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Original Research Article

Sign Language Use and its Knowledge among the Dental Students and Patients; A Sross-Sectional Study Done in Riyadh Elm University

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Introduction: Difficulty in communicating during dental procedures may lead to misunderstanding, dissatisfaction, and unpleasant patient experience. In some cases, a patient's consent is also misinterpreted, which negatively affects the dentist-patient relationship. Materials and methods: This is a cross-sectional study comprising of two surveys, one for the dental students while the other for patients. Questions for dental students included their gender, level of dentistry, identification of different signs used by the patients and dentists. Results: This study involved n=184 (44%) male along with n=232 (56%) female students. As far as the levels of dentistry were concerned, n=135 (33%) level 9, n=102 (25%) level 10, n=70 (17%) level 11 and n=109 (26%) level 12 students participated in this study. No significant comparisons were found when inquired about lectures as a source of sign language learning (p-value 0.589), sources other than college (p-value 0.933), frequency of using sign language with patients (p-value 0.626). Conclusions: No statistically significant difference was found on the basis of dentistry levels. No statistically significant comparisons were observed for any of the dental patient groups.

Keywords: Dentist-patient communication, Sign language, Patient satisfaction.

INTRODUCTION

Communication between dentist and the patient is one of the most important, but least focused topics. Several dentists unintentionally ignore the significance of message conveyance with their patients. Multiple studies have been conducted in order to measure the quality of communication during different phases of dental treatment. Generally speaking, patients find themselves unsatisfied when trying to communicate during dental treatment. They need to inquire about certain parts of the procedure but due to the fully engaged session of a dentist, they are not able to ask questions the way it would satisfy them (Waylen, Makoul and Albeyatti, 2015). Communication has evolved during the past few decades as a mode of information transfer in an effective manner. A successful patient-dentist relationship is a beginning of long term bond, which is initiated with strong communication (Anbuselvan et al, 2013).

An essential factor in developing healthy communication during or after the provision of dental treatment is the dentist's empathy towards the patients. The way a dentist feels for the patient directly affects the quality of the relationship they are going to develop. Empathy and communication go hand in hand, which is a true predictor of the extent of satisfaction the patient will achieve. Therefore, focusing on this factor, which is associated with patient-centered communication, will improve the dentist-patient relationship (Jones and Huggins, 2014).

Sign language is another important tool in developing a dentist-patient relationship. Although this has been mostly used to communicate with patients who are deaf or have some kind of disability, however, they can also be used during the treatment procedures when the patient is not able to speak. Sign language must be taught in undergraduate dental curriculum so that the communication can be made convenient (Jones and Cumberbatch, 2017; Maybury et al, 2013).

Speaking of difficulty in communicating during dental procedures, it may also lead to misunderstanding, dissatisfaction, and unpleasant patient experience. In some cases, patient's consent is also misinterpreted, which negatively affects the dentist-patient relationship. Training, as well as communication protocols, should be made compulsory for dental professionals (O'Dwyer, 2015).Dental students are trained to deal with their patients in a comprehensive setup, which includes treatment as well as management of the whole situation. Communication plays an integral role in affecting the positive outcomes of this relationship. Studies have shown that dental students with poor communicational skills tend to have

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lower confidence in treating their patients during undergraduate training (Yashoda et al, 2016; McKenzie, 2014).

Communication is also essential in providing preventive services for patients. In order to achieve that, one has to successfully deliver the message to the audience; this cannot be achieved if knowledge of sign language is flawed. Studies have taken place to assess the importance of communication when preventive services have to be provided (McKee et al, 2011). Additionally, failure in providing the required information to the patient may result in lawsuits. Therefore it is imperative for the dental professionals to prioritize the complete transition of information to avoid any confusion or misunderstanding (Sfikas, 2001).

AIMS OF THE STUDY

- To determine the knowledge and use of hand signs among dentists and patients.
- To compare between male and female students.
- To compare between different levels of dentistry.

MATERIALS AND METHODS

This is a cross-sectional study comprising of two surveys, one for the dental students while the other for patients. Questions for dental students included their gender, level of dentistry, identification of different signs used by the patients and dentists. The survey for patients included their gender, age group, identification of different signs used by the dentists and patients.

