Clinical, Cosmetic and Investigational Dermatology

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ORIGINAL RESEARCH

Personality Traits and Motivations of Chinese Adults Seeking Cosmetic Botulinum Toxin Injection

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Background: Cosmetic Botulinum toxin (BoTx) injection has become a popular trend. There is evidence that beauty seekers improve their self-esteem and psychological state through BoTx injection. However, the personality traits in Chinese patients with cosmetic injections have not yet been investigated.

Objective: This study aimed to investigate the motivations and personality profiles of patients seeking cosmetic BoTx injections using the Eysenck Personality Questionnaire (EPQ).

Methods: The present study used a cross-sectional design, and was conducted with a sample of 195 randomly selected patients seeking BoTx treatment. All participants completed the EPQ. We also provide options listed to explore patients' motivations for seeking treatment. The demographic information was collected and analysed.

Results: A total of 195 patients were enrolled, with a mean age of 33.09 ± 8.70 years. Of the 195 participants, 177 (90.77%) were women and 18 (9.23%) were men. The mean age of the participants was 33.09 ± 8.70 years, and the majority (74.36%) had a bachelor's degree or higher. We investigated three injection options, including lower facial contour treatment, anti-aging wrinkle injection, and body slimming injection. The EPQ of all participants showed higher E and N scores, but lower P and L scores compared to the norms. The participants age below 30 of lower facial contour injection had significantly higher P scores (p=0.048) and N scores (p=0.004), while N scores of anti-aging wrinkle treatments were significantly lower (p=0.013).

Conclusion: Our study was the first using EPQ to depict the personality traits of Chinese adults seeking cosmetic BoTx injection. Initially, we questioned the purpose of aesthetic treatment in the Chinese population, which were more affected by psychological factors. Identifying personality traits before injection will assist physicians in providing a psychologically matched treatment plan while improving treatment satisfaction. These findings suggest that understanding patients' personality traits can help physicians better predict treatment expectations and preferences. For example, patients with high neuroticism scores may be more anxious about treatment outcomes, so physicians can provide more detailed pre-treatment counseling and postoperative follow-up, which is crucial for improving treatment satisfaction and reducing potential medical disputes.

Keywords: aesthetic treatment, botulinum toxin injection, Eysenck Personality Questionnaire, EPQ, personality traits

Introduction

The use of BoTx for aesthetic purposes has increased observably since the first application was administered in the mid-1980s,[1,2] and has grown rapidly over the past two decades.[3] Surgical and non-surgical cosmetic treatments are now popular in Asia, particularly in China. Surgery still accounts for the largest percentage of spending.[4] A survey of 599 male and 818 female participants revealed that 53% of them were unwilling to undergo cosmetic surgery, while 82.22% of the participants preferred non-surgical procedures.[5] Aesthetic uses of BoTx include treating forehead wrinkles, glabellar lines, periorbital and perioral lines, platysmal bands, horizontal neck lines, masseter, etc.[6,7] The prevalence of BoTx injection may be attributed to its simplicity, safety and effectiveness.[8]

Received: 11 December 2024
Accepted: 14 March 2025
Published: 25 March 2025

People seeking cosmetic surgery primarily aim to maintain or improve their physical and psychosocial well-being.[9] The motivational factors of seeking cosmetic surgery include body dysmorphic disorder, body image, self-esteem, and teasing.[10] "Being interested in being beautiful" was the most common response, while "inappropriate psychological state" was the least common in Hadis Babadi's survey,[11] which concluded that psychological factors affected the participants' tendency for facial cosmetic surgery more than social factors. It can be summarized that people seek minimally invasive cosmetic procedures due to emotional, psychological, and practical motivations, in addition to the desire to enhance their physical appearance.[12] Although the beauty industry has flourished in China, studies exploring the psychological factors influencing BoTx seekers remain limited. This gap in research prompted the current study.

