

# Attitudes and Awareness toward Cosmetic Surgery among Students at the Catholic University of Croatia: A Cross-Sectional Study

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DOI: [https://www.doi.org/  
10.64332/ujbb.3.1.2](https://www.doi.org/10.64332/ujbb.3.1.2)

Manuscript received: January 29, 2026.  
Accepted for publication: April 14, 2026.

## Abstract

**Background:** Cosmetic surgery has become an increasingly prominent aspect of contemporary healthcare and is closely linked to the global beauty industry, where medical procedures intersect with societal beauty standards and media influence. Procedures are undertaken for a range of reasons, from correcting congenital abnormalities to enhancing appearance and reducing signs of ageing. Attitudes toward cosmetic procedures are shaped by a combination of sociodemographic, cultural, and religious factors.

**Aim:** To assess the attitudes and awareness of students at the Catholic University of Croatia toward cosmetic surgery, and to examine their main sources of information, as well as differences according to selected sociodemographic characteristics.

**Methods:** This cross-sectional study was conducted at the Catholic University of Croatia between March and April 2025. Data was collected using an anonymous online questionnaire distributed via official university email addresses. The questionnaire assessed sociodemographic characteristics, awareness, and attitudes toward cosmetic surgery.

**Results:** A total of 263 students participated. Most respondents were familiar with cosmetic surgery (95%), but only 35% reported a positive attitude toward it. Only 1.1% of respondents stated that cosmetic surgery would negatively affect their relationships. However, 46% believed that others' opinions of them would change if they underwent such a procedure. Attitudes toward the social acceptability of cosmetic surgery in Croatia were divided, and 46% of respondents considered cosmetic surgery to be religiously acceptable. Social media was identified as the primary source of information. Significant differences were observed according to sex, age, religiosity, and study type.

**Conclusion:** Although awareness of cosmetic surgery is high, positive attitudes remain limited. Students' perspectives are influenced by gender, religious beliefs, and social factors, with social media playing a central role in shaping attitudes toward cosmetic procedures.

**Keywords:** cosmetic surgery; attitudes; awareness; students; social media; religious beliefs

## Introduction

Cosmetic and reconstructive surgery are both branches of plastic surgery. Reconstructive surgery restores function and anatomical integrity after trauma, disease, or congenital anomalies, whereas cosmetic surgery modifies otherwise normal structures to improve appearance, self-confidence, and quality of life. Unlike reconstructive procedures, cosmetic interventions usually lack a functional medical indication and are based on patients' subjective aesthetic expectations.

Media promotion of aesthetic procedures helps shape modern beauty standards and may encourage a culture focused on physical appearance, potentially increasing insecurity and raising questions about the medical necessity and criteria for performing such procedures. The concept of what is considered 'normal' or 'ideal' appearance is highly subjective and may vary across different social and cultural contexts within contemporary society (1-4).

## Ethics in Cosmetic Surgery

Ethical risk arises when aesthetic medicine becomes an instrument for satisfying the vanity demands of a wealthy minority or when aggressive, profit-oriented marketing encourages the population to continuously find new "flaws", promoting beauty as a key criterion for success and happiness.

The practice of cosmetic surgery must be based on universally accepted bioethical principles. One of these principles is fairness, which implies equal treatment for all patients. The next principle is beneficence, which requires that the physician acts in the best interests of the patient, seeking to improve their health, self-esteem, and general well-being, while respecting the patient's realistic possibilities and wishes, and minimising perioperative complications. Furthermore, harmlessness builds on the previous two postulates and obliges the physician to avoid any intervention that could cause physical, psychological, or social harm to the patient. Finally, patient autonomy emphasises the individual's right to make independent decisions about his or her own body (5,6).

The therapeutic principle (principle of totality) ethically justifies surgical procedures that preserve or improve physical and psychological health. Procedures like reconstructive surgery or correction of anomalies gain therapeutic legitimacy by supporting mental well-being and social integration, distinguishing them from purely aesthetic interventions (7,8).

The principle of vulnerability recognises that individuals are sensitive to physical, psychological, and social circumstances that may threaten their dignity and well-being. In this context, cosmetic surgery may help individuals experiencing significant psychosocial distress by restoring self-confidence and supporting social integration. This principle therefore, calls for greater sensitivity among medical professionals toward the patient's subjective experience when evaluating the need for intervention (7,8).

