

The Structural Model of Psychological Vulnerability Based on Object Relations and Adverse Childhood Experiences Considering the Mediating Role of Internalized Shame in Individuals Seeking Cosmetic Surgery

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ABSTRACT

The objective of this study was to test the structural model of psychological vulnerability based on object relations and adverse childhood experiences, considering the mediating role of internalized shame in individuals seeking cosmetic surgery. This study was fundamental and quantitative, using a descriptive-correlational and structural equation modeling (SEM) approach. The statistical population included all individuals residing in Tehran who were seeking cosmetic surgery and visited aesthetic clinics during the years 2023-2024. A sample of 304 self-volunteered participants from this population was selected through convenience sampling. Data were collected using the Psychological Vulnerability Questionnaire by Derogatis (2001), the Adverse Childhood Experiences Questionnaire by the Centers for Disease Control and Prevention and the Kaiser Foundation (2018), the Object Relations Questionnaire by Bell (1986), and the Internalized Shame Questionnaire by Cook (1993). Data analysis was conducted using correlation matrices and structural equation modeling. The data analysis results indicated that the proposed model's indices demonstrated an acceptable fit. The pathways from adverse childhood experiences to psychological vulnerability ($\beta = 0.115$, $P = 0.000$), from adverse childhood experiences to internalized shame ($\beta = 0.294$, $P = 0.000$), from internalized shame to psychological vulnerability ($\beta = 0.723$, $P = 0.000$), from object relations to psychological vulnerability ($\beta = 0.113$, $P = 0.000$), and from object relations to internalized shame ($\beta = 0.486$, $P = 0.000$) were significant. Additionally, the mediating role of internalized shame was confirmed at a 0.95 confidence level. Thus, it is recommended that the role of these variables be considered significant in assessment, diagnosis, and treatment. Relevant organizations should also consider implementing potential preventive programs.

Keywords: Psychological Vulnerability, Adverse Childhood Experiences, Object Relations, Internalized Shame, Cosmetic Surgery

1. Introduction

Cosmetic surgery has become a captivating factor and a means for luxury, leading to the establishment of unrealistic expectations among individuals and distorting the truth about its real nature (Richetin et al., 2020). Studies indicate that Iran ranks among the top countries globally in terms of the number of cosmetic surgery procedures performed, with significant expenditures allocated to these surgeries annually (Zamani & Fazilatpour, 2013). Compared to other countries, most cosmetic surgery candidates in Iran are typically under 30 years old (Zojaji et al., 2018). Kam et al. (2022) found that post-surgery, cosmetic surgery candidates displayed increased levels of interpersonal sensitivity, obsession and appearance concern, assertiveness, confidence, self-esteem, and social adjustment. Conversely, dissatisfaction with physical appearance has been linked to outcomes such as anxiety, depression, psychological disorders, social isolation, diminished self-concept, and low self-esteem (Gonzaga et al., 2021).

Research suggests that individuals interested in cosmetic surgery have greater psychological vulnerability than those who do not express an interest in these procedures (Paraskeva et al., 2014). Psychological vulnerability can be defined as a sensitivity to developing a disorder, feelings of uncertainty, a sense of danger when encountering specific situations, and exposure to mental health risks (Nogueira et al., 2022). Vulnerability refers to the likelihood of exhibiting maladaptive responses in certain situations (Ginty et al., 2017). It encompasses cognitive, emotional, social, and biological components known as vulnerability symptoms, including dimensions such as anxiety, depression, and somatization (Wright et al., 2013). This phenomenon is described as a pattern of cognitive beliefs that reflect an individual's need for achievement or external validation to maintain a sense of self-worth (Le Vigouroux et al., 2021). Psychological vulnerability is a natural outcome of experiencing traumatic events throughout an individual's life, a condition everyone experiences to varying degrees (Satici, 2016).

