

Rising trends of cosmetic procedures: A forewarning of new addictive behaviour

Aqsa Naheed, Quratulain Yousuf*

Department of Dermatology, HITEC-IMS/ Heavy Industry Taxila Education City Institute of Medical Sciences, Taxila.

* Psychiatry Department, HITEC-IMS/ Heavy Industry Taxila Education City Institute of Medical Sciences, Taxila.

Abstract

Background In today's appearance-focused society, this study investigates the complex interplay between cosmetic procedures and potential substance-related disorders (SRDs). The aim of our study is to determine the frequency and severity of SRD in individuals undergoing repeated cosmetic procedures using mCAGE and mDSM-V.

Methods This cross-sectional study was done in HIT hospital. It included 112 participants who had undergone at least two cosmetic procedures in the last one year. Individuals with the history of psychiatric disorder and those using antipsychotic medicines were excluded. mCAGE and mDSM-V instruments were used to assess the addictive behavior. Positive response on mCAGE was defined as score of 2 out of 4 questions and on mDSM-V as 2 or higher out of 11 questions. As per mDSM-V criteria, we categorized scores of 2-3 as mild SRD severity, 4-5 as moderate, and 6 or more as severe on the adapted instrument.

Results There was a significant correlation between the results obtained from the mCAGE and mDSM-V assessments ($P < 0.000$). SRD positive individuals on either the mCAGE or mDSM-V showed greater tendency for considering cosmetic procedures within the previous 12 months ($P < 0.000$). Furthermore, SRD positive exhibited a higher cumulative count of cosmetic procedures undergone over their lifetime ($P = 0.000$).

Conclusion This study serves as preliminary step to explore the complex interconnection between cosmetic procedures and potential substance-related disorders. Nowadays, cosmetic procedures have become integral to dermatological practices, urging a thorough examination of their consequences.

Key words

Cosmetic procedure; mCAGE; mDSM-V; SRD.

Introduction

The inherent drive for self-improvement is deeply ingrained in human nature. Historically, the pursuit of enhancing beauty has been

intertwined with the quest for personal fulfillment. The aspiration to maintain youthful appearances has persisted across the ages. In recent decades, the influence of media has significantly propelled the prominence of cosmetic procedures within the field of dermatology, marking a substantial shift in the landscape of medical practices.^{1,2} Non-surgical procedures done in dermatology encompass various techniques like chemical peels, fillers, botulinum toxin injections, thread lift and

Address for correspondence

Professor Aqsa Naheed
Dermatology Department,
HITEC-IMS (Heavy Industry Taxila Education
City Institute of Medical Sciences), Taxila.
Ph: 03236513804
Email: aqsanahid@gmail.com

different types of lasers. These interventions have garnered increasing attention due to their minimally invasive nature and the growing demand for aesthetic enhancements.³

Motivations for seeking cosmetic procedures are diverse and multifaceted. While some individuals view these interventions as therapeutic measures for addressing skin conditions, others are driven by the aspiration to counteract the effects of aging.⁴ Extensive research has identified an array of psychosocial factors that play pivotal roles in individuals' decisions to undergo cosmetic procedures. Such factors encompass concerns about self-image, dissatisfaction with certain body attributes, experiences of partner-related conflicts, histories of teasing, compromised self-esteem, and the influence of media representations.^{5,6}

Interestingly, the evaluation of psychiatric conditions among individuals seeking cosmetic surgery remains relatively understudied. Notably, a proportion of patients exhibit Body Dysmorphic Disorder, alongside instances of depression, anxiety, and personality disorders.^{7,8} This trend warrants an examination of the potential correlation between addictive behaviors and the burgeoning demand for aesthetic interