



Early Maladaptive Schemas, Body Dysmorphic Disorder (BDD) and the Mediation Role of Rumination and Emotional Cognitive Regulation: A Focus on Cosmetics Surgery Applicants

Mona Rashidifar¹, and Asst. Prof. Dr. Mohammad Karami^{2*}

¹ Department of Psychology, Near East University, Nicosia, Cyprus

² Department of Marketing, Near East University, Nicosia, Cyprus

Abstract

Given the market statistics, cosmetic surgery has been highlighted as a rapidly flourishing and relatively highly demanded medical phenomenon in recent years. Individual psychological characteristics are assumed to significantly affect applications' intention to consider, demand, or apply for cosmetic surgery. To address this issue, this study proposes a comprehensive model to investigate the relationship between early maladaptive schemas and body dysmorphic disorder (BDD) and simultaneously examine the mediation role of rumination and emotional cognitive regulation of cosmetic surgery applicants. Using the judgmental sampling technique, empirical data were collected from 304 applicants aged 20-40 in the city of Isfahan, Iran, and were tested using structural equation modeling (SEM). The items of each construct were adopted from previous related studies. The results of the analysis indicated a significant indirect association between early maladaptive schemas and body dysmorphic disorder (BDD) with the mediating role of rumination and emotional cognitive regulation of cosmetic surgery applicants. Despite several limitations, the outcomes of this study contribute to the body of psychology, marketing, and medicine literature by identifying the factors affecting the applicant's decision-making process regarding whether to apply for cosmetic surgery.

Keywords: maladaptive schemas body dysmorphic disorder (BDD), rumination, emotional cognitive regulation, cosmetic surgery

1. Introduction

Cosmetic surgery is one of the most common surgeries in the world and the number of applicants is continuously increasing (Bucknor et al., 2018). When people realize that their

physical characteristics do not conform to the norms and standards they want, they may become stressed and consider cosmetic surgery as a solution to improve their appearance (Saba & Khanjane, 2012). One of the reasons that individuals choose cosmetic surgery is the presence of body dysmorphic disorder (BDD), which is the individual's reflection of a negative evaluation of the size, shape, and weight of their body (Richetin et al., 2020). Symptoms of body dysmorphic disorder (BDD) are mental preoccupation with some defect in physical appearance. These symptoms are either imaginary or if there is a slight abnormality, the person's concern about it is extreme and tormenting (Neziroglu & Khemlani-Patel 2002). In the new version of the DSM, body dysmorphic disorder (BDD) is recognized as being in the category of obsessive-compulsive disorder (Phillips et al., 1997). Body dysmorphic disorder (BDD) comprises an abstract term that includes feelings and perceptions as well as information that a person has about their body. This concept often clarifies a person's level of satisfaction with his/her physical appearance (Hrabosky et al., 2009).

Research has shown that the prevalence of depression, stress, anxiety, and suicide is higher in people who are not satisfied with their body image, and dissatisfaction with body image leads to the development of cognitive, behavioral, and health problems (Dyl et al., 2006). The results of research conducted in this field have shown that the onset of these symptoms in people is usually between 15 and 30 years old, and it is less likely that a person will develop these symptoms after the age of 30. Women suffer more from these symptoms than men (Zargar et al., 2012).

Early maladaptive schemas have a rich and prominent history in psychology and are widely in the cognitive study field (Riso et al., 2006). In the field of cognitive development, early maladaptive schemas are considered templates that are formed based on the reality or experience of people to help them explain their experiences (Bach et al., 2018). According to Young (2003), in general, primary maladaptive schemas are abstract representations of distinguishing characteristics of an event (Thimm, 2010). Schemas are patterns or deep and comprehensive themes that arise from memories, emotions, cognitions, and bodily sensations, often formed from childhood and adolescence, and continue throughout life and are highly ineffective (Temple, 2003). When the primary maladaptive schemas are activated, levels of excitement are released and directly or indirectly lead to various forms of psychological disorders such as depression, anxiety, inability to work, substance abuse, interpersonal conflicts, etc. Schemas help a person to organize their experiences about the world around them and process the information received (Maltby & Day, 2004). The results of the conducted research illustrated that early maladaptive schemas are significantly linked to body dysmorphic disorder (BDD) (e.g. Esmaeilnia et al., 2018; Dehghan Sarvolia & Dehghani, 2019).

