



The Counterproductive Aspects of Charm: Counterfeit Cosmetics and the Purchasing Intention of Bangladeshi Undergrads

Kazi Tanvir^{1*}, Dr. Mahaaganapathy Dass², Muhammad Sazzadul Islam³,
Anika Tahsin Prokriti⁴, Samia Akter⁵

^{1*}Department of Mathematics, School of Advanced Sciences (SAS), Vellore Institute of Technology, Vellore, Tamil Nadu, India.

²Associate Professor and Chief Executive Officer, Limkokwing Executive Leadership College Sdn Bhd, Limkokwing University of Creative Technology, Cyberjaya, Malaysia.

³Department of Computer Science, American International University-Bangladesh, Kuratoli, Dhaka, Bangladesh.

⁴Department of Computer Science and Engineering (Major Artificial intelligence), Bangladesh University of Business and Technology, Dhaka, Bangladesh.

⁵Department of Textile Engineering (Major in Apparel Manufacturing), BGMEA University of Fashion and Technology, Nishatnagar, Dhaka, Bangladesh.

Email: ²drmahaa.dass@leadership.edu.my, ³sazzadulislam944@gmail.com,

⁴anikaneha9@gmail.com, ⁵samiaakhter13@gmail.com

Corresponding Email: ^{1*}kazitanvir.ai@gmail.com

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Abstract: *The current research explores the counterproductive aspects of charm in the context of counterfeit cosmetics and the purchasing intention of Bangladeshi undergraduate students. The study examines four hypotheses: H1) A correlation exists between ostentation and affordability. H2) A correlation exists between ostentation and psychological contentment. H3) A correlation exists between psychological contentment and affordability. H4) There is a correlation between affordability, lack of knowledge, and purchasing intention. Data for this study was obtained via an online survey, with a total of 147 participants. All predictions were confirmed, demonstrating a robust correlation between exhibitionism, affordability, psychological contentment, and purchasing inclination in the context of counterfeit cosmetics among undergraduate students from Bangladesh. The results of this study can offer valuable perspectives for domestic and international cosmetic brands regarding customer perceptions of the market and the determinants that impact their purchasing, preference, and loyalty choices.*



Keywords: Counterfeit Cosmetics, Purchasing Intention, Showing Off, Affordability, Mental Satisfaction, Ignorance.

1. INTRODUCTION

Counterfeit cosmetics are a significant worldwide challenge that undermines consumer confidence and creates complications for consumers, regulatory bodies, and legal entities [1]. Within the United States, a significant majority, namely 70%, of those who engage in the consumption of counterfeit goods hold the belief that the presence of these counterfeit products does not have any influence on the value or prestige associated with the original products [2]. Counterfeiters have adopted advanced methods, such as replicating products, forging packaging, and utilizing internet channels, in order to maximize earnings and exploit demand from clients [3]. Consequently, this has led to a rapid proliferation of counterfeit cosmetics, posing a significant concern. The global cosmetics sector is estimated to have an annual sales value of around \$523 billion, with projections indicating a potential increase to \$805 billion by the year 2022 [4]. The prevalence of counterfeit cosmetics in Bangladesh has become a major worry, leading officials to warn buyers about the potential health consequences involved with using these bogus products [5]. According to the Global Islamic Economy Report (2016), individuals in Bangladesh expended a substantial sum of US\$ 2.5 billion primarily on the acquisition of cosmetic products in 2016 [6]. Counterfeit cosmetics have been identified to contain hazardous substances such as mercury, lead, and arsenic, leading to skin-related issues such as irritation and rashes [7]. The proliferation of counterfeit cosmetics is escalating due to the growing trend of consumers opting for online cosmetic purchases, creating an opportune environment for criminal exploitation through the illicit trade of counterfeit replicas of popular cosmetic products [8].

