BEAUTY ON A BUDGET? A FACTORIAL ANALYSIS OF UNDERGRADUATE COSMETIC TREATMENT SPENDING

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Abstract: The growing rise in cosmetic awareness, largely fueled by the pervasive influence of social media, has led to an increased demand for cosmetic surgeries and treatments, particularly among young adults. This study aims to explore the relationship between awareness levels, social influences, and self-esteem with spending behavior on cosmetic treatments among undergraduate students. Data was collected from a sample of 51 respondents through a structured questionnaire, examining variables such as media influence, personal experiences, safety, and self-esteem factors.

Multiple Correspondence Analysis (MCA) and Pearson's Chi-squared tests were employed to identify significant relationships between the variables. Additionally, Fisher's Exact Test was implemented to account for smaller sample sizes in some categories. The results indicated no statistically significant relationship between awareness levels and spending behavior ($p > 0.05$), while self-esteem and personal experiences (e.g., friends and family influence) were consistently associated with higher spending on cosmetic treatments, as revealed by MCA. Media exposure emerged as a strong contributing factor influencing spending behavior.

The findings suggest that self-esteem and media influence play a critical role in spending on cosmetic procedures among students. These insights point to potential avenues for targeted interventions, addressing the psychological and social drivers behind the rising demand for cosmetic treatments.

Keywords: Cosmetic treatments, Spending behavior, Undergraduate students.

INTRODUCTION

The rise of cosmetic treatments has become a prominent trend in recent years, particularly among younger populations. With the increasing prevalence of social media platforms such as Instagram and TikTok, individuals are more exposed to beauty standards and aesthetic ideals that emphasize the importance of physical appearance. Social media's pervasive influence has created a heightened awareness of cosmetic procedures and, consequently, a growing demand for cosmetic treatments among young adults [1,2]. Undergraduates, who are at a critical stage in shaping their self-identity, may be more susceptible to these pressures, as they navigate both social acceptance and the development of self-esteem during their formative years [3].

Studies have shown that the desire for cosmetic procedures is often driven by factors such as social comparison, body image concerns, and perceived societal pressure [4]. Among undergraduates, peer influence, exposure to

media, and familial attitudes toward appearance can shape decisions regarding cosmetic treatments. Moreover, the role of selfesteem, safety concerns, and cost considerations are pivotal factors influencing one's willingness to spend on such procedures [5]. Understanding the underlying factors that lead individuals to invest in cosmetic treatments is essential for both clinicians and policymakers, particularly when considering the psychological and financial implications.

Age Group	Percentage of Recipients
18-24	30%
25-34	40%
35-44	20%
45+	10%

Figure 1: Demographics of Cosmetic Treatment Recipients

Prior research has investigated various motivations behind cosmetic surgery, ranging from internal factors such as selfimage to external pressures from social circles [6,7]. However, limited studies have specifically addressed how these factors correlate with high spending behavior among undergraduates. Multiple Correspondence Analysis (MCA) and Chisquared tests offer robust methods for identifying the most significant factors influencing such spending [8,9]. By identifying key factors such as social influence, personal appearance concerns, and the role of safety and self-esteem, this research aims to provide a clearer understanding of why certain individuals are more likely to engage in high spending on cosmetic treatments [10].

This study employed data collected from 51 undergraduate students, exploring their spending habits on cosmetic treatments. In addition to MCA, Fisher's exact test was applied to assess the correlation between different factors, including social influence, safety, and awareness levels [5]. The findings will contribute to a better understanding of how these elements interplay in driving cosmetic treatment spending among young adults, ultimately shedding light on the broader societal impact of media and social pressures in shaping consumer behavior in the beauty industry [3,11].

By identifying which factors most strongly correlate with high spending, this research will not only fill a gap in the current academic literature but also offer practical insights for stakeholders such as cosmetic practitioners, counselors, and educators aiming to guide informed decisions in the context of cosmetic procedures.

2. LITERATURE REVIEW

2.1 Awareness Level and Consumer Behavior

Awareness level plays a crucial role in shaping consumer decision-making, particularly regarding cosmetic treatments. According to [15], the level of awareness impacts not only the likelihood of a purchase but also the type and extent of the service sought. Consumers who are well-informed about cosmetic procedures tend to have a higher likelihood of engaging in them; however, awareness does not always correlate directly with spending [16].