In psychology, personality is defined as the sum of all behavioural and mental characteristics, by means of which an individual is recognized as being unique. The personality and psychological aspects of cosmetic surgery have been investigated in other countries, such as Iran,[13] Germany,[14] France,[15] etc. The EPQ is widely used and has well - established reliability and validity. Applying it to Chinese patients seeking cosmetic BoTx injection can help us systematically assess the personality traits of this specific group, which has not been thoroughly investigated before. This can fill the research gap and provide a new perspective for understanding the relationship between personality and cosmetic treatment decisions in the Chinese context. The current study is the first to apply the EPQ in Chinese population with BoTx injection, through which we can assess the difference in personality traits between the BoTx injection seekers and the general population, as well as the relationship between the personality traits and cosmetic tendency. A better understanding of the motivational factors and personality traits of the seekers will enable us to provide the utmost quality of care for this population of patients,[10] which can help reduce the number of unnecessary treatments, and may enhance outcome satisfaction.[13] Understanding the personality traits of patients seeking cosmetic BoTx injection can help physicians better communicate with patients, predict treatment - related psychological reactions, and develop more personalized treatment plans. For example, for patients with high extraversion, more communicative and reassuring approaches may be needed during the treatment process, while for those with high neuroticism, more attention should be paid to alleviating their anxiety about treatment outcomes.

Materials and Methods

Participants

An observational cross-sectional study was conducted at the Department of Plastic Surgery at the Second Affiliated Hospital of Zhejiang University, School of Medicine between September 1, 2021 and December 6, 2021 that had obtained human research ethics approval from the Ethics Committee of 2nd Affiliated Hospital, School of Medicine, Zhejiang University. The inclusion criteria were as follows: 1) all patients were able to understand and complete the questionnaire independently; 2) all patients were physically healthy without significant deformities, scars, or serious systemic diseases. This study was conducted in strict accordance with the ethical guidelines of the Declaration of Helsinki. Before the initiation of the study, the protocol was approved by the Ethics Committee of The 2nd Affiliated Hospital, School of medicine, Zhejiang University (Ethics Committee Approval Number: 2021(0798)).

All participants were provided with detailed information about the purpose of the study. They were informed that the aim of this research was to investigate the personality traits and motivations of Chinese adults who were seeking cosmetic botulinum toxin injection.

Only after the participants fully understood the information and provided their voluntary written informed consent were they included in the study. This ensured that their rights, safety, and well-being were protected throughout the research process. And all patients signed written consent.

The participants seeking BoTx injection, including treatments of masseter (lower facial contour group), facial dynamic wrinkles, trapezius, and gastrocnemius (body slimming group), were invited to complete a self-reported demographic questionnaire, which included their name, gender, age, height, weight, income, marital status, education, smoking and drinking history, sleep duration, type of cosmetic surgery, and psychological scales as well. Participants were recruited from the outpatient department of the Plastic Surgery Department of the Second Affiliated Hospital of Zhejiang University School of Medicine. Patients who came for BoTx injection consultations during the study period

were invited to participate. The recruitment information was posted in the waiting area of the outpatient department, and patients were also informed about the study by the attending physicians during the consultation process.

The sample size of 195 was determined based on previous similar studies. Considering the limited resources and time, and referring to the sample sizes of related cross - sectional studies on personality and cosmetic treatment, we estimated that a sample size of 195 could provide reliable statistical power to detect significant differences in personality traits among different groups of BoTx injection seekers.

Measure

Motivations for seeking aesthetic treatment were collected using 12 multiple choice questions in the questionnaire for three choices per person(Table 1).

The Eysenck Personality Questionnaire (EPQ), created by Eysenck, was based on his three-dimensional theory of personality, and was developed on the basis of previous versions. This questionnaire was used because of its established reliability and validity, which can be completed in clinics within 15 minutes. In this study, we adopted the 88-item self-report scale, which was revised in China. It included 4 scales: extraversion scale (E), neuroticism scale (N), psychoticism scale (P), and lying scale (L). A higher score is more inclined to show the personality traits shown in the scale. Extraversion represents sociability, vivacity, enthusiasm, and impulsivity; neuroticism represents depression, anxiety, and emotional instability; psychoticism represents solitude, coldness, aggressiveness, and egocentricity; lying represents unsophisticated dissimulation. According to the total score that each participant received in each scale, we calculated the standard score (T=50+10*(X-M)/SD) by conversion. M and SD are the mean and standard deviation of the original scores obtained by normal groups. According to the levels of the internal and external propensity scale and the neuroticism scale, the study participants were divided into four typical temperaments: sanguineous (extroverted, stable), choleric (extroverted, unstable), phlegmatic (introverted, stable), and melancholic (introverted, unstable).[16]

Satisfaction score of the outcomes was collected, ranging from dissatisfied to most satisfied, which was represented with a scale of 1 to 10, respectively.

