



Awareness on Botox Injection among Dental College Students in Chennai

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Authors' contributions

This work was carried out in collaboration among all authors. Author DU designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors VP and RG managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

Article Information

DOI: 10.9734/JPRI/2020/v32i1830691

Editor(s):

(1) Syed A. A. Rizvi, Nova Southeastern University, Florida, USA.

Reviewers:

(1) Andrei Buiga, Artifex University of Bucharest, Romania.

(2) Ben-Bright Benuwa, University of Education, Ghana.

Complete Peer review History: <http://www.sdiarticle4.com/review-history/59737>

Original Research Article

Received 06 June 2020
Accepted 11 August 2020
Published 26 August 2020

ABSTRACT

Ever Changing perception of beauty from childhood to old age is changing with the revolution in cosmeceuticals science. Aesthetics are an individual's perception since time immemorial. Standards of beauty have changed through the centuries with increased awareness about aesthetics. The youthfulness despite advancing age includes smooth, charming skin without skin folds, volume loss, and skin laxity, all these are possible only due to these cosmetic procedures mainly due to Botox treatment. The aim of the study is to assess the awareness of Botox injection among college students. The survey questionnaire consisted of 20 questions and was circulated among the college students. The sample size of the study was 100 and the results were tabulated accordingly. The results show that around 65.7% of the college students are unaware that Botox injection should be used only after the age of 25 whereas the remaining 34.3% of the college students are aware of this fact. Around 45.4% of the college students are unaware of the risks associated with cosmetic procedures whereas the remaining 38% of the population are aware of the problem associated with cosmetic procedures and the remaining 18% of the population comes

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under other categories. Around 54.8% of the population is aware that using Botox may cause side effects like infection, inflammation, and swelling and the rest of the population that is 45.2% are unaware of these effects. From this study, it is very much evident that college students are not much aware of the age limits and the risks associated with the usage of Botox treatment.

Keywords: Botox injection; botulinum toxin; cosmeceuticals; online survey.

1. INTRODUCTION

Botulinum toxin is one of the most poisonous biological substances known. It is a neurotoxin produced by a gram-positive anaerobic bacteria known as *Clostridium botulinum* [1]. There are at least seven serotypes of neurotoxin discovered till now: botulinum toxin A, botulinum toxin B, botulinum toxin C, botulinum toxin D, botulinum toxin E, botulinum toxin F, botulinum toxin G, but only the first two are medically used. The neurotoxin produced by this bacteria causes a disease known as botulism, this can cause a life-threatening neuromuscular paralysis [2]. Even after knowing its side effects, several people get attracted to it just in order to maintain their appearance and looks [3,4]. According to various studies done, it is found that botulinum toxin A is used in many purposes like cosmetic and plastic surgery procedures, such as liposuction, rhinoplasty, breast augmentation, and it is also used in reducing muscle mobility and used to treat the appearance of glabellar frown lines [5-7]. The same botulinum toxin also has severe adverse problems like dysphagia, respiratory compromise, generalized muscle weakness, Fournier gangrene, and cervical kyphosis [8].

Doctors use Botox in a small dosage to treat health problems, including temporary smoothening of facial wrinkles, severe underarm sweating, cervical dystonia - a neurological disorder that causes severe neck and shoulder muscle contractions, Blepharospasm - uncontrolled blinking, chronic migraine, and overactive bladder. whereas if you see the same botulinum toxin also has some common Side effects such as pain, swelling, headache, and upset stomach. Injection in the face may also cause temporary drooping eyelids [9]. It is also important to know the correct dosage of Botox for adults and children which is 400 units and 340 units respectively.

Previous studies on cancer biology, nanomaterials, herbal products [10-15] have motivated us to pursue this current research which is useful to our community. The main aim of this present study is to assess the awareness of usage of botox injection among college students.