Although the present discussion draws primarily on a personalist bioethical and Christian anthropological perspective, which emphasises principles such as beneficence, therapeutic legitimacy, and vulnerability, it is important to note that this represents only one ethical framework. Other ethical perspectives critically examine the normalisation of cosmetic surgery, highlighting the role of media and social pressures, gendered expectations regarding appearance, and potential limitations of individual autonomy in decisions about aesthetic procedures.

## Cosmetic Surgery in the Context of Christianity

In the Christian tradition, the body is considered the temple of the soul, with spiritual virtues. Though made of body and soul, man is one (9). Throughout history, moral theologians have generally taken a reserved stance towards cosmetic surgery, primarily because they believed that "God's work" should not be altered and because complex procedures on the face and body were once performed by unskilled persons without medical supervision. A crucial point in the change in the Church's approach was the speech of Pope Pius XII in 1958 at the Congress of Italian Plastic Surgeons, which officially recognised

the legitimacy of this discipline for the first time. The Pope emphasised that each procedure must be judged according to strict medical criteria: an assessment of the physical and psychological burden, the risk of complications, and realistic expected results (10–12).

Within the Christian theological framework, cosmetic surgery, when placed appropriately within a hierarchy of values and guided by the principle of the integrity of the person, does not necessarily contradict God's will, provided that the procedure is justified by proportionate motives and realistic expectations. The common conclusion of moral theologians is that cosmetic surgery is neither intrinsically (morally) good nor evil and is permissible where the intentions are virtuous, the risks are small, the motives proportionate, and the cost reasonable, but is unethical if it is based on vanity, inauthenticity, or encourages social injustice (10).

Religious beliefs are a significant cultural and psychosocial factor in shaping the attitudes of individuals and social groups towards physical appearance, the ageing process, and the acceptability of medical interventions, including cosmetic surgery. Within many religious systems, particularly within the Christian tradition, the emphasis is placed on inner beauty, spiritual values, and moral integrity, with external appearance perceived as secondary and subject to transience. Such a worldview approach may act as a protective mechanism against socially induced pressure from aesthetic norms and modulate the motivation to undergo elective surgical procedures (10–13).

These theoretical and ethical perspectives provide a framework for understanding students' knowledge, attitudes, and perceptions of cosmetic surgery. In the context of the Catholic University of Croatia, such views may also be influenced by Christian values regarding the dignity of the human body and the balance between physical appearance and inner virtues. Examining students' perspectives, therefore, helps to understand better how ethical principles, social influences, and religious beliefs shape attitudes toward cosmetic surgery.

Although cosmetic surgery has been widely studied, a limited number of studies have explored how ethical and religious perspectives influence students' attitudes toward these procedures. Little is known about how students in faith-based academic environments perceive cosmetic surgery in relation to bioethical principles and Christian values. Therefore, this study aims to assess the attitudes and awareness of students at the Catholic University of Croatia toward cosmetic surgery, and to examine their main sources of information, as well as differences according to selected sociodemographic characteristics.

## Materials and methods

### *Study design*

This was a cross-sectional study. Based on the study aim, four hypotheses were formulated:

- 1) Most participants have a positive attitude towards cosmetic surgery.
- 2) Most participants report being familiar with cosmetic surgery.
- 3) Most participants identify social media as their primary source of information.
- 4) Most participants believe that cosmetic surgery is religiously acceptable.

### *Ethics*

The study was approved by the Ethics Committee of the Catholic University of Croatia (decision issued on March 3, 2025, Class: 602-04/25-11/06; Registration Number: 251-498-03-02-25-2). Participants were informed about the purpose of the study, as well as the anonymity and voluntary nature of their participation, and their right to withdraw at any time. Prior to the start of the online survey, all participants were presented with an informed consent form.

### *Participants*

Participants were undergraduate and graduate students at the Catholic University of Croatia, enrolled in both medical (Nursing and Medicine) and in humanities and social science study programmes (Communication Sciences, Psychology, History, and Sociology). Inclusion criteria were being a currently enrolled student at the Catholic University of

Croatia and providing informed consent to participate in the study.