Statistical Analysis

Based on the Second Normal Model of Eysenck Personality Questionnaire statistics in 2000, we calculated the average of the normal population in each dimension by calculating the total scores of men and women in each dimension (number*mean) and dividing by the total number of people $\left(\bar{X}_{Total}=\frac{(\bar{X}_F\times N_F)+(\bar{X}_M\times N_M)}{N_F+N_M}, \mathrm{F}:\text{female};\mathrm{M}:\text{male}\right)$.

Data were input using Epidata 3.1 software, and Stata 15.1 was used for statistical analysis. All demographic data and EPQ scores were analysed using descriptive statistics. Age, BMI, sleep duration, and EPQ scores were treated as

Table 1 Motivations of Participants Seeking Aesthetic Treatment

Number	Question	Choices
D1	Improve self-confidence	105(53.85%)
D2	Reduce anxiety	21(10.77%)
D3	Making individuals be more satisfied with their body condition	137(70.26%)
D4	Seeking novelty in the physical state	30(15.38%)
D5	Being interested in beauty	120(61.54%)
D6	Having a successful marriage	7(3.59%)
D7	Having high perceived social standing or improving social relationships	16(8.21%)
D8	Media advertisements	4(2.05%)
D9	More family confirmation	3(1.54%)
D10	Modeling of friends	32(16.41%)
D11	Treat diseases	10(5.13%)
D12	Be curious and want a try	36(18.46%)

Notes: D1-D5 represent psychological factors related to self-image and self-confidence, such as being interested in being beautiful and improving self-confidence. D6-D10 represent social factors, such as media advertisements and family pressure.

continuous variables, while the cosmetic surgery tendency and results, gender, education, marital status, income, smoking, and drinking data were treated as dichotomous variables. Descriptive statistics are presented as mean and standard deviation for continuous variables, categorical variables as numbers (N) and percentages (%). The differences between EPQ scores were analysed by one-sample *t*-test in different sites. To investigate the correlation between EPQ scores and different sites with demographic variables, binary logistic regression analysis was performed. $P< 0.05$ was considered a statistically significant difference.

Result

General information of all participants included in the study is displayed in Table 2. Of the 195 participants who responded to the questionnaire, 177 (90.77%) were women and 18 (9.23%) were men. The age of the participants ranged from 14 to 64 years (Mean = 33.09, SD = 8.70). Of the 195 participants, the majority (74.36%) had a bachelor's degree or

Table 2 General Information of the Participants Seeking for the Injection therapy (n=195)

Characteristics	Means or Proportions
Age (years, mean ± SD)	33.09 ± 8.70
Gender, n (%)	
Male	18 (9.23)
Female	177 (90.77)
Education, n (%)	
Bachelor degree or below	50 (25.64)
Bachelor degree or above	145 (74.36)
BMI [kg/m^2, n (%)]	
< 18.5	52 (26.67)
18.5–24	131 (67.18)
≥ 24	12 (6.15)
Marital, n (%)	
Single	92 (47.18)
Married	103 (52.82)
Income, n (%)	
Stable	58 (30.05)
Unstable	137 (69.95)
Smoke, n (%)	
Yes/ex-smoker	9 (6.10)
Never	186 (93.90)
Drink, n (%)	
Yes/ex-drinker	19 (10.33)
Never	176 (89.67)
Sleep [hours, n (%)]	
< 7	24 (11.97)
7–8	91 (40.85)
≥ 8	80 (47.18)
Eysenck Personality Scale, mean ± SD	
E score	11.76 ± 4.39
P score	4.88 ± 2.24
N score	11.16 ± 5.62
L score	11.72 ± 3.50
Injection therapy, n (%)	
Lower facial contour treatment	117 (60.00)
Anti-aging wrinkle injection	85 (43.59)
Body slimming injection	23 (11.79)

higher. Most respondents were married, while 92 (47.18%) were single or divorced. Additionally, 67.18% of the participants had a BMI in the normal range. Among the respondents, individuals with unstable income, including businessmen, private enterprises, and foreign staff accounted for 69.95%. Participants who did not smoke or drink accounted for 93.90% and 89.67%, respectively.

