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Acceptance and the Likeliness of Future Involvement in Cosmetic Surgery Among Medical Students – A Cross-Sectional Study

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Abstract

Cosmetic surgery is a discipline of medicine focusing on enhancing the aesthetic appearance of a person through surgical and medical techniques performed on all areas of the body in the absence of diseases or defects. The aim of this research is to study the factors influencing medical students' acceptance towards cosmetic surgery and the likeliness of their future involvement either as a consumer, medical practitioner, or both. This study has never been done in Malaysia among medical students. A cross-sectional study was conducted among medical 210 medical students from a private medical college in Malaysia. Sociodemographic information, body image satisfaction, acceptance of cosmetic surgery scale (ACSS), and awareness of cosmetic surgery were collected using self-administered questionnaires. Based on our study, in terms of acceptance towards cosmetic surgery, three variables; ethnicity, religious beliefs, and awareness towards cosmetic surgery show significant association. It was also found that although the field of cosmetic surgery is rapidly growing, most medical students still has low awareness of this specialty. Among those who chose to have future involvement in this field, 6.11% chose to be involved as consumers only, 22.78% as medical practitioners only, and 15.56% as both.

Keywords

Cosmetic, Surgery, Plastic, Students, Medical, Awareness, Future; Body Image

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1. Introduction

Cosmetic surgery is a branch of plastic surgery [1] and can be traced all the way back to as early as 600 B. C. when a Hindu surgeon reconstructed a nose using a piece of cheek [2]. Started in the Indian continent, cosmetic surgery soon spread across the Middle East and Europe. By 1000 A. D. cosmetic surgery has become common especially rhinoplasty owning to the barbaric custom of cutting off the noses and upper lips of enemies as a sign of their defeat in battle. In the 16th century, the father of plastic and cosmetic surgery, Gaspare Tagliacozzi reconstructed noses slashed off by swords during battles by transferring flaps of skin taken from the upper arm. This procedure is also used to correct saddle nose deformity due to syphilis [2]. Although initially frowned upon, both cosmetic surgery and plastic surgery became more accepted in the modern times due to deformities suffered by soldiers during World War I and World War II [3].

Cosmetic surgery is a unique discipline of medicine focusing on enhancing the aesthetic appearance of a person through surgical and medical techniques performed on all areas of the body with the absence of diseases or defects [4] while plastic surgery focuses more repairing defects to reconstruct normal functioning and appearance [1]. Examples of cosmetic surgery include but are not limited to breast augmentation, liposuction, rhinoplasty [1]. In 2016, a total of 23,626,909

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reported cosmetic surgeries were done worldwide. This reflects a 9% increase compared to the number of reported surgeries performed in 2015 (21,696,671) [5, 6]. Regionally in Asia, there is an increase of 25% in the number of reported surgeries performed in 2016 [5] as compared to 2015 [7]. A total of 3,717,990 reported surgeries were performed in 2016 [5], [6] while 2,957,319 surgeries were done in 2015 [7, 8]. In Malaysia however, the trend is the opposite [9]. A total of 5,513 enquiries on cosmetic surgery was made in 2015, and this number has declined to 4,777 in 2016. While demands for cosmetic surgery is increasing regionally and globally, the same could not be said for the demands for such procedures in Malaysia [9]. This is one of the reason behind this study – to study if the decrease in demands reflects the people's negative acceptance of cosmetic surgery and the factors influencing it.

Many factors influence an individual's acceptance towards cosmetic surgery and the likeliness of their future involvement in the field either as a consumer, medical practitioner, or both. The factors include, but are not limited to body dissatisfaction, physical appearance, social discrimination, low self-esteem, peer pressure, marital status, media influence, and age [10-11, 15]. Self-esteem is negatively associated with the likelihood of undergoing cosmetic surgery [12-14]. Individuals with low self-esteem may be more willing to have cosmetic alteration to improve their own self-perceptions, thus boosting their self-esteem [14]. Mass media has a great impact on determining both personal appearance and potentially individual`s decision to select cosmetic surgery [15]. The public has imitated the hairstyles, clothing, and body types of the famous, and as a result, mass media influences, such as magazines, TV shows, and movies, may affect body image satisfaction and self-esteem leading them to choose cosmetic surgery. Patients who watched a considerable amount of cosmetic surgery reality shows have a greater influence from television and media to have cosmetic surgery, compared to low-intensity viewers [16, 17]. High-intensity viewers felt more knowledgeable about cosmetic surgery in general than the low-intensity viewers [15, 16, 18]. Married population were just as eager as single ones to undergo cosmetic surgery in order to gain more support of social, family, friends, partners along with acquiring more social positions and values and to be more attractive for others [10-12].

Studies on the acceptance of cosmetic surgery has been done in The United States [19], Colombia [19], England [20], Iceland [21], Iran [22], South Korea [23], and Saudi Arabia [24]. It has never been done in Malaysia among the medical students. This study is conducted to assess the awareness and acceptance towards cosmetic surgery among medical students, and to discover their interest and possible future involvement in the field either as a consumer, medical practitioner, or both. The research questions are as follows:

a) What is the awareness towards cosmetic surgery among medical students?

b) What factors influences the acceptance towards cosmetic surgery among the students?

c) Are the students likely to be involved in the field of cosmetic surgery in the future either as a consumer, medical practitioner, or both?

2. Methods

2.1. Study Design, Study Setting, and Study Population

The study on factors influencing medical students' acceptance towards cosmetic surgery and the likeliness of their future involvement (either as a consumer, medical practitioner, or both) was conducted in a private medical college in Malaysia from February 2018 to March 2018, a period of 6 weeks.

2.2. Sample Size and Sampling

Approximately 821 students are currently attending the MBBS programme. The sample size was calculated using the formula for single population proportion ($n = \frac{Np(1-p)z^2_{1-\frac{\alpha}{2}}}{d^2\,(N-1)+p(1-p)z^2_{1-\frac{\alpha}{2}}}$) with the error margin of 5%, assuming confidence level is 95%. The minimum sample size was calculated to be 161, taking into account 15.3% [24] of prevalence of acceptance of cosmetic surgery. Estimating a 30% non-response rate, the sample size required was 210. Only students who were willing to provide written informed consent were included in this study. All students attending the MBBS programme were included in the study. The medical students who participated in this cross-sectional study were chosen using purposive sampling method. The response rate was 90.5% with a total of 180 complete and 10 incomplete responses received for this study.

2.3. Data Collection

A total of 210 self-administered questionnaires were distributed. The questionnaire was adapted from previous studies [27, 28]. The questionnaire consisted of four parts; demographic data (Part 1), body image satisfaction (Part 2), acceptance of cosmetic surgery (Part 3), and awareness of cosmetic surgery (Part 4).

To assess the satisfaction of students towards their body image, seven questions with 5-point satisfactory scales (very satisfied, somewhat satisfied, neutral, somewhat dissatisfied

and very dissatisfied) on body image satisfaction (hair, facial features, neck, skin, upper body, waist, lower body) [27] were included in the questionnaire. Content validity of this head-to-toe assessment was checked with experts and validity was checked for clarity and understanding of the questionnaire. Previous work has shown that this head-to-toe assessment is suitable to be used for both genders among various age groups [27]. The higher the total score of the assessment, the higher the level of satisfaction among the participants towards their bodies.

To assess attitudes of student towards cosmetic surgery, the Acceptance of Cosmetic Surgery Scale (ACSS) [28] was used in this study. The ACSS is the most widely used scale for the measurement of attitudes towards cosmetic surgery. The ACCS consisted of 15 items with 5-point Likert scale (strongly disagree, disagree, neutral, agree and strongly agree). The ACSS consisted of 3 components: (1) Intrapersonal (five items assessing the attitudes related to the self-oriented benefits of cosmetic surgery; sample item: 'It makes sense to have minor cosmetic surgery rather than spending years feeling bad about the way you look'); (2) Social (five items representing the social motivations for having cosmetic surgery; sample item: 'If a simple cosmetic surgery procedure would make me more attractive to others, I would think about trying it'); (3) Consider (five items measuring the likelihood that a participant would consider getting cosmetic surgery; sample item: 'If I knew there would be no negative side effects or pain, I would like to try cosmetic surgery'). Content validity was checked with experts and validity was checked for clarity and understanding of the questionnaire. Previous work has shown that the ACSS has high internal consistency, good test-retest reliability, and good convergent and divergent reliability [28]. The Cronbach's alpha coefficient in this study was 0.937. The higher the total score of ACSS, the better the participants' acceptance towards cosmetic surgery.

To assess awareness of cosmetic surgery, eight questions were asked: 'Are you aware of cosmetic surgery', 'Are you able to list any three cosmetic procedures?', 'Has anyone you know undergone any type of cosmetic surgery?', 'Are you aware of the cost of cosmetic surgery?', 'Are you aware of any locations where cosmetic surgery is performed?', 'Would you be comfortable in revealing to others if you had undergone any types of cosmetic surgery?', and 'Are you aware of the side effects of cosmetic surgery?'. Response options were 'Yes' and 'No'. The results were classified into low (<60%), moderate (60-80%) and high (>80%).

To evaluate possible future involvement in cosmetic surgery, the participants were asked 'Would you consider getting involved in cosmetic surgery?'. The response options were 'Yes' and 'No'. Depending on their answer, different follow up questions were asked. (1) If the participants answered 'Yes'; they were then asked if they want to be involved as either a consumer, a medical practitioner, or both. If they answered that they want to be involved as a consumer, they were then asked on which body parts are they most likely to get a procedure done (hair, facial features, neck, upper body, waist, and lower body). (2) If the participants answered 'No'; they were then asked for the reason behind their answer (satisfied with appearance/ no need, against cosmetic surgery in principle, fear of risks or side effects, too expensive/ not covered by insurance, or religious beliefs).

In addition, the association between age, gender, ethnicity, nationality, religious beliefs, BMI, place of residence, body image satisfaction, awareness and acceptance of cosmetic surgery and future involvement of cosmetic surgery were also studied.

Independent variables for age was classified into three groups; <22, 22-25 and >25 years old. Other independent variables include gender, ethnicity (Malay, Chinese, Indian and others), nationality (Malaysian and Non-Malaysian), religious beliefs (Islam, Buddhist, Hindu, Christian and others), BMI into 4 groups according to the WHO guidelines for Asian population [29]; Underweight (<17.5), Normal weight (17.5-22.99), Overweight (23.00-27.99) and Obese (>28), and place of residence (urban and rural).

Dependent variables include acceptance of cosmetic surgery and possible future involvement of cosmetic surgery.

2.4. Data Processing and Data Analysis

The data were recorded and analysed using the Epi Info™ Software Version 7.2 [30]. The level of significance was set at 95% ($p<0.05$). The frequency and percentage of the involvement of the medical students as a consumer, medical practitioner or both was calculated. The means between the place of residence and gender were compared using the independent sample t-test. ANOVA was used to find out the association between age group, ethnicity, religious beliefs, BMI, body image satisfaction and awareness of cosmetic surgery with acceptance towards cosmetic surgery. The means and standard deviations were calculated for the intrapersonal, social and consider components of the ACSS.

2.5. Ethical Consideration

Our study has been approved by the Research Ethics Committee of Melaka-Manipal Medical College (MMMC). Before collecting the data, the purpose of the study was explained to the respondents. Participation in this study was strictly voluntary with written informed consent taken from each participant. Confidentiality and anonymity of the participants were ensured.

3. Results

3.1. PART 1

Table 1. Sociodemographic characteristics of medical students (n=180).

Variables	Frequency (%)
Age group	
<22	17 (9.44)
22-25	156 (86.67)
>25	7 (3.89)
Mean (SD)	23.01 (1.42)
Gender	
Male	69 (38.33)
Female	111 (61.67)
Ethnicity	
Malay	46 (25.55)
Chinese	50 (27.78)
Indian	67 (37.22)
Others	17 (9.44)
Nationality	
Malaysian	170 (94.44)
Non-Malaysian	10 (5.55)
Religious Beliefs	
Islam	48 (26.67)
Christian	23 (12.78)
Buddhist	43 (23.89)
Hindu	59 (32.78)
Others	7 (3.89)
BMI	
Underweight (<17.5)	8 (4.44)
Normal weight (17.5-22.99)	76 (42.22)
Overweight (23-27.9)	76 (42.22)
(Obese) >28	20 (11.11)
Mean (SD)	23.28 (3.78)
Place of Residence	
Urban	142 (78.89)
Rural	38 (21.11)
Body Image Satisfaction	
Satisfied	49 (27.22)
Neutral	75 (41.67)
Dissatisfied	56 (31.11)

A total of 210 medical students participated in the study and the response rate is 90.5%. Table 1 shows that out of 180 completed response, the mean age of the participants was 23.01 (SD 1.42). The majority of the participants (86.67%) belong to the age group of 22 to 25 years old. Among the participants, 25.55% were Malays, 27.78% were Chinese, 37.22% were Indians and others account for the remaining 9.44%. The number of Malaysian participants were higher (94.44%) compared to foreigners (5.55%). The highest percentage of participants were Hindus (32.78%), followed by Muslims (26.67%), Buddhists (23.89%), Christians (12.78%) and others (3.89%). The mean BMI for all participants was 23.28 (SD 3.78). According to the Asian BMI classification, 4.44% of the participants were underweight, 42.22% were normal weight, 42.22% were overweight and 11.11% were obese. 78.89% of the participants were from urban area and 21.11% were from rural area. Most of the participants (41.67%) have a neutral attitude towards their body image, while 27.22% are satisfied and 31.11% are dissatisfied with their body image.

Table 2. Awareness and Acceptance of Cosmetic Surgery.

Variables	Frequency (%)
Awareness of Cosmetic Surgery	
Low (<4.8)	121 (67.22)
4.8-6.4 (moderate)	52 (28.89)
>6.4 (high)	7 (3.89)
Mean (SD)	3.71 (1.67)
Acceptance of Cosmetic Surgery	
Intrapersonal[a]	15.86 (4.29)
Social[a]	12.23 (5.00)
Consider[a]	13.41 (4.89)
Total[a]	41.50 (12.56)

[a] mean (SD)

Table 2 shows that the mean for awareness towards cosmetic surgery was 3.71 (SD 1.67). Most of the participants (67.22%) have low awareness towards cosmetic surgery, followed by 28.89% with moderate awareness and 3.89% with high awareness. The intrapersonal component of ACSS has the highest mean score of 15.86 (SD 4.29) while the social component is the lowest with the mean of 12.23 (SD 5.00). The component of consider has the mean of 13.41 (SD 4.89). The total mean of ACSS scores is 41.50 (SD 12.56).

Table 3. Future involvement in cosmetic surgery.

Future Involvement		Frequency (%)
Yes	Consumer	11 (6.11)
	Medical Practitioner	41 (22.78)
	Both	28 (15.56)
As consumer/both		
Features to have procedures on[b]:		
Hair		9 (23.08)
Facial Features		25 (64.10)
Neck		3 (7.69)
Upper Body		10 (24.64)
Waist		9 (23.08)
Lower Body		8 (20.51)
No		100 (55.56)
Reasons[b]:		
Satisfied with appearance/no need		64 (64.00)
Against it in principle		32 (32.00)
Fear of risks or side effects		30 (30.00)
Too expensive/ not covered by insurance		13 (13.00)
Religious beliefs		26 (26.00)

[b] Multiple response answers

Table 3 shows that among the participants who would like to have future involvement in cosmetic surgery, 6.11% would be as a consumer, 22.78% as a medical practitioner and 15.56% as both. For participants who considered getting involved in cosmetic surgery as consumers or both (n=39), the following are the procedures that they are most likely to get; 64.10% (25 out of 39 respondents) would like to get procedures done on their facial features, while 24.64% would like to get cosmetic surgery in their upper body, followed by 23.08% opting for cosmetic procedures in the waist and hair respectively. 20.51% of the respondents want to get cosmetic

procedures in their lower body. Cosmetic surgeries in the neck is the least popular with only 7.69% of participants choosing such procedures. Out of 180 responses, 100 respondents (55.56%) chose not to be involved in cosmetic surgery in the future. For the respondents who answered no, most responded negatively towards cosmetic surgery because they are satisfied with their appearance (64.00%). The second most popular reason for saying no is because they are against it in principle (32.00%), followed by fear of risks or side effects (30.00%), and religious beliefs (26.00%). Cosmetic surgery being too expensive is the least popular reason at 13.00%.

3.2. PART 2

Table 4. Association between sociodemographic characteristics, body image satisfaction, awareness of cosmetic surgery and the acceptance of cosmetic surgery.

Variables	ACSS Total Score		
	Mean (SD)	t(df) / F(Df1, Df2)	P-Value
Age Group (Years)			
<22	38.65(15.27)	0.4911(2, 177)	0.613[c]
22-25	41.77(12.41)		
>25	42.43(8.77)		
Gender			
Male	42.39(10.28)	-0.75(178)	0.454[d]
Female	40.95(13.80)		
Ethnicity			
Malay	38.33(11.70)	4.280(3, 176)	0.006[c]
Chinese	46.28(13.59)		
Indian	39.60(11.57)		
Others	43.53(11.91)		
Religious Beliefs			
Islam	37.94(11.67)	3.972(4, 175)	0.041[c]
Christian	42.35(14.51)		
Buddhist	47.12(12.80)		
Hindu	39.47(11.60)		
Others	45.71(4.96)		
BMI			
<17.5 (Underweight)	38.88(6.81)	0.8959(3, 176)	0.445[c]
17.5-22.99 (Normal Weight)	43.26(12.58)		
23-27.9 (Overweight)	40.33(12.52)		
>28 (Obese)	40.30(14.22)		
Place of Residence			
Urban	40.86(12.39)	1.33(178)	0.186[d]
Rural	43.89(13.04)		
Body Image Satisfaction			
Satisfied	41.27(13.04)	0.0835(2, 177)	0.912[c]
Neutral	41.23(12.39)		
Dissatisfied	42.07(12.56)		
Awareness towards Cosmetic Surgery			
Low	38.74(11.33)	10.0547(2, 177)	<0.01[c]
Moderate	46.81(12.93)		
High	49.86(15.24)		

[c] ANOVA; [d] Unpaired t test; p-value <0.05 is significant

Table 4 shows the association between sociodemographic characteristics, body image satisfaction, awareness toward cosmetic surgery, and the acceptance towards cosmetic surgery among medical students. The significant parameters are ethnicity, religious beliefs, and awareness towards cosmetic surgery. For ethnicity, Chinese has the highest mean of 46.28(SD 13.59) followed by others with a mean of 43.53(SD 11.91), then Indians with a mean of 39.60(SD 11.57) and Malays with mean value of 38.33(SD 11.70). The p-value for ethnicity is 0.006. For religious beliefs, Buddhist has the highest mean of 47.12(SD 12.80) as compared to the others with mean of 45.71(SD 4.96), Christian with a mean of 42.35(SD 14.51), Hindu with a mean value of 39.47 (SD 11.60) followed by Islam with a mean value of 37.94(SD 11.67). The p-value is 0.041. For awareness towards cosmetic surgery, those with high awareness has the highest mean of 49.86 (SD15.24), followed by those with moderate awareness with a mean of 46.81 (SD12.93), and those with low awareness with mean value of 38.74 (SD 11.33). The p-value is <0.001. There is no significant association between age, gender, BMI, place of residence, and body image satisfaction with the acceptance towards cosmetic surgery among medical students.

4. Discussion

This study was conducted to assess the awareness and acceptance of medical students towards cosmetic surgery, and to discover their interest and possible future involvement in the field of cosmetic surgery either as a consumer, medical practitioner or both.

The majority of the medical students have low awareness (67.22%) towards cosmetic surgery, only some of them have moderate (28.89%) and high awareness (3.89%). This is consistent with the studies done among the health workers in Nigeria. 41.8% of them believed that awareness of cosmetic surgery was low (41.8%) while 22.1% of them considered the awareness as very low. This study also reported a positive association between their awareness and choice of going for cosmetic surgery [32].

Acceptance of cosmetic surgery scale is divided into 3 components which are intrapersonal, social and consider [28]. In our study, advantage was given to intrapersonal reasons over social reasons among medical students. Such findings are consistent to the researches which were done among adults in Serbia [33], Brazil [34], and United States [28]. However, among populations living in the non-Western world, intrapersonal and social factors have equal weight in influencing the acceptance of cosmetic surgery [23].

Approximately more than half of the participants did not choose to get involve in the field of cosmetic surgery. This is because they are satisfied with their appearance, against it in principle, the fear of side effects, the cost is too expensive and is against their religious beliefs. However, among the participants who would like to have future involvements in

the field of cosmetic surgery, most of them chose to be only a medical practitioner as compared to a consumer or both. The findings are consistent with the research done among junior college students in Singapore which showed that the majority of them have no intention to undergo cosmetic procedures themselves (less than 10% would consider having cosmetic procedures performed on themselves at their current age). Only 9.2% of the junior college students and 43.9% of the medical students would consider plastic surgery in the future [35].

For those who would like to be involved as a consumer of cosmetic surgery in our study, the most preferable procedures are on the facial features (64.10%), followed by upper body (24.64%), waist (23.08%), hair (23.08%), lower body (20.51%), and neck (7.69%). However, in the study among the junior college students in Singapore, the top three body parts were the nose (10.1%), eyes (8.9%) and skin (4.8%), while among the medical students, they were the skin (13.7%), nose (11.2%) and eyes (9.1%). In addition, 10.7% of the junior college students and 16.6% of the medical students were keen on body contouring of areas such as the thighs, buttocks and abdomen [35].

Among the sociodemographic data collected, ethnicity, religious beliefs and awareness towards cosmetic surgery showed significant associations with the acceptance of medical students towards cosmetic surgery. For the ethnicity parameter, those of Chinese descent has the highest acceptance towards cosmetic surgery, followed by others, Indians and Malays. Ethnicity does play a role in influencing the acceptance towards cosmetic surgery. Differences in acceptance among people of different ethnicities towards cosmetic surgery has been demonstrated in a study done among British female university students. The study highlighted that Caucasians had higher acceptance of cosmetic surgery compared to people of South Asian and African Caribbean descent [36].

As for the religious beliefs parameter, Buddhists has the highest acceptance, followed by others, Christians, Hindus and Muslims. This is in line with a study done among the British population focusing on how religious beliefs influence the acceptance towards cosmetic surgery. The study showed that religion is a powerful determinant of how an individual reacts towards controversial topics such as cosmetic surgery [10]. The study suggested that more religious individuals may be more likely to perceive cosmetic alteration as a direct contravention to their religious beliefs. Christian religious authorities strongly support the idea that individuals should be more concerned with religious issues (Proverbs 31: 30) instead of focusing on physical appearance (Philippians 2: 3 -4). The Holy Bible also stated that true beauty comes from within a person's spirit (1 Peter 3: 4) [10], [37]. Further research could explore whether this effect can be held true across all religious beliefs.

There is no significant association between gender, BMI and body image satisfaction with the acceptance towards cosmetic surgery. But these findings are not consistent with the studies done among adults in Serbia in which women have a significantly higher total ACSS score than that of men. In addition, their studies also show that acceptance of cosmetic surgery is correlated with actual body weight–ideal weight discrepancy and body appreciation [33].

In our study, there is no significant association between the place of residence with the acceptance towards cosmetic surgery among medical students. This is not consistent with a study done in Bangladesh which showed that women living in urban areas are more frequent in undertaking cosmetic surgery than urban men and rural-peri urban women [38].

In our study, there is no significant association between age and the acceptance towards cosmetic surgery among medical students. This is not consistent with a study conducted among university students from a metropolitan university in Greater London where the results showed that the acceptance of cosmetic surgery is reliably associated with the ages of the participants. However, the association is only moderate [20].

The main limitation of this study was the sample. Samples studied came only from one private medical school. This could lead to distortion in the findings and they may not be representative of the general population of Malaysia. There were a lot more females (n = 111) who participated in this study compared to males (n = 69). The questionnaire used was self-administered which could possibly lead to response bias. The questionnaires were distributed to three batches of medical students (Batches 34, 35, 36). Students from batches 32 and 33 were excluded from this study because they were unavailable due to them going on their shadow housemanship. It is also not confirmed if all participants answered every question truthfully. Thus, the results of this study should be generalised with appropriate caution as the study is done in only one private medical college in Malaysia with a small sample size. Further studies can be done to investigate the association between socioeconomic status, acceptance of cosmetic surgery and future involvement in the field. As pointed out by a study in 2016 [39], national culture greatly influences the acceptance towards cosmetic surgery. Further studies could be done to look into the effects of cultural differences and preferences on the acceptance of cosmetic surgery and future involvement in the field. A majority of the participants in this study belonged to the four main religions in Malaysia; Islam, Buddhism, Hinduism, and Christianity. Only 3.89% of the participants stated others as their religious belief. Currently, there are very few researches

studying the association between the influence of religious beliefs and values and the acceptance towards cosmetic surgery.