Rumination as another psychological factor is defined as frequent, recurring, and uncontrollable thoughts about a subject (Scaini et al., 2021). This structure consists of involuntary thoughts about a specific issue that a person has no control over, thus causing a decrease in their concentration and disrupting their problem-solving performance (Watkins & Roberts, 2020; Philippi et al., 2020). Rumination has a significant effect on the intention for cosmetic surgery (Conboy & Mingoia, 2024). Sometimes among cosmetic surgery applicants, despite the normality of their physical appearance, they have recurring negative thoughts about their appearance that show an excessive and worrying fear of being ugly and unattractive, which can be symptoms of rumination (D'Agostino et al., 2018).

One of the cognitive processes that people use to manage exciting and arousing information is cognitive emotion regulation; therefore, thoughts and cognitions play a very important role in the ability to manage, regulate, and control emotions for cosmetic surgery applicants (Garnefski et al., 2001; McRae, 2016). Cognitive emotion regulation can be conscious or

unconscious, fleeting or permanent, and behavioral or cognitive. Behavioral emotion regulation is a type of emotion regulation that can be observed in the behavior of a person. Emotion regulation is a constant companion of a person that helps to manage or regulate emotions; it improves the ability of people to adapt, especially after negative emotional experiences (Palmieri et al., 2022). In most research, the cognitive regulation of emotion is equated with cognitive coping, and in general, it is defined as the cognitive ways of managing emotions using emotionally aroused information. Cognitive processes can help people manage or regulate emotions or excitement by controlling them (Ochsner & Gross 2004). Cognitive emotional regulation was found as an important factor affecting body dysmorphic disorder which might increase the positive attitudes of cosmetic surgery applicants (Szaszi & Szabo, 2023).

A significant percentage of applicants for cosmetics surgeries had a BDD diagnosis, according to earlier research; therefore, it is crucial that plastic surgeons and professionals who provide aesthetic services identify BDD symptoms when conducting screenings for cosmetic procedures (Kuhn et al., 2018; De Brito et al., 2019). Studies have shown that after a cosmetic surgery, the patient's BDD symptoms have little to no improvement because their preoccupation will be focused on another part of their body (Kuhn et al., 2018; De Brito et al., 2019). These results support the idea that BDD is not a true physical defect but rather a mental and neuropsychiatric illness (Kuhn et al., 2018; De Brito et al., 2019). It is imperative to treat patients psychologically before doing any physical treatments, as evidenced by the fact that only a small number of BDD patients report feeling fulfilled following surgery (Vashi, 2016; Kuhn et al., 2018; De Brito et al., 2019). BDD has a complex etiology that includes biological, psychological, and societal elements; as a result, a customized/specific treatment strategy/plan is necessary. For that reason, cosmetic providers advise a mix of psychotherapy and medication to prevent any needless cosmetic procedures. (Kuhn et al., 2018; De Brito et al., 2019). Therefore, investigating the psychological aspect of the cosmetics applicants' decision-making is crucial.

1.1 Research Objective

This study aims to investigate the psychological processes that impact the decision-making process of cosmetic surgery applicants, with a particular focus on the connections among early maladaptive schemas (EMS), body dysmorphic disorder (BDD), rumination, and emotional cognitive regulation. Although cosmetic surgery is now a common and highly demanded-phenomenon worldwide, little is known about the psychological factors that influence these choices. With little focus on deeper schema-level constructs like EMS (e.g. Esmaeilnia et al., 2018; Ziashakoorian et al., 2023; Conboy & Mingoia, 2024), prior research has mostly focused on surface-level factors like body image dissatisfaction (Phillips et al., 2006) and sociocultural influences (Sarwer et al., 1998). Additionally, most studies have addressed these factors separately, ignoring the intricate relationships between maladaptive thought patterns and techniques for emotional control (Cash & Smolak, 2011). Interestingly, although BDD has a well-established role in predicting interest in cosmetic surgery (Veale, 2004), there are not many comprehensive models that incorporate cognitive and emotional mediators, like rumination, which intensifies negative self-focused thoughts (Nolen-Hoeksema et al., 2014), and emotional cognitive regulation, which controls reactions to perceived flaws in oneself (Gross, 2015a). By using structural equation modeling (SEM) to examine the direct and mediated relationships between these factors, this study fills this crucial gap. The study contributes to a better understanding of the psychological factors influencing decisions about cosmetic surgery, an area that is still understudied in the literature today, by combining insights

from psychology, medicine, and behavioral research. Therefore, this study aims to address two main research questions:

- R.Q1: Does maladaptive schemas affect body dysmorphic disorder among cosmetic surgery applicants?
- R.Q2: Do rumination and emotional cognitive regulation mediate the path between maladaptive schemas and body dysmorphic disorder among cosmetic surgery applicants?