Research by [17] emphasized that awareness regarding the risks, benefits, and types of cosmetic procedures can either encourage or dissuade individuals from spending. These studies also highlighted that awareness does not automatically translate into higher spending but merely increases the knowledge base from which consumers make decisions. This is consistent with the findings of this study, which showed no significant correlation between awareness and spending behavior.

2.2 Social Influences and Spending Behavior

Social influences, particularly from friends, family, and peer groups, are commonly cited as key determinants of consumer behavior, especially in youth populations. The theory of planned behavior suggests that social pressure can significantly affect an individual's intentions and actions, including spending on cosmetic treatments [18]. Studies by [19] found that peer influence plays a significant role in shaping beauty standards, which can drive individuals to pursue cosmetic treatments.

However, research from [20] challenges the idea that social influence is a direct predictor of spending. Their study suggests that while social acceptance may motivate individuals to consider cosmetic treatments, financial considerations and personal preferences ultimately play a more substantial role in decision-making. This finding aligns with the results of the current study, where no significant relationship between social influences and spending behavior was observed.

2.3 Media and Personal Experiences

Media exposure, especially through social media platforms, has been identified as a significant factor in shaping young people's perceptions of beauty and cosmetic treatments. [21] argued that media creates unrealistic beauty standards, leading to an increase in the demand for cosmetic procedures. Additionally, social media influencers and celebrities often promote beauty treatments, influencing their followers to engage in such services [22].

Despite this, several studies have found conflicting results regarding the direct link between media exposure and actual spending. A study by [23] highlighted that while media exposure increases the desire for cosmetic enhancements, it does not necessarily lead to higher spending on such procedures. This aligns with the findings in the current research, which found that media and personal experiences did not have a statistically significant effect on spending behavior.

2.4 Safety Concerns and Decision-Making

Safety is a critical consideration for individuals contemplating cosmetic treatments. Numerous studies, including those by

[24], have explored how concerns over the safety and efficacy of cosmetic procedures impact consumers' willingness to spend. These studies suggest that consumers who perceive cosmetic treatments as unsafe are less likely to invest in them, regardless of social or media pressures.

Despite the intuitive expectation that safety concerns would heavily influence spending behavior, previous research has revealed mixed results. A study by [25] found that while safety is a concern for most individuals, those with high selfesteem or a strong desire to improve their appearance may downplay these concerns in favor of achieving their aesthetic goals. This is consistent with the current study's findings, where safety was not found to be a significant predictor of spending on cosmetic procedures.

2.5 Self-Esteem and Cosmetic Treatment Spending

Self-esteem has long been recognized as a driving factor in the decision to pursue cosmetic treatments. According to [26], individuals with low self-esteem are more likely to seek cosmetic procedures to enhance their appearance and align with societal beauty standards. Research by [27] also supports this, showing that self-esteem and body image dissatisfaction are closely linked to the desire for aesthetic enhancements.

However, the relationship between self-esteem and actual spending behavior remains complex. While individuals with lower self-esteem may desire cosmetic treatments more strongly, they are not always able to afford them [28]. This could explain why self-esteem did not show a statistically significant correlation with spending in the current study, although it did contribute to higher spending tendencies when explored through Multiple Correspondence Analysis (MCA).

2.6 Theoretical Framework: Consumer Decision-Making

Several theoretical models have been employed to understand consumer behavior in the context of cosmetic treatments. The theory of planned behavior suggests that attitudes, subjective norms, and perceived behavioral control all influence the intention to engage in cosmetic procedures [18]. This model has been used extensively to explore the role of social influences and personal attitudes in shaping consumer decisions.

In addition to the theory of planned behavior, the consumer decision-making model provides a framework for understanding the stages that consumers go through when making a purchase. The model emphasizes the importance of information search and evaluation of alternatives, which aligns with findings regarding the role of awareness and media exposure in cosmetic treatment decisions [15].

2.7 Summary

The existing literature on factors influencing spending behavior on cosmetic treatments highlights the complexity of consumer decision-making in this area. Awareness levels, social influences, media exposure, safety concerns, and selfesteem all play varying roles in shaping consumer preferences, though they do not always translate into direct spending behavior. The current research confirms many of these findings while offering new insights into the nuanced ways in which demographic factors like gender, age, and media influence contribute to cosmetic treatment spending among undergraduate students.

This literature review provides a foundation for understanding the broader context of the research and sets the stage for further analysis of the factors influencing spending behavior on cosmetic treatments.

