

Factors Affecting the Desire to Undergo Cosmetic Procedures Among the Nurses of Kermanshah, Iran: A Cross-Sectional Study

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The number of people undergoing cosmetic procedures (CP) has been growing around the world in recent years. The aim of this study was to determine factors involved in the desire of nurses to undergo CP. A total of 360 nurses were recruited in this cross-sectional study. Stratified random sampling was used to select the samples. The data were collected using the Social Appearance Anxiety Scale and a questionnaire addressing social factors affecting the desire to undergo CP. More than half of the nurses (56.7%) were willing. Gender, social factors, and social appearance anxiety (SAA) were associated with undergoing

CP. The results of logistic regression indicated that women were four times more willing to undergo CP than men, and for each unit increase in SAA score, the odds of desiring to undergo CP increased by 1.04. The Hosmer-Lemeshow test confirmed the goodness-of-fit of the regression model. Moreover, 3 independent variables of gender, SAA, and social factors were powerful predictors of the desire to undergo CP that could explain 39.9%–53.6% of changes in the desire to undergo CP. Further studies are needed to investigate the amount of CP and motivations to undergo CP in nurses.

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Cosmetic procedures (CP) are elective surgical and aesthetic procedures designed to improve the appearance and physical characteristics of an individual (Stefanile, Nerini, & Matera, 2014). In recent decades, the number of CP has been increasing. The American Society of Plastic Surgeons reported a 132% increase in the number of CP performed in the United States between 2000 and 2016 (Dean, Foley, & Ward, 2018; Jovic, Sforza, Jovanovic, & Jovic, 2017). The number of CP in Iran has also been increasing in recent years. The number of CP is seven times higher in Iran than in Europe, and Iran is ranked first in the number of rhinoplasty procedures worldwide (Khanjani, Babapour, & Saba, 2012). All CP have potential side effects that can lead to an increase in the number of medical complaints. The most common complications of CP are asymmetry, ulcer, skin irritation, discoloration, dysfunction, muscle disorder, edema, keratosis, flexion, and oozing (Kim & Chung, 2018).

Evidence suggests that social and cultural factors can contribute to an increased desire to undergo CP because social networks increasingly expose people to different types of CP (Nerini, Matera, & Stefanile, 2014). Studies

show that an individual's personal characteristics (Brown, Furnham, Glanville, & Swami, 2007; Javo & Sørli, 2009; Li et al., 2016; Wright & Wright, 1975), level of self-esteem (Frederick, Lever, & Peplau, 2007; Javo & Sørli, 2009; von Soest, Kvaalem, Skolleborg, & Roald, 2006), and body image (Didie & Sarwer, 2003; Frederick et al., 2007; Pertschuk, Sarwer, Wadden, & Whitaker, 1998; Sarwer et al., 2003; von Soest et al., 2006) are reasons for undergoing CP. The results of a Norwegian study showed that familiarity with people who had undergone CP affected an individual's desire to undergo CP (Javo & Sørli, 2009). People who undergo CP may have higher levels of social appearance anxiety (SAA) than the general population. Concerns about appearance can lead to distress, disrupted interpersonal communication, and disturbed academic and occupational performance and may cause depression and anxiety (Yazdandoost, Hayatbini, Farid, Gharaee, & Latifi, 2016). Evidence also shows that media plays a role in the desire to undergo CP (Salehahmadi & Rafie, 2012).

As health care providers, nurses may play an important role in helping to decrease the number of unnecessary CP by providing education about the physical and psychological consequences associated with unnecessary CP (Niya, Kazemi, Abazari, & Ahmadi, 2018). Because of their significant role in educating patients, nurses may be able to assist in decreasing the number of unnecessary CP. It is essential to investigate nurses as a target population and analyze factors associated with their desire to undergo CP. The aim of the present study was to determine factors involved in the decision of nurses affiliated with a university medical center in Kermanshah, Iran, to undergo CP.

METHODS

Study Design, Participants, and Sampling Method

This was a cross-sectional study conducted between March 2017 and June 2017.