Related Works

Show-Off

The prevalence of an extravagant behaviour culture in Bangladesh can be ascribed to diverse factors, encompassing sentiments of insecurity, wealth, and luxury, along with existing rites and traditions [9]. The widely held belief is that ostentation is predominantly driven by feelings of insecurity [10]. Individuals engage in displays of self-importance as a means to signify their significance and seek recognition and affirmation from their peers [11]. This phenomenon is particularly observable among those who perceive themselves as undervalued or marginalized in society. Presently, Bangladesh is experiencing a burgeoning preoccupation with wealth and the acquisition of symbols that denote social status [9]. While there is an expectation for individuals to adhere to a modest and courteous dress code, flaunting wealth or social status in an ostentatious manner may be viewed as insensitive [12]. Nonetheless, the pervasive influence of Western society and the widespread impact of social media have contributed to an increasing acceptance of ostentatious behaviour within the cultural milieu of Bangladesh [13]. The prevalence of a culture characterized by flamboyant displays in Bangladesh can be linked to various factors, including feelings of inadequacy, the aspiration to showcase wealth and luxury, and the influence of Western cultural norms and traditions. The impact of this specific culture on society can yield both advantageous and detrimental outcomes, as it holds the potential to



encourage consumerism and superficiality while simultaneously fostering a sense of inclusion and approval among its adherents.

Mental Satisfaction

Mental satisfaction involves the comprehensive assessment of an individual's overall state of well-being, encompassing various facets such as emotional well-being, contentment in interpersonal relationships, achievement of goals, self-perception, and perceived ability to effectively navigate life's challenges [14]. Improved psychological well-being is correlated with an increased sense of life satisfaction, characterized by emotional balance, positive thought patterns, an optimistic perspective, and a clear sense of purpose [15]. Individuals with elevated levels of life satisfaction often exhibit a diminished likelihood of experiencing depression and other mental health disorders [16]. In this particular context, the manifestation of a show-off culture can be perceived as a coping strategy employed by certain individuals to manage their insecurities and yearning for social acceptance, as they seek to mitigate feelings of inadequacy and isolation by projecting an embellished self-image through platforms such as social media or in their everyday interactions, thereby seeking temporary respite through garnering attention and validation from others [17]. Nonetheless, dependence on a show-off culture as a means of attaining mental contentment can prove deleterious over time, with studies indicating that participating in genuine self-expression on social media, as opposed to projecting an idealized persona, is linked to heightened subjective well-being [18]. The intricate and multifaceted connection between show-off behavior and mental satisfaction in Bangladesh suggests that, for certain individuals, show-off culture may function as a coping mechanism; nevertheless, relying on it for mental contentment can have adverse effects, emphasizing the importance of authentic self-expression for fostering greater subjective well-being.

Affordability

Affordability pertains to the condition of being economically accessible, enabling individuals to make purchases at a cost within their financial means [19]. Within the framework of mental contentment in Bangladesh, the factor of affordability emerges as influential, given the widespread prevalence of mental health challenges in the country, compounded by pronounced stigma, societal taboos, and a dearth of awareness, collectively impeding access to appropriate care [20]. In this particular context, the accessibility of mental health services at an affordable cost emerges as a pivotal determinant in fostering mental satisfaction, as the affordability of such services in Bangladesh facilitates individuals' access to care, thereby enhancing their holistic well-being [21]. Housing affordability poses a substantial challenge in Bangladesh, particularly for individuals with lower incomes [22]. Experiencing housing-related adversities, such as inadequate living conditions and housing instability, may be linked to diminished mental health [23]. Consequently, enhancing the affordability of housing in Bangladesh becomes a pivotal measure in advancing mental contentment; affordability plays a vital role in fostering mental satisfaction in the country, as economical mental health services and accessible housing contribute to improved mental health outcomes through enhanced access to care and living conditions.