The strength of this study is the high response rate. The response rate is >90%. The high response rate shows that the medical students are willing to participate and are interested in this topic, thus indicating that this topic is relevant to them. Cosmetic surgery is a rapidly developing field. As future health professionals, it is beneficial for medical students to be aware of cosmetic surgery as it will influence their practise in the future.

5. Conclusion

Our results suggest that awareness towards cosmetic surgery, ethnicity and religious beliefs are linked with acceptance towards cosmetic surgery. More than half (55.56%) of the respondents chose to not be involved with cosmetic surgery in the future. Among medical students who chose to get involved in cosmetic surgery in the future, most have chosen to have procedures done on their facial features. Our results have also shown that the awareness among medical students have towards cosmetic surgery is very low (67.3%) which may consequently affect their acceptance towards cosmetic surgery. From this study, among medical students in a private medical college in Malaysia, it could be said that BMI and body image satisfaction of medical students do not affect their acceptance towards cosmetic surgery. Ethnicity and religious beliefs of the students may lead to their negative acceptance towards cosmetic surgery. Although the field of cosmetic surgery is rapidly growing, a majority of medical students still has low awareness of this specialty. As future medical professionals, medical students should have a higher awareness towards cosmetic surgery in order to ensure the best possible treatment can be provided to patients who needs or wants them.

Conflict of Interest

None.

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Appendix

Part 1 – Demographics

Tick (√) in the ( ) that is most applicable to you.

1. Age: _____ years
2. Gender: Male ( ) Female ( )
3. Semester: _____
4. Ethnicity:

a) Malay ( ) Chinese ( ) Indian ( )

b) Others ( ) _____

5. Nationality: Malaysian ( ) Non-Malaysian ( )
6. Religious beliefs:

a) Islam ( ) Christianity ( ) Buddhist ( ) Hindu ( )

b) Others ( ) _____

7. Height: _____ cm Weight: _____ kg
8. Place of residence:

a) Urban ( )

b) Rural ( )

Part 2 – Body Image Satisfaction

Below are the names of some general parts of the body. For each one, please state whether you are very satisfied with the way it looks, somewhat satisfied, neutral, somewhat dissatisfied, or very dissatisfied.

Tick (√) in the box that is most applicable to you.

Table A1. Body image satisfaction.

	Questions	Very dissatisfied	Somewhat dissatisfied	Neutral	Somewhat satisfied	Very satisfied
1	Hair					
2	Facial features					
3	Neck					
4	Skin					
5	Upper body (above the waist)					
6	Waist					
7	Lower body (below the waist)					

Part 3 – Acceptance of Cosmetic Surgery Scale

Definition of cosmetic surgery: A branch of plastic surgery focusing on enhancing the aesthetic appearance of a person through surgical and medical techniques performed on all areas of the body in the absence of diseases or defects.

Tick (√) the box that is most applicable to you.

Table A2. Acceptance of cosmetic surgery scale.

	Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	It makes sense to have minor cosmetic surgery rather than spending years feeling bad about the way you look					
2	Cosmetic surgery is a good thing because it can help people feel better about themselves					
3	In the future, I could end up having some kind of cosmetic surgery					
4	People who are very unhappy with their physical appearance should consider cosmetic surgery as one option					
5	If cosmetic surgery can make someone happier with the way they look, they should try it					
6	If I could have a surgical procedure done for free, I would consider trying cosmetic surgery					
7	If I knew there would be no negative side effects or pain, I would like to try cosmetic surgery					
8	I have sometimes thought about having cosmetic surgery					
9	I would seriously consider having cosmetic surgery if my partner thought it was a good idea					
10	I would never have any kind of plastic surgery					
11	I would think about having cosmetic surgery in order to keep looking young					
12	If it would benefit my career, I would think about having plastic surgery					
13	I would seriously consider having cosmetic surgery if I thought my partner would find me more attractive					
14	Cosmetic surgery can be a big benefit to people's self-image					
15	If a simple cosmetic surgery procedure would make me more attractive to others, I would think about trying it					

Part 4 – Awareness of Cosmetic Surgery

Tick (√) in the ( ) that is most applicable to you.

1. Are you aware of cosmetic surgery? YES ( ) NO ( )

If yes, from which sources? (Can choose more than one option)

( ) Television (movies, TV series, music videos, etc.)

( ) Internet (Netflix, Hulu, YouTube, webpages, etc.)

( ) Printed media (newspaper, magazines, pamphlet, etc.)

( ) Social media (Instagram, Facebook, Tumblr, Snapchat, etc.)

( ) Peers

( ) Advertisement

( ) Others: _____

2. Are you able to list any three cosmetic procedures? YES ( ) NO ( )

If yes, what are they? (List three, if possible)

1. _____
2. _____
3. _____

3. Has anyone you know undergone any type of cosmetic surgery? YES ( ) NO ( )

4. Have you undergone any type of cosmetic surgery? YES ( ) NO ( )

5. Are you aware of the cost of cosmetic surgery? YES ( ) NO ( )

If yes, what do you think is the range? (Please choose one)

( ) <RM 5,000

( ) RM 5,000 – RM 10,000

( ) RM 10,000 – RM 15,000

( ) >RM 15,000

6. Are you aware of any locations where cosmetic surgery is performed? YES ( ) NO ( )

If yes, where is it? (Can choose more than one)

( ) Government hospitals

( ) Private hospitals/ medical centres

( ) Specialist centres (dermatology clinics, plastic surgery clinics, etc.)