Sample

For female dental students, the achieved sample was 232.
For male dental students, the achieved sample was 184.
For patients, the achieved number of sample was 443.
The samples were calculated with 95% confidence interval.

After receiving the ethical approval from the Institutional review board, REU, subjects were asked to fill up the survey following their consent. Students from level 9 onwards were utilized, whereas the patients more than 18 years of age were included in this study.

Collected data were subjected to statistical analysis using SPSS version 19. Since the data was categorical, frequencies and chi-square test were used in order to achieve comparison between the variables. The value of significance will be kept under 0.05.

RESULTS

This study involved n=184 (44%) male along with n=232 (56%)female students. As far as the levels of dentistry were concerned, n=135 (33%) level 9, n=102 (25%) level 10, n=70 (17%) level 11 and n=109 (26%) level 12 students participated in this study (Figure 1, 2). We did a comparison between genders to assess the knowledge and practice of sign language (Table 1). No significant differences were found when inquired about the importance of communication between dentist and patient (p-value 0.304), lectures as a source of sign language learning (p-value 0.153), sources other than college (p-value 0.116), frequency of using sign language with patients (p-value 0.544) and use of sign language by the patients (0.776). As far as the knowledge of signs was concerned, female students showed better knowledge regarding signs including 'Pain' (p-value 0.824), 'I want to talk' (p-value 0.009), 'hurts a lot' (p-value 0.619), 'suction my mouth' (p-value 0.284), 'I want to scratch my face' (0.129), 'STOP' (p-value 0.011), 'I am OK' (p-value 0.007). Similar responses between genders were noted for 'hurts a little' sign (p-value 0.402).

We also compared the students on the basis of their dentistry levels (Table 2). Level 9 students believed in the majority as compared to other levels that communication is very important between dentist and patients (p-value 0.049). No significant comparisons were found when inquired about lectures as a source of sign language learning (p-value 0.589), sources other than college (p-value 0.933), frequency of using sign language with patients (p-value 0.626), how to know when patients want to communicate (p-value 0.626) and use of sign language by the patients (p-value 0.174). As far as knowledge of signs was concerned, level 9 showed better knowledge regarding 'hurts a little' (p-value 0.134), 'hurts a lot' (p-value 0.308), 'STOP' (p-value 0.346). Whereas, level 12 students revealed better information on the signs including 'Pain' (p-value 0.324), 'I want to talk' (p-value 0.126), 'suction my mouth' (p-value 0.781), 'I want to scratch my face' (p-value 0.212) and 'I am OK' (p-value 0.137).

Dental patients were also asked to fill up a survey to assess their knowledge of sign language. A total of N=443 patients participated in this study, with males n=184 (42%) and females n=259 (58%). Age groups and educational levels are also being demonstrated in figures 4, 5. As far as gender comparison was concerned (table 3), female patients tend to show better knowledge and use of sign language as compared to male patients. 'Pain' (p-value 0.633), 'hurts a little' (p-value 0.622) and 'STOP' (p-value 0.196). We also compared the patients on the basis of their age groups. A mixed response was found as both young and older age groups patients showed varying levels of knowledge. However, no significant values were recorded.