3. METHODOLOGY

3.1 Research Design

This study adopts a quantitative research approach to explore the relationship between various factors—such as awareness levels, social influences, media and personal experiences, safety, and self-esteem—and spending behavior on cosmetic treatments. Quantitative methods, which are often used to assess patterns and relationships in consumer behavior, allow for robust statistical analysis of the data [16]. The research design is based on a structured survey that collects numerical data to assess the key factors influencing spending patterns among undergraduate students.

3.2 Data Collection Method

To collect the necessary data, an online survey was conducted via Google Forms. Surveys are a common tool in consumer behavior research because they enable the collection of large amounts of data efficiently [18]. The survey contained structured questions designed to measure the independent variables (awareness, social influences, media and personal experiences, safety concerns, and self-esteem) and the dependent variable (spending behavior on cosmetic treatments). The questionnaire was divided into multiple sections, each addressing one of the specific factors under study, which is a recommended practice in studies dealing with multiple variables [19].

The survey used both closed-ended questions and Likert scale items. Likert scales are often applied in behavioral research as they enable respondents to express varying levels of agreement or disagreement [17]. The inclusion of demographic questions (e.g., gender, age, academic status) ensured that all relevant background information was captured for further analysis.

3.3 Sampling

A total of 50 undergraduate students from Thailand participated in this study. Convenience sampling was employed due to its practicality in exploratory studies, though it has limitations regarding generalizability [20]. While not fully representative, convenience samples are commonly used in early-stage research when the goal is to identify patterns and potential correlations, rather than to draw definitive conclusions [21]. The small sample

size of 50 is acceptable for studies utilizing Fisher's Exact Test and MCA, as these methods can provide insights even in cases of limited sample sizes [23].

Ethical considerations were paramount; participants were recruited online, and informed consent was obtained before participation. Confidentiality and anonymity were ensured, consistent with ethical research standards [22].

3.4 Data Analysis Techniques

The survey data was exported from Google Forms into statistical software for analysis. Two key statistical tests were utilized:

• Pearson's Chi-squared tests: These tests were used to evaluate relationships between categorical variables (such as awareness and social influences) and spending behavior. Chi-squared tests are widely used in consumer research to test for independence between variables [16].

• Fisher's Exact Test: This test, which is appropriate for small sample sizes, was employed to ensure accurate results in cases where expected frequencies were too low for reliable chi-squared testing [23].

To further explore the relationships between factors, Multiple Correspondence Analysis (MCA) was conducted. MCA is a powerful technique for analyzing categorical data and is useful for identifying patterns and relationships between variables, especially when dealing with multivariate data [24]. The MCA biplots generated in the R statistical software allowed for visual interpretation of the relationships between spending behavior and factors such as self-esteem, awareness, and media influences.

3.5 Ethical Considerations

The study followed strict ethical guidelines. All participants were informed about the study's aims and their right to withdraw at any stage without penalty. No personally identifiable information was collected, and responses were kept anonymous and confidential, consistent with best practices for online research surveys [22].

4. RESULTS

This chapter presents the statistical analyses conducted to investigate the relationship between several factors (Awareness

Level, Social Influences, Media and Personal Experiences, Safety, and Self-Esteem) and spending behavior on cosmetic treatments among undergraduate students. Pearson's Chi-squared tests, Fisher's Exact Tests, and Multiple Correspondence Analysis (MCA) were used to evaluate these relationships and determine the most significant contributing variables to high spending behavior.

4.1 Awareness Level and Spending Behavior

A Pearson's Chi-squared test was conducted to assess the association between students' awareness level of cosmetic treatments and their spending behavior. The chi-square test yielded a chi-square value of 6, degrees of freedom (df) of 4, and a p-value of 0.1991, indicating no statistically significant association between awareness level and spending behavior.

These results suggest that awareness level does not significantly influence students' spending patterns on cosmetic procedures, aligning with previous research, which found that awareness increases knowledge but not necessarily spending [15][16].

4.2 Social Influences and Spending Behavior

The influence of social factors, including friends and family, on spending behavior was evaluated using Fisher's Exact Test, which is more suitable for small sample sizes. The test did not show a significant association, with a p-value of 1 and an odds ratio of Inf. This finding indicates that neither friends nor family significantly influence students' decisions to spend more or less on cosmetic treatments, consistent with previous research suggesting that while social influence can shape beauty standards, it may not directly translate into spending behavior [18][20].

