



Knowledge, awareness and practice of lumineers for esthetic smile designing among general dentists and UG, PG students of dental schools

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Abstract:

Introduction: Recently esthetic dentistry has been influenced by the growing accessibility of media and online information and has become extremely demanding by the patients. The interest in dental ceramics has been multiplied because of the recently developed techniques and technologies. Ceramic lumineers are placed without removing the tooth structure in some instances. These esthetic smile designing techniques are indicated in multiple situations, such as discolored teeth, diastema closure, chipped or cracked teeth, minor misalignments and rotations of the anterior teeth, teeth reshaping, teeth with large cervical lesions. **Materials and Methods:** The study setting was through an online survey among the dental population. There were a hundred participants involved in the survey. A questionnaire comprising 15 questions was posted on an online survey platform. The data collection was done through Google forms and data manipulation through MS Excel. The data obtained was plotted in the form of a bar graph. The statistical software used for the analysis included the SPSS software. Descriptive analysis was used. Correlation analysis was done by chi square test using the SPSS software. **Results and Discussion:** In this study, 84% of the participants had knowledge on what a lumineer is and 16% of the participants didn't have the knowledge. 69% of the participants responded that it helps in the closure of slight spaces between the teeth while 31% of the participants disagree with it. Correlation analysis was done between undergraduates and postgraduates students. Postgraduate students had more knowledge on the property of lumineers as 52% of the postgraduates have agreed that translucent property of lumineers is more than porcelain veneers while only 4% of the undergraduate students have agreed with it. P value was found to be 0.01 which is statistically significant. **Conclusion:** From this study, it is understood that a majority of the undergraduate and postgraduate students have knowledge over lumineers and the various advantages of them. 84% of the participants had knowledge on lumineers.

Keywords: Lumineer ; veneer ; esthetic smile designing ; porcelain

Introduction:

Recently esthetic dentistry has been influenced by the growing accessibility of media and online information and has become extremely demanding by patients. The interest in dental ceramics has been multiplied because of the recently developed techniques and technologies (1). Esthetic smile



designing has brought a great change in aesthetic dentistry. Esthetic smile designing can be achieved by the use of lumineers and veneers. Veneers are thin, shell-like covers that are usually placed over the teeth to cover up stains, chips, or gaps. Each one is bonded to the front of a tooth. Veneers are also called dental porcelain laminates (2). It is an effective way to create the perfect smile you have always dreamed of. There are various advantages with the use of lumineers like they are painless, no damage would be caused to the pulp, quick technique and no requirement for anaesthesia (3), (4)

Conventional dental veneers and lumineers have many differences like the very thin thickness of lumineers, like ultra-thin and material of construction which is called Cerinate porcelain which is a very strong one and much thinner than the traditional veneers (5). Cerinate lumineers are considered to be one of the best methods following the no-preparation technique and introduces an alternative to traditional veneers that can be easily marketed and implemented to a versatile age group (6). Ceramic lumineers are placed without removing the tooth structure in some instances. These esthetic smile designing techniques are indicated in multiple situations, such as discolored teeth, diastema closure, chipped or cracked teeth, minor misalignments and rotations of the anterior teeth, teeth reshaping, teeth with large cervical lesions (7). Lumineers can be made as thin as a contact lens and may be placed over existing teeth without having to remove healthy tooth structure (8). In cases where tooth reduction is necessary, it can be kept conservative (9).

These properties attract many seniors who may be concerned about complications with their medications. The popularity and advantages of dental veneers involved aesthetic quality, fracture resistance, conservative preparation, low deboning rate, tissue acceptance, patient satisfaction, and negligible incidence of caries (10). Thus the aim of this study is to assess the knowledge, attitude and practice of lumineers for esthetic smile designing among the general dental population.

Materials and Methods :

The study setting was done through an online survey among the general dental population. The usage of online surveys is time saving and also involves a varied number of people. A convenient sample of hundred participants were involved in the survey. The sampling was done by a simple random sampling method. Clearance from the ethical committee of Saveetha dental college was obtained with ethical committee registration.

