



A Study on Cosmetic Use of Botox of University Students Knowledge, Attitudes and Practices among University Students

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(Received: 16 March 2025

Revised: 20 April 2025

Accepted: 01 May2025)

KEYWORDS

Botox, University students, Knowledge, Attitudes, Practices, Cosmetic treatment, Side effects, Social media

ABSTRACT:

Introduction: Botox, a neurotoxin with diverse applications in cosmetic and therapeutic fields, has gained widespread recognition for its efficacy and safety (Anderson, 2004; Bitar et al., 2011; Bouloux, 2022). Despite its popularity, there is limited research on knowledge, attitudes, and practices related to Botox among young adults, particularly in Saudi Arabia.

Purpose: This study aimed to assess the knowledge, attitudes, and practices of botox among university students in Saudi Arabia, focusing on their awareness, information sources, understanding of mechanisms and applications, and knowledge of potential risks and side effects.

Method: A survey was conducted with 257 university students in Saudi Arabia. The questionnaire assessed the participants' awareness of Botox, primary sources of information, understanding of its mechanism and applications, and knowledge of potential risks and side effects associated with its use.

Results: The study revealed a high awareness (87.2%) of Botox among participants, with social media being the primary source of information (67.8%). While 75.5% of the respondents claimed to understand Botox's mechanism, significant knowledge gaps were identified regarding its diverse applications beyond cosmetics. Regarding safety, 75.9% were aware of potential side effects, with pain (65.3%), swelling (58.5%), and droopy (49.2%) being the most recognized. However, fewer than half of the participants identified other important side effects.

Conclusion: The findings highlight the need for comprehensive pre-treatment counseling and targeted educational initiatives, particularly through digital platforms, to promote informed decision-making among potential Botox users. Addressing knowledge gaps and misconceptions about Botox's applications and safety profiles is crucial for ensuring responsible use and optimal outcomes among young adults in Saudi Arabia.

Introduction

Botulinum toxin, commonly known as Botox, is a neurotoxin produced by *Clostridium botulinum*. It inhibits the release of acetylcholine from motor neurons, leading to muscle weakness or paralysis. Botox has a range of medical and cosmetic applications, including the treatment of chronic migraine, muscle disorders, and facial wrinkles (Bouloux, 2022; Lefkovits & Lipton, 2024; Letessier, 1999; Mukherjee et al., 2023)

Cosmetic surgery, particularly the use of Botox, has become increasingly popular over the years owing to factors such as body image dissatisfaction, pursuit of perfection, and influence of social media. (1)Surgical and nonsurgical use of Botox is a cosmetic procedure (2). Non-surgical cosmetic procedures are minimally invasive treatments aimed at enhancing a person's appearance without the need for surgery. These procedures are popular because of their shorter recovery times, lower costs, and reduced risks compared with surgical options. Common



non-surgical procedures include botulinum toxin injections (e.g., Botox), dermal fillers, chemical peels, laser skin resurfacing, and laser hair removal. These treatments are often used to reduce wrinkles and improve skin texture and contour facial features.(3) Classification of surgical procedure classification into reconstructive and cosmetic surgeries that use incorrect or improved body imperfections. cosmetic surgeries to enhance their appearance, such as liposuction ,rhinoplasty ,abdominoplasty, and breast augmentation. Reconstructive surgery is a medical specialty focused on restoring the function and appearance of parts of body parts affected by congenital defects, trauma, infections, tumors, or disease. Unlike cosmetic surgery, which is primarily performed for aesthetic enhancement, reconstructive surgery aims to correct abnormalities and improve the quality of life of patients. Common procedures include breast reconstruction after mastectomy, cleft lip and palate repair, and hand or limb surgery (4). Botox may cause side effects including allergic reactions, infection at the injection site, bruising, swelling, and localized pain. Other risks include muscle weakness, drooping eyelids (ptosis), difficulty swallowing or breathing, and unintended effects on the surrounding muscles, especially if the injection is not precisely administered(5).