Research has established a long-term association between adverse childhood experiences (ACEs) and various health-related behaviors and outcomes in adulthood (McLennan et al., 2020). The study of ACEs has become a turning point in psychological and medical research, linking childhood experiences of abuse, neglect, and family dysfunction to health issues in adulthood (Felitti et al., 2019). Individuals

with ACEs are more likely than those without such experiences to suffer from mental health issues and early mortality (Bellis et al., 2015). ACEs affect children directly through abuse and neglect and indirectly through their living environment (e.g., violence, substance abuse, and parental mental illness) (Akintunde, 2024; Boullier & Blair, 2018; Saadati et al., 2024; Ye et al., 2023). Evidence shows a correlation between childhood emotional abuse and adverse long-term outcomes, with retrospective self-reported studies in adults with a history of emotional abuse indicating associations with low self-esteem, anxiety, feelings of guilt, or victimization in interpersonal interactions (Tausig & Culhane, 2019). Emotional abuse may appear in many parenting behaviors without physical or emotional presence (Li et al., 2020).

Another primary predictor of psychological vulnerability in both childhood and adulthood is the quality of object relations during childhood (Nobre et al., 2022; Nogueira et al., 2022; Rastgoo, Bahri, & Rahmani, 2023; Rastgoo, Zarbakhsh Bahri, & Rahmani, 2023). According to analytic psychology, environmental factors influence personality development from childhood onward; the foundation of a sense of security during this period is dependent on parents' responses to their children and their ability to provide a sense of security (Summers, 2024). Object relations theory emphasizes the role of early emotional and social experiences in shaping an individual's personality. Object relations theorists propose that a child's mind develops and becomes increasingly complex over time through early experiences with parents or caregivers (Poshtareh et al., 2024). This theory suggests that a person's relationships, emotions, defenses, and overall mental representation of relationships constitute the core of many psychological issues in childhood and adulthood. Object relations are defined as representations of oneself and others, along with the emotions tied to these representations, reflecting a person's capacity for forming human relationships and the quality of those relationships. Object relations theory posits that early relational trauma affects an individual's adult personality. In essence, representations formed in childhood act as models for current experiences and become increasingly complex with age (Summers, 2024).

Finally, another variable potentially associated with psychological vulnerability and serving as a mediator among the aforementioned variables is internalized shame. Internalized shame is a disabling and distressing emotional experience. Shame directs cognitive attention and processing inward toward one's emotions, personality traits,

behaviors, and focuses on personal flaws and deficiencies (Barta & Kiropoulos, 2023). Generally, shame arises from a sense of incompetence or moral disregard, where the individual feels humiliated, discredited, or devalued (Scott, 2015). Research indicates that shame strongly correlates with psychological disorders and more reliably predicts detrimental consequences (Weingarden & Renshaw, 2015). Specifically, shame proneness is associated with social anxiety (Birchwood et al., 2007), eating disorders, antisocial behavior, low self-esteem (Dickerson et al., 2009), post-traumatic stress disorder (Heinonen et al., 2018), hostility, obsessive thoughts, paranoia, phobias, psychosis, and somatization (Ang & Khoo, 2004).

In contemporary society, cosmetic surgery has become so prevalent that it could be considered an epidemic. However, comprehensive studies examining cosmetic surgery from a psychological perspective are limited, with most focusing on the consequences rather than the underlying motivations for surgery. Given the various reasons that drive people toward cosmetic surgery and its prominent role in modern life, it is essential to scrutinize the underlying psychological factors. Researchers of the present study observed a gap in the literature, as no existing model simultaneously examines the mentioned variables. Therefore, they conducted this study to fill this gap and clarify the contributions of these variables in explaining the psychological vulnerability of individuals seeking cosmetic surgery. Thus, this research aims to test a structural equation model of psychological vulnerability in cosmetic surgery candidates, based on object relations and adverse childhood experiences, considering the mediating role of internalized shame.