The study population consisted of all nurses working at one of seven hospitals affiliated with a university medical center in Kermanshah, Iran. To achieve an odds ratio = 1.5; $pr(Y = 1; X = 1) H_0 = 0.5$, power of test $(1-\beta) = 0.95$, and significance level $(\alpha) = 0.05$, the necessary study sample size was calculated to be 280 nurses using G*Power (Faul, Erdfelder, Buchner, & Lang, 2009) software.

To enhance the reliability and validity of the study, 360 nurses were included in the study using stratified random sampling. The sampling strata consisted of the seven hospitals affiliated with the university medical center in Kermanshah, Iran. Based on the number of nurses in each hospital, a proportionally representative percentage was selected as the study sample. A list of nurses from each hospital was prepared and encoded. Then, a total of 360

nurses were recruited from all hospitals using a random-numbers table.

The inclusion criteria of the study consisted of consent to participate in the study and having a bachelor's or master's degree in nursing.

Measurement Instruments

Data were collected using a three-section questionnaire. The first section included demographic information about the participants (e.g., age, gender, marital status, education, and residence).

The second section consisted of questions developed by the research team that examined social factors associated with the desire to undergo CP. The content validity of this section of the questionnaire was analyzed by 12 faculty members that included psychologists, psychiatrists, psychiatric nurses, dermatologists, and rhinoplasty surgeons. After analysis, the modifications recommended by the reviewers were applied to the questionnaire.

The reliability of this section of the questionnaire was confirmed by analysis of internal consistency. The questionnaire was given to 30 nurses, and Cronbach's α of 0.85 was estimated. This section of the questionnaire addressed six items that measured the effect of social factors such as media, the Internet, and friends who have undergone CP. Responses were based on a five-point Likert scale of never (1), low (2), average (3), much (4), and very much (5). The total score ranged between 6 and 30. A higher score was indicative of a higher effect of social factors on the desire to undergo CP.

The third section of the questionnaire was the Social Appearance Anxiety Scale (SAAS), constructed and psychometrized by Hart et al. (2008). The validity of the SAAS was confirmed by factor analysis and its reliability was confirmed by Cronbach's α (95%) (Hart et al., 2008).

In the present study, content validity was used to analyze the validity of the SAAS. Forward-backward translation was applied, which involved translation, reverse translation, experts' review, and peer review.

To determine the internal consistency of the SAAS, it was distributed among 30 nurses, and a Cronbach's α of 0.81 was obtained. The SAAS has 16 items and responses are rated based on a five-point Likert scale, ranging from never (1), low (2), average (3), much (4), and very much (5). The total score ranged between 16 and 80. A higher score was indicative of a higher SAA.

Ethical Considerations

Approval for the study was granted by the Ethics Committee of the University (ir.kums.rec.1396.61). The research objectives were explained to each of the participants and their consent to participate in the study was obtained by the researchers. Participants were assured that their personal information and responses would be kept confidential.

Data Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS) Version 16 (SPSS Inc., Chicago, IL). The normality of the quantitative variables was analyzed by the Kolmogorov-Smirnov test. The χ^2 and Mann-Whitney *U* tests were used to investigate the relationship between the desire to undergo CP and the independent variables (i.e., gender, marital status, residence, age, SAA, and social factors associated with CP).

A logistic regression model was applied to predict the dependent variable (i.e., desire to undergo CP) by the independent variables. Before analyzing the goodness-of-fit of the logistic regression model, irrelevant independent variables, including marital status, residence, education, and age, were excluded and variables such as gender, social factors associated with CP, and SAA were included in the logistic regression model. Further, the absence of multicollinearity was analyzed by a variance inflation factor (VIF) and tolerance statistics among the relevant independent variables, including gender, SAA, and social factors and the logistic regression model was estimated. The Hosmer-Lemeshow goodness-of-fit test was used to determine the fit of the model. The significance level was set at $p < .05$.