Methods and materials:

Study Design and Setting:

This cross-sectional survey was conducted with university students in Saudi Arabia to assess their knowledge, attitudes, and practices related to botulinum toxin (Botox) use. The study was conducted from the [insert start date] to the [insert end date].

Participants and Sampling:

The target population consisted of undergraduate and graduate students enrolled in universities in Saudi Arabia. Convenience sampling was used to recruit the participants. The inclusion criteria were as follows: 1) current enrollment in a Saudi university, 2) age 18 years or older, and 3) ability to provide informed consent. Exclusion criteria included non-student status and inability to complete the survey independently.

Sample Size Calculation:

The sample size was calculated using the following formula for cross-sectional studies:

$$n = Z^2 P(1-P) / d^2$$

Where:

n = sample size

Z = Z statistic for the level of confidence (1.96 for 95% confidence level)

P = expected prevalence or proportion (0.5 was used as no prior data were available).

d = precision (0.05 for 5% margin of error)

Using these parameters, the minimum required sample size was calculated as 220. Accounting for a potential 10% to 15% non-response rate, the target sample size was set at 250participants.

Survey Instrument:

A structured questionnaire was developed based on comprehensive literature review and expert consultation. The questionnaire consisted of four sections.

1. Demographic information
2. Knowledge about Botox (mechanisms, applications, risks)
3. Attitudes towards Botox use
4. Personal experiences with Botox treatments

The questionnaire was initially developed in English, and then translated into Arabic using forward and backward translation methods to ensure linguistic and cultural equivalence. A pilot study was conducted with 20 students to assess the clarity and comprehensibility of the questions and minor revisions were made based on their feedback.

Data Collection:

The survey was administered online, using a web-based platform. Invitations to participate were distributed through university email lists and social media platforms. Informed consent was obtained electronically before the participants could access the survey. The survey took approximately to 15-20 minutes to complete.

Ethical Considerations:

The study protocol was approved by the Institutional Review Board of the College of Medicine, DAU. Participation was voluntary, and all responses were anonymous. The participants were informed of the study's purpose, potential risks and benefits, and their right to withdraw at any time.

Data Analysis:

Data were analyzed using SPSS version XX.0. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated for all the variables. Chi-square tests were used to examine the associations between categorical variables. Independent t-tests and one-way ANOVA were used to compare the means between groups. Statistical significance was set at $P < 0.05$.



Result:

Table 1: Demographic profile of participants of sample(257)

Particular		No. of participants [n=257]	Percentage
Gender	Male	50	19.5
	Female	207	80.5
Age-groups	18-20	63	24.5
	21-25	112	43.6
	26-30	46	17.9
	30 and above	36	14.0

Table No. 1 shows a total of 257 Saudi student participants completed the study questionnaire to assess their awareness, knowledge, and perceptions of cosmetic use of Botox. Involve 50 male at rate of 19.5% and 207 female at rate of 80.5%. The age of the study sample distribution was diverse, ranging from 18 to more than 30 years. The higher represented age participants were 21-25 years.

Table 2: Botox information:

Particular	No. of participants	Percentage	
Have you heard of Botox before? [n=257]	Yes	224 87.2	
	No	33 12.8	
If yes, where did you hear about Botox? [n=224]	Doctors	98 43.7	
	Social media	152 67.8	
	Media	146 65.2	
	Friends	131 58.5	
	Other	07 3.1	
Do you know how Botox works? [n=257]	Yes	194 75.5	
	No	63 24.5	
Use of Botox [n=194]	Anxiety	20 10.3	
	Foot pain	29 14.9	
	Lazy eyes	55 28.3	
	Depression	19 9.8	
	Migraine prevention	93 47.9	
	Reduce sweating	96 49.5	
	Reducing wrinkles & fine lines	176 90.7	
	Treating muscle spasms	120 61.9	
	Do you know of any potential risks or side effects associated with Botox use? [n=257]	Yes	195 75.9
		No	62 24.1
	If yes, what risk factors? [n=195]	Abnormal smile	92 47.2
Infection at the injection site		89 45.6	
Watery or dry eyes		37 19.8	
Droopy eyelids		96 49.2	
Pain		127 65.3	
Swelling		114 58.5	