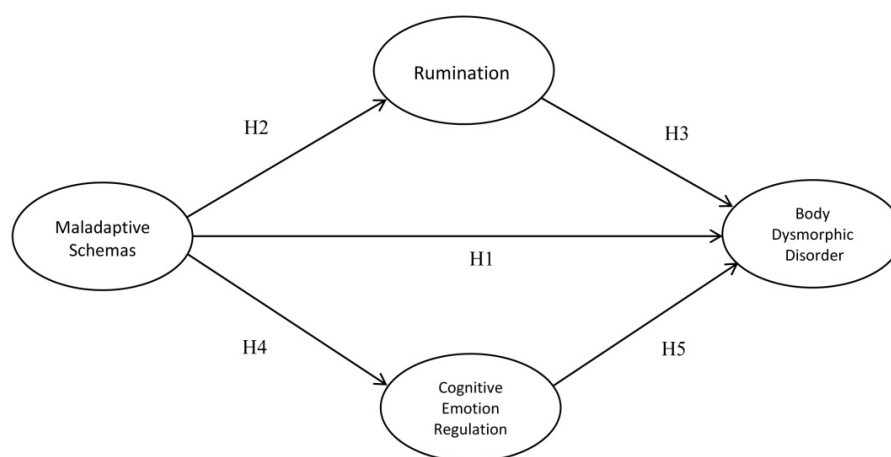
2. Research Model and Hypotheses

To answer each question this study developed the hypotheses:

- H1: Maladaptive schemas have a positive effect on body dysmorphic disorder.
- H2: Maladaptive schemas have a positive effect on rumination
- H3: Rumination has a positive effect on body dysmorphic disorder.
- H4: Maladaptive schemas have a positive effect on cognitive-emotional regulation
- H5: Cognitive emotional regulation has a positive effect on body dysmorphic disorder.
- H6: Rumination mediates the path between maladaptive schemas and body dysmorphic disorder.
- H7: Cognitive emotional regulation mediates the path between maladaptive schemas and body dysmorphic disorder.

To answer each question this study proposed a conceptual framework to graphically present the relationships between variables (Figure 1)

Figure 1. *Conceptual Framework*



3. Materials and Methods

3.1 Sample and Data Collection

The population of the research included all cosmetic surgery applicants aged 20 to 40 years who visited cosmetic clinics in Isfahan in 2022-2023. Isfahan is a popular destination for cosmetic surgeries in Iran due to available medical advancements. In the first stage, a pilot test was conducted with a mini sample of 20 participants to check the validity and reliability of the

research instrument. In addition, some scholars were asked to review the questionnaire. Based on the pilot study results, several corrections were made to refine the format, length, phrasing, readability, and clarity of the instruments. Wilson, Theodorus, and Tan (2018) suggested that the sample size should exceed 200. In addition, Hair et al. (2010) and Beavers, Iwata, and Lerman (2013) recommended a sample size between 150–400 and 150–300, respectively. Therefore, in the second stage, using the judgmental sampling technique, the relevant questionnaires were distributed to 304 potential respondents. In return, 283 completed questionnaires were received in one month, which equated to a satisfactory response rate of 98 percent. Therefore, 283 valid questionnaires were used to test the model. All participants signed a term of free, informed consent, which was separated from the research protocol to ensure data anonymity. No incentives or rewards were provided to the participants.