RESULTS

Of 360 questionnaires, two were incomplete and eliminated from the study. Therefore, 358 questionnaires were included in the analysis. Demographic characteristics of

the study participants are shown in Table 1. The results showed that 203 nurses (56%) were willing to undergo CP. In this group, most of the participants ($n = 179$; 88.2%) were women and about half ($n = 103$; 50.7%) were single. Most nurses who were willing to undergo CP were city dwellers ($n = 194$; 95.6%) and had a bachelor's degree ($n = 169$; 83%). A total of 155 (44%) nurses were not willing to undergo CP, and of these 99 (63.9%) were women and 91 (58.6%) were married.

Most participants who were unwilling to undergo CP lived in the city ($n = 150$; 96.8%) and had a bachelor's degree ($n = 134$, 86.5%).

As shown in Table 2, the most common CP participants were willing to undergo were rhinoplasty ($n = 151$; 41.9%), laser hair removal ($n = 92$; 25.5%), removal of acne or scar ($n = 78$; 20.8%), cheek filler ($n = 75$; 20.8%), onabotulinumtoxinA injection ($n = 66$; 18.3%), rhytidectomy ($n = 36$; 10%), and platelet-rich plasma ($n = 27$; 7.5%) (Table 2). The results indicated that compared with nurses who were not willing to undergo CP, the frequency of willing to undergo CP was higher in nurses who were women than in nurses who were men ($p < .001$). There was no significant difference between these two groups in terms of marital status, residence, or education.

The results of the Kolmogorov-Smirnov test showed the variables of age, SAA, and social factors did not have a normal distribution. Hence, the Mann-Whitney test was used to determine the relationship between the desire to undergo CP and the variables of age, SAA, and social factors. The findings indicated that the nurses who

TABLE 1 Desire of Nurse Participants to Undergo CP Based on Demographic Characteristics ($N = 358$)

| Demographic characteristics | Tendency to undergo CP | | Test result |
|-----------------------------|------------------------|------------|----------------------------------|
| | Yes (%) | No (%) | |
| Gender | | | |
| Female | 179 (88.2) | 99 (63.9) | $\chi^2 = 29.92$ * $p < .001$ |
| Male | 24 (11.8) | 56 (36.1) | |
| Marital status | | | |
| Married | 100 (49.3) | 91 (58.7) | $\chi^2 = 3.15$ NS |
| Single | 103 (50.7) | 64 (41.3) | |
| Place of residence | | | |
| Urban | 194 (95.6) | 150 (96.8) | $\chi^2 = 0.34$ NS |
| Rural | 9 (4.4) | 5 (3.2) | |
| Education level | | | |
| BSc | 169 (83) | 134 (86.5) | $Z^a = -0.752$ NS |
| MSc | 32 (16) | 17 (11) | |
| PhD | 2 (1) | 4 (2.6) | |

Note. CP = cosmetic procedures; NS = nonsignificant.

^aBased on the Kruskal-Wallis test.

* $p < .05$.

TABLE 2 Frequency of Nurse Participants Desire to Undergo Different Types of CP

| Type of CP | Tendency to undergo CP <i>n</i> (%) |
|--------------------------------|-------------------------------------|
| Rhinoplasty | 151 (41.9) |
| Laser hair removal | 92 (25.5) |
| Scar revision | 78 (20.8) |
| Cheek augmentation | 75 (20.8) |
| Lip augmentation | 67 (18.6) |
| Botox injection | 66 (18.3) |
| Facelift | 36 (10) |
| Platelet-rich plasma injection | 27 (7.5) |

Note. CP = cosmetic procedures.

were inclined and those were not inclined to undergo CP were not significantly different with respect to age. The findings also showed that the nurses who were willing to undergo CP had significantly higher levels of anxiety than those who were unwilling to undergo CP ($p < .001$). Further, the nurses who were willing to undergo CP were more influenced by social factors such as media, journals, television, the Internet, family, and friends than the nurses who were not willing to undergo CP ($p < .01$) (Table 3).