Regarding treatment motivations, the top three reasons were increased satisfaction with body condition (70.26%), interest in beauty (61.54%), and improving self-confidence (53.85%). However, more family pressure (1.54%), media advertisements (2.05%), and having a successful marriage (3.59%) were the least-reported motivational factors for seeking treatment (Table 1).

Among the 195 participants for the total EPQ score, the mean and median points of E score was 11.76 ± 4.39, P score was 4.88± 2.24, N score was 11.16 ± 5.62 and L score was 11.72 ± 3.50 (see Table 2). In the general population, the calculated average for E was 11.50, P was 5.67, N was 10.88, and L was 12.56. Compared to the general population, participants had lower P and L scores, indicating less psychotic and deceptive traits, while E and N scores were higher, reflecting greater extraversion and neuroticism. The L scores of our participants were lower than that of the normal population, indicating that there was no problem with crowd selection.

The association between injection choice and EPQ scores among participants according to different sites is depicted in Table 3. The model was adjusted by age, gender, BMI, education, marital status, income, smoking, drinking, and sleeping duration, as those were implicit factors affecting the results and was under age stratification. It was revealed that participants under age 30 with lower facial contour treatment injection had a significantly higher P score (p=0.048) and N score (p=0.004). While participants age below 30 with anti-aging wrinkle injection had a significantly lower N score (p=0.013). It also shows the results of the binary logistic regression analysis. It can be seen that after adjusting for various factors such as age, gender, and BMI, for participants under 30 years old, those who chose lower facial contour treatment injection had a significantly higher probability of having higher P and N scores, while those who chose anti - aging wrinkle injection had a significantly lower probability of having high N scores. This indicates that different injection choices may be related to different personality traits in younger patients (Table 3).

The total satisfaction score was 9.369. The satisfaction score of the body slimming injection was highest, with a score of 9.565, while the satisfaction score of lower facial contour treatment was the lowest, with a score of 9.308. The satisfaction score of anti-aging wrinkle injection was 9.365. The high satisfaction score of body slimming injection may be due to its obvious effect on body shaping. For patients with high N scores, achieving the desired body shape through non - invasive BoTx injection can greatly reduce their anxiety about body image, thus leading to high satisfaction. In contrast, the relatively lower satisfaction score of lower facial contour treatment may be related to the higher expectations of patients for facial appearance changes, and the treatment effect may not fully meet their expectations.

Discussion

This study investigated general information of the participants seeking cosmetic injection (Table 2). Most of our participants were young (33.09±8.70 years of age) and female (90.77%) with high educational levels and healthy lifestyles. (Figure 1) The increasing social needs among young people might be a major motivational factor for seeking injection therapy. This could be because young women generally pay substantial attention to their appearance. Moreover, as aging characteristics, such as wrinkles begin to appear in their late 30s, women often feel compelled to maintain their youthful beauty, which could result in a common usage of injection therapy. Consistent with our study, other reports have found that patients undergoing minimally invasive cosmetic procedures generally have higher levels of education,[14] possessing either college or advanced degrees.[17] Furthermore, we found that BoTx injection in the lower facial contour was the most frequent choice (60.00%).

People seeking cosmetic surgery primarily aim to achieve physical and psychosocial well-being.[9] The motivations of seeking injection therapy were surveyed in the current study (Table 1). Hadis Babadi et al conducted a study on 385 facial cosmetic surgery applicants, and concluded that psychological factors accounted for the participants' decision for facial cosmetic surgery more than social factors,[11] and was supported by the results, The most common positive response was "Being interested in being beautiful", while the least common was "inappropriate psychological state". This concurs with our results, which found that psychological factors D1-D5 (79.27%) affect the participants' tendency for BoTx injection more than social factors D6-D10 (11.90%) (Figure 2). Patients' psychological stress stimulates them to pursue cosmetic injections.