( ) Others: _____

7. Would you be comfortable in revealing to others if you had undergone any types of cosmetic surgery? YES ( ) NO ( )

8. Would you consider getting involved in cosmetic surgery? YES ( ) NO ( )

If yes,

( ) As a consumer

( ) As a medical practitioner

( ) Both

If no, why? (Can choose more than one)

( ) Satisfied with appearance/ no need

( ) Against it in principle

( ) Fear of risks or side effects

( ) Too expensive/ not covered by insurance

( ) Religious beliefs

9. If you answered yes to getting involved in cosmetic surgery as a consumer, which procedure are you most likely to get? Please choose one.

(Skip to question 10 if you answered no or wants to get involved only as a medical practitioner)

( ) Hair (transplant, laser hair removal, etc.)

( ) Facial features (rhinoplasty, Botox injection, face lift, eyelid surgery, etc.)

( ) Neck (neck contouring, neck lift, etc.)

( ) Upper body (breast augmentation or reduction, liposuction, back contouring, etc.)

( ) Waist (tummy tuck, abdominoplasty, etc.)

( ) Lower body (buttock augmentation, thighplasty, liposuction, etc.)

10. Are you aware of the side effects of cosmetic surgery? YES ( ) NO ( )

If yes, what are they? (List three, if possible)

1. _____
2. _____
3. _____

References

[1] American Board of Cosmetic Surgery. Cosmetic Surgery vs. Plastic Surgery [https://www.americanboardcosmeticsurgery.org]. 2018 [last modified 2018 Mar 13; cited 2018 Mar 16]. Available online.

[2] Martin Donohoe. Women's health in context: cosmetic surgery past, present, and future: scope, ethics, and policy. Medscape Ob/ Gyn. 2006; 11 (2). Available online.

[3] Alam M, Dover JS. On beauty evolution, psychosocial considerations, and surgical enhancement. Archives of Dermatology. 2001; 137 (6): 795–807. Available online.

[4] American Academy of Cosmetic Surgery. About Cosmetic Surgery [http://www.cosmeticsurgery.org]. 2018 [last modified 2018 Feb 14; cited 2018 Mar 16]. Available online.

[5] The International Society of Aesthetic Plastic Surgery. ISAPS international study on aesthetic/ cosmetic surgery procedures performed in 2016 [https://www.isaps.org]. 2017 [last modified 2017 Oct 30; cited 2018 Mar 17]. Available online.

[6] The International Society of Aesthetic Plastic Surgery. ISAPS international study on aesthetic/ cosmetic surgery procedures performed in 2016 statistics infographic [https://www.isaps.org]. 2017 [last modified 2017 Oct 30; cited 2018 Mar 17]. Available online.

[7] The International Society of Aesthetic Plastic Surgery. ISAPS international study on aesthetic/ cosmetic surgery procedures performed in 2015 [https://www.isaps.org]. 2016 [last modified 2017 Oct 30; cited 2018 Mar 17]. Available online.

[8] The International Society of Aesthetic Plastic Surgery. Quick facts: highlights of the ISAPS 2015 statistics on cosmetic surgery [https://www.isaps.org]. 2016 [last modified 2017 Oct 30; cited 2018 Mar 17]. Available online.

[9] Malaysian Digest. Are Malaysians getting hooked on the plastic surgery craze? [www.malaysiandigest.com]. 2018 [last modified 2018 January 10; cited 2018 Mar 17]. Available online.

[10] Furnham A, Levitas J. Factors that motivate people to undergo cosmetic surgery. The Canadian Journal of Plastic Surgery. 2012 Winter; 20 (4): e47-e50. Available online.

[11] Salehahmadi Z, Rafie SR. Factors affecting patients undergoing cosmetic surgery in Bushehr, Southern Iran. World Journal of Plastic Surgery. 2012 July; 1 (2): 99-106. Available online.

[12] von Soest TMS, Kvalem IL, Skolleborg KC, Roald HE. Psychosocial factors predicting the motivation to undergo cosmetic surgery. Plastic and Reconstructive Surgery. 2006; 117 (1): 51-62. Available online.

[13] Ferraro GA, Rossano F, D'Andrea F. Self-perception and self-esteem of patients seeking cosmetic surgery. 2005 June; 29 (3): 184-189. Available online.

[14] Figueroa C. Self-esteem and cosmetic surgery: is there a relationship between the two?. Plastic Surgical Nursing. 2003; 21 (1): 21-24. Available online.

[15] Swami V. Body appreciation, media influence, and weight status predict consideration of cosmetic surgery among female undergraduate. Body Image. 2009; 6 (4): 315-317. Available online.

[16] Crockett RJ. Pruzinsky T, Persing JA. The influence of plastic surgery "reality TV" on cosmetic surgery patient expectations and decision making. Plastic and Reconstructive Surgery. 2007; 120 (1): 316-324. Available online.