Purchasing Intentions

Purchasing intention refers to the probability that a consumer will acquire a specific product or service [24]. It is shaped by a range of factors, encompassing the consumer's needs and desires, the perceived value associated with the product or service, and the consumer's overall attitude towards the particular offering [25]. A research investigation carried out in Dhaka, Bangladesh, revealed that consumers' attitudes toward the acquisition of counterfeit products exerted a noteworthy influence on their tangible purchasing intentions [26]. In Bangladesh, the cosmetics market has been identified as having a substantial prevalence of counterfeit products, with an estimated over 50% of cosmetic items being reported as fraudulent [26]. Consumers in Bangladesh have conveyed a sense of doubt and lack of confidence in relation to such products, with the growing population of middle to affluent consumers in the country being an additional factor influencing consumer perceptions toward cosmetics [5]. A investigation conducted in Bangladesh has evaluated the role of religiosity on the tendency to buy counterfeit products, uncovering a significant collaboration between religiosity and attitudes towards obtaining such products [27]. The inclination to buy counterfeit cosmetics in Bangladesh is influenced by factors such as consumer attitudes, religiosity, and the growing middle-class humanity. This highlights the importance for policymakers and marketers to focus on changing consumer attitudes and perceptions towards these products as a means to tackle the problem of counterfeit cosmetics.

The principal goal of this study is to investigate the influence of several independent variables, namely Show-off, Affordability, Mental Satisfaction, and Ignorance, on the dependent variable, which is Purchasing Intentions. Additionally, this study intends to identify the underlying relationship among the independent variables.

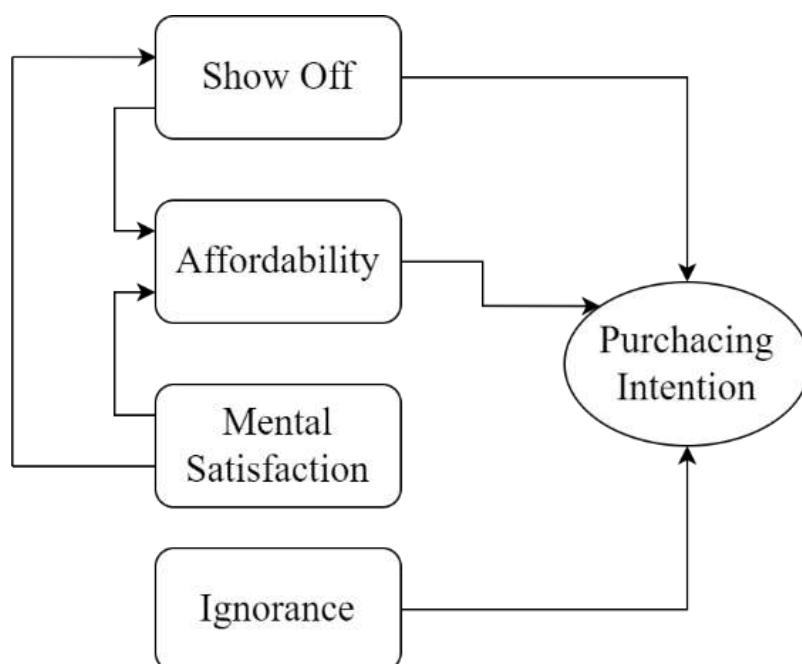


Figure 1 Conceptual Framework (Proposed By Authors)



Hypotheses

H1: There exists a correlation between Show off and Affordability.

H2: There exists a correlation between Show-off and Mental Satisfaction.

H3: There exists a correlation between Mental Satisfaction and Affordability.

H4: There exists a correlation among Affordability, Ignorance and Affordability with Purchasing Intention.

2. METHODOLOGY

Data Collection and Selection

This study was conducted by administering an online survey on Microsoft Forms using the purposive sampling method and a quantitative approach. The sampling strategy known as "purposeful sampling" selects sample components based on the researcher's informed judgment, rather than relying on randomness [28]. Furthermore, researchers will be persuaded that use deliberate sampling strategies can lead to substantial reductions in both time and expense [29]. The study focused on undergraduate students attending both public and private universities in Bangladesh. A total of 147 students' data was gathered through the utilization of Microsoft and Google forms. The data collection process involved 31 structured questions and 6 demographic questions. The questionnaire consisted of 31 structured questions, each utilizing a 5-point Likert Scale. The scale was defined as follows: 1=Strongly Disagree, 2=Disagree, 3=Neutral, 4=Agree, and 5=Strongly Agree.