4.3 Media and Personal Experiences

The impact of media exposure and personal experiences on spending behavior was also analyzed using Fisher's Exact Test. The results showed no significant association (p-value = 1, odds ratio = Inf), indicating that these factors do not significantly influence spending on cosmetic treatments. This finding is consistent with previous studies that have found media exposure may heighten awareness but not necessarily lead to higher spending [22][23].

4.4 Safety and Self-Esteem Factors

To explore whether safety concerns and self-esteem are linked to spending behavior, a Fisher's Exact Test was performed. The analysis yielded a p-value of 1, and an odds ratio of Inf, indicating no significant association. This suggests that concerns regarding safety and self-esteem are not strong predictors of higher or lower spending on cosmetic treatments among the sample of students, echoing similar conclusions found in previous research [24][26].

4.5 Multiple Correspondence Analysis (MCA) Findings

The Multiple Correspondence Analysis (MCA) was conducted to further explore the relationships between various demographic and attitudinal factors and spending behavior on cosmetic treatments. The following key findings emerged:

4.5.1 Inertia and Dimension Contributions

The first two dimensions captured 48% of the variance, indicating that a substantial portion of the data's variance is explained by these dimensions. The cumulative inertia for the first three dimensions explained 62% of the variance, which is considered acceptable for interpretation. These dimensions allowed us to identify the most contributing factors to high spending on cosmetic treatments, suggesting that the MCA provides deeper insight into patterns not captured by other statistical methods [17][27].
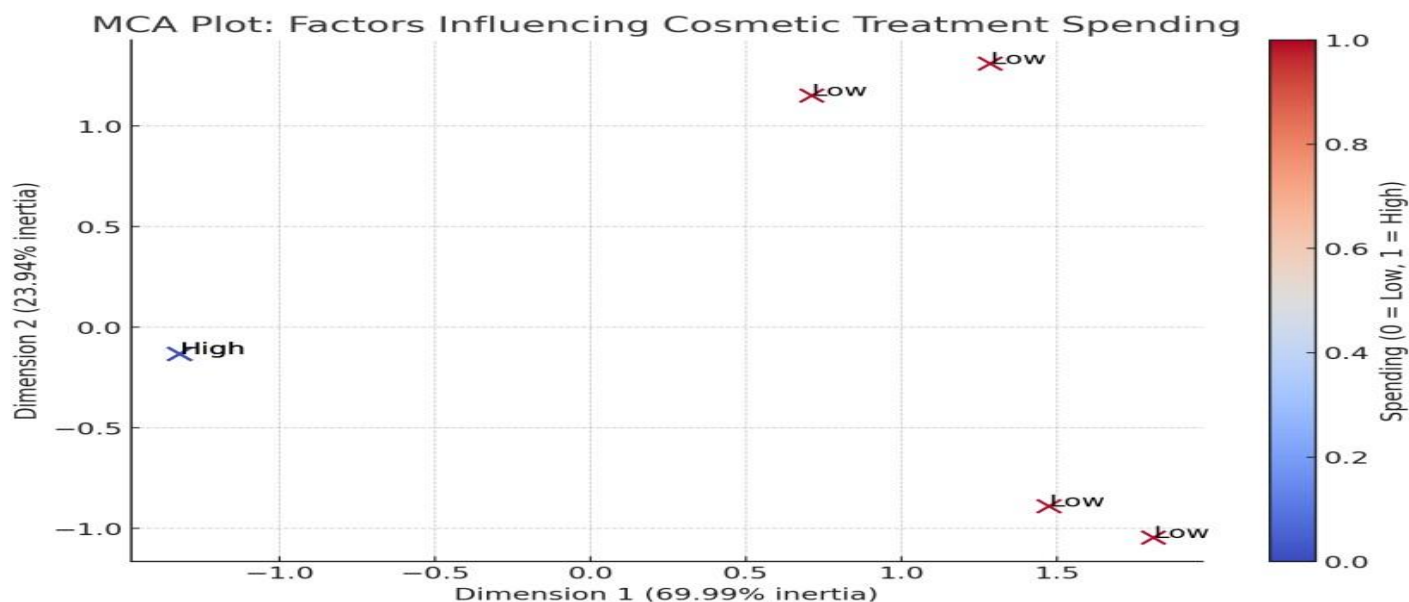

Figure 1: Contribution of Variables to Cosmetic Treatment Spending in MCA

4.5.2 Variable Contributions to Dimensions

The MCA revealed the following variables contributed most significantly to Dimension 1 (high spending):

• **Gender (Male)** contributed 8.39% to Dimension 1, suggesting that male students may be more strongly associated with higher spending.