A questionnaire comprising 15 questions was posted on an online survey platform. The data collection was done through Google forms and data manipulation through MS Excel. The data obtained was plotted in the form of a bar graph. The statistical software used for the analysis included the SPSS software. Descriptive analysis was used. Correlation analysis was done by chi square test using the SPSS software. All undergraduate and postgraduate students from dental institutions were included as the inclusion criteria. Height, weight, were considered as exclusion criteria.

Results:

Table 1: Represents the responses of the study population to the questionnaire



S.no	Questions	Choices	Responses
1.	Age	<ul style="list-style-type: none"> • 18-21 • 21-30 • Above 30 	<ul style="list-style-type: none"> • 38% • 33% • 29%
2.	Gender	<ul style="list-style-type: none"> • Male • Female 	<ul style="list-style-type: none"> • 65% • 35%
3.	Postgraduate or Undergraduate	<ul style="list-style-type: none"> • Postgraduate • Undergraduate 	<ul style="list-style-type: none"> • 62% • 38%
4.	Are you aware about what a lumineer is ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 84% • 16%
5.	Do you think lumineers can help in esthetic smile designing ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 84% • 16%
6.	Goal of esthetic smile designing was given by ?	<ul style="list-style-type: none"> • Peter Dawson • Pierre Fauchard 	<ul style="list-style-type: none"> • 69% • 31%
7.	Do you think lumineers can help in hiding discoloured teeth ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 66% • 34%
8.	Do you think lumineers help in closure of slight spaces between the teeth ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 69% • 31%
9.	Do you think lumineers help in correction of maligned teeth ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 82% • 18%
10.	Do lumineers cause change in tooth shape ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 72% • 28%
11.	Do lumineers require removal of tooth structure ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 78% • 22%
12.	Lumineers bond directly to tooth surface, making it a conservative cosmetic approach	<ul style="list-style-type: none"> • True • False 	<ul style="list-style-type: none"> • 84% • 16%
13.	Are lumineers more translucent compared to traditional porcelain	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 56% • 44%



	veneers?		
14.	Are Lumineers technique sensitive ?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 76% • 24%
15.	Can lumineers lead to tooth sensitivity and discomfort in patients?	<ul style="list-style-type: none"> • Yes • No 	<ul style="list-style-type: none"> • 48% • 52%

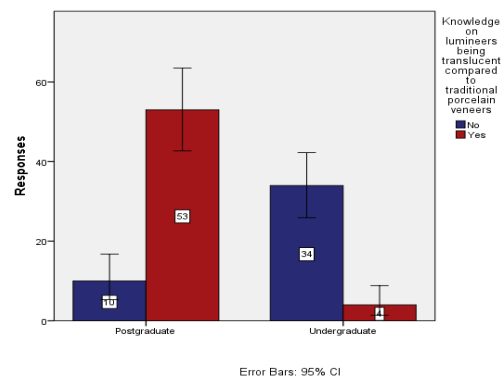


Figure 1 : The bar graph depicts the association of the knowledge on the translucent property of lumineers and traditional porcelain veneers. X axis represents the postgraduates and undergraduates. Y axis represents the number of responses. Red colour denotes 'Yes' and blue colour denotes 'No'. Postgraduates students had more knowledge on the translucent property of lumineers and porcelain veneers. 52% of the postgraduates have agreed that translucent property of lumineers is greater than porcelain veneers while only 4% of the undergraduate students have agreed to it. This difference was statistically significant (Chi square test ; p value = 0.01 - significant).

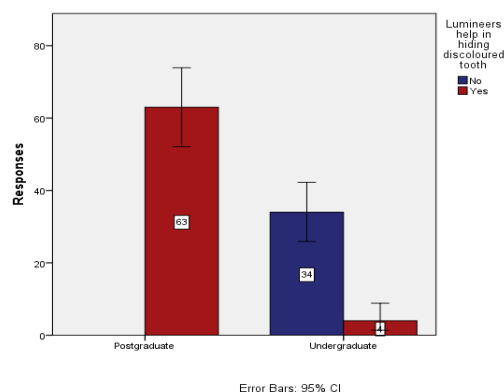


Figure 2 : The bar graph depicts the association of the knowledge on the property of lumineers in hiding the discoloured tooth. axis represents the postgraduates and undergraduates. Y axis represents the number of responses. Red colour denotes 'Yes' and blue colour denotes 'No'. Postgraduate students had more knowledge as 62% of the postgraduates agreed that lumineers are



majorly used for hiding the discoloured tooth while only 4% of the undergraduates agreed to it. This difference was statistically significant (Chi square test ; p value = 0.033 - significant).