2. MATERIALS AND METHODS

A cross-sectional survey was done among 100 dental undergraduate students at Saveetha Dental College, Chennai. A simple random sampling method was used to select the participants. A self-administered questionnaire was designed to elicit the awareness of Botox injection among college students. The questions were distributed through an online survey website. The study participants included 100 students belonging to the 17-23 age group. The participants were explained about the purpose of the study in detail. The questions were carefully studied and the corresponding answers were marked by the participants. The data were collected and statistically analyzed.

3. RESULTS AND DISCUSSION

This survey was conducted among 100 dental college students. The survey population was sufficient enough to reach a conclusion regarding the topic awareness on Botox injection among college students. The results were given that 50% of the college students were aware that Botox injection helped in reducing wrinkles (Fig. 1). 34.3% of the college students were aware that Botox injection should be used only after the age of 25. (Fig. 2). 43.9% of the college students were aware that Botox was derived from a bacteria known as *clostridium botulinum*. *Clostridium botulinum* is a gram-positive, rod-shaped, spore-forming bacterium (Fig. 3). 37.4% of college students agree that students do undergo cosmetic surgery (Fig. 4). 38% of the college students are aware of the risk associated with cosmetic procedures whereas the remaining 16.7% of the minority population come under other categories (Fig. 5). 13.1% of college students have stated that they have undergone cosmetic procedures. The most common cosmetic procedures done are Breast Augmentation, Dermabrasion, facelift, Hair transplantation, Rhinoplasty, Lip Augmentation, Liposuction, and Tummy tuck (Fig. 6). 45.8% of college students have stated that they would be embarrassed about undergoing cosmetic procedures (Fig. 7). 90.7% of college students think that cosmetic procedures are expensive

(Fig. 8). 15.7% of college students think that Botox can be used during pregnancy and breastfeeding (Fig. 9). 65.4% of the college students think that Botox injection affects areas away from the site of application (Fig. 10). 33.6% of the college students have stated that they will undergo Botox therapy if it is suggested by a doctor (Fig. 11). 83% of college students think that it is important to get some information about Botox therapy before undergoing treatment (Fig. 12). Around 45.3% of the college students are aware that the usage of botulinum toxin causes an illness known as botulism (Fig. 13). 29.2% of college students are aware that

Columbia is the country where people undergo Botox surgery more commonly (fig. 14). 23.3% of college students will allow their family members to undergo Botox surgery (Fig. 15). 54.8% of college students are aware of the side effects caused by Botox (Fig. 16). 48.1% of college students agree that Botox is completely safe as long as it's done by a licensed professional (Fig. 17). 42.7% of college students really think that Botox should be used in cosmetology (Fig. 18). 28.4% of college students know that Botox is also used to reduce sweating to some extent (Fig. 19). 24% of college students do think that beauty plays an important role (Fig. 20).

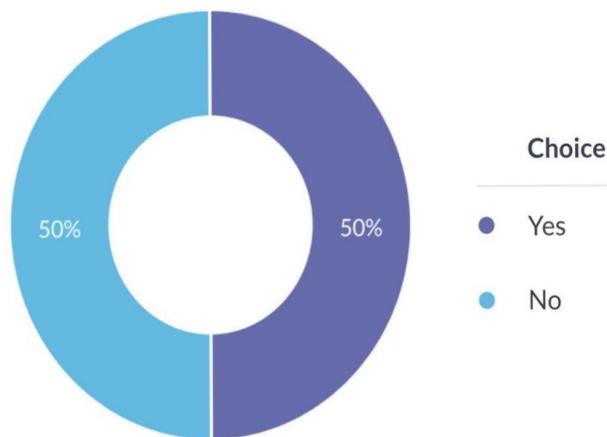


Fig. 1. Pie chart represents the percentage distribution of responses about awareness on reduction in facial wrinkles by using botox injection. 50% (dark blue) said 'yes' and 50% (sky blue) said 'no'

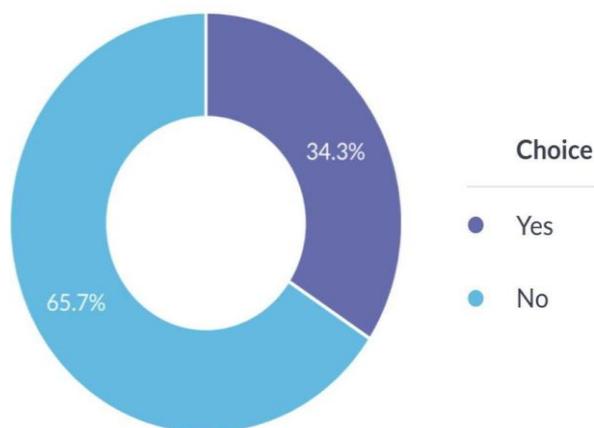


Fig. 2. Pie chart represents the percentage distribution of responses about awareness on using botox only after the age of 25. 34.3% (dark blue) said 'yes' and 65.7% (sky blue) said 'no'

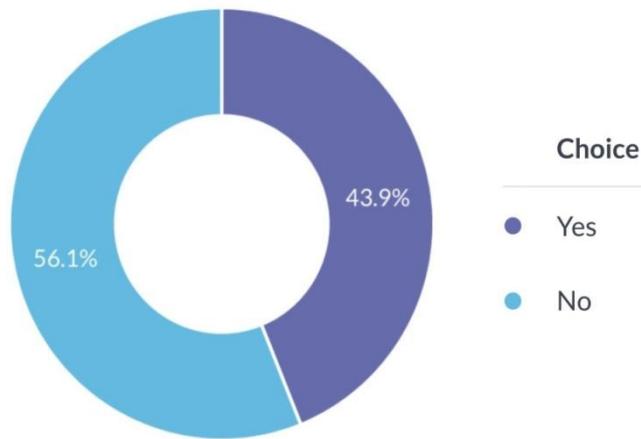


Fig. 3. Pie chart represents the percentage distribution of responses about awareness on botox derived from bacteria clostridium botulinum. 43.9% (dark blue) said 'yes' and 56.1% (sky blue) said 'no'

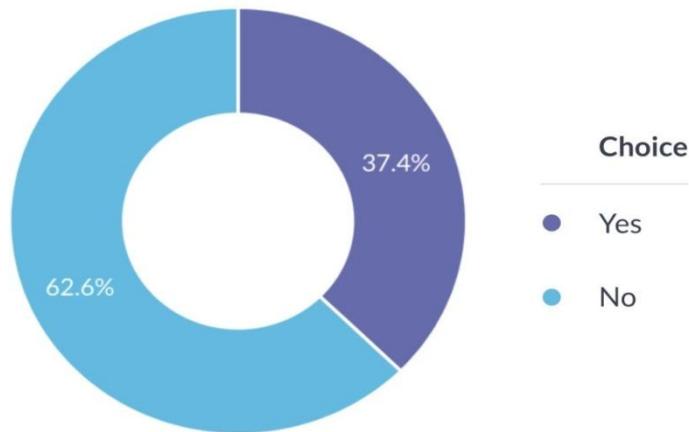


Fig. 4. Pie chart represents the percentage distribution of responses about awareness on students undergoing cosmetic surgeries. 37.4% (dark blue) said 'yes' and 62.6% (sky blue) said 'no'

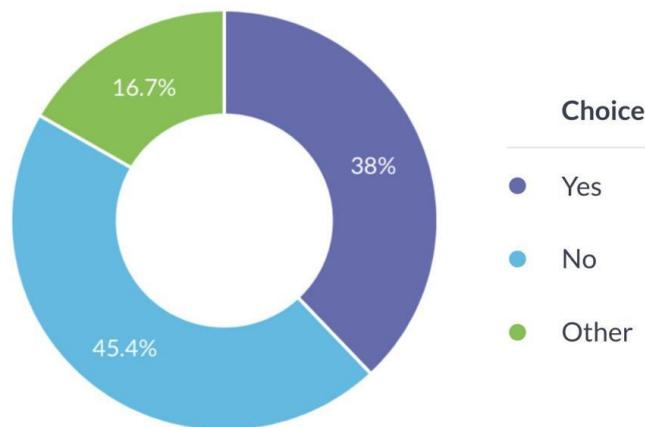


Fig. 5. Pie chart represents the percentage distribution of responses about awareness on risks associated with cosmetic procedures. 38% (dark blue) said 'yes', 45.4% (sky blue) said 'no' and 16.7% (green) said 'other category'

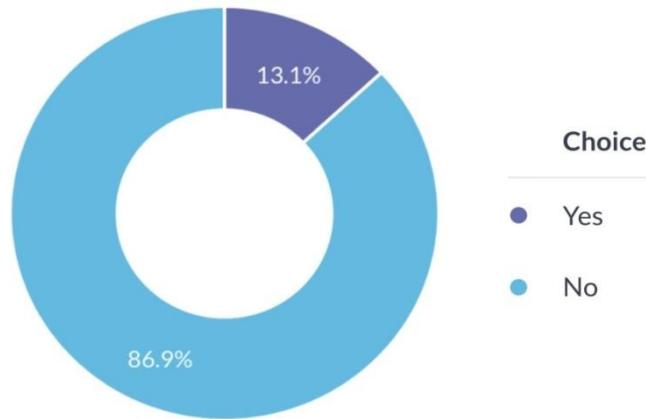


Fig. 6. Pie chart represents the percentage distribution of responses about awareness on undergoing cosmetic procedures in their past. 13.1% (dark blue) said 'yes' and 86% (sky blue) said 'no'

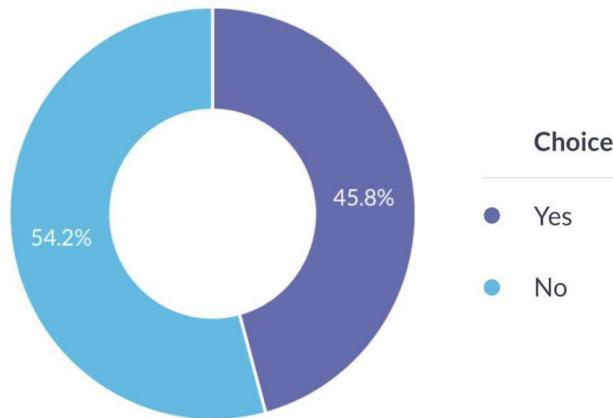


Fig. 7. Pie chart represents the percentage distribution of responses about awareness on embarrassment to undergo cosmetic procedures. 45.8% (dark blue) said 'yes' and 54.2% (sky blue) said 'no'

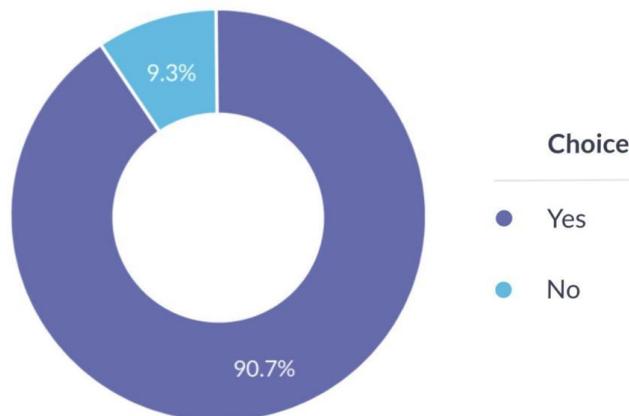


Fig. 8. Pie chart represents the percentage distribution of responses about awareness on cosmetic procedures being expensive. 90.7% (dark blue) said 'yes' and 9.3% (sky blue) said 'no'