3.2 Questionnaire Construct

In the first part of the questionnaire, the respondents were asked about their age, gender, education, and marital status. The demographic characteristics of the respondents show that a majority (92.9 percent) of the respondents were female. The majority (54.4. percent) of respondents were between 25 and 29 years old. In terms of education, 5.3 percent of the respondents held a less than bachelor's degree, 65.7 percent held a bachelor, and 28.9 percent education was higher than a master's degree. Furthermore, most of the respondents were single (64.7 percent). In the second part, the respondents were asked to respond to items related to each construct according to their perceptions and experience.

3.3 Research Instruments

In this study, a self-administered questionnaire was adopted for data collection purposes. The questionnaire was originally designed in English and then translated into Persian to conform to the language of the respondents and then back-translated into English by a native Persian speaker to ensure that it corresponded with the English version. The following instruments were used in the current study to collect the necessary data:

The *Young and Brown's Maladaptive Schema questionnaire* was created by Young and Brown (1994). It has 75 items designed to measure 15 primary maladaptive schemas. These schemas are: emotional deprivation, abandonment, mistrust/mistreatment, social isolation, defect/shame, dependence/incompetence, vulnerability to harm, undeveloped and trapped self, obedience, sacrifice, emotional inhibition, stubborn standards, entitlement or grandiosity, insufficient self-control, and failure. Each of the 75 statements of this questionnaire is scored on a 5-point Likert scale ranging from "does not apply to me at all" to "exactly describe me". The range of scores in each scheme is from 5 to 25. The highest score indicates a stronger presence of the incompatible schema. The initial 205-item form of this questionnaire was designed by Young and Brown (1994). Its short form was designed in 1998 (Young and Brown, 1998). In the study of (Welburn et al., 2002), Cronbach's alpha coefficients for all 15 subscales of the short form of the schemas questionnaire ranged from 0.76 to 0.93. In the study of (Welburn et al., 2002), the results of factor analysis strongly supported the internal structure of the questionnaire.

The *Body Dysmorphic Disorder (BDD) questionnaire* was designed in 1997 by Phillips et al. (Phillips et al., 1997). The Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder (YBOCS-BDD) contains 12 items in four categories, each scored on a scale from 0 (no symptoms) to 4 (extreme symptoms). The scale's validity and reliability have been confirmed, with an internal consistency (Cronbach's alpha) of 0.88, indicating strong reliability.

The ***Rumination questionnaire*** was created by (Nolen-Hoeksema & Morrow, 1991) with 22 items in three areas. Items are scored based on a four-point Likert scale (1=almost never to 4=almost always) and the range of scores is between 22 and 88, with a higher score indicating more rumination. The construct validity of the tool was confirmed by exploratory factor analysis and its reliability was reported with a Cronbach's alpha of 0.91 (Nolen-Hoeksema & Morrow, 1991).

The ***Cognitive Emotion Regulation questionnaire*** developed by (Garnefski & Kraaij, 2007) is a self-report tool that has 36 items in nine categories. The cognitive emotion regulation scale assesses self-blame, acceptance, rumination, positive refocusing, refocusing on planning, positive reappraisal, perspective taking, catastrophizing, and others' health. In this questionnaire, the individual is asked to specify his/her reaction when confronted by threatening experiences and stressful life events that he/she has recently experienced by answering 5 questions that evaluate the strategy used to control and regulate emotions. Garnefski et al. (2001) found that the validity and reliability of this scale are good; the alpha coefficient for the subscales of this questionnaire was reported to be in the range of 0.71 to 0.81.

3.4 Data Analysis

To detect whether parametric or non-parametric analysis should be conducted, the skewness and kurtosis of the variables were used to check the normality of the data. Moreover, although the normality of the variables in terms of skewness and kurtosis can be approved, their distribution might not be statistically normal. Therefore, the Kolmogorov-Smirnov test was utilized to statistically test the normality of the data (Karami & Karami, 2021). At the inferential level, the Pearson correlation coefficient was applied to investigate the relationships between the study variables. As a powerful valid multivariate technique, structural equation modeling (SEM) was employed to test the hypotheses in the proposed model (Lin et al., 2017). To analyze the data and also examine the associations between constructs in the proposed model, SPSS and AMOS (v. 24) statistical tools were used. The Goodness of fit was checked by the indices of the model-fit measures and accepted given the cut-off values suggested in previous studies as $X^2/df < 3$ (Hayduk, 2023), $GFI \geq 0.8$ (Scott, 1995), $AGFI \geq 0.8$ (Scott, 1995), $NFI \geq 0.8$ (Hair et al., 1998), $CFI \geq 0.8$ (Bagozzi & Yi, 1988), and $RMSEA \leq 0.8$ (Bagozzi & Yi, 1988).