Table No. 2 for participants awareness and perception regarding cosmetic use of Botox, the current study showed that 224 (87.2%) participants had previous knowledge about cosmetic use of Botox. While 33 (12.8%) participants reported that they have not heard of Botox. Participants who reported they have heard of Botox (n=224) were asked to specify where they obtained their

information. It is apparent that social media is the most dominant source of information about Botox, with a range of 152 (67.8%) of participants. Based on the data provided of use of Botox among the 257 participants, they mentioned reducing wrinkles and fine lines at a high range of 176 (90.7%), additionally they mentioned treating muscle spasms at a range of 120 (61.9%), and reduce sweating 96 (49.5%), and migraine prevention 93 (47.9%), and lazy eyes 55 (28.3%), and foot pain 29 (14.9%), and anxiety 20 (10.3%), and less commonly answered was Depression 19 (9.8%). The participant individuals 195 (75.9%) were familiar with knowledge of any potential risks or side effects associated with Botox use, compared to who does not know of any potential risk at a rate of 62 (24.1%). The most reported risk factor was pain 127 (65.3%).

Table 3: use Botox of participants

Particular	No. of participants	Percentage
Would you consider using Botox in the future? [n=257]	Yes	116 45.1
	No	69 26.8
	Unsure	72 28.0
If yes, under what circumstances? [116]	Cosmetic purposes	105 90.5
	For depression	02 17.2
	Migraine	14 12.1
	Muscle spasm	13 11.2
	Stop excessive sweating	11 9.5
	Spasticity	13 11.2
What are your biggest concerns about using Botox? [n=257]	Consider side effects	62 24.1
	I think it is not safe	66 25.7
	I am afraid of injections	27 10.5
	Skin infection	29 11.3
	Cost	21 8.2
	Unqualified doctors	52 20.2
Do you think it is acceptable in society to use Botox for cosmetic purposes? [n=257]	Agree	196 76.3
	Disagree	61 23.7

Table No. 3 shows that cosmetic use of Botox among university students is highly acceptable.

The survey findings provide several important insights.

1. Future Botox use:

- 45.1% of participants would consider using Botox in the future.
- 26.8% would not consider it.
- 28.0% were unsure.

2. Reasons for potential Botox use (among those who would consider it):

Cosmetic purpose was the most common reason (90.5%).

The other causes included depression (17.2%), migraine (12.1%), muscle spasm (11.2%), excessive sweating (9.5%), and spasticity (11.2%).



3. Concerns about Botox use:

Safety concerns were prominent, with 25.7% thinking that it is not safe.

- 24.1% were concerned about side effects.
- 20.2% worried about unqualified doctors.

Other concerns included skin infections (11.3%), fear of injections (10.5%), and cost (8.2%).

4. Social acceptability of cosmetic Botox use:

A significant majority (76.3%) agreed that using Botox for cosmetic purposes is acceptable.

- 23.7% disagreed with this statement.

These findings suggest a mix of interests and concerns regarding Botox use, with cosmetic purposes being the primary motivation of potential users. However, the safety and qualifications of practitioners remain a significant concern for many participants.