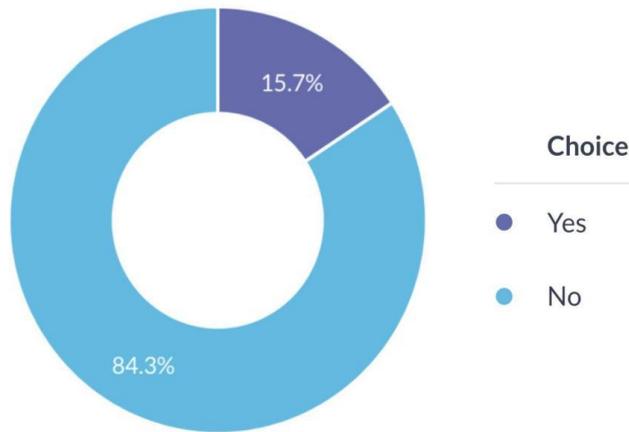


Fig. 9. Pie chart represents the percentage distribution of responses about awareness on botox used during pregnancy or lactation. 15.7% (dark blue) said 'yes' and 84.3% (sky blue) said 'no'

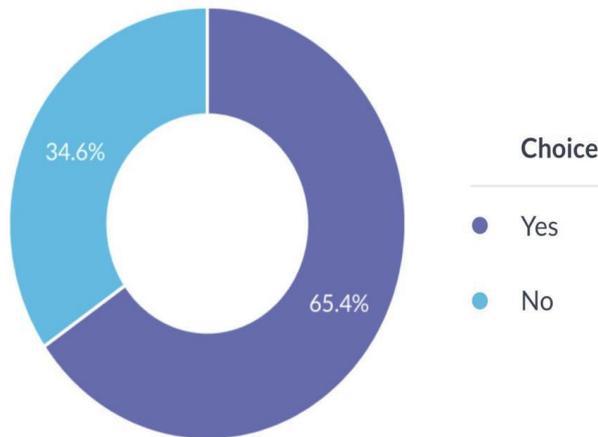


Fig. 10. Pie chart represents the percentage distribution of responses about awareness on Botox injection affecting areas away from the site of application. 65.4% (dark blue) said 'yes' and 34.6% (sky blue) said 'no'

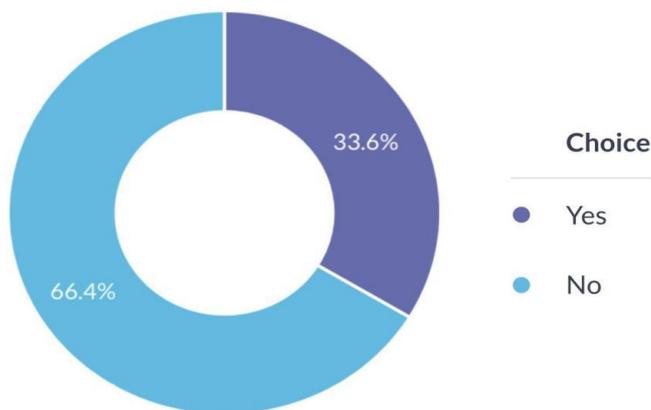


Fig. 11. Pie chart represents the percentage distribution of responses about awareness on undergoing botox therapy if it is suggested by a doctor. 33.6% (dark blue) said 'yes' and 66.4% (sky blue) said 'no'

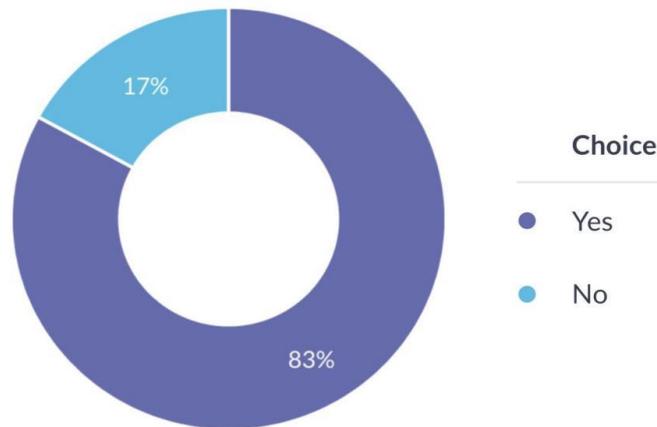


Fig. 12. Pie chart represents the percentage distribution of responses about awareness on getting some information about botox therapy before undergoing a treatment. 83% (dark blue) said 'yes' and 17% (sky blue) said 'no'