The variables of gender, SAA, and social factors associated with the desire to undergo CP had a significant relationship and were therefore included in the regression model. Before fitting the model, the results of the VIF and tolerance tests showed no significant multicollinearity between the predictor variables (VIF < 3; tolerance > 0.35). The results of the Hosmer-Lemeshow goodness-of-fit statistic showed a good fit for the model ($p = .12$). Moreover, the findings of the Log-likelihood statistic and pseudocoefficient of determination (Cox & Snell R^2 , Nagelkerke R^2), which are approximates of coefficient of determination (R^2) in linear regression, showed

TABLE 3 Mean and Standard Deviation of Gender, Social Anxiety, and Social Factors in Nurse Participants Who Were Willing and Unwilling to Undergo CP

| Variables | Tendency to undergo CP | | <i>p</i> value |
|---------------------------|-------------------------------|------------------------------|----------------|
| | Yes <i>M</i> (<i>SD</i>) | No <i>M</i> (<i>SD</i>) | |
| Age | 30.53 (7.23) | 31.67 (8.14) | NS |
| Social appearance anxiety | 41.89 (29.14) | 10.07 (12.48) | * $p < .001$ |
| Social factors | 41.11 (26.11) | 14.54 (10.48) | * $p < .001$ |

Note. CP = cosmetic procedures; NS = not significant.
* $p < .05$.

that the three variables of gender, SAA, and social factors could predict 39.9% to 53.6% of changes in the desire to undergo CP (Table 4).

The results showed the odds of the desire to undergo CP were almost four times greater in women than in men (odds ratio = 3.72). Given the quantitative nature of SAA and social factors associated with undergoing CP, the odds ratio was 1.04 times, indicating the odds of the desire to undergo CP increased by 1.04 times per each unit increase in the score of each of the variables of gender, SAA, and social factors.

DISCUSSION

The goal of the present study was to determine factors affecting the desire of nurses to undergo CP. To achieve this goal, a logistic regression model was used that was fitted by the variables associated with the desire to undergo CP (i.e., gender, SAA, and social factors). The results showed the goodness-of-fit for this model was statistically significant and the three variables explained 39.9% to 53.6% of changes in the desire to undergo CP. The results showed the desire to undergo CP was four times greater in women than in men. Further, women were more willing to undergo CP than men. Other studies have also shown that the desire to undergo CP is higher in women than in men (Brown et al., 2007; Frederick et al., 2007; Swami, Hwang, & Jung, 2012). The results of a study in India showed the odds of undergoing CP were four times greater in women than in men (Ju, Cha, & Kang, 2016). Another study in China indicated that Chinese women underwent CP significantly more frequently than their male counterparts (Li et al., 2016), which aligns with our results.

In the current study, there was no significant effect of marital status on the desire to undergo CP. Our results also agree with the findings of Farshidfar, Dastjerdi, and Shahabizadeh (2013) and Ju et al. (2016). However, the findings of Li et al. (2016) showed that single people were more willing to undergo cosmetic blepharoplasty or onabotulinumtoxinA injections than married people, but the married people were more willing to undergo nevus removal than single people (Li et al., 2016). von Soest et al. (2006) reported a statistically significant association between marital status and the desire to undergo CP, with married women being more willing to undergo CP than single women. Notably, the results of studies investigating the relationship between marital status and the desire to undergo CP are contradictory. This may be the result of the different cultural backgrounds and demographic characteristics of the participants.

In the present study, we found no significant relationship between an individual's age and their desire to undergo CP, which aligns with the findings of von Soest et al. (2006). However, some studies have reported a significant association between age and the desire to undergo

TABLE 4 Factors Affecting the Desire to Undergo CP in Nurse Participants

| | β | SE | Wals | OR | p value |
|---------------------------|---------|-------|-------------------|------------------|------------|
| Constant | -2.63 | 0.36 | 51.02 | 0.07 | $p < .001$ |
| Gender | 1.31 | 0.34 | 14.31 | 3.72 | $p < .001$ |
| Social appearance anxiety | 0.043 | 0.011 | 15.81 | 1.04 | $p < .001$ |
| Social factor | 0.038 | 0.008 | 23.38 | 1.04 | $p < .001$ |
| -2 Log likelihood | | | Cox & Snell R^2 | Nagelkerke R^2 | |
| 311.40 | | | 0.393 | 0.527 | |

Note. CP = cosmetic procedures; OR = odds ratio.