3.5 Common Method Bias

Common method variance (CMV) might affect the relationships between constructs in the model if the data for all variables (independent and dependent) were collected using a single survey (Podsakoff et al., 2003). Hence, it was advised as a prior step that any bias in the data be examined before checking the reliability and validity of the constructs (Kataria & Saini, 2020). Therefore, Herman's single-factor test, a widely accepted test for assessing common method bias (CMB), was performed to check whether a single factor could account for the majority of the variance (Podsakoff et al., 2003). The values of the test showed that 41.12% of the variance was accounted by the first factor, which is lower than the maximum accepted limit of 50% suggested by Herman (Podsakoff et al., 2003; Fuller et al., 2016), indicating no CBM in the data.

4. Results

4.1 Correlations Analysis

In the initial stage, the descriptive analysis was performed. The results show that most of the variables are fairly normal since the skewness and kurtosis of the variables were within the rule of being ± 3.3 as the upper threshold suggested by (Skarpness, 1983). In addition, the significant levels of Kolmogorov-Smirnov statistics were >0.05 ; thus, the scores provided a normal distribution. Therefore, the Pearson correlation coefficient and structural equations were used. According to the outcomes of the correlation analysis, the relationship between the variables was significant. Therefore, it was possible to study the research model. The results of the Pearson correlation analysis are reported in Table 1.

Table 1.

Correlation matrix of variables

Variables	1	2	3	4
1. Maladaptive Schemas	1			
2. Rumination	0.343**	1		
3. Cognitive Emotional Regulation	0.233**	0.185**	1	
4. Body Dysmorphic Disorder	0.347 **	0.149**	0.477 **	1

Note: (**) $p < 0.01$, (*) $p < 0.05$

4.2 Tests of the Structural Model

To examine the hypothesized relationships, the SEM multivariate technique was used. To test whether the constructs and items are well fit with the hypothesized model, measures of fit are tested for the collected data. The outcome indices of $\chi^2/df = 2.575$, GFI = 0.96, AGFI = 0.92, NFI = 0.95, CFI = 0.98, and RMSEA = 0.036 exceed the recommended thresholds, which indicates an adequate fit to the collected data. The results of the analysis are shown in Table 2.

Table 2.

The direct path coefficients

The direct path coefficients						
Direct Path		Beta (β)		SE	P-Value	Result
H1: MS	→ BDD	0.445		0.038	***	Positive
H2: MS	→ RU	0.195		0.008	**	Positive
H3: RU	→ BDD	0.384		0.084	***	Positive
H4: MS	→ CER	0.281		0.027	**	Positive
H5: CER	→ BDD	0.105		0.020	**	Positive
CFI	NFI	AGFI	NFI	DFI	RMSEA	χ^2 /d.f.
0.945	0.905	0.941	0.915	0.928	0.045	2.895

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.001$; Beta: Path Estimate; SE: Standard Error.

The values of coefficients indicated that all relationships were significantly positive. In detail, the results demonstrated that early maladaptive schemas had a significant effect on body dysmorphic disorder ($\beta = 0.445$, $p < 0.001$), Rumination ($\beta = 0.195$, $p < 0.05$), and cognitive emotion regulation ($\beta = 0.281$, $p < 0.05$). In addition, the effect of rumination and cognitive emotion regulation on body dysmorphic disorder were both positively significant ($\beta = 0.384$, $p < 0.001$; $\beta = 0.105$, $p < 0.05$). Therefore, based on the coefficients of the paths, the early maladaptive schema has the most direct effect on the body dysmorphic disorder (BDD). Also, rumination is the second most effective in terms of its effect on body dysmorphic disorder (BDD), followed by cognitive emotion regulation.

4.3 The Effect of Mediator

The bootstrapping method was utilized to test the mediation effect of variables in the proposed model, following the well-known (Preacher & Hayes, 2008) approach. The results of the analysis are presented in Table 3.

Table 3.