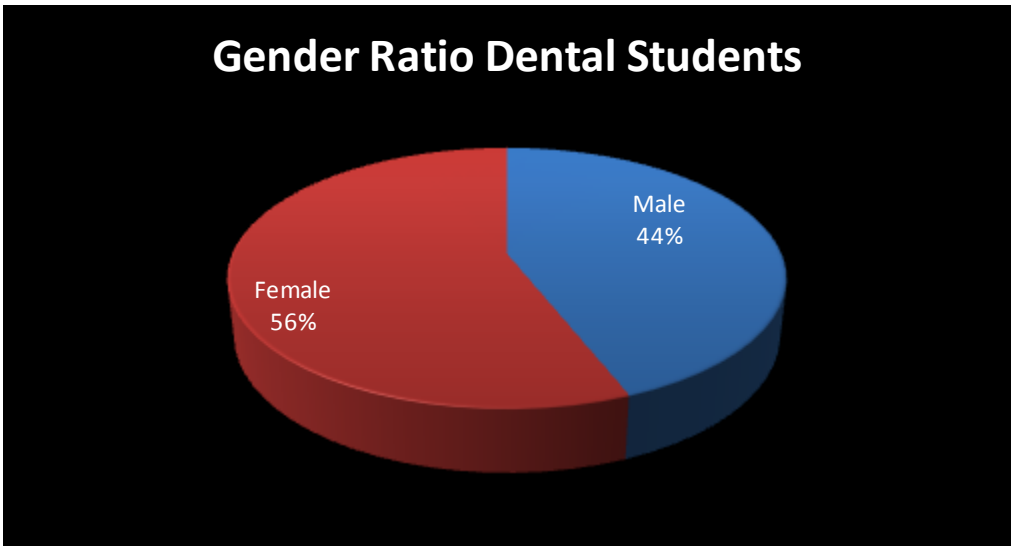


Figure 1: Gender ratio of the dental students taking part in this study

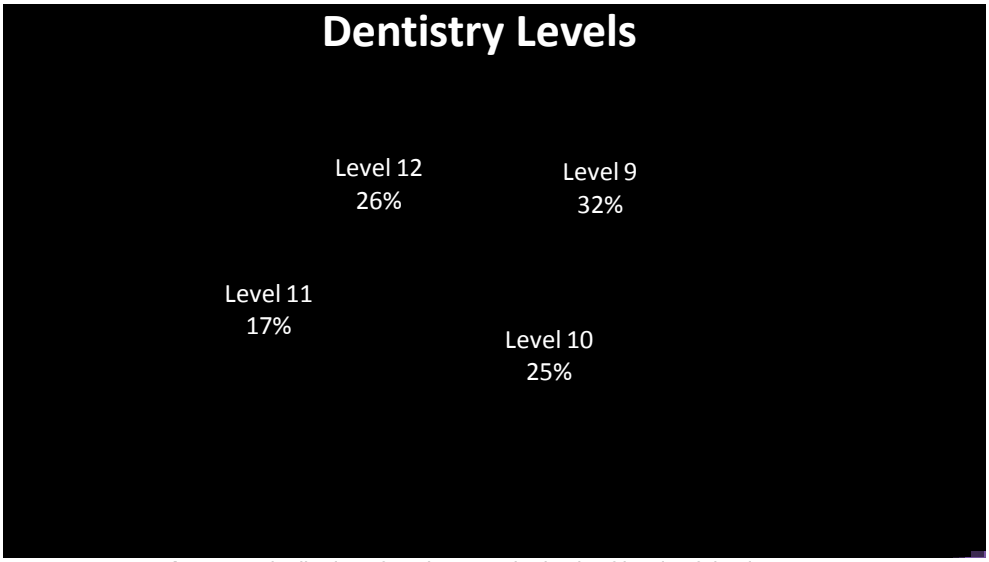


Figure 2: Distribution of students on the basis of levels of dentistry.

Table 1: Comparison of sign language survey questions between genders

Items	Males	Females	p-value
How important communication b/w dentist and patient is?	Very Important: 92% Not Important: 5% No Idea: 3%	Very Important: 92% Not Important: 3% No Idea: 5%	0.304
Have you learnt sign languages through a course in dentistry?	Yes: 30% Not sure: 29% No: 40%	Yes: 23% Not sure: 29% No: 48%	0.153
Have you learnt sign languages from sources other than college?	Yes: 47% No: 53%	Yes: 41% No: 59%	0.116