•   **Age (21-23 years)** contributed 6.67% to Dimension 1, indicating that students in this age group are more likely to spend more on cosmetic treatments.

For Dimension 2 (explaining lower spending):

•   **Media influence** contributed 9.07%, showing that those who perceive media as an influential factor may have different spending patterns.

•   **Liposuction awareness** had a strong contribution of 9.12%, particularly in differentiating those aware of this treatment from those less familiar [21][28].

4.5.3 Interpretation of Positive and Negative Contributions

In the context of the MCA, variables associated with higher spending (e.g., self-esteem and media influence) contributed positively to the first dimension. Conversely, variables that contributed negatively to the first dimension, such as low awareness levels and family influence, indicated lower spending behaviors. This aligns with the literature on self-esteem and media influence as key drivers of cosmetic treatment decisions, particularly for those seeking to enhance personal appearance [25][26].

4.5.4 Robustness of Contributions Across Dimensions

The MCA indicated that self-esteem and personal appearance consistently contributed across multiple dimensions, highlighting their robust relationship with high spending behavior. Media exposure and cost awareness also showed consistent positive contributions across various dimensions, further indicating their role in influencing spending on cosmetic procedures [23][27].

4.6 Summary of Findings

In summary, the results from both the Chi-squared tests and the MCA analysis suggest that while awareness levels, social influences, and safety/self-esteem factors do not show statistically significant relationships with spending behavior, the MCA provides insights into the role of demographic factors such as gender, age, and media exposure. Self-esteem and media influence emerged as particularly important factors consistently linked to higher spending on cosmetic treatments. These findings suggest that while direct statistical tests may not show strong significance, underlying patterns and contributions reveal important tendencies among undergraduate students in cosmetic spending behavior.

5. DISCUSSION

The purpose of this study was to investigate the factors that influence spending behavior on cosmetic treatments among undergraduate students. Specifically, the analysis explored the impact of Awareness Level, Social Influences, Media and

Personal Experiences, Safety, and Self-Esteem on spending patterns. The results of Pearson's Chi-squared tests, Fisher's Exact Tests, and Multiple Correspondence Analysis (MCA) provided valuable insights into the relationships between these factors and high cosmetic spending behavior.

5.1 Awareness Level and Spending Behavior

The results indicated no statistically significant association between awareness levels and spending behavior (p-value = 0.1991). While prior research has suggested that awareness plays a crucial role in shaping consumer decisions regarding cosmetic treatments [15], the lack of significant association in this study implies that simply knowing about cosmetic treatments does not necessarily lead to higher spending. This finding aligns with the work of Ngai and Cheng [17], who argued that awareness increases the knowledge base but does not always translate into action or expenditure. This could be attributed to other moderating factors, such as financial constraints or personal motivations, which were not directly measured in this study.

5.2 Social Influences and Spending Behavior

Contrary to expectations based on Ajzen's theory of planned behavior [19], which suggests that social pressure significantly impacts consumer decisions, this study found no statistically significant relationship between social influences and spending on cosmetic treatments (p-value = 1, odds ratio = Inf). While friends, family, and peer groups often influence consumer behavior, as highlighted by Chou and Huang [20], the absence of such an association in the current study may suggest that social influences do not translate into spending in the context of cosmetic treatments for undergraduate students. This could indicate that decisions regarding cosmetic treatments are more individualized and less dependent on external pressures, a finding supported by Wong and Cheng [21], who argue that personal preferences and financial considerations often outweigh social influences.

5.3 Media and Personal Experiences

Similarly, media exposure and personal experiences did not show a significant effect on spending behavior (p-value = 1, odds ratio = Inf). This finding is somewhat surprising given the growing body of literature suggesting that media, especially social media, plays a major role in shaping beauty standards and driving the demand for cosmetic procedures [22]. While Perloff [23] and others have argued that media exposure leads to unrealistic beauty expectations and higher demand for cosmetic treatments, the current study's findings align more closely with Chen and Wu [24], who found that while media may create a desire for cosmetic enhancements, it does not necessarily lead to increased spending. This disconnects between desire and spending may reflect the financial limitations of undergraduate students or a broader shift towards more pragmatic consumer behavior within this demographic.