The survey was administered to a sample of 230 undergraduate students from various public and private universities in Bangladesh. A total of 177 individuals out of the 230 participants completed the survey within a three-day period. Ten persons have been disqualified due to their unfair or untrustworthy responses. The typical age of undergraduate students is approximately 24 years [30]. Therefore, 20 individuals were excluded from the study since they were older than 24 years. The study achieved a response rate of 76.95%, meeting the minimum criteria of 50% as specified by W. Black & Babin [31].

Analysis Method and Tools

SmartPLS is a software tool that is used to do variance-based structural equation modelling (SEM) using the partial least squares (PLS) path modelling methodology [32], [33]. Partial Least Squares (PLS) PLS-SEM, or Structural Equation Modelling, allows for the identification of key determinants and competitive advantages related to significant dimensions including customer happiness, loyalty, behavioural intents, and user behaviour [34]. The conceptual model using the SmartPLS software is as follows,

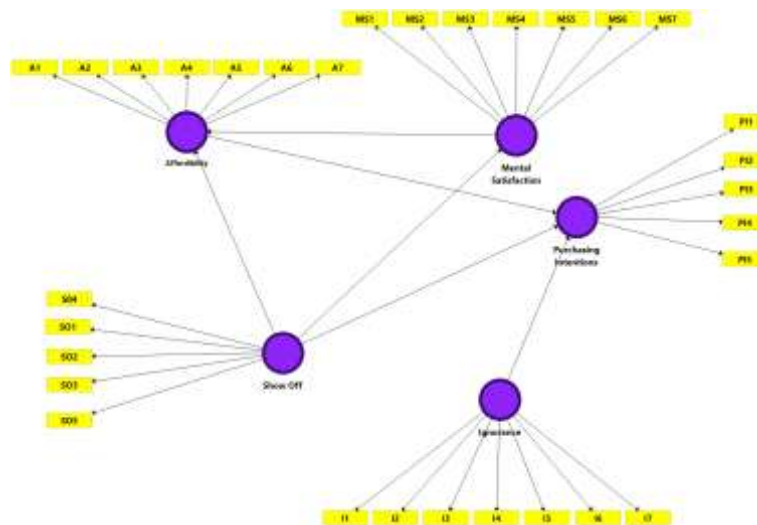


Figure 2 Conceptual Model in Smart PLS 3.2.8

3. RESULTS AND FINDINGS

This study examines the intricate terrain of customer buying intentions in the Bangladeshi market, with a specific emphasis on counterfeit cosmetics. The focus of our research centers on several crucial elements, including "Purchasing Intention", "Affordability", "Show Off", "Mental Satisfaction", and "Ignorance".

The variables are intricately intertwined as researchers strive to decipher the elements that influence consumers to select counterfeit cosmetics instead of authentic ones. Through analysing the connections between these variables, the research objective is to acquire a more profound comprehension of the reasons behind customers' decisions and to illuminate the distinct dynamics of the Bangladeshi market in relation to the purchasing intention of counterfeit cosmetics among undergraduate students.