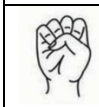
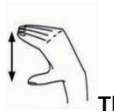
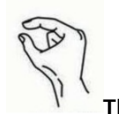
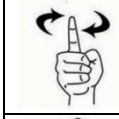
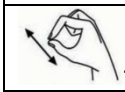
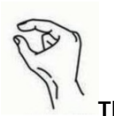
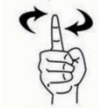
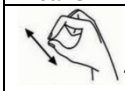
How do you know when your patient needs to communicate during procedure?	Hand sign: 67% Eyes movement:16% Facial expression:17%	Hand sign: 62% Eyes movement: 17% Facial expression:22%	0.414
How often do you use sign language with your patients?	Always: 30% Sometimes: 54% Never:15%	Always: 31% Sometimes: 50% Never:19%	0.544
Does your patient use sign language during treatment?	Always: 24% Sometimes: 63% Never:14%	Always: 23% Sometimes: 66% Never:12%	0.776
 **This sign means?**	Stop: 32% I am OK: 11% Pain:58%	Stop: 30% I am OK: 10% Pain:60%	0.824
 **This sign means?**	I want to scratch my face: 13% Rinse/suction my mouth: 24% I want to talk: 63%	I want to scratch my face: 13% Rinse/suction my mouth: 13% I want to talk: 74%	0.009
 **This sign means?**	Pain: 15% I am OK: 8% Hurts a little: 78%	Pain: 17% I am OK: 5% Hurts a little:78%	0.402
 **This sign means?**	Hurts a little: 9% Hurts a lot: 77% I want to talk:14%	Hurts a little: 7% Hurts a lot: 81% I want to talk:12%	0.619
 **This sign means?**	Rinse/suction my mouth: 76% I want to talk: 22% Hurts a little:2%	Rinse/suction my mouth: 79% I want to talk: 17% Hurts a little:4%	0.284
 **This sign means?**	Hurts a lot: 9% I want to scratch my face: 63% I want to talk: 28%	Hurts a lot: 13% I want to scratch my face: 67% I want to talk: 20%	0.129
 **This sign means?**	STOP: 66% I want to talk: 17% Pain:16%	STOP: 73% I want to talk: 8% Pain:19%	0.011
 This sign means?	I want to talk: 13% I am OK: 84% Hurts a little:3%	I want to talk: 4% I am OK: 90% Hurts a little:6%	0.007

Table 2: Comparison of survey questions on the basis of dentistry level

Items	Level 9	Level 10	Level 11	Level 12	p-value
How important communication b/w dentist and patient is?	Very Important: 96% Not Important: 2% No Idea: 2%	Very Important: 91% Not Important: 4% No Idea: 5%	Very Important: 83% Not Important: 7% No Idea: 10%	Very Important: 94% Not Important: 3% No Idea: 3%	0.049
Have you learnt sign languages through a course in dentistry?	Yes: 33% Not sure: 27% No: 40%	Yes: 23% Not sure: 49% No: 30%	Yes:26% Not sure:44% No: 30%	Yes:22% Not sure: 47% No:31%	0.589
Have you learnt sign languages from sources other than college?	Yes: 45% No: 55%	Yes: 43% No: 57%	Yes: 41% No: 59%	Yes: 45% No: 55%	0.933
How do you know when your patient needs to communicate during procedure?	Hand sign: 64% Eyes movement:19% Facial expression:17%	Hand sign: 63% Eyes movement: 20% Facial expression:17%	Hand sign: 67% Eyes movement:11% Facial expression:22%	Hand sign: 65% Eyes movement: 13% Facial expression:22%	0.626
How often do you	Always: 36%	Always:23%	Always: 37%	Always:27%	0.174