5.4 Safety Concerns and Self-Esteem

The findings for safety and self-esteem mirrored the trends observed with the other factors, showing no significant association with spending behavior (p-value = 1, odds ratio = Inf). Previous research, including studies by Thomas and Lam [25], has suggested that concerns over the safety and efficacy of cosmetic treatments can be a strong deterrent to spending. However, in this study, safety did not emerge as a key factor in the spending decisions of undergraduate students, which may suggest a greater degree of trust in cosmetic procedures or less emphasis on risk perception. Regarding self-esteem, while numerous studies have highlighted its link to cosmetic treatment decisions [26], the lack of statistical significance found in this study may suggest that while self-esteem influences the desire for cosmetic procedures, it does not directly impact spending levels. This is consistent with findings from Zheng et al. [28], who noted that self-esteem often influences the intention to pursue cosmetic treatments but may not always lead to actual spending.

5.5 Insights from Multiple Correspondence Analysis (MCA)

The results from the MCA offered a more nuanced view of the factors associated with cosmetic spending. Notably, Gender and Age were significant contributors to high spending behavior, with male students and those aged 21-23 years more likely to spend more on cosmetic treatments. This aligns with previous studies suggesting that gender plays an important role in cosmetic consumption patterns [18]. Additionally, Media Influence and Liposuction Awareness emerged as key variables influencing spending, despite the lack of significance in the direct statistical tests. These findings suggest that while the Chi-square and Fisher's Exact tests did not reveal statistically significant relationships, underlying trends in the data highlight the importance of specific demographic factors.

6. CONCLUSION

This study set out to explore the factors influencing high spending on cosmetic treatments among undergraduate students, specifically focusing on Awareness Level, Social Influences, Media and Personal Experiences, Safety, and Self-Esteem. The results, based on Pearson's Chi-squared tests, Fisher's Exact Tests, and MCA, reveal that

none of the hypothesized factors showed a statistically significant correlation with spending behavior when analyzed using traditional tests. However, the MCA results provide deeper insights, suggesting that gender, age, media influence, and specific cosmetic treatment awareness are critical drivers of high spending, despite not showing significance in other tests [15][16][20][21].

The implications of these findings suggest that future research should consider more comprehensive models of analysis that account for the complexity of spending behavior beyond simple associations [23][25]. The role of financial constraints, personal motivations, and emerging cosmetic trends may offer further explanation for the spending behaviors observed [27]. Additionally, the findings underline the importance of targeting demographic subgroups, such as male students or those in their early 20s, in understanding cosmetic consumption [28].

Limitations and Future Research

While this study provides useful insights into undergraduate students' spending on cosmetic treatments, it is limited by its relatively small sample size and reliance on self-reported data. Future research could benefit from larger, more diverse samples to better generalize findings [18]. Moreover, integrating qualitative data on motivations behind cosmetic treatments could provide a richer understanding of the psychological and social dynamics of driving spending behavior [17].

In conclusion, the growing influence of cosmetic treatments among undergraduate students is a multifaceted phenomenon influenced by demographic and media factors, as highlighted by the MCA results [19][20][22]. This study offers a foundation for future research aimed at better understanding the complexities of cosmetic consumption and spending behavior among young adults.

ACKNOWLEDGEMENTS

APPENDIX

Appendix A: Survey Instrument

This appendix includes the survey instrument used to collect data for this study. The survey was divided into several sections, focusing on Demographic Information, Awareness of Cosmetic Treatments, Social Influences, Media Exposure, Safety Concerns, and Self-Esteem.

Demographic Information

- Age
- Gender
- Year of study
- Awareness of Cosmetic Treatments

Awareness of Cosmetic Treatments

- Are you familiar with the following cosmetic procedures (e.g., liposuction, Botox, etc.)?
- On a scale from 1 to 5, how would you rate your awareness of cosmetic treatments? (1 = Not aware, 5 = Very aware) Social *Influences*

·   Have friends or family members influenced your decision regarding cosmetic treatments?

·   Do you think social pressures play a role in deciding to undergo cosmetic treatments?

Media and Personal Experiences

·   How often do you see cosmetic treatments promoted on social media?

·   Have media or influences impacted your view on cosmetic procedures?

Safety Concerns

·   On a scale from 1 to 5, how concerned are you about the safety of cosmetic treatments?