Table 4: Experience of Use of Botox Treatment in participants

Particular	No. of participants	Percentage	
Have you ever used Botox yourself?	Yes	69	26.8
	No	188	73.2
If yes, at what age did you first use botox [n=69]	16-20	12	17.4
	21-25	26	37.7
	25-30	21	30.4
	Above 30	10	14.5
If yes, How often do you use Botox? [n=69]	One Time	23	33.3
	Every 4 Months	08	11.6
	Every 6 Months	25	36.2
	Every 8 Months	13	18.8
what are the reasons for your use of Botox? [n=69]	For migraine	05	7.2
	For spasticity treatment	14	20.3
	To reduce wrinkles	41	59.4
What was your experience like? [n=69]	To stop excessive sweating	13	18.8
	Good result with minimum time	37	53.6
	I didnt see any improvements	09	13.0
Where did you receive your Botox treatment? [n=69]	I am happy but it took a long time	20	28.9
	I am not happy because I developed side effects	03	4.3
Where did you receive your Botox treatment? [n=69]	Doctors clinic	62	89.8
	Spa	07	10.2

The table summarizes survey results regarding Botox treatment experiences among participants:

- 26.8% (69 out of 257) of participants have used Botox.
- Among Botox users:
 - Most common age at first use: 21-25 years (37.7%)
 - Frequency: Every six months (36.2%) or one-time use (33.3%)

- Primary reason: Reducing wrinkles (59.4%)

Experience: 53.6% reported good results with a minimum time.

Treatment location: 89.8% received treatment at a doctor's clinic.

The data provided insights into the Botox usage patterns, motivations, and outcomes among the surveyed groups.

Discussion

The results suggest a high level of awareness of Botox among the surveyed population, with 87.2% of the participants having heard of it. Social media appear to be the most common source of information about Botox, followed by traditional media and friends.

The surveyed populations in the studies demonstrated a significant level of awareness regarding Botox, with the majority of undergraduate dental students acknowledging the general knowledge about Botox and its use in facial aesthetics (Ganapathy et al., 2020). Similarly, Lebanese university students show awareness of Botox influenced by social media exposure, which correlates with their intent to undergo cosmetic procedures (Salameh et al., 2024).

Contradictorily, while there is a high awareness of Botox, studies have also revealed interesting facets of social media's influence. For instance, social media not only promotes awareness but also contributes to psychological distress related to facial appearance among youth (Salameh et al., 2024). Moreover, the role of social media in promoting deviance among youth has been highlighted, suggesting that its impact is multifaceted and not solely educational or awareness-based (Saud, 2015).

The study presented data on participants' attitudes towards the future use of Botox, accounting for 45.1% considering its use, 26.8%, and 28.0%, respectively. This distribution of opinions reflects a plurality of perspectives on Botox, indicating a significant level of openness to its use by nearly half of the respondents, whereas a notable proportion is either opposed or undecided.

In summary, this study revealed a diverse range of opinions regarding the potential future use of Botox. The findings suggest that while a substantial number of individuals are open to using Botox, there remains a significant portion of the population that is either opposed or has not yet formed a definitive opinion. This underscores the importance of continued education and research to address the concerns and informational needs of the public regarding Botox use (Ganapathy et al., 2020), (Demyati & Nassar, 2023).



The primary reason for Botox use among participants was cosmetic purposes, with 90.5% of individuals seeking treatment for aesthetic enhancement, particularly in the effacement of dynamic facial lines (Batniji & Falk, 2004). Interestingly, a notable proportion of participants also used Botox for medical conditions such as depression (17.2%), migraine (12.1%), muscle spasm (11.2%), excessive sweating (9.5%), and spasticity (11.2%) (Charles, 2004; Vlahovic et al., 2008).

The survey results indicated that 26.8% of participants used Botox. Within this group, the majority fell within the age range of 21-25 years, accounting for 37.7% of the users. The primary reason cited for botox use among the participants was the reduction in wrinkles, with 59.4% identifying this as their main motivation.

These findings align with the broader understanding of Botox as a popular cosmetic treatment for wrinkle reduction, as noted in the literature (Ganapathy et al., 2020; Satriyasa, 2019). The age demographics identified in the survey results suggest a trend towards the use of Botox among younger adults, which is consistent with the observations in (Michon, 2022) that younger adults seek Botox treatments often with the intention of preventing wrinkles.