use sign language with your patients?	Sometimes: 49% Never:15%	Sometimes: 61% Never:16%	Sometimes: 43% Never:20%	Sometimes: 53% Never:20%	
Does your patient use sign language during treatment?	Always: 24% Sometimes: 63% Never:13%	Always:22% Sometimes:72% Never:6%	Always:30% Sometimes: 51% Never:19%	Always:19% Sometimes:67% Never:14%	0.095
 **This sign means?**	Stop: 27% I am OK:10% Pain:63%	Stop: 34% I am OK:15% Pain:51%	Stop:37% I am OK:9% Pain:54%	Stop:28% I am OK:7% Pain:65%	0.324
 **This sign means?**	I want to scratch my face: 14% Rinse/suction my mouth: 14% I want to talk: 72%	I want to scratch my face: 12% Rinse/suction my mouth: 22% I want to talk: 68%	I want to scratch my face: 21% Rinse/suction my mouth: 20% I want to talk: 59%	I want to scratch my face: 8% Rinse/suction my mouth: 17% I want to talk:75%	0.126
 **This sign means?**	Pain: 10% I am OK:6% Hurts a little: 84%	Pain: 17% I am OK:7% Hurts a little:75%	Pain: 25% I am OK:7% Hurts a little: 69%	Pain: 13% I am OK:6% Hurts a little:81%	0.134
 **This sign means?**	Hurts a little: 4% Hurts a lot: 84% I want to talk:12%	Hurts a little: 8% Hurts a lot: 78% I want to talk:14%	Hurts a little: 11% Hurts a lot: 71% I want to talk:18%	Hurts a little: 9% Hurts a lot: 81% I want to talk:10%	0.308
 **This sign means?**	Rinse/suction my mouth: 76% I want to talk:20% Hurts a little:4%	Rinse/suction my mouth: 80% I want to talk: 18% Hurts a little:2%	Rinse/suction my mouth: 71% I want to talk: 24% Hurts a little:5%	Rinse/suction my mouth: 83% I want to talk:15% Hurts a little:2%	0.781
 **This sign means?**	Hurts a lot: 13% I want to scratch my face: 65% I want to talk: 22%	Hurts a lot: 8% I want to scratch my face: 60% I want to talk: 32%	Hurts a lot: 11% I want to scratch my face: 66% I want to talk: 23%	Hurts a lot: 12% I want to scratch my face:71% I want to talk: 17%	0.212
 **This sign means?**	STOP: 76% I want to talk: 9% Pain:15%	STOP:63% I want to talk: 15% Pain:22%	STOP: 67% I want to talk: 14% Pain:19%	STOP:73% I want to talk: 12% Pain:15%	0.346
 This sign means?	I want to talk: 7% I am OK:89% Hurts a little:4%	I want to talk: 13% I am OK: 83% Hurts a little:4%	I want to talk: 6% I am OK:86% Hurts a little:8%	I want to talk: 6% I am OK:92% Hurts a little:2%	0.137