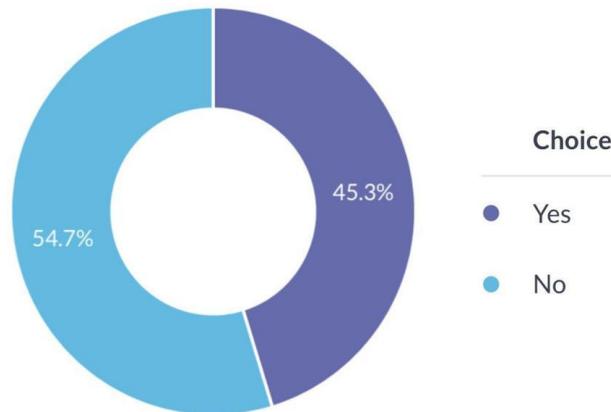


Fig. 13. Pie chart represents the percentage distribution of responses about awareness on over usage of botulinum toxin may lead to a disease known as botulism. 45.3% (dark blue) said 'yes' and 54.7% (sky blue) said 'no'

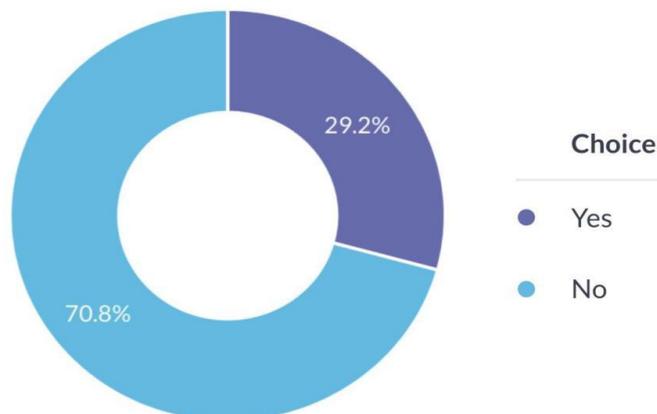


Fig. 14. Pie chart represents the percentage distribution of responses about awareness on Columbia, a country where people undergo Botox surgery more commonly. 29.2% (dark blue) said 'yes' and 70.8% (sky blue) said 'no'

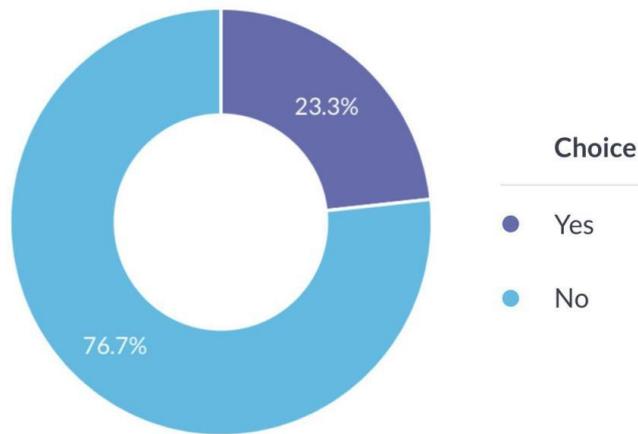


Fig. 15. Pie chart represents the percentage distribution of responses about awareness on allowing their family members to undergo botox surgery. 23.3% (dark blue) said 'yes' and 76.7% (sky blue) said 'no'