CP (Farshidfar et al., 2013; Ju et al., 2016; Salehahmadi & Rafie, 2012). Li et al. (2016) reported differing results for the desire to undergo CP in people of different ages. People younger than 18 years were significantly more willing to undergo cosmetic blepharoplasty or nevus removal than people older than 18 years. However, the participants older than 18 years were more willing to undergo onabotulinumtoxinA injections (Li et al., 2016). Brown et al. (2007) conducted a study in England and found that young people were more willing to undergo CP than older people. In our study, the absence of a significant relationship between age and desire to undergo CP may be due to various factors such as demographic characteristics and cultural backgrounds of the participants.

Likewise, in the current study, there was no significant association between educational levels and the desire to undergo CP, a result that aligns with the findings of Farshidfar et al. (2013). Some researchers have reported educational levels as a factor affecting the desire to undergo CP (Li et al., 2016; Salehahmadi & Rafie, 2012). Different demographic and psychological characteristics of the participants as well as their cultural backgrounds may account for the difference between the results of our study and those of other researchers reporting a significant relationship between educational levels and the desire to undergo CP.

In the present study, SAA was another factor affecting the desire of nurses to undergo CP. SAA is defined as the fear an individual has about how others evaluate his or her appearance including one's posture, hair, facial features, or a combination of these (Levinson & Rodebaugh, 2011). Most researchers studying factors affecting the desire to undergo CP have found that social appearance and body image have a significant impact on the desire to undergo CP (Ju et al., 2016; Park, Calogero, Harwin, & DiRaddo, 2009; Solvi et al., 2010; Swami et al., 2012). Concerns about physical appearance can lead to distress, disturbed interpersonal communication, and disrupted academic and occupational performance. These concerns may also cause depression and anxiety (Yazdandoost et al., 2016). We believe that the nurses' concerns about

their physical appearance are understandable because they communicate and interact with patients daily.

Another factor affecting the desire to undergo CP was social factors such as the media, the Internet, family, and friends. Evidence indicates that the media is a key factor influencing the desire to undergo CP (Furnham & Levitas, 2012; Salehahmadi & Rafie, 2012; Solvi et al., 2010). Friends and relatives can also affect the desire of an individual to undergo CP (Brown et al., 2007; Ju et al., 2016). Currently, CP is common among the public. When a person successfully undergoes CP, they can motivate others to also undergo CP. People are encouraged to undergo CP by extensive advertisements presented on the Internet and by the media in magazines, on television, via satellite, and on websites where beauty is presented as an important issue with a high priority for society.

There were some limitations in the present study. Data were collected by self-report, which may have affected the accuracy of the results. Additionally, because of the cross-sectional nature of the study, it was not possible to explain the causal relationship between the study variables.

CONCLUSION

The results of the study showed that more than half of the nurse participants were willing to undergo CP. Gender, social factors, and SAA were factors associated with their desire to undergo CP. In fact, the results of logistic regression showed that gender, social factors, and SAA were strong predictors of the desire for nurses to undergo CP. Women were four times more willing to undergo CP than men. High levels of SAA increased desire to undergo CP. Moreover, the nurse participants, who were more influenced by social factors, were more likely to undergo CP.

Therefore, implementing interventions, such as visiting a psychologist or reinforcing assertiveness skills to decrease SAA and using mass media and the Internet to inform individuals considering CP, especially women, about the risks associated with excessive attention to the body phenomenon can help reduce the number of unnecessary CP. Given the significance of this issue, factors affecting

the desire to undergo CP should be investigated in nurses practicing in other countries as well as in other groups of professionals, such as doctors or teachers.

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