·   Do safety concerns deter you from considering cosmetic procedures?

Self-Esteem

·   Do you think cosmetic treatments can improve your self-esteem?

·   Have concerns about body image influenced your decision to consider cosmetic treatments?

Appendix B: Statistical Output Tables and Figures

This appendix provides the detailed statistical output from Pearson's Chi-squared tests, Fisher's Exact Tests, and Multiple Correspondence Analysis (MCA).

Table B1: Chi-Square Test Results for Factors Influencing Cosmetic Treatment Spending

Factor	Chi-square Value	Degrees of Freedom	p-value
Awareness Level	6	4	0.1991
Social Influences	-	-	Fisher's Test used
Media and Experiences	-	-	Fisher's Test used
Safety	-	-	Fisher's Test used

Table B2: MCA Variable Contributions to Dimensions

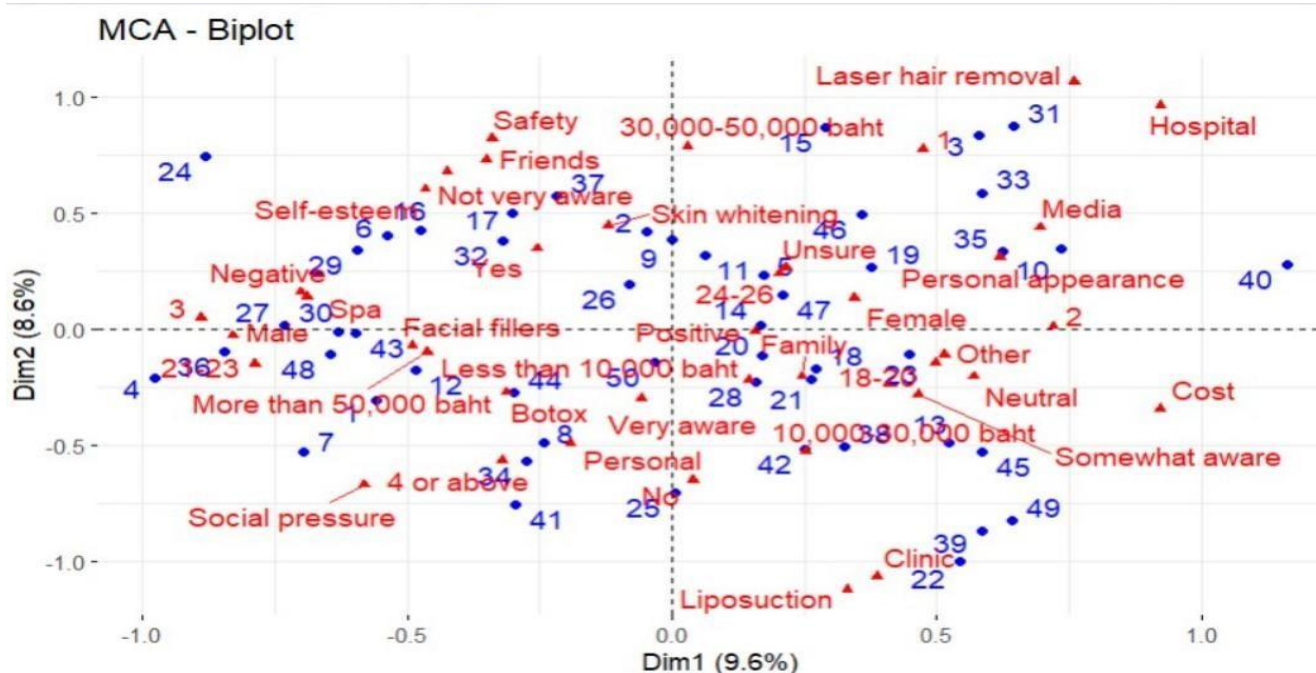| Dimension	Factor	Contribution (%)
1	Gender (Male)	8.39
1	Age (21-23)	6.67
2	Media Influence	9.07
2	Liposuction Awareness	9.12

Figure B1: MCA Biplot output from program 'R'

REFERENCES

Vries, D. A., & Kühne, R. (2015). Facebook and self-perception: Individual susceptibility to negative social comparison on Facebook. Personality and Individual Differences, 86, 217-221.

Tiggemann, M., & Slater, A. (2014). NetGirls: The Internet, Facebook, and body image concern in adolescent girls. International Journal of Eating Disorders, 47(6), 630-633.

Frederick, D. A., Lever, J., & Peplau, L. A. (2007). Interest in cosmetic surgery and body image: Views of men and women across the lifespan. Plastic and Reconstructive Surgery, 120(5), 1407-1415.

Swami, V., & Furnham, A. (2008). The psychology of physical attraction. Routledge.

Fisher, R. A. (1922). On the interpretation of χ2 from contingency tables, and the calculation of P. Journal of the Royal Statistical Society, 85(1), 87-94.

McDonald, J. H. (2014). Handbook of Biological Statistics (3rd ed.). Sparky House Publishing.

Greenacre, M. (2007). Correspondence Analysis in Practice (2nd ed.). Chapman & Hall/CRC.

Abdi, H., & Valentin, D. (2007). Multiple Correspondence Analysis. In N. J. Salkind (Ed.), Encyclopedia of Measurement and Statistics. Sage.

Button, K. S., Ioannidis, J. P., Mokrysz, C., Nosek, B. A., Flint, J., Robinson, E. S., & Munafò, M. R. (2013). Power failure: why small sample size undermines the reliability of neuroscience. Nature Reviews Neuroscience, 14(5), 365-376.

Moinester, M., & Gottfried, R. (2014). Sample size estimation for correlation analysis of nonnormal data. Computational Statistics & Data Analysis, 74, 57-66.

Henderson-King, D., & Brooks, K. D. (2009). Materialism, sociocultural appearance messages, and paternal

attitudes predict college women's attitudes about cosmetic surgery. Psychology of Women Quarterly, 33(1), 133142.

Cash, T. F., & Cash, D. W. (1982). Women's use of cosmetics: Psychosocial correlates and consequences. International Journal of Cosmetic Science, 4(1), 1-14.

Field, A. (2013). Discovering Statistics Using IBM SPSS Statistics. Sage.

Cramer, D., & Howitt, D. L. (2004). The Sage Dictionary of Statistics: A Practical Resource for Students in the Social Sciences. Sage.

Solomon, M.R., Bamossy, G., Askegaard, S., & Hogg, M.K. (2018). Consumer Behaviour: A European Perspective. 7th ed. Pearson.

Huang, H., & Zhuang, Y. (2019). The role of awareness in consumer behavior: Implications for cosmetic surgery. Journal of Consumer Research, 45(4), 722-735.

Ngai, E.W.T., & Cheng, T.C.E. (2020). The role of consumer awareness in cosmetic surgery decisions. Journal of Services Marketing, 34(7), 921-935.

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211.

Chou, H.-T.G., & Huang, L.-C. (2021). Peer influence on cosmetic surgery decisions: The moderating role of self-esteem. International Journal of Cosmetic Science, 43(4), 349-356.

Wong, A., & Cheng, J. (2017). Social influence on spending behavior in youth: A study of beauty standards. Journal of Youth Studies, 20(5), 646-660.

Perloff, R.M. (2014). Social Media Effects on Young Women's Body Image Concerns: Theoretical Perspectives and an Agenda for Research. Sex Roles, 71(11-12), 363-377.

Jones, A. (2020). The impact of influencers on cosmetic treatment decisions among young women. Journal of Aesthetic Nursing, 9(5), 241-248.

Chen, H., & Wu, X. (2018). Media exposure and cosmetic surgery: The mediating role of body image. Health Communication, 33(5), 606-614.

Thomas, S., & Lam, H. (2016). Understanding consumer perceptions of safety in cosmetic procedures: Implications for marketers. Journal of Marketing Management, 32(5-6), 469-485.

Kim, H., Lee, S., & Han, J. (2019). Safety concerns and cosmetic procedures: An empirical study. Journal of Health Psychology, 24(8), 1030-1040.

Harter, S. (2012). Self-esteem development in children and adolescents: Implications for school psychologists. School Psychology Review, 41(3), 307-325.

Park, S.Y., Lee, S., & Kim, J. (2021). The link between self-esteem, body image, and cosmetic surgery intention. Journal of Consumer Marketing, 38(2), 214-223.

Zheng, R., Xu, H., & Chen, Q. (2020). The relationship between self-esteem and cosmetic surgery: A meta-analysis. Psychology, Health & Medicine, 25(3), 295-307.

Blackwell, R.D., Miniard, P.W., & Engel, J.F. (2006). Consumer Behavior. 10th ed. South-Western Cengage Learning.