The results of the mediating effect

Models Statistics	MS to RU to BDD			MS to CER to BDD		
	β	LL	UL	β	LL	UL
Direct Effect	0.44***	0.20	0.39	0.44 ***	0.16	0.32
Indirect Effect	0.51 ***	0.08	0.36	0.84**	0.09	0.46
Total Effect	0.36 ***	0.29	0.52	0.46 ***	0.27	0.39

Notes: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$ LL: Lower Level; UL: Upper Level

The results showed that rumination and cognitive-emotional regulations partially mediate the early maladaptive schema path to body dysmorphic disorder (BDD) in the total direct and indirect effects. The total, direct, and indirect effects summarized in Table 3, show rumination and cognitive emotion regulations partially mediate the maladaptive scheme path to body dysmorphic disorder. Therefore, all hypotheses were significantly supported. The H6 is supported by the values of β and confidence interval of the total effect ($\beta = 0.36$, 95% CI=0.29, 0.52), direct effect ($\beta = 0.44$, 95% CI=0.20, 0.39) and indirect effect ($\beta = 0.51$, 95% CI=0.08, 0.36). Furthermore, the statistics by the β and CI values for the total effect ($\beta = 0.46$, 95% CI=0.27, 0.39, direct effect ($\beta = 0.44$, 95% C=0.20, 0.39), and indirect effect ($\beta = 0.84$, 95% C=0.09, 0.46) supported the H7.

According to the results of the analysis, it can be concluded that the early maladaptive schema can be related to body dysmorphic disorder through the mediating variables of rumination, and cognitive regulation of emotion. The findings show that the indirect effect of the early maladaptive schema on body dysmorphic disorder (BDD) with the mediating effect of rumination is positive and significant ($p < 0.001$). Therefore, in line with an increase in the early maladaptive schema, the symptoms of body dysmorphic disorder (BDD) increase significantly with the mediating effect of rumination. In addition, the indirect effect of the early maladaptive schema on body dysmorphic disorder (BDD) with the mediating effect of cognitive emotion regulations was shown to be positive and significant ($p < 0.05$). Therefore, with the increase of the early maladaptive schema, the symptoms of body dysmorphic disorder (BDD) increase significantly with the mediating effect of cognitive emotion regulation. Thus, according to the path coefficients, the early maladaptive schema has the most indirect effect on the symptoms of body dysmorphic disorder (BDD) with the mediating roles of rumination, and cognitive emotion regulations sequentially.

5. Discussion

The relationship between early maladaptive schemas and body dysmorphic disorder (BDD) was related to the mediating role of rumination in 20-40-year-old cosmetic surgery applicants. The results of the research showed that the primary maladaptive schemas and symptoms of body dysmorphic disorder (BDD) are related to the rumination and cognitive emotion regulation rate of cosmetic surgery applicants. The results of the research are aligned with the outcomes of previous studies such as those by (e.g. Kollei et al., 2012; Dunne et al., 2018; Felton et al., 2019; Dunning et al., 2022; Andami et al., 2023).

5.1 Theoretical Implications

In explaining the results of this hypothesis, it can be said that the initially incompatible schemas in these cosmetic surgery applicants are the result of harmful experiences such as

abandonment, emotional deprivation, humiliation, defects in the primary environment, and stressful events that a person experiences during childhood and adolescence. On the other hand, parents have likely created problems for them in terms of accessing the five basic aspects of healthy development, namely communication, autonomy, competence, reasonable expectations, and realistic limitations. Therefore, they have unintentionally caused the formation and growth of primary incompatible schemas. The schemas subsequently lead to the creation of negative beliefs about oneself and one's physical appearance and pessimistic views towards life. Considering that the primary maladaptive schemas are developed and fixed in the early stages of life and are valid representations of unpleasant childhood experiences, it can be concluded that they form the basis of distorted thinking, dysfunctional behaviors, and also the core of behavioral and psychological problems of cosmetic surgery applicants.

Cosmetic surgery applicants have a strong connection with their body image, information that they store, process, and retrieve in their minds. This negatively affects all their cognitive functions such as attention, memory, decision-making, and interpretation, thus resulting in a negative self-evaluation in the way that being beautiful and attractive gives them a feeling of a meaningful life.