Discussion :

In the present study out of hundred participants 38% of the participants belong to the age group 18 to 21, 33% of the participants belong to the age group 21 to 30 And 29% of the participants were about 30 years of age. 65% of the participants were male and 35% of the participants were female. 62% of the participants were post graduates and 38% of the participants who are undergraduates in this study. 84% of the participants had knowledge on what a lumineer is and 16% of the participants didn't have the knowledge. 84% of the participants were aware that lumineers can help in esthetic smile designing while 16% of the participants were not aware. The goal of esthetic smile designing was given by Peter Dawson. In the study the participants were asked about this where 69% of the participants answered correctly while 31% of the participants did not have the knowledge on this.

Lumineers are known for esthetic smile designing and have many advantages. Lumineers do not need any removal of the tooth structure while installation and its bonds directly to the tooth surface. 78% of the participants responded that lumineers do not require any removal of the tooth structure while 22% of the participants disagreed with it. The lumineers are a minimally invasive technique making them easy to be installed over the existing teeth without the removal of any tooth structure or minimal preparation (11). The participants were asked about the various uses of lumineers. 66% of the participants responded that lumineers help in hiding discoloured teeth while 34% of the participants disagreed with it. 69% of the participants responded that it helps in the closure of slight spaces between the teeth while 31% of the participants disagree with it. 82% of the participants said lumineers help in the correction of misaligned teeth while 18% of the participants felt lumineers do not help in the correction of malalignment of the teeth. 72% of the participants responded that lumineers cause change in the tooth shape while 28% of the participants it does not cause a change in the tooth shape.

A true or false question was asked on the principle of lumineer (ie) lumineers bond directly to the tooth surface making it a conservative approach. 84% of the participants agreed to the statement while 16% of the participants disagreed with it . 56% of the participants responded that lumineers are translucent compared to traditional porcelain veneers while 44% of the participants disagree with it. 76% of the participants felt lumineers are technique sensitive while 24% of the participants did not feel that way. 48% of the participants felt lumineers can lead to tooth sensitivity and discomfort in patients.

Correlation analysis was done between undergraduates and postgraduates students. It is understood that postgraduates have more knowledge on the property of lumineers as 52% of the postgraduates have agreed that translucent property of lumineers is more than porcelain veneers while only 4% of the undergraduate students have agreed to this fact (Figure 1). Pearson chi square test was done and p value was found to be 0.01 which is statistically significant (p < 0.05). The correlation analysis on the knowledge of the property of lumineers in hiding the discoloured tooth was done



where 62% of the postgraduates agreed that lumineers hide discoloured teeth while only 4% of the undergraduates agreed to it (Figure 2). P value was found to be 0.033 which is statistically significant ($p < 0.05$). Thus in this study postgraduate students had comparatively more knowledge on lumineers than undergraduate students. A previous study proved that veneers with porcelain supplement will reduce the amount of tooth reduction and bacterial accumulation and improve the esthetic to provide life-like tooth structure on the basis of shade and shape of the tooth (12), (13) Another study proved that mechanical and esthetic qualities and biocompatibility of porcelain, preservation of tooth structure, reliability and durability of the treatment and improved bonding strength made lumineers a recommended and requested treatment for many patients (14). The present study was held over a small sample size. Further studies should be done on larger sample sizes which would bring a better understanding over the knowledge of lumineers.

Conclusion:

From this study, it is understood that most of the undergraduate and postgraduate students have knowledge over lumineers and the various advantages of them. 84% of the participants had knowledge on lumineers. But on comparing the knowledge of undergraduates and postgraduates, it is observed that postgraduate students have more knowledge over lumineers. 66% of the participants responded that lumineers help in hiding discoloured teeth. Even though most of the dental students had awareness over lumineers, it is important to create more awareness.

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