2. Methods and Materials

2.1. Study Design and Participants

This study was fundamental in its objective and, considering the nature of the topic, categorized as descriptive-correlational research with structural equation modeling (SEM). The statistical population included all individuals seeking cosmetic surgery residing in Tehran who visited aesthetic clinics during 2023-2024. The sample size was estimated using Klein's (2016) theory, recommending between 5 to 15 observations per number of observed variables or questionnaire items. Therefore, a sample of 304 individuals was selected through cluster random sampling. Tehran was divided into northern, southern, western, eastern, and central regions; several cosmetic surgery clinics were randomly chosen, and subjects were randomly selected

from each clinic's visitor list. Inclusion criteria were seeking cosmetic surgery in the past year, willingness to participate voluntarily, an age range of 25 to 45 years, absence of severe chronic or acute physical illnesses, and no psychiatric medication usage. Exclusion criteria included incomplete questionnaires and disruptive behavior during the study process.

For ethical considerations, the study obtained ethics approval with code IR.IAU.SRB.REC.1403.070 from the university's ethics committee. Participants were informed that providing their names was unnecessary and that all information collected would be accessible only to the researcher, maintaining confidentiality. To collect data, an official letter was acquired from the university to facilitate cooperation with cosmetic surgery clinics. Participants interested in collaborating were included with informed consent, instructed to answer honestly, and all questionnaires were then collected for analysis.

2.2. Measures

2.2.1. Internalized Shame

Developed by Cook (1993), this scale contains 30 items with two subscales: Shyness (24 items: 1-2-3-4-5-6-7-9-10-11-12-15-16-17-18-20-21-22-23-24-25-27-28-30) and Self-Esteem (6 items: 8-13-14-19-26-29). Each item uses a 5-point Likert scale, with scoring reversed so that high scores indicate worthlessness, incompetence, inferiority, emptiness, and loneliness, while low scores reflect high self-confidence (Hojatkhah & Mesbah, 2016). Cook (1993) reported Cronbach's alpha coefficients of 0.94 and 0.90 for the Shyness and Self-Esteem subscales, respectively (Cook, 2013). Rajabi and Abbasi (2011) reported an overall Cronbach's alpha of 0.90 for the Internalized Shame Scale, with 0.89 for men and 0.91 for women (Rajabi & Abbasi, 2011). In the study by Fathollahzadeh et al. (2017), Cronbach's alpha was calculated as 0.91. In this study, Cronbach's alpha was estimated at 0.867 (Fathollahzadeh et al., 2017).

2.2.2. Adverse Childhood Experiences

Developed by the Centers for Disease Control and Prevention and the Kaiser Foundation, this questionnaire (Boullier & Blair, 2018) consists of 10 questions assessing different aspects of adverse childhood experiences, including emotional abuse, physical abuse, sexual abuse, emotional neglect, physical neglect, domestic violence,

parental substance abuse, parental incarceration, and parental divorce. Responses are yes or no, with a positive answer indicating the experience occurred within the first 18 years of life. Scores range from 0 to 10, with higher scores indicating more adverse experiences. One sample question reads: “During your first 18 years of life, did anyone in your family suffer from depression, mental illness, or suicidal tendencies?” This questionnaire is reliable and valid for assessing childhood difficulties (Boullier & Blair, 2018). In this study, Cronbach’s alpha was estimated at 0.783.

2.2.3. Psychological Vulnerability

Brief Symptom Inventory (BSI-18), developed by Derogatis (2001), assesses psychological vulnerability. The BSI-18 is the shortest and most recent tool by Derogatis (2001) for measuring psychological distress, with three subscales: Somatic Complaints, Depression, and Anxiety. Each subscale has 6 items scored on a 5-point Likert scale (never, rarely, sometimes, often, and almost always). The correlation coefficient with the main scale is 0.90, and Cronbach’s alpha is 0.89. Factor analysis confirmed its validity (Rastgoo, Bahri, & Rahmani, 2023; Rastgoo, Zarbakhsh Bahri, & Rahmani, 2023). This inventory is suitable for ages 18 and older. In this study, Cronbach’s alpha was estimated at 0.946.