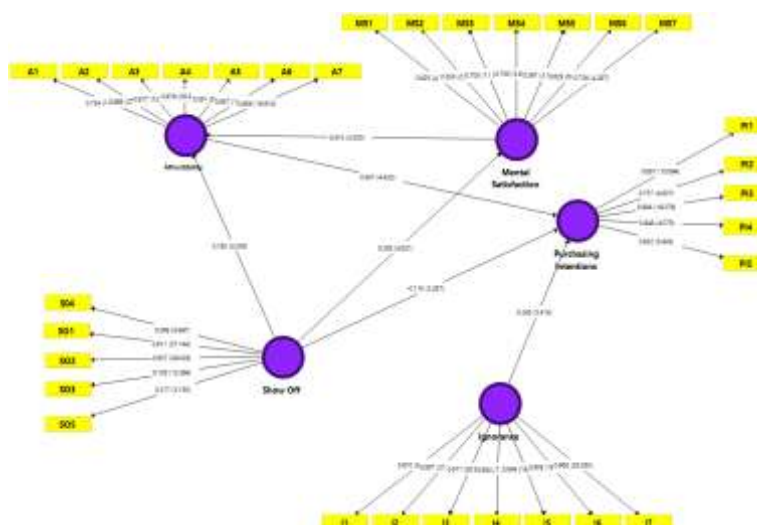


Figure 3 Conceptual Model generated in Smart PLS including inner and outer model



Convergent Validity Test

Convergent validity is a form of construct validity that assesses the degree of correlation between a test and other tests that measure the same construct [35]. In this study, the researchers employed convergent validity as a means to evaluate the dependability and accuracy of our survey instrument. Researchers conducted a comparative analysis of the ratings obtained from our survey and those derived from other well-established metrics pertaining to consumers' affordability, brand choice, conspicuous consumption, mental well-being, and lack of knowledge.

Table 1: Reliability and Validity

	Cronbach's Alpha	rho_A	Composite Reliability	Average Variance Extracted (AVE)
Affordability	0.888	0.911	0.917	0.625
Ignorance	0.927	0.972	0.942	0.707
Mental Satisfaction	0.770	0.716	0.795	0.895
Purchasing Intentions	0.891	0.898	0.920	0.698
Show Off	0.761	0.900	0.836	0.532

Within the framework of this study, researchers assess two fundamental elements of reliability. Initially, researchers examine the reliability of internal consistency. The suggested benchmark for composite reliability is 0.70 or higher [36]. However, in exploratory study, values ranging from 0.60 to 0.70 can be considered acceptable. It is important to mention that Cronbach's alpha is used to evaluate the minimum level of internal consistency, whereas composite reliability indicates the maximum level [37].

In addition, researchers consider the dependability of each individual indication. In order to fulfill this requirement, the outer loadings of indicators must exceed 0.70. Indicators with outer loadings ranging from 0.40 to 0.70 may be removed from the model if their absence leads to an improvement in both composite reliability and Average Variance Extracted (AVE) beyond the suggested threshold of 0.50 [38].

Hypotheses Testing

The t-statistic test is utilized to examine the structural model through partial least squares (PLS) analysis, with the aid of SmartPLS software [39]. The purpose of this test is to evaluate the immediate impacts within the model, hence ensuring the dependability and accuracy of the results.



Table 2: Hypothesis Testing

Hypothesis		Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1	Show Off -> Affordability	0.183	0.182	0.040	4.566	0.006	Supported
H1	Show Off -> Mental Satisfaction	0.265	0.280	0.058	4.534	0.007	Supported
H2	Mental Satisfaction -> Affordability	0.414	0.436	0.103	4.011	0.007	Supported
H3	Affordability -> Purchasing Intentions	0.457	0.456	0.103	4.412	0.005	Supported
H3	Show Off -> Purchasing Intentions	-0.115	-0.109	0.035	3.257	0.001	
H3	Ignorance -> Purchasing Intentions	0.245	0.252	0.067	3.673	0.003	

Based on the statistical computations presented in Table 5, it can be stated that the variables Show Off, Affordability, and Mental Satisfaction are all statistically significant. Additionally, the link hypotheses based on these variables are also found to be correct. The p-value being less than 0.05 provides evidence to accept all hypotheses [40].

4. CONCLUSIONS

The research report indicates that there is a correlation between show-off behavior and factors such as affordability, mental satisfaction, and purchasing intention, based on the accepted hypotheses. The study sought to examine the impact of various independent variables, including show-off behavior, affordability, mental satisfaction, and ignorance, on the dependent variable of purchasing intentions for counterfeit cosmetics among undergraduate students in Bangladesh. The investigation elucidated the fundamental correlation among the independent variables. The correlation between the showing off counterfeit cosmetics and cost-effectiveness among undergraduate students in Bangladesh is influenced by social factors, personal gratification derived from affordability, societal impact on fashion perspectives, misperceptions about product quality, perceived value for money, reduced brand loyalty resulting from counterfeiting problems, and a willingness to disregard ethical considerations in favor of ostentation and financial savings. The correlation between flaunting and mental well-being in the context of purchasing counterfeit cosmetics among undergraduate students in Bangladesh is associated with the belief that these products imitate genuineness, providing a sense of personal gratification by creating the illusion of a favorable transaction or premium