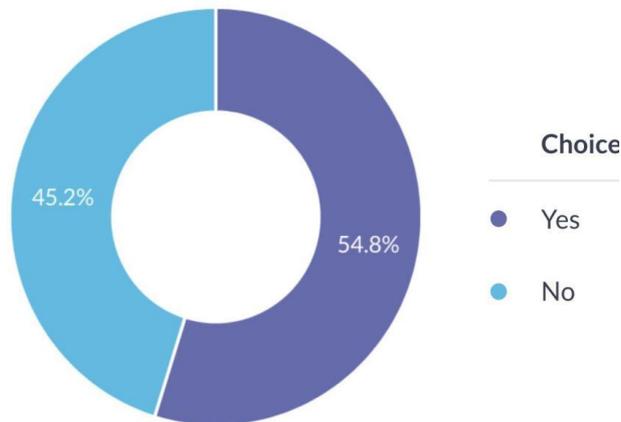


Fig. 16. Pie chart represents the percentage distribution of responses about awareness on side effects of Botox like infection, inflammation and swelling. 54.8% (dark blue) said 'yes' and 45.2% (sky blue) said 'no'

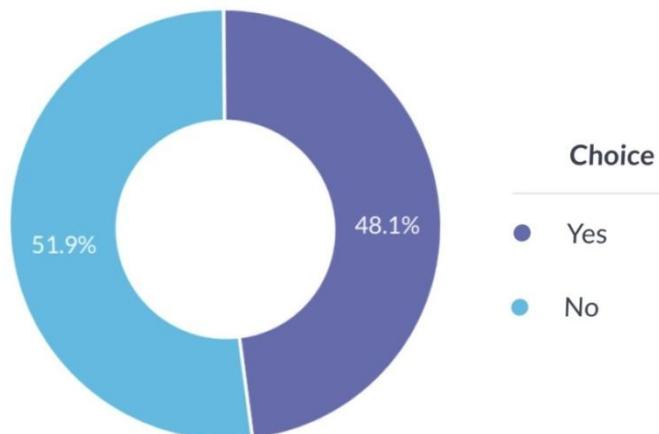


Fig. 17. Pie chart represents the percentage distribution of responses about awareness on safety of Botox as long as it's done by a licenced professional. 48.1% (dark blue) said 'yes' and 51.9% (sky blue) said 'no'

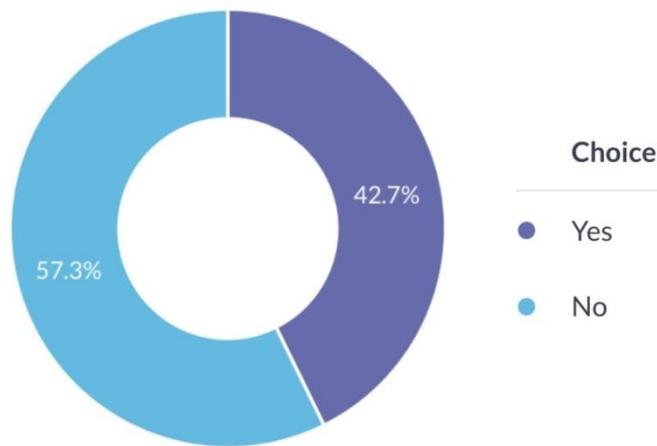


Fig. 18. Pie chart represents the percentage distribution of responses about awareness on botox to be used in cosmetology. 42.7% (dark blue) said 'yes' and 57.3% (sky blue) said 'no'