2.2.4. Object Relations

Initially developed by Bell et al. (1986), this scale is part of the 90-item Bell Object Relations and Reality Testing Inventory, a self-report tool that assesses dimensions of

object relations. Standardized for both clinical and non-clinical populations, it has been widely used in studies of interpersonal relationships and for diagnosing and predicting psychological vulnerabilities. The tool includes 45 items answered true or false, with four subscales: Alienation, Egocentricity, Social Incompetence, and Insecure Attachment. Bell et al. (1986) reported high discriminative validity and concurrent validity due to its high correlation with other psychological vulnerability measures. Internal consistency, measured by Cronbach’s alpha and the Spearman-Brown split-half reliability, ranged from 0.78 to 0.90 for the four subscales. Rahmatian et al. (2016) reported a Cronbach’s alpha of 0.75, and Hadinejad et al. (2014) reported alphas of 0.85, 0.74, 0.74, and 0.67 for Alienation, Insecure Attachment, Egocentricity, and Social Incompetence, respectively. In this study, Cronbach’s alpha was estimated at 0.754.

2.3. Data analysis

Structural equation modeling and the software SPSS 26 and PLS 3 were employed for data analysis.

3. Findings and Results

In this study, the highest frequency regarding educational level was among individuals with a bachelor's degree. The majority of participants reported a middle socioeconomic status. Additionally, 139 participants had only one child, marking the highest frequency in this variable. Furthermore, 154 participants had experienced cosmetic surgery once, representing the highest frequency.

Table 1

Descriptive Statistics of Research Variables:

Variable	Mean	Standard Deviation	Skewness	Kurtosis	K-S	VIF	p
Psychological Vulnerability	2.3441	0.77802	0.525	-0.342	0.081	1.598	0.000
Adverse Childhood Experiences	4.2247	0.25618	0.639	0.558	0.258	1.479	0.000
Internalized Shame	2.6332	0.56703	0.657	-0.500	0.121	1.887	0.000
Shyness	2.6502	0.53622	0.637	-0.456	0.109	1.648	0.000
Self-Esteem	2.5652	0.76373	0.554	-0.580	0.123	1.283	0.000
Emotional Abuse	1.5954	0.66767	1.152	0.694	0.201	1.005	0.000
Physical Abuse	1.2171	0.38756	2.533	7.220	0.311	1.417	0.000
Sexual Abuse	1.4967	0.79303	1.578	1.500	0.327	1.600	0.000
Emotional Neglect	2.3770	1.14673	0.466	-0.888	0.115	1.379	0.000
Physical Neglect	1.6276	0.73446	1.147	0.473	0.217	1.264	0.000
Object Relations	2.3441	0.77802	0.525	-0.342	0.079	1.639	0.000
Insecure Attachment	2.8753	0.88175	0.456	0.700	0.0201	1.541	0.000
Alienation	3.0930	0.36524	-0.160	-1.648	0.136	1.639	0.000
Social Incompetence	2.1444	0.75921	0.965	-1.634	0.145	1.400	0.000
Egocentricity	2.4437	0.77718	0.803	-1.499	0.258	1.528	0.000

Table 1 shows the descriptive statistics of the research variables, including the Kolmogorov-Smirnov (K-S) statistic. The non-significant p-values ($p < 0.05$) indicate that the data do not follow a normal distribution. Box plots

revealed no outliers. Additionally, variance inflation factor (VIF) values were below 10, indicating no multicollinearity. The Durbin-Watson statistic was 1.657, suggesting that residuals are independent.

Table 2

Correlation Matrix of Research Variables

Variables	1	2	3	4
Psychological Vulnerability	1			
Internalized Shame	0.763**	1		
Object Relations	0.727**	0.837**	1	
Adverse Childhood Experiences	0.595**	0.616**	0.632**	1

** $p < 0.01$

The correlation matrix demonstrates significant positive relationships among all variables at both 95% and 99% confidence levels (Table 2).

