result of

the procedure and suitably inform their patient about it and obtain their consent.

5. Conclusion

Considering the volume of medical malpractice claims related to mandibular third molar surgeries it is necessary to obtain a pre-operative written informed consent along with a witness. The informed consent shall not only explain the procedure in detail, but also elaborate on the rationale behind the procedure, alternative therapies, associated benefits, risks and complications. Within the limits of the present study, it can be concluded that the present study indicated a good level of knowledge about informed consent for mandibular third molar surgery and its legal implications among the participating dentists and oral surgeons. It must however be emphasized that, it is the legal responsibility of every clinician who performs mandibular third molar surgeries to obtain an informed consent from their patient and document it in order to avoid painful medico-legal disputes, even though it is not mandated by local laws. Future studies comparing patterns of pre-operative consenting to the clinical outcomes could be recommended to understand more about the medico-legal implications of informed consent.

Conflict of interest

The authors declared that there is no conflict of interest.

Acknowledgment

I'm greatly thankful to Dr. Ahmed Al-Harbi and Dr. Yasser Al-Ali for their great help and efforts in the research.

References

- Al-Ammar, W., Guile, E., 2000. A one-year survey of dental malpractice claims in Riyadh. *Saudi Dental J.* 12 (2), 95–99.
- Aljarallah, J.S., Alrowaiss, N., 2013. The pattern of medical errors and litigation against doctors in Saudi Arabia. *J. Family Commun. Med.* 20 (2), 98–105.
- Atchison, K.A., Black, E.E., et al, 2005. A qualitative report of patient problems and postoperative instructions. *J. Oral Maxillofac. Surg.* 63 (4), 449–456.
- Badenoch-Jones, E.K., Lynham, A.J., et al, 2015. Consent for third molar tooth extractions in australia and new zealand: a review of current practice. *Aust. Dent. J.*
- Bates, T., 2001. Ethics of consent to surgical treatment. *Br. J. Surg.* 88 (10), 1283–1284.
- Berian, J.R., Ko, C.Y., et al, 2016. Surgical professionalism: the inspiring surgeon of the modern era. *Ann. Surg.* 263 (3), 428–429.
- Boffano, P., Rocca, F., et al, 2012. Lingual nerve deficit following mandibular third molar removal: review of the literature and medicolegal considerations. *Oral. Surg. Oral Med. Oral Pathol. Oral Radiol.* 113 (3), e10–e18.
- Brauer, H.U., 2009. Unusual complications associated with third molar surgery: a systematic review. *Quintessence Int.* 40 (7), 565–572.
- Brosnam, T., Perry, M., 2009. “Informed” consent in adult patients: can we achieve a gold standard? *Br. J. Oral Maxillofac. Surg.* 47 (3), 186–190.

- Caissie, R., Goulet, J., et al, 2005. Iatrogenic paresthesia in the third division of the trigeminal nerve: 12 years of clinical experience. *J. Can. Dent. Assoc.* 71 (3), 185–190.
- Chohda, E., Doddi, S., et al, 2015. An audit of consenting practices in a district general hospital. Can we improve? *G. Chir.* 36 (6), 263–266.
- Coulter, A., 2002. Patients' views of the good doctor. *BMJ* 325 (7366), 668–669.
- Dym, H., 2012. Risk management in the dental office. *Dent. Clin. North Am.* 56 (1), 113–120. viii.
- Edwards, M.H., 1990. Satisfying patients' needs for surgical information. *Br. J. Surg.* 77 (4), 463–465.
- Ferrus-Torres, E., Valmaseda-Castellon, E., et al, 2011. Informed consent in oral surgery: the value of written information. *J. Oral Maxillofac. Surg.* 69 (1), 54–58.
- Ghulam, A.T., Kessler, M., et al, 2006. Patients' satisfaction with the preoperative informed consent procedure: a multicenter questionnaire survey in Switzerland. *Mayo Clin. Proc.* 81 (3), 307–312.
- Goodwin, J.A., 2004. Patient advocacy: witnessing informed consent for research in acute care. *Medsurg Nurs.* 13 (4), 227–231.
- Hassan, A.H., 2010. Pattern of third molar impaction in a Saudi population. *Clin. Cosmet. Investig. Dent.* 2, 109–113.
- Hupp, J.R., 2007. Legal implications of third molar removal. *Oral Maxillofac. Surg. Clin. North Am.* 19 (1), 129–136. viii.
- Juodzbalys, G., Daugela, P., 2013. Mandibular third molar impaction: review of literature and a proposal of a classification. *J. Oral Maxillofac. Res.* 4 (2), e1.
- Kessler, W., Faisst, K., et al, 2000. Quality control in patient education. Results of a patient survey about the patient education protocol of the Swiss Society of Surgery in 6 Swiss hospitals. *Swiss Surg.* 6 (1), 42–49. quiz 50–43.
- Lopez-Nicolas, M., Falcon, M., et al, 2007. Informed consent in dental malpractice claims. A retrospective study. *Int. Dent. J.* 57 (3), 168–172.
- Main, B.G., Adair, S.R., 2015. The changing face of informed consent. *Br. Dent. J.* 219 (7), 325–327.
- McGrath, C., Comfort, M.B., et al, 2003. Changes in life quality following third molar surgery—the immediate postoperative period. *Br. Dent. J.* 194 (5), 265–268. discussion 261.
- Naidoo, S., 2010. Dental ethics case. 3: Informed consent: risks and benefits of treatment. *SADJ* 65 (6), 270–271.
- O'Neill, P., Humphris, G.M., et al, 1996. The use of an information leaflet for patients undergoing wisdom tooth removal. *Br. J. Oral Maxillofac. Surg.* 34 (4), 331–334.
- Pape, T., 1997. Legal and ethical considerations of informed consent. *AORN J.* 65 (6), 1122–1127.
- Swanson, A.E., 1991. Incidence of inferior alveolar nerve injury in mandibular third molar surgery. *J. Can. Dent. Assoc.* 57 (4), 327–328.
- Williams, M., 1996. Post-operative nerve damage and the removal of the mandibular third molar: a matter of common consent. *Br. J. Oral Maxillofac. Surg.* 34 (5), 386–388.
- Williams, M.V., Parker, R.M., et al, 1995. Inadequate functional health literacy among patients at two public hospitals. *JAMA* 274 (21), 1677–1682.
- Yoshii, T., Hamamoto, Y., et al, 2001. Incidence of deep fascial space infection after surgical removal of the mandibular third molars. *J. Infect. Chemother.* 7 (1), 55–57.