### Data Collection and Study Tool

The study was conducted at the Catholic University of Croatia in Zagreb between March 16 and April 29, 2025. Data was collected using an online questionnaire administered via Google Forms. The survey link was distributed to participants through their official university email addresses. The instrument used in this study was a questionnaire adapted from a previously published study by Adedeji et al. (14), which examined awareness and attitudes toward cosmetic surgery among healthcare workers. The questionnaire is freely available and does not require permission for use. It was translated into Croatian and culturally adapted to the local context. It consisted of 26 items.

The first section included questions on participants' sociodemographic characteristics. The second section assessed knowledge and awareness of cosmetic surgery, while the third section focused on attitudes toward cosmetic surgery. Knowledge and awareness were measured using a three-point ordinal scale: (1) No; (2) Not sure; (3) Yes. Two items included multiple-choice response options.

### Statistical Analysis

This study primarily presents descriptive statistics and subgroup comparisons. Questionnaire items were analysed individually and were not combined into a composite scale. Categorical data are represented by absolute and relative frequencies. Differences in categorical variables were tested with the  $\chi^2$  test and, if necessary, with Fisher's exact test. The normality of the distribution of continuous variables was tested with the Shapiro-Wilk test. Continuous data are described by the median and the limits of the interquartile range. Differences in continuous variables were tested with the Mann-Whitney U test, and between three or more independent groups with the Kruskal-Wallis test (15). All p-values are two-sided. The significance level was set at  $\alpha=0.05$ . The statistical package MedCalc® Statistical Software version 23.2.1 (MedCalc Software Ltd, Ostend, Belgium; [https://www.](https://www.medcalc.org)

[medcalc.org](https://www.medcalc.org); 2025) was used for statistical analysis. The report on the study was prepared according to the STROBE guidelines for reporting on cross-sectional studies (16). The analytical approach focused on bivariate comparisons. Multivariate analyses were not conducted, and no formal adjustment for multiple comparisons was applied. Ordinal questionnaire responses were analysed as categorical variables.

## Results

A total of 263 students at the Catholic University of Croatia participated in the study, representing a response rate of 18.5% of the total student population (N=1420). The sample consisted predominantly of women (231; 88%), while men accounted for 32 participants (12%). Regarding age distribution, most participants were between 20 and 30 years old (189; 72%), followed by those younger than 20 years (39; 15%). Smaller proportions of participants were aged 31–40 years (19; 7%), 41–50 years (14; 5%), and older than 50 years (2; 1%). Other demographic characteristics and the distribution of participants by study programme are presented in Table 1.

**Table 1.** Demographic characteristics of the participants

		Number (%) of participants
<b>Sex</b>	Men	32 (12)
	Women	231 (88)
<b>Age</b>	< 20	39 (15)
	20 - 30	189 (72)
	31 - 40	19 (7)
	41 - 50	14 (5)
	> 50	2 (1)
<b>Living area</b>	Urban	203 (77)
	Rural	60 (23)
<b>Religion</b>	Atheist	6 (2)
	Agnostic	28 (11)
	Believer	229 (87)
<b>Type of studies</b>	Humanities and social science studies	142 (54)
	Medical studies	121 (46)
<b>Level of study</b>	Undergraduate	150 (57)
	Graduate	113 (43)

Most respondents reported being familiar with cosmetic surgery (95%). The majority were aware that cosmetic surgery is available in Croatia (98%) and that it carries certain risks (92%). A positive attitude toward cosmetic surgery was reported by 35% of participants. Social media was identified as the main source of information about cosmetic surgery.

Participants expressed mixed attitudes toward cosmetic surgery. While many respondents indicated they would consider undergoing cosmetic surgery if it were free, a substantial proportion believed that others' opinions of them might change if they underwent such procedures. Only a small proportion of respondents reported that cosmetic surgery would negatively affect their relationships (1.1%, n=3), indicating a very low prevalence of this view. Most respondents also reported that they would openly admit to having undergone cosmetic surgery. Regarding religious perspectives, 46% of participants considered cosmetic surgery to be religiously acceptable.

Comparisons were performed across different subgroups (sex, residence, religiosity, age, and study type). Reported medians refer to individual questionnaire items scored on a three-point Likert scale (1–3), with higher values indicating greater awareness, more positive attitudes, or stronger agreement. Differences in attitudes toward cosmetic surgery according to respondents' sex are presented in Table 2. Women demonstrated higher levels of awareness, more positive attitudes, and greater willingness to undergo cosmetic surgery, whereas men more often perceived cosmetic surgery as negatively affecting relationships.