Factor loadings were calculated by assessing the relationship between each construct and its indicators. If

factor loadings exceed 0.30 and the absolute value of the t-statistic is greater than 1.96 at a 95% confidence level, it indicates that the variance between the construct and its indicators is greater than the measurement error, confirming reliability.

Table 3

Direct Effects

Model Paths	Main Samples	Sample Mean	Standard Deviation	T-Statistic	P-Values
Adverse Childhood Experiences -> Psychological Vulnerability	0.115	0.118	0.039	2.959	0.003
Adverse Childhood Experiences -> Internalized Shame	0.294	0.296	0.051	5.795	0.000
Object Relations -> Psychological Vulnerability	0.113	0.113	0.044	2.558	0.011
Object Relations -> Internalized Shame	0.486	0.486	0.055	8.899	0.000
Internalized Shame -> Psychological Vulnerability	0.723	0.721	0.036	20.080	0.000

Table 3 shows path coefficients (beta values) for all model paths. If the t-values for these paths exceed the critical value of 1.96, then the paths are significant at a 95%

confidence level. All paths were significant, supporting the hypotheses.

Table 4

Indirect Effects

Model Paths	Main Samples	Sample Mean	Standard Deviation	T-Statistic	P-Values
Adverse Childhood Experiences -> Internalized Shame -> Psychological Vulnerability	0.212	0.214	0.040	5.362	0.000
Object Relations -> Internalized Shame -> Psychological Vulnerability	0.352	0.350	0.040	8.726	0.000

The indirect effects results show that the t-statistics for all paths are greater than 1.96, indicating that the null hypothesis (assuming no mediating role of the variable) is

rejected at a 0.05 error level, confirming the mediating role of internalized shame in these relationships.

Table 5

Model Fit Indices for the Structural Model

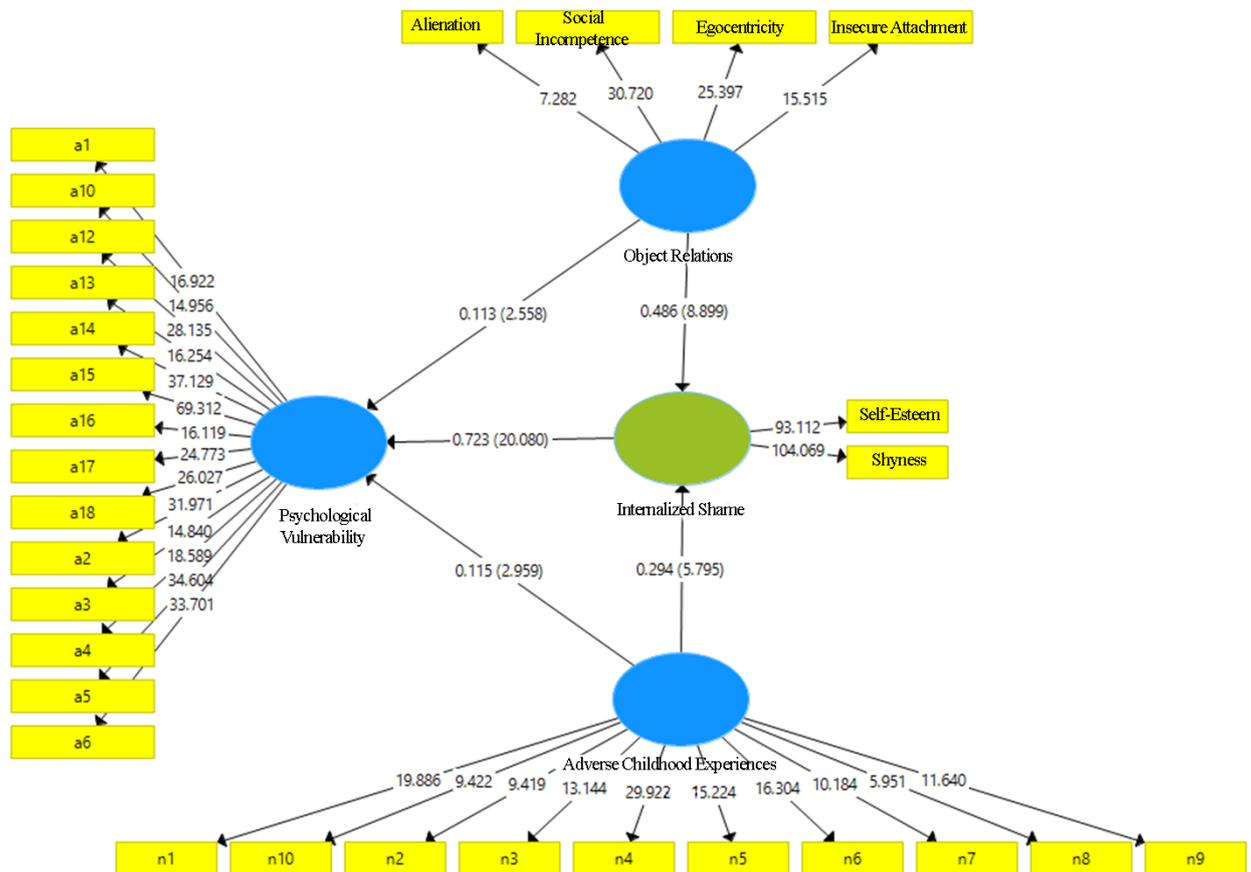
Fit Index	Critical Value	Estimated Model Value
Goodness of Fit Index (GFI)	> 0.36	0.601