These factors lead to the formation of body dysmorphic disorder (BDD) in such individuals. If they are aware of their initial incompatible schemas, applicants for cosmetic surgery, do not try to evaluate themselves only based on their body image and physical characteristics, but rather recognize the desires and needs of the body and spend their energy in other areas of life. Also, rumination can increase the effects of negative mood and the occurrence of psychological and physiological problems in cosmetic surgery applicants. This makes their thinking negatively oriented and weakens their performance; people who have more rumination experience more symptoms of physical deformity and feel weak in accepting themselves compared to their peers who have less rumination. They show more of themselves. People with rumination have a constant mental preoccupation with their physical appearance, and sometimes, despite the normality of their physical appearance, they express an excessive and worrying fear about their body appearance, which causes many defects in their appearance. Additionally, many of these people are drawn to cosmetic surgery. Also, excitement and recognition are two important aspects in the life of cosmetic surgery applicants, and the interaction between these two factors is very important in most of their actions. Therefore, for a better understanding of their cosmetic surgery procedures and their behavioral correlates, it is necessary to study both cognitive and emotional factors. When people use the strategies of positive acceptance, positive refocusing, refocusing on planning, positive re-evaluation, and ignorance with full knowledge and awareness about cosmetic surgery, with correct emotional recognition, they replace positive thoughts with negative thoughts of physical deformity. However, people who use uncompromising strategies of self-blame, ruminating, catastrophizing and blaming others without emotional recognition, are more prone to plastic surgery and body dysmorphic disorder (BDD)(Gross, 2015b).

Cognitive regulation of emotion as one of the successful well-being factors against personal and social problems caused by rumination can be optimally used for cosmetic surgery applicants so that they can deal with rumination and turn their minds to planning and taking action to solve the problem, gain positive emotional outcomes and better mental health, and experience lower levels of body dysmorphic disorder (BDD) and negative thoughts about themselves. People who undergo cosmetic surgery experience multiple negative emotions, which in turn cause wrong thinking and decision-making about solving and fixing the problem. Increasing emotional cognitive regulation has positive consequences such as reducing rumination an emotional cognitive regulation, and negative consequences of self-harming behavior such as requests for cosmetic surgery, as well as reducing symptoms of depression

and anxiety. Cognitive emotion regulation can increase the psychological well-being of cosmetic surgery applicants and make it easier for them to solve problems. As a result, it can be said that when cosmetic surgery applicants use the cognitive skills of positive emotional regulation, they can manage their actions and emotions; thus, this issue will reduce negative ruminations about life and self and bring them to emotional well-being.

5.2 Empirical Implications

The results of this study provide insightful empirical implications for marketing, psychology, and medicine, especially in the field of cosmetic surgery. Rumination and emotional cognitive regulation are key mediators of the strong association between early maladaptive schemas and body dysmorphic disorder (BDD), which emphasizes the psychological foundations influencing people's decisions to have cosmetic surgery.

The significance of addressing early maladaptive schemas and rumination tendencies during psychological evaluations or counseling for prospective cosmetic surgery applicants is highlighted by these insights for mental health professionals. Interventions that focus on emotional cognitive regulation may lower the risk of post-surgery dissatisfaction or mental health issues by assisting applicants in making better-informed and psychologically sound choices. The results of this study can be used to include psychological assessments in pre-surgery consultations by medical professionals, especially cosmetic surgeons. Finding situations where psychological support or other interventions might be more advantageous than surgery can be made easier with an understanding of applicants' emotional and cognitive processes.

From a marketing standpoint, practitioners should prioritize ethical promotion by taking into account the psychological vulnerabilities of applicants. Open and honest communication about reasonable expectations and possible psychological effects can decrease exploitative behavior and foster trust.

In order to improve applicant well-being and decision-making in cosmetic surgery contexts, this study highlights the importance of an interdisciplinary approach that combines psychological, marketing, and medical expertise.

6. Limitations

Among the limitations of the research is the use of a self-report questionnaire, which means that caution should be exercised when generalizing the results to other statistical populations. Also, due to doubts about the honesty and accuracy of a number of the respondents in answering some questions and because it was only applied to people applying for cosmetic surgery in the city of Isfahan, Iran, its generalization to other groups and cities is another limitation of the research. It is recommended that similar studies are conducted in other cities of Iran involving other groups. Identifying other variables that may affect body malformation symptoms could also be a suitable topic for future research.

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