Students from humanities and social science study programmes were significantly more likely to obtain information through social media, radio, and television, whereas students from health-related programmes more frequently relied on medical literature and health professionals ( $\chi^2$  test,  $p < 0.001$ ).

A total of 111 participants (42%) considered cosmetic surgery to be justified and necessary in certain cases. Among them, rhinoplasty

**Table 2.** Differences in attitudes towards cosmetic surgery according to participants' sex

	Median (inter-quartile range)		<i>p</i> *
	Men Median (IQR)	Women Median (IQR)	
Are you aware of cosmetic surgery?	2 (2-3)	3 (3-3)	<b>0.02</b>
Do you have a positive attitude towards cosmetic surgery?	1.5 (1.3-2)	2 (2-3)	<b>0.03</b>
If cosmetic surgeries were done for free, would you go for any cosmetic surgery of your choice?	1 (1-2)	2 (1-3)	<b>0.005</b>
If you were aware that someone had undergone cosmetic surgery, would it negatively affect your relationship with such a person?	2 (1-2)	1 (1-1)	<b>0.002</b>
Undergraduate	150 (57)		

\*Mann-Whitney U test

(nose surgery) was most frequently identified as justified (82; 74%). In contrast, breast augmentation (26; 24%) and face lift procedures (27; 24%) were considered the least justified (Table 3).

**Table 3.** Distribution of respondents according to which cosmetic surgeries they consider necessary

	Number (%) of participants
Which one(s) of these surgeries do you think is/are necessary?	
Rhinoplasty	82 (74)
Cleft Surgery	75 (68)
Breast Reduction	69 (62)
Abdominoplasty	39 (35)
Liposuction	33 (29)
Mastopexy	28 (25)
Face lift	27 (24)
Breast Augmentation	26 (24)

## Discussion

This study aimed to examine students' attitudes, knowledge, and information sources regarding cosmetic surgery at the Catholic University of Croatia, Zagreb. Results show that most students do not hold a positive attitude toward cosmetic surgery, despite being familiar with the topic and citing social media as their main information source. Fewer than half consider cosmetic surgery religiously acceptable, suggesting that gender, cultural, and religious factors shape students' perspectives on cosmetic procedures.

Contrary to expectations, the main hypothesis, according to which most students at the Catholic University of Croatia have a positive attitude towards cosmetic surgery, was not confirmed. This result may suggest a possible influence of the university's religious and value environment on students' attitudes toward interventions perceived as unnecessary or superficial, although this was not directly measured in the study. Women show significantly more positive attitudes toward cosmetic surgery than men. A study by Kasmaei and colleagues among students at Guilan University of Medical Sciences found that sex is a significant predictor of willingness to undergo cosmetic procedures. Compared with men, women reported greater body dissatisfaction, a more negative perception of their physical appearance, and a higher intention to undergo cosmetic surgery (17). Numerous studies that highlight women's greater interest in cosmetic surgery are also supported by a study by Brstilo Lovrić et al, whose aim was to gain insight into the profile of students in the city of Zagreb interested in cosmetic surgery. The study showed that, unlike male students, female students are more interested in cosmetic surgery (18).

The finding that most students identify social media as their primary source of information about cosmetic surgery indicates a strong media influence on attitudes toward body image and beauty, supporting the study's hypothesis. The next study also highlights the role of social media in shaping body perception and attitudes toward cosmetic procedures. A study by Chen involving

252 participants found that greater engagement with social media and photo-editing applications was associated with a higher likelihood of considering cosmetic surgery. Additionally, users of YouTube demonstrated lower self-esteem and greater acceptance of cosmetic surgery (19).

Social media often promotes unrealistic expectations and aesthetic ideals, which can further influence the perceived need for appearance correction. In his 2014 study, Perloff described the interaction between social media use and body image perception as a reciprocal process. People who show more pronounced concerns about their own body image tend to use social media more intensively, especially those platforms that emphasise physical appearance (20). Alghamdi et al., in their study of women in Saudi Arabia, interpret that most participants, as many as 67%, refused cosmetic surgery even if it was offered to them for free (21). This result is confirmed by this study, the results of which show that approximately one-third of the respondents would opt for free cosmetic surgery of their choice. Among those who would accept this offer, women are represented in significantly greater numbers than men.