Stone-Geisser Q ²	> 0	0.298
Standardized Root Mean Square Residual (SRMR)	< 0.08	0.06
Bentler-Bonett Index	> 0.90	0.904
Theta Root Mean Square	< 0.12	0.09

The goodness-of-fit index (GFI) for the model is 0.601, surpassing the critical value of 0.36, which indicates an acceptable model fit for the overall research model.

Figure 1

Model in Confirmatory Factor Analysis (CFA), Standardized Factor Loadings, and Path Coefficients



4. Discussion and Conclusion

This study aimed to test a model of psychological vulnerability based on object relations and adverse childhood experiences, with the mediating role of internalized shame, among individuals seeking cosmetic surgery in Tehran. The primary hypothesis was confirmed, indicating that the model demonstrates an acceptable fit.

One finding revealed that adverse childhood experiences have a direct impact on the psychological vulnerability of cosmetic surgery candidates. This is consistent with previous studies (Cohen & Thakur, 2021; Kealy et al., 2023), which found that exposure to adverse childhood experiences

can be a significant risk factor for developing psychological disorders in adulthood. Many adults with psychological disorders report childhood trauma. Another study on individuals who experienced emotional neglect and abuse showed that those exposed to physical or sexual abuse before age 18 frequently reported psychological issues in adulthood (Loving & Shemmings, 2020). This suggests that significant childhood stress may lead individuals to engage in impulsive, maladaptive behaviors to cope with emotional distress, resulting in symptoms like emotional instability, turbulent relationships, anger mismanagement, impulsivity, suicidal tendencies, and risky behaviors—symptoms indicative of emotional and regulatory dysfunction. Adverse

childhood experiences, particularly repeated interpersonal trauma between caregivers and children, may hinder the development of healthy emotional regulation skills (Riggs, 2019). Additionally, early life stress can hypersensitize the central nervous systems involved in stress response and emotion regulation (Darcy-Bewick et al., 2022).