Table 3 Association Between Different Sites injection therapy with EPQ Results in Participants With Injection therapy Under Age Stratification (n=195) n(<30)=84, n(>30)=111

	Lower Facial Contour of BoTx Injection				Anti-Aging Wrinkle of BoTx Injection				Body Slimming of BoTx Injection			
	<30		≥30		<30		≥30		<30		≥30	
	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*	OR (95% CI)	*P*
E score	1.11 (0.96, 1.28)	0.157	0.99 (0.86, 1.14)	0.882	0.86 (0.72, 1.04)	0.126	1.02 (0.89, 1.18)	0.785	0.97 (0.82, 1.15)	0.709	0.95 (0.79, 1.15)	0.632
P score	**1.38 (1.00, 1.89)**	**0.048**	1.21 (0.91, 1.60)	0.191	0.74 (0.52, 1.04)	0.086	1.19 (0.91, 1.57)	0.206	0.72 (0.48, 1.09)	0.126	0.76 (0.51, 1.13)	0.170
N score	**1.25 (1.07, 1.45)**	**0.004**	1.10 (0.99, 1.22)	0.075	**0.79 (0.65, 0.95)**	**0.013**	0.95 (0.86, 1.06)	0.393	0.95 (0.82, 1.10)	0.465	1.09 (0.93, 1.27)	0.293
Phlegmatic	–		–		–		–		–		–	
Melancholic	0.70 (0.15, 3.34)	0.658	0.65 (0.16, 2.62)	0.546	1.54 (0.23, 10.25)	0.654	0.72 (0.17, 3.04)	0.660	2.58 (0.37, 18.11)	0.340	1.55 (0.22, 10.80)	0.658
Sanguineous	0.25 (0.02, 3.88)	0.323	0.73 (0.14, 3.80)	0.704	5.21 (0.25, 110.23)	0.289	1.61 (0.27, 9.50)	0.599	–		2.19 (0.25, 19.26)	0.478
Choleric	1.87 (0.44, 8.01)	0.398	1.81 (0.57, 5.71)	0.313	0.45 (0.08, 2.53)	0.362	0.93 (0.28, 3.07)	0.909	0.53 (0.08, 3.42)	0.508	0.45 (0.08, 2.48)	0.357

Notes: The bolded part is the content with statistical significance where $p < 0.05$. Logistic regression adjusted for age, gender, BMI, education, marital status, income, smoking, drinking and sleep duration.
Abbreviations: OR, odds ratio; CI, confidence interval; E, extraversion; P, psychoticism; N, neuroticism; L, lying.

https://doi.org/10.2147/CCID.S511665

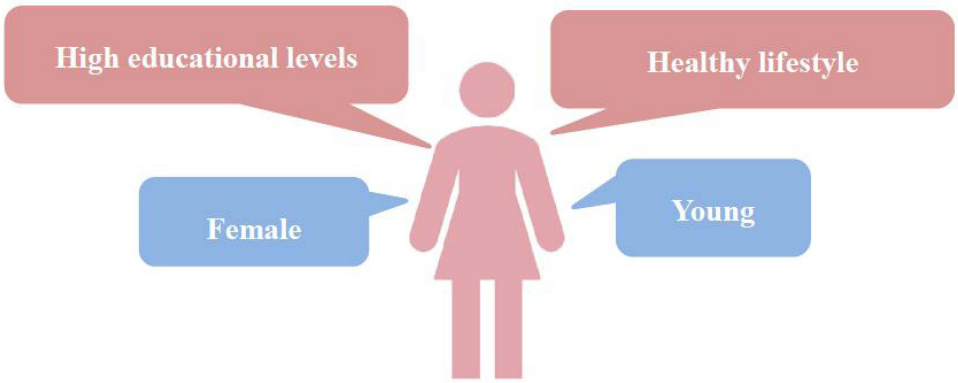

Figure 1 Demographic information of the participants seeking cosmetic injection.

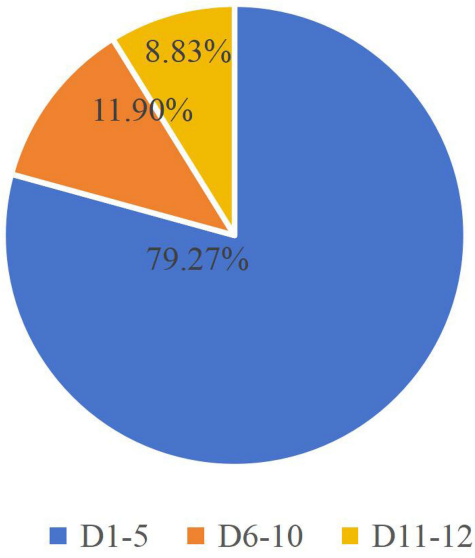

Figure 2 The proportion of psychological factors (D1-D5) and social factors (D6-D10) and others (D11-D12). (Table 1).