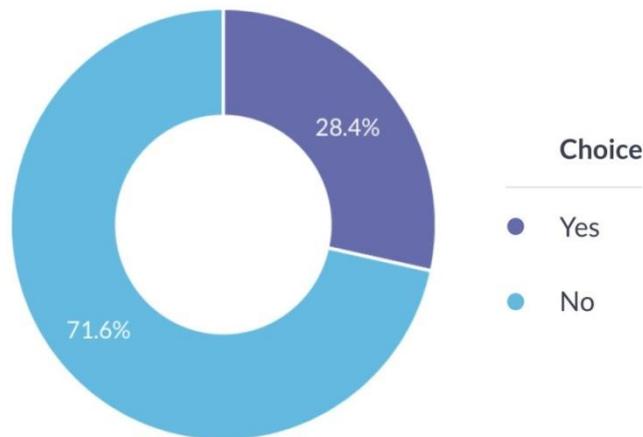


Fig. 19. Pie chart represents the percentage distribution of responses about awareness on Botox used to reduce sweating to some extent. 28.4% (dark blue) said 'yes' and 71.6% (sky blue) said 'no'

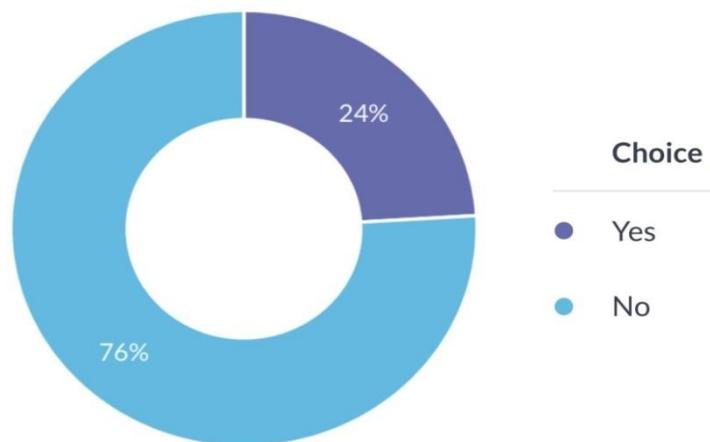


Fig. 20. Pie chart represents the percentage distribution of responses about awareness on the importance of beauty to survive in this world. 24% (dark blue) said 'yes' and 76% (sky blue) said 'no'

Various other studies are being done on the applications of Botox, In a study done by Bangus Komang Satriyasaon, states that Botox injection is used to treat wrinkles in the upper areas of the face, elevate the eyebrows and treat problems such as hyperhidrosis, lichen simplex, and acne vulgaris [16]. In a study done by Vito Pavone, botulinum toxin can be used to treat cerebral palsy, especially for spastic and dystonic muscles while avoiding deformity and pain [17]. In a study done by J. Jankovic, botulinum toxin is also being used as a therapeutic agent. It is also injected into the eye muscles to correct strabismus [18]. In a study done by Paul D Durand, botulinum toxin A is responsible for both therapeutic and incidental temporary muscle atrophy [19].

In a study done by Eman M Al Hamdan, 73.7% of the students think that botulinum toxin helps in reducing wrinkles [20] whereas in our study 50% of the participants think that Botox injection helps in reducing facial wrinkles. In a study done by Deeptara P Thapa, 51% of the students are aware of the risks associated with Botox procedures [21] whereas in our study 38% of the participants are aware of the risk associated with cosmetic procedures such as Botox therapy. In a study done by Shahlla Iman, the majority of the population that is 50.3% of the students think that the use of Botox in cosmetology is correct whereas in our study 42.7% of the participants think that the use of Botox in cosmetology is correct. The majority of the population that is 66.1% of the students think that it is important to get information about Botox therapy before undergoing a treatment whereas in our study 83% of the participants think that it is important to get information about Botox therapy before undergoing treatment. The limitations of this study are the small sample size and specific geographical location. Future studies can be initiated with increased sample size and multi centered geographical locations.

4. CONCLUSION

This study concluded there was a moderate level of awareness of Botox treatment among dental college students. From this study, it is very much evident that the current generation is not much aware of the age limits and the risks associated with the usage of Botox treatment. Awareness programs are very much necessary to educate the people about the advantages and disadvantages of Botox injection.

CONSENT AND ETHICAL APPROVAL

This study was approved by the Institutional Ethical Board and informed consent was obtained from all the participants. The survey instrument was a questionnaire.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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