The last hypothesis, according to which most students consider cosmetic surgery to be religiously acceptable, was rejected. Although just under half of the respondents considered it religiously acceptable to undergo cosmetic surgery, this suggests a possible conflict between personal aesthetic aspirations and religious beliefs, which is particularly important in the context of the students' Catholic identity. Similarly, some previous studies have shown that religious beliefs can have an inhibiting effect on attitudes towards cosmetic procedures, especially when they are seen as an expression of excessive emphasis on external appearance. Such dilemmas have also been observed in international studies, where religiosity, along with fear, often acts as a factor limiting the acceptance of cosmetic procedures. In a study conducted by Al-Bashaireh et al. in 2025, religious reasons influenced 44% of respondents, indicating a strong moral or

ethical stance against cosmetic changes (22). Of the total number of respondents who believe that cosmetic procedures are justified and necessary in certain circumstances, the largest number cites rhinoplasty as the most accepted procedure, followed by cleft surgery, and then breast reduction. Additionally, in a survey conducted among healthcare professionals in Osogbo, Nigeria, Adedeji et al. concluded that cleft surgery was singled out as the only form of cosmetic surgery that most respondents, 117 (55%) of them, considered necessary (14). These data indicate a clear distinction between cosmetic and reconstructive procedures in the perception of the general population, with surgical correction of cleft palates being predominantly perceived as a procedure with a pronounced functional, psychosocial, and health indication, as opposed to a procedure with purely aesthetic motivation.

### Strengths, Limitations, and Future Directions

One of the main strengths of this study is its focus on students at a Catholic university, including both health-related and humanities and social science programmes, providing insight into a diverse population within a specific cultural and institutional context. In addition, the study employed a structured statistical approach, adhered to ethical research standards, and applied an interdisciplinary framework integrating medical, social, and ethical perspectives on attitudes toward cosmetic surgery.

However, several limitations should be acknowledged. The relatively short study period and modest sample size may limit the generalisability of the findings to a broader student population. Furthermore, the predominance of female participants may have influenced the overall attitudes reported and limited the robustness of gender comparisons. The use of exclusively bivariate statistical analyses also restricts the ability to identify independent predictors of attitudes toward cosmetic surgery. In addition, direct comparability with previous studies is limited due to differences in conceptual frameworks and study designs.

Future research should include larger and more diverse samples, ideally across multiple universities, to better examine the influence of cultural and religious contexts on attitudes toward cosmetic surgery. Studies with more gender-balanced samples are also warranted. Moreover, the use of multivariate statistical methods would allow for the identification of independent predictors of attitudes. Finally, combining quantitative and qualitative approaches could provide a deeper understanding of the underlying reasons for positive or negative attitudes, including the influence of specific media content, social media trends, and influencers.

### Conclusion

The findings indicate that most students do not hold a positive attitude toward cosmetic surgery, with social media identified as the primary source of information. Fewer than half of respondents consider cosmetic surgery to be religiously acceptable. Female students showed a greater inclination toward cosmetic procedures, whereas male students more often reported that a partner's cosmetic surgery could affect relationships. Overall, attitudes toward cosmetic surgery appear to be shaped by a combination of gender, religious beliefs, and social influences.

### Declarations

**Acknowledgements:** We are grateful to all students who took part in this study. The study described in this manuscript is based on Ana Grubeša's Master of Nursing thesis, which was written and defended in the Croatian language. The thesis is available in the online repository: <https://urn.nsk.hr/urn:nbn:hr:224:299905>

**Authors' contributions:** AG and OGS contributed to the conception and design of the study. AG was responsible for data collection. AG and OGS performed data analysis and interpretation. TG and OGS drafted the manuscript. All authors critically revised the manuscript for important intellectual content, approved the final version of the manuscript, and agreed to be accountable for all aspects of the work.

**Ethics considerations:** The study was approved by the Ethics Committee of the Catholic University of Croatia, which confirmed that the study

was conducted in accordance with the Code of Ethics of the Catholic University of Croatia and applicable legal regulations. The decision was issued on March 3, 2025 (Class: 602-04/25-11/06; Registration number: 251-498-03-02-25-2).

**Funding:** No funding was received for this study.

**Competing interests:** The authors declare no conflicts of interest.

**Data sharing statement:** The data that support the findings of this study are available from the corresponding author upon request.

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