[17] Sperry SMA, Thompson JK, Sarwer DB, Cash TF. Cosmetic surgery reality TV viewership: relations with cosmetic surgery attitudes, body image, and disordered eating. Annals of Plastic Surgery. 2009; 62 (1): 7-11. Available online.

[18] Sharp G, Tiggemann M, Mattiske J. The role of media and peer influences in Australian women's attitudes towards cosmetic surgery. Body Image. 2014; 11 (4): 482-487. Available online.

[19] Carrion C, Weinberger-Litman S, Rabin LA, Fogel J. Predictors of attitudes toward cosmetic surgery among U.S. and Colombian college women: the roles of eating behaviours and demographic variables. Avances en Psicología Latinoamericana. 2011; 29 (2): 276-294. Available online.

[20] Swami V, Chamorro-Premuzic T, Bridges S, Furnham A. Acceptance of cosmetic surgery: personality and individual difference predictors. Body Image. 2009; 6 (1): 7-13. Available online.

[21] Guðmundsdóttir AD. Attitudes towards cosmetic surgery among Icelanders (Doctoral dissertation, Reykjavik University). 2017. Available online.

[22] Farshidfar Z, Dastjerdi R, Shahabizadeh F. Acceptance of cosmetic surgery: body image, self-esteem and conformity. Procedia-Social and Behavioral Sciences. 2013 Jul 9; 84: 238-42. Available online.

[23] Swami V, Hwang C, Jung J. Factor structure and correlates of the acceptance of cosmetic surgery scale among South Korean university students. Aesthetic Surgery Journal. 2012 Feb 1; 32 (2): 220-229. Available online.

[24] Al-Saiari AA, Bakarman MA. Experiences and attitude among Saudi female university students towards cosmetic surgery. Journal of Taibah University Medical Sciences. 2015; 10 (4): 427-431. Available online.

[25] Sterodimas A, Radwanski HN, Pitanguy I. Ethical issues in plastic and reconstructive surgery. Aesthetic Plastic Surgery. 2011 April; 35 (2): 262-267. Available online.

[26] Brooks A. Under the knife and proud of it: an analysis of the normalization of cosmetic surgery. Critical Sociology. 2004; 30 (2): 207-239. Available online.

[27] AARP Research. Public attitudes towards aging, beauty, and cosmetic surgery. United States of America: AARP; 2001. Available online.

[28] Henderson-King D, Henderson-King E. Acceptance of cosmetic surgery: scale development and validation. Body Image. 2005; 2 (2): 137-149. Available online.

[29] WHO, Expert Consultation. Appropriate body-mass index for Asian populations and its implications for policy and intervention strategies. Lancet. 2004; 363 (9403): 157. Available online.

[30] Centers for Disease Control and Prevention. Epi Info for Windows. Version 7.2. Atlanta, Georgia: Centers for Disease Control and Prevention; 2018. Available online.

[31] Chetta Ngamjarus. n4 Studies for Androids. Version 1.4.0. Thailand; 2014. Available online.

[32] Adedeji OA, Oseni GO, Olaitan PB. Awareness and attitude of healthcare workers to cosmetic surgery in Osogbo, Nigeria. Surgery Research and Practice. 2014; 2014. Available online.

[33] Jovic M, Sforza M, Jovanovic M, Jovic M. The acceptance of cosmetic surgery scale: confirmatory factor analyses and validation among Serbian adults. Current Psychology. 2017; 36 (4): 707-718. Available online.

[34] Swami V, Compana ANNB, Ferreira L, et al. The acceptance of cosmetic surgery scale: initial examination of its factor structure and correlates among Brazilian adults. 2011 March; 8 (2): 179-185. Available online.

[35] Ng JH, Yeak S, Phoon N, Lo S. Cosmetic procedures among youths: a survey of junior college and medical students in Singapore. Singapore Medical Journal. 2014 Aug; 55 (8): 422-426. Available online.

[36] Swami V, Campana AN, Coles R. Acceptance of cosmetic surgery among British female university students: are there ethnic differences? European Psychologist. 2012; 17 (1): 55-62. Available online.

[37] The Holy Bible. Catholic Pastoral Edition. Philippines: Pastoral Bible Foundation. 2008.

[38] Hossain J. "If you look beautiful, the world would be yours" Does cosmetic surgery lead to gendered empowerment in Bangladesh? (Master's thesis, The University of Bergen). 2015. Available online.

[39] Jung J, Hwang CS. Associations between attitudes toward cosmetic surgery, celebrity worship, and body image among South Korean and US female college students. Fashion and Textiles. 2016 Dec; 3 (1): 17. Available online.

[40] Swami V, Taylor R, Carvalho C. Acceptance of cosmetic surgery and celebrity worship: evidence of associations among female undergraduates. Personality and Individual Differences. 2009 Dec; 47 (8): 869-872. Available online.

[41] Suissa AJ. Addiction to cosmetic surgery: representations and medicalization of the body. International Journal of Mental Health and Addiction. 2008 Oct; 6 (4): 619-630. Available online.

[42] Henderson-King D, Brooks KD. Materialism, sociocultural appearance messages, and paternal attitudes predict college women's attitudes about cosmetic surgery. Psychology of Women Quarterly. 2009 Mar; 33 (1): 133-142. Available online.