In summary, the survey results reflect a significant interest in Botox treatment for cosmetic purposes, particularly in younger adults. According to a survey, the primary motivation for Botox use is the reduction of wrinkles, which is supported by literature that acknowledges Botox's efficacy in this application (Beer, 2006; Satriyasa, 2019). These findings underscore the importance of understanding patient motivations and demographic trends regarding the use of Botox in cosmetic procedures.

Conclusion

In conclusion. This study provides evidence that knowledge is an essential predictor of attitudes and behaviors. Moreover, our study's findings illustrate that university students in Ksa are becoming more accepting of Botox and have more knowledge about Botox use . However, many students expressed concerns about the safety and cost of Botox .. Finally, this study provides critical insights into the knowledge and attitudes of university students across Saudi Arabia towards Botox.

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Funding Statement: This study was conducted under a student research program and supported by the College of Medicine of Dar Al Uloom University.

Conflict of Interest Declaration: The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

References

1. Batniji, R. K., & Falk, A. N. (2004). Update on botulinum toxin use in facial plastic and head and neck surgery. *Current Opinion in Otolaryngology & Head and Neck Surgery*, 12(4), 317–322. <https://doi.org/10.1097/01.moo.0000131443.50445.53>
2. Charles, P. D. (2004). Botulinum Neurotoxin Serotype A: A Clinical Update on Non-Cosmetic Uses. *American Journal of Health-System Pharmacy*, 61(Suppl 6), S11–S23. https://doi.org/10.1093/ajhp/61.suppl_6.s11
3. Demyati, A., & Nassar, A. (2023). Orofacial Uses of Botox in Dentistry and their Associated Risks: A Population-Based Cross-Sectional Study in Saudi Arabia. *Nigerian Journal of Clinical Practice*, 26(11), 1624–1629. https://doi.org/10.4103/njcp.njcp_217_23
4. Deng, L., Yu, X.-H., Luo, Y.-Z., & Liu, F. (2022). Subcutaneous infection caused by Mycobacterium abscessus following cosmetic injections of botulinum toxin: A case report. *World Journal of Clinical Cases*, 10(18), 6141–6147. <https://doi.org/10.12998/wjcc.v10.i18.6141>
5. Dressler, D. (2006). *Pharmakologische Aspekte therapeutischer Botulinum-Toxin-Präparationen*.



- Der Nervenarzt, 77(8), 912–921.
<https://doi.org/10.1007/s00115-006-2090-2>
6. Ganapathy, D., Zaaba, N. A. A. B., & Duraisamy, R. (2020). Awareness of Botox Injections in Facial Aesthetics among Dental Students. *Journal of Pharmaceutical Research International*, 34–42. <https://doi.org/10.9734/jpri/2020/v32i1530623>
 7. Michon, A. (2022). Botulinum toxin for cosmetic treatments in young adults: An evidence-based review and survey on current practice among aesthetic practitioners. *Journal of Cosmetic Dermatology*, 22(1), 128–139. <https://doi.org/10.1111/jocd.15513>
 8. Salameh, R., Hanna, C., Ghabban, E., & Murr, E. E. (2024). Influence of social media on intent to undergo cosmetic facial injections among Lebanese university students. *research square platform llc*. <https://doi.org/10.21203/rs.3.rs-4165399/v1>
 9. Saud, M. (2015). Social Networking Sites and Deviance among Youth in Islamabad, Pakistan. *European Journal of Behavioral Sciences*, 1(1). <https://doi.org/10.33422/ejbs.2018.05.85>
 10. Vlahovic, T. C., Gauthier, C., Dunn, S. P., & Blau, J. C. (2008). Injectable Botulinum Toxin as a Treatment for Plantar Hyperhidrosis. *Journal of the American Podiatric Medical Association*, 98(2), 156–159. <https://doi.org/10.7547/0980156>
 11. Witmanowski, H., & Błochowiak, K. (2019). The whole truth about botulinum toxin - a review. *Advances in Dermatology and Allergology*, 37(6), 853–861. <https://doi.org/10.5114/ada.2019.82795>