Psychological factors, including emotional stress and the desire to improve physical appearance, are key motivators for individuals seeking minimally invasive cosmetic procedures.[12] Furthermore, men with facial cosmetic surgery might experience changes in perceived attractiveness, masculinity, and a variety of personality traits.[18] Early studies considered psychopathology to be common in the cosmetic surgery population, particularly in rhinoplasty,[19–21] but recent studies have shown that patients seeking cosmetic surgery were psychologically normal.[22–26] However, psychopathology was still considered for people having both surgical and non-surgical cosmetic treatments. Psychiatrists have identified that the interface of beauty, mental health, self-esteem, and mental illness still exist. Some individuals exhibited unhealthy behaviour, such as over surgery or injection, despite having an enhanced appearance that might be inappropriate for cosmetic procedures. People with psychiatric conditions, including body dysmorphic disorder, as well as narcissistic and hysterical personality disorders, might have distorted image in their appearance which can lead to poor choices when considering cosmetic procedures.[27] Thus, preoperative screening is quite necessary.[28]

In psychology, the Eysenck Personality Questionnaire (EPQ) is a questionnaire used to assess the personality traits of a person. The EPQ of the participants who received BoTx injection showed higher E and N scores, but lower P and L scores compared to the norm. Extraversion is characterized by being outgoing, talkative, high on positive affect or feelings, and in need of external stimulation. Individuals with high E scores were more impulsive, sociable, and

https://doi.org/10.2147/CCID.S511665

expressive. Hence, they request many demands to improve their appearance. Psychoticism is associated not only with the liability of having a psychotic episode (or break with reality), but also with aggression. Individuals with low P scores were more conservative, and more likely to receive injections compared to surgeries, such as mandibular angle resection, which is associated with reduced risk and pain. Neuroticism or emotionality is characterized by high levels of negative affect, such as depression and anxiety. Individuals with high N scores were more likely to be anxious and depressed, meanwhile with high E scores,[29,30] and these traits appeared in the whole procedure. The patients with high N scores often questioned whether the dosage of BoTx was sufficient, whether the treatment resulted in facial symmetry, whether the lower facial contour was improved, and they asked for the preoperative and postoperative photographs for comparison. Furthermore, anxiety associated with work and relationships were found when conversing with them. Additionally, "social anxiety" was found in patients seeking rhinoplasty.[31] Interestingly, the study of Ercolani et al showed a significant decrease in anxiety and neuroticism, and an increase on the extraversion scale in postoperative evaluations of rhinoplasty.[32] Low L scores were found in participants who were younger or less sophisticated. To summarize, the personality traits of participants that received cosmetic injection were more extroverted, expressive, depressive, anxious, and susceptible to stress.

We found different personality traits in participants who received lower facial contour treatment injection and participants who received anti-aging wrinkle injection with age below 30. The lower facial contour group had higher P and N scores while the anti-aging wrinkle group had lower N score.

Change

The personality portraits of participants age below 30 and receiving lower facial contour injection could be described as nervousness, and psychoticism. The group might be young, anxious, and execution. With high N scores, they were often anxious and dissatisfied with their image, and they lacked a sense of security. Therefore, they had more desire to seek cosmetic procedures. The P scores were high. They were more reckless of danger, such as the side effect of BoTx, and prone to receive the experimental therapy. To be contrary, some immediately refused treatment when they heard the word "toxin" in "Botulinum toxin", due to the fear of a possible unknown side effect. This group was often associated with low self-evaluations, paranoid personality disorders, or body image disturbances. They were always dissatisfied with their appearance and their satisfaction score was lowest. If they were dissatisfied after injection, they would ask for immediate surgery, such as angle of mandible modification or facial liposuction.