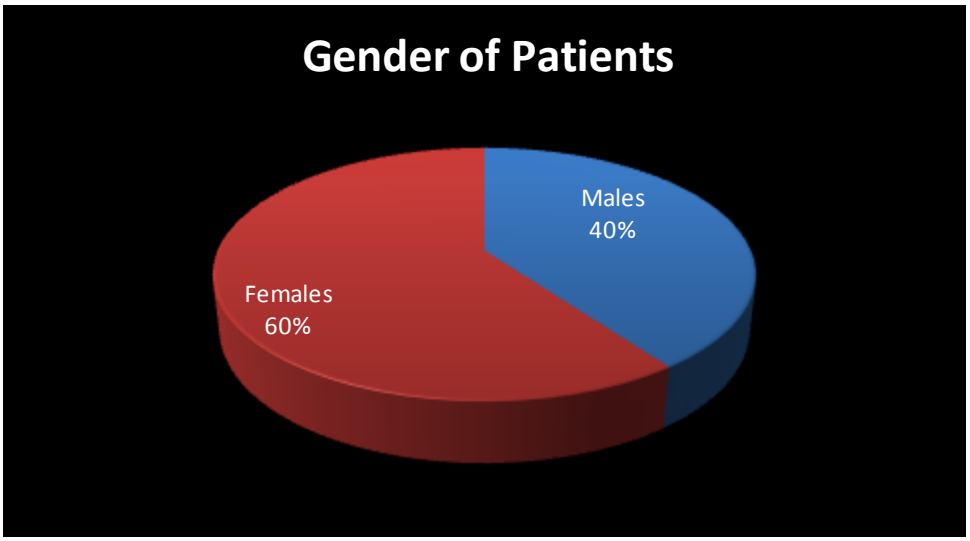


Figure 3: Gender of patients participating in this study

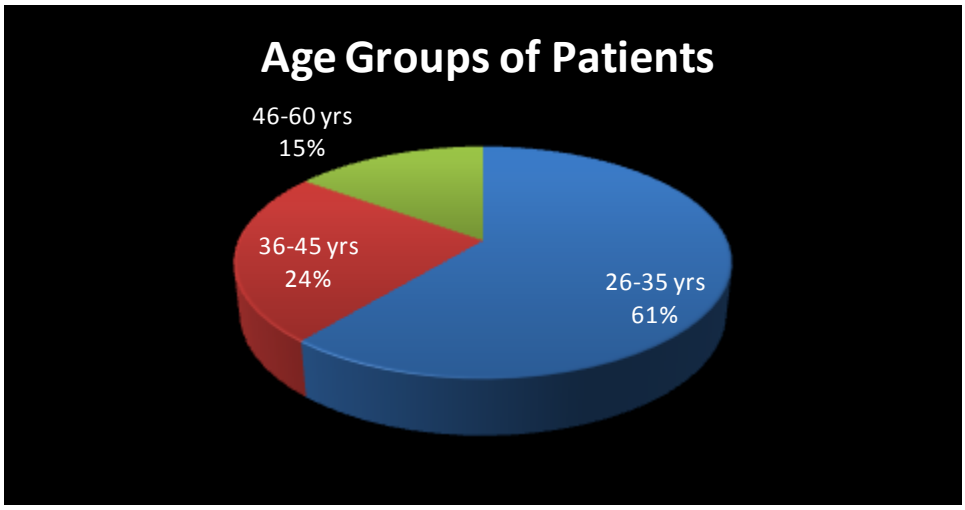


Figure 4: Age group distribution of patients participating in this study

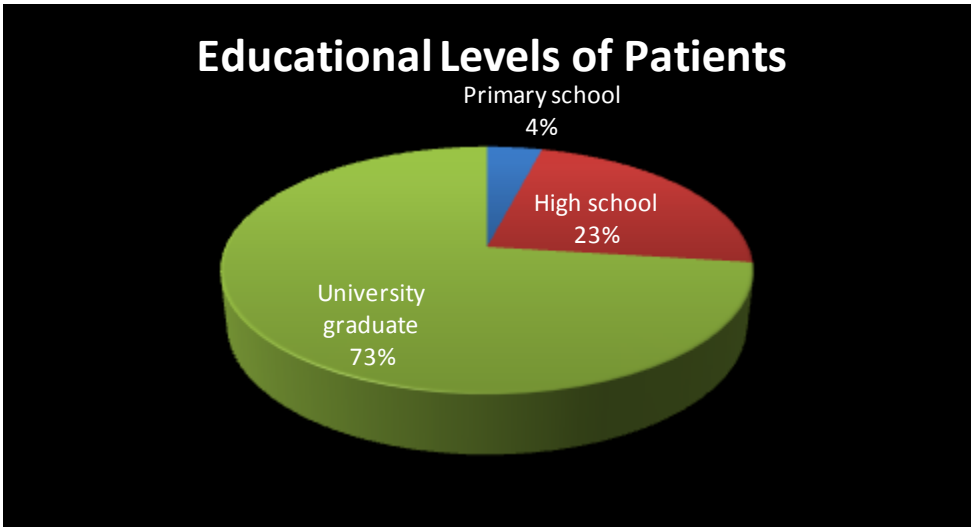
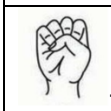
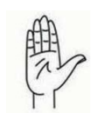


Figure 5: Educational levels of patients participating in this study

Table 3: Patients' responses and their comparison on gender basis

Items	Males	Females	p-value
How do you communicate with the dentist while treatment is going on?	Hand sign: 83% Eyes movement: 6% Facial expression:11%	Hand sign: 81% Eyes movement: 17% Facial expression: 2%	0.071
Is communication good to develop dentist-patient relationship?	Yes: 95% No: 0% Don't know: 5%	Yes: 92% No: 2% Don't know: 6%	0.189
Does your dentist teach you about hand sign language?	Always: 17% Sometimes:46% Never:37%	Always:18% Sometimes:45% Never:37%	0.922
 **This sign means?**	Stop:22% I am OK:12% Pain:66%	Stop:20% I am OK:12% Pain:68%	0.847
 **This sign means?**	Pain: 2% I am OK: 2% Hurts a little: 96%	Pain: 2% I am OK: 1% Hurts a little:97%	0.640
 **This sign means?**	STOP: 64% I want to talk:31% Pain:5%	STOP: 64% I want to talk: 33% Pain:3%	0.514