merchandise. Although there are ethical concerns regarding the adverse effects of counterfeit production, the drive to show off and achieve mental contentment can override these concerns, resulting in concessions on quality and significant health hazards in order to satisfy personal desires and maintain a positive self-perception. There is a correlation between affordability and mental satisfaction related to the purchase of counterfeit cosmetics among undergraduate students in Bangladesh. The connection between students opting for counterfeit products instead of authentic ones is influenced by financial constraints and the psychological attraction of reduced pricing. This choice compromises on quality and potentially poses health risks, all in pursuit of personal fulfillment and a favorable self-image. There is a correlation between financial restrictions, lack of understanding, and the attractiveness of pricing when it comes to the purchasing intentions of counterfeit cosmetics among undergraduate students in Bangladesh. The decision to purchase counterfeit products is influenced by factors such as limited financial resources, lack of understanding, perceived value, and societal values. These factors can lead to compromises on quality and pose possible health hazards.

The research proposes many areas for future investigation and provides solutions to tackle the association between show-off behavior and purchasing intentions for counterfeit cosmetics among undergraduate students in Bangladesh. It is crucial to prioritize educational programs that enhance knowledge of the hazards linked to counterfeit products and incorporate ethical issues into the educational curriculum. Psychological therapies and programs aimed at empowering consumers can have a significant impact on influencing responsible consumer behavior. Longitudinal studies are necessary to monitor changing attitudes, while cross-cultural studies can offer a more comprehensive insight into the elements that influence purchasing intentions. Advocating for more stringent government rules, implementing technical measures for product authentication, fostering partnerships with the industry, and maintaining ongoing monitoring of consumer trends is essential for cultivating a more knowledgeable, morally aware, and empowered customer base. These projects have a collective objective of reducing the adverse effects of ostentatious behavior and encouraging prudent purchase decisions among undergraduate students in Bangladesh.

5. REFERENCES

1. J. Lei, "Makeup or Fakeup?: The Need to Regulate Counterfeit Cosmetics through Improved Chinese Intellectual Property Enforcement," *Fordham Law Rev.*, vol. 88, p. 309, 2020 2019.
2. C. A. Rodríguez, "COUNTERFEIT COSMETICS FROM CHINA TO USA".
3. "Factors influencing halal cosmetic adoption: A systematic literature review and future research directions using TCCM framework." Accessed: Nov. 13, 2023. [Online]. Available: <https://www.researchsquare.com>
4. S. C. Team, "The Dark Side of Beauty: An Overview of the Counterfeit Cosmetics Industry," *Sayari*. Accessed: Nov. 13, 2023. [Online]. Available: <https://sayari.com/resources/the-dark-side-of-beauty-an-overview-of-the-counterfeit-cosmetics-industry/>
5. "FULLTEXT01.pdf." Accessed: Nov. 13, 2023. [Online]. Available: <https://www.diva-portal.org/smash/get/diva2:1527203/FULLTEXT01.pdf>