Another finding indicated that adverse childhood experiences directly affect internalized shame in cosmetic surgery candidates. This aligns with previous studies (Cook, 2013; Fowke, 2008), which found that exposure to adverse experiences in childhood can increase the risk of shame-related disorders in adulthood. Kelly (2019) found a positive, significant relationship between adverse childhood experiences and feelings of shame in adulthood (Kelly, 2014). Studies indicate that individuals with childhood trauma, such as abuse or bullying, may choose cosmetic surgery later in life to reduce shame related to negative body image. Cosmetic surgery may enhance self-confidence, reduce body shame, resolve inner conflicts, and alleviate psychological distress. Furthermore, the enhanced self-esteem and body image from cosmetic surgery can help mitigate the lingering effects of childhood trauma, offering short-term boosts in confidence and positive appearance reinforcement (Kam et al., 2022; Paraskeva et al., 2014; Richetin et al., 2020; Zamani & Fazilatpour, 2013; Zojaji et al., 2018).

The study also found that object relations directly impact the psychological vulnerability of cosmetic surgery candidates. The influence of early family experiences on adult psychological vulnerability can be explained through family resilience, which includes the development of interpersonal skills, mutual acceptance, positive perspectives, family unity, spirituality, and the capacity to find meaning when facing adversity (Sadri et al., 2020). Childhood trauma may indicate an absence of security in object relations, affecting overall personality stability and resilience. Individuals with impaired inner security may experience helplessness, self-doubt, and diminished self-efficacy, leading them to seek attachment with accessible others and frequently feeling isolated, depressed, and vulnerable (Fischer-Kern et al., 2010).

Another finding showed that object relations directly impact internalized shame in cosmetic surgery candidates. This aligns with Spero's (1984) findings that shame can emerge during the development of object relations (Spero, 1984). According to object relations theory, adult relational patterns are shaped by early family experiences, particularly the child's relationship with their mother (Summers, 2024).

Thus, overall self-esteem is rooted in object relations, as childhood adversity predicts psychological functioning and the quality of later interpersonal relationships (Heinonen et al., 2018). Individuals struggling with inner insecurity, helplessness, and internalized shame may seek to change their physical appearance in pursuit of security and acceptance, leading to a demand for cosmetic surgery.

The study also found that internalized shame directly impacts psychological vulnerability in cosmetic surgery candidates. It appears that the inclination towards cosmetic surgery among these candidates stems from low self-acceptance. They struggle to accept their physical appearance and may turn to various methods to avoid body-related distress and shame, including cosmetic surgery.

The study found that object relations indirectly impact psychological vulnerability through internalized shame in cosmetic surgery candidates. Internalized shame indicates a lack of security in object relations and affects the individual's broader personality structure. Disruptions in personality stability can create inner instability and fear of life-threatening obstacles. These individuals may cling to available others, while feelings of loneliness, isolation, depression, helplessness, and shame dominate their psychological state (Fischer-Kern et al., 2010).

Another finding revealed that adverse childhood experiences indirectly impact psychological vulnerability through internalized shame in cosmetic surgery candidates, aligning with previous studies (Cook, 2013; Fowke, 2008). Moreover, childhood adversity, particularly repeated interpersonal trauma, hinders the development of effective emotional regulation skills (Riggs, 2019).

This study had limitations, including the use of self-report questionnaires, which may encourage respondents to engage in social desirability bias rather than reflect real behavior. Consequently, caution is recommended when interpreting these findings. The large number of survey items could lead to respondent fatigue, another limitation. Additionally, results should be generalized to other groups or cultures cautiously, given the ethnic and cultural diversity in Iran. Future research should include a larger sample of both genders to increase generalizability and compare male and female participants. Prior to cosmetic surgery, the role of psychological factors influencing psychological vulnerability and surgery inclination should be addressed. Given their expertise in diagnosing and addressing psychological issues, psychologists should offer specialized pre-surgery consultations.

Authors' Contributions

Authors contributed equally to this article.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants (Ethics code: IR.IAU.SRB.REC.1403.070).

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