Table 4: Patients' responses and their comparison on the basis of age

Items	26-35 years	36-45 years	46-60 years	p-value
How do you communicate with the dentist while treatment is going on?	Hand sign: 80% Eyes movement:16% Facial expression:4%	Hand sign:81% Eyes movement:16% Facial expression:3%	Hand sign: 86% Eyes movement:6% Facial expression:8%	0.481
Is communication good to develop dentist-patient relationship?	Yes: 95% No: 1% Don't know: 4%	Yes: 93% No: 1% Don't know: 6%	Yes: 95% No: 0% Don't know: 5%	0.899
Does your dentist teach you about hand sign language?	Always:18% Sometimes:46% Never:36%	Always:15% Sometimes:45% Never:40%	Always:18% Sometimes:50% Never:32%	0.789
 **This sign means?**	Stop:18% I am OK:13% Pain:69%	Stop:22% I am OK:10% Pain:68%	Stop:25% I am OK:13% Pain:62%	0.633
 **This sign means?**	Pain:2% I am OK: 2% Hurts a little: 96%	Pain: 2% I am OK: 1% Hurts a little:97%	Pain: 2% I am OK:% Hurts a little:98%	0.622
 **This sign means?**	STOP: 68% I want to talk:27% Pain:5%	STOP: 63% I want to talk:35% Pain:12%	STOP:56% I want to talk: 40% Pain:4%	0.196

DISCUSSION

This study was conducted to assess the knowledge and use of hand sign language among dental students and their patients. As discussed earlier, it is imperative for both groups to have a comfortable relationship, which is not possible without effective communication. It has been observed that the dental patients

hesitate in expressing their feelings when treatment is undergoing and they are not able to speak.

We divided the dental students into two subgroups on the basis of gender and their level of education. As far as gender was concerned, it was interesting to witness that female students had surpassed the male students in all questions being asked with giving correct responses in the majority. Although most of the comparisons were not statistically significant, yet we were able to find a few significant differences among the genders. When inquired about signs such as 'I want to talk' (p-value 0.009), 'STOP' (p-value 0.011) and 'I am OK' (p-value 0.007), female students stood out in opting for the correct options.

On the other hand, merely one comparison was found statistically significant when analyzed the difference among dentistry levels. Level 9 students tend to feel that communication is very important in building a healthy relationship between dentist and patient. Their response was higher than other levels of dentistry (p-value 0.049). However, all other comparisons were not statistically significant.

As far as the responses from dental patients were concerned, there was no statistically significant relationship found when compared on the basis of gender and age groups. However, female respondents tend to have better overall knowledge about the signs used in the dental clinic. It is important for efficient communication that proper use of sign language is inducted into the dental setting. Few authors have emphasized the importance of using sign language recognition (SLR) system in order to successfully communicate with the patients when they are not able to speak (Joudaki et al, 2014).

Positively speaking, dental students realize the importance of communication between them and the patients in their daily exposure, which predicts the longevity of this relationship towards a fruitful direction for both parties. Since the students are aware of this fact, they are keen on improving their communicational skills during their clinical training, which definitely enhances their chances of successful dental career (Atteya, Saleh & Essam, 2018; Shetty & Al Rasheed, 2017). Another important factor in determining the future of dentist-patient relationship in dental schools is the education-related attributes. Students with higher clinical knowledge and skills were found to be highly confident in communicating with their patients, whereas patients with lower above mentioned skills lacked this quality (Nor, Yusof & Shahidan, 2011; Laurence etel, 2012). This attribute was mentioned in our study in the form of dentistry level, as we assume that the higher level students may show better attitudes and communicational skills with the patients. However, this was not seen as a finding of our study, which may lead to another categorization of subjects on the basis of their GPAs. Failure of achieving this may count as one of the limitations of our study.

Finally, it is important for the dentist to enable and maintain communication with the patients as it forms the core of their relationship. Dental students should be trained in their clinical sessions on how to make communication compulsory in order to avoid any misunderstanding (Kvale et al, 2009). Furthermore, offering these students with courses and workshops related to communication skills will help up to a great extent. As previously this practice has been found to be fruitful in achieving the desired dentist-patient relationship (Hannah et al, 2004).

CONCLUSIONS

- Female dental students have shown statistically significant higher knowledge of sign languages as compared to males.
- No statistically significant difference was found on the basis of dentistry levels.
- No statistically significant comparisons were observed for any of the dental patient groups.
- Instructing patients about the use of sign language can help going through the dental procedure in a smoother way.

CONFLICT OF INTEREST

There is no conflict of interest among the authors.

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