6. "SGIE-Report_f1_DIGITAL_1477897639.pdf." Accessed: Nov. 13, 2023. [Online]. Available: https://ded.ae/DED_Files/SGIE-Report_f1_DIGITAL_1477897639.pdf
7. "Fake Cosmetics and their Health Risks," Department of State. Accessed: Nov. 13, 2023. [Online]. Available: <https://dos.ny.gov/fake-cosmetics-and-their-health-risks>
8. R. Jones, "Council Post: How Beauty Brands Can Combat Counterfeit Cosmetic Scams," Forbes. Accessed: Aug. 25, 2023. [Online]. Available: <https://www.forbes.com/sites/forbesbusinesscouncil/2023/03/14/how-beauty-brands-can-combat-counterfeit-cosmetic-scams/>
9. M. Tanha et al., "Different dimensions of conspicuous consumption in the emerging market of Bangladesh," *Ann. Manag. Organ. Res.*, vol. 4, no. 1, Art. no. 1, 2022, doi: 10.35912/amor.v4i1.1524.
10. L. Elliott and D. Atkinson, *The Age of Insecurity*. Verso, 1999.
11. "The psychology of people who show off - PsychMechanics." Accessed: Nov. 13, 2023. [Online]. Available: <https://www.psychmechanics.com/people-who-show-off/>
12. J. I. Miller, "Fashion and Democratic Relationships," *Polity*, vol. 37, no. 1, pp. 3–23, 2005.
13. J. Hays, "CUSTOMS, ETIQUETTE AND MANNERS IN BANGLADESH | Facts and Details." Accessed: Nov. 13, 2023. [Online]. Available: https://factsanddetails.com/south-asia/Bangladesh/People_Bangladesh/entry-8174.html
14. S. Verma and K. Kumar, "Evidence-based comparative study of group and individual consciousness on life satisfaction among adults.," *Yoga Mimamsa*, vol. 52, no. 1, pp. 34–34, Jan. 2020.
15. M. F. Scheier, C. S. Carver, and M. W. Bridges, "Optimism, pessimism, and psychological well-being," in *Optimism & pessimism: Implications for theory, research, and practice*, Washington, DC, US: American Psychological Association, 2001, pp. 189–216. doi: 10.1037/10385-009.
16. "The fundamental association between mental health and life satisfaction: results from successive waves of a Canadian national survey | BMC Public Health | Full Text." Accessed: Nov. 13, 2023. [Online]. Available: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-018-5235-x>
17. S.-A. Shin, J.-O. Jang, J.-K. Kim, and E.-H. Cho, "Relations of Conspicuous Consumption Tendency, Self-Expression Satisfaction, and SNS Use Satisfaction of Gen Z through SNS Activities," *Int. J. Environ. Res. Public Health*, vol. 18, no. 22, p. 11979, Nov. 2021, doi: 10.3390/ijerph182211979.
18. "Authentic self-expression on social media is associated with greater subjective well-being | Nature Communications." Accessed: Nov. 13, 2023. [Online]. Available: <https://www.nature.com/articles/s41467-020-18539-w>
19. "The unhappy shopper, a retail experience: exploring fashion, fit and affordability | Emerald Insight." Accessed: Nov. 13, 2023. [Online]. Available: <https://www.emerald.com/insight/content/doi/10.1108/09590550510593220/full/html>
20. M. K. Hasan, Z. Zannat, and S. Shoib, "Mental health challenges in Bangladesh and the way forwards," *Ann. Med. Surg.*, vol. 80, Aug. 2022, doi: 10.1016/j.amsu.2022.104342.