Improve

Participants under 30 who received anti-aging wrinkle injections were generally well-educated, with high income levels and strong self-management skills. They tended to receive these injections regularly to maintain their appearance, even when they did not have obvious wrinkles. In addition to BoTx, they used other anti-aging methods such as skincare products, cosmetics, and household devices. For these individuals, BoTx injections were seen as a cost-effective way to invest in enhancing their appearance and quality of life. Their satisfaction score of 9.365 was close to the mean value of 9.369. Participants who received body slimming injections and had higher N scores reported the highest levels of satisfaction, with an average satisfaction score of 9.565. These individuals invested considerable time, money, and effort to improve their body shape, and the non-invasive nature of BoTx offered better results at a lower cost compared to other procedures.

Patients with high neuroticism scores are more likely to be anxious and pay close attention to treatment details. For body slimming injection, the obvious effect on body shaping can greatly reduce their anxiety about body image, leading to high satisfaction. However, for lower facial contour treatment, the relatively lower satisfaction may be because their high - level anxiety makes them more critical of the effect, and the outcome may not fully meet their high expectations. Compared with findings from other regions, although the influence of neuroticism on satisfaction shows some similarities, cultural differences may lead to different degrees of influence. In individualistic Western cultures, patients may be more self - centered in evaluating satisfaction, while in collectivistic cultures like China, the evaluation of others also plays an important role.

For participants aged 30 and above, the N scores were not statistically significant, as they primarily sought BoTx injections to address urgent cosmetic concerns, such as prominent crow's feet and glabellar lines.

In clinical practice, pre-treatment psychological screening using the EPQ can help physicians identify patients with potential psychological problems. For example, patients with high P scores may be more likely to take risks in treatment, so physicians need to provide more detailed risk information and precautions. In terms of pre-treatment counseling, according to the personality traits of patients, different communication strategies can be adopted. For extraverted patients, a more direct and enthusiastic communication style may be more suitable, while for introverted patients, a more patient and empathetic approach may be better. Future research can explore the application of psychological assessment using the EPQ in other cosmetic treatment areas, such as dermal filler injections or laser skin resurfacing. Additionally, longitudinal studies can be conducted to observe the long - term changes in personality traits and treatment satisfaction after cosmetic BoTx injection. Moreover, combining the EPQ with other psychological assessment tools can provide a more comprehensive understanding of patients' psychological states.

Compared with studies in Western countries, our study found that Chinese patients seeking cosmetic BoTx injection also show high levels of extraversion and neuroticism, but the specific manifestation and influencing factors may be different. Western studies suggest that individualism in Western culture may lead to a stronger self-expression motivation in cosmetic treatment, while in China, the influence of collectivism culture may make patients more concerned about the evaluation of others, which may also affect their personality traits and treatment choices to some extent.

Limitation

There were some limitations in our current study. First, the majority of participants were located in East China, which may introduce selection bias. Second, a limitation of this study is the gender imbalance, with only 9.23% male participants (n=18), which may limit the generalizability of the findings to both genders and affect the interpretation of personality traits in male patients. Third, The EPQ is a standardized personality assessment tool designed for use in healthy individuals, and while it provides useful insights, it may not capture personality changes over time or in response to treatments. The PHQ-9 and GAD-7 questionnaire could be used to simply screen the affection with psychological health when the N score was high. To further study personalities with cosmetic BoTx injection, the STIPO questionnaire could be used to assess the personality identity, if there are pathological conditions. To address the selection bias caused by the majority of participants being from East China, future studies can expand the recruitment scope to multiple regions across the country. For the gender imbalance, targeted recruitment methods for male patients, such as collaborating with male - oriented media or fitness centers, can be adopted. To better capture personality changes over time, a longitudinal research design or a combination of the EPQ with dynamic assessment tools can be considered.

Conclusion

Our study emphasizes the importance of understanding the personality traits of patients seeking BoTx treatment. Identifying patients' personality traits before injection helps physicians create psychologically tailored treatment plans, boosting satisfaction. For example, highly neurotic patients are more anxious about outcomes. Thus, physicians can offer detailed pre-treatment counseling and thorough postoperative follow-ups. This is vital for enhancing satisfaction and reducing potential medical disputes. By tailoring treatments to individual psychological profiles, physicians can improve patient satisfaction and ensure more effective outcomes.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Disclosure

The authors declare no conflicts of interest in this work.

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