21. M. T. Hasan et al., “The current state of mental healthcare in Bangladesh: part 1 – an updated country profile,” *BJPsych Int.*, vol. 18, no. 4, pp. 78–82, Nov. 2021, doi: 10.1192/bji.2021.41.
22. N. N. Nuri, M. Sarker, H. U. Ahmed, M. D. Hossain, C. Beiersmann, and A. Jahn, “Experience and perceived quality of care of patients and their attendants in a specialized mental hospital in Bangladesh,” *Int. J. Ment. Health Syst.*, vol. 13, no. 1, p. 46, Jun. 2019, doi: 10.1186/s13033-019-0303-x.
23. G.-R. Park and B. K. Seo, “Revisiting the relationship among housing tenure, affordability and mental health: Do dwelling conditions matter?,” *Health Soc. Care Community*, vol. 28, no. 6, pp. 2225–2232, 2020, doi: 10.1111/hsc.13035.
24. “Sustainability | Free Full-Text | Linking Corporate Social Responsibility, Consumer Identification and Purchasing Intention.” Accessed: Nov. 13, 2023. [Online]. Available: <https://www.mdpi.com/2071-1050/14/19/12552>
25. “THE IMPACT OF GOODS PRODUCT PRICING STRATEGIES ON CONSUMER PURCHASING POWER: A REVIEW OF THE LITERATURE | Jurnal Ekonomi.” Accessed: Nov. 13, 2023. [Online]. Available: <https://ejournal.seaninstitute.or.id/index.php/Ekonomi/article/view/845>
26. 1Mis Maliha Jashim, 2Jugindar Singh Kartar Singh, and 3Benjamin Chan Yin-Fah, “Influence of Religiosity and Attitude Towards Intention to Purchase Counterfeit Products. An Empirical Study in Dhaka, Bangladesh,” *Int. J. Psychosoc. Rehabil.*, vol. 24, no. 2, pp. 1137–1148, Feb. 2020.
27. “Impact of religiosity on purchase intentions towards counterfeit products: investigating the mediating role of attitude and moderating role of hedonic benefits - ScienceDirect.” Accessed: Nov. 13, 2023. [Online]. Available: <https://www.sciencedirect.com/science/article/pii/S2405844021001316>
28. K. Nikolopoulou, “What Is Purposive Sampling? | Definition & Examples,” Scribbr. Accessed: Oct. 21, 2023. [Online]. Available: <https://www.scribbr.com/methodology/purposive-sampling/>
29. K. Black, *Business Statistics: For Contemporary Decision Making*. John Wiley & Sons, 2023.
30. “College Enrollment Statistics [2023]: Total + by Demographic,” Education Data Initiative. Accessed: Jun. 26, 2023. [Online]. Available: <https://educationdata.org/college-enrollment-statistics>
31. W. Black and B. J. Babin, “Multivariate Data Analysis: Its Approach, Evolution, and Impact,” in *The Great Facilitator: Reflections on the Contributions of Joseph F. Hair, Jr. to Marketing and Business Research*, B. J. Babin and M. Sarstedt, Eds., Cham: Springer International Publishing, 2019, pp. 121–130. doi: 10.1007/978-3-030-06031-2_16.
32. J. Hair and A. Alamer, “Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example,” *Res. Methods Appl. Linguist.*, vol. 1, no. 3, p. 100027, Dec. 2022, doi: 10.1016/j.rmal.2022.100027.
33. “Release Notes - SmartPLS.” Accessed: Jul. 26, 2023. [Online]. Available: https://www.smartpls.com/release_notes/



34. M. Sarstedt, C. M. Ringle, and J. F. Hair, “Partial Least Squares Structural Equation Modeling,” in *Handbook of Market Research*, C. Homburg, M. Klarmann, and A. E. Vomberg, Eds., Cham: Springer International Publishing, 2020, pp. 1–47. doi: 10.1007/978-3-319-05542-8_15-2.
35. G. W. Cheung, H. D. Cooper-Thomas, R. S. Lau, and L. C. Wang, “Reporting reliability, convergent and discriminant validity with structural equation modeling: A review and best-practice recommendations,” *Asia Pac. J. Manag.*, pp. 1–39, Jan. 2023, doi: 10.1007/s10490-023-09871-y.
36. “The Cronbach’s alpha, composite reliability (CR), average variance...,” ResearchGate. Accessed: Jul. 26, 2023. [Online]. Available: https://www.researchgate.net/figure/The-Cronbachs-alpha-composite-reliability-CR-average-variance-extracted-AVE-and_tbl1_337233211
37. C. G. Forero, “Cronbach’s Alpha,” in *Encyclopedia of Quality of Life and Well-Being Research*, A. C. Michalos, Ed., Dordrecht: Springer Netherlands, 2014, pp. 1357–1359. doi: 10.1007/978-94-007-0753-5_622.
38. P. M. dos Santos and M. Â. Cirillo, “Construction of the average variance extracted index for construct validation in structural equation models with adaptive regressions,” *Commun. Stat. - Simul. Comput.*, vol. 52, no. 4, pp. 1639–1650, Apr. 2023, doi: 10.1080/03610918.2021.1888122.
39. C. M. Ringle, M. Sarstedt, N. Sinkovics, and R. R. Sinkovics, “A perspective on using partial least squares structural equation modelling in data articles,” *Data Brief*, vol. 48, p. 109074, Jun. 2023, doi: 10.1016/j.dib.2023.109074.
40. J. Benitez, J. Henseler, A. Castillo, and F. Schuberth, “How to perform and report an impactful analysis using partial least squares: Guidelines for confirmatory and explanatory IS research,” *Inf. Manage.*, vol. 57, no. 2, p. 103168, Mar. 2020, doi: 10.1016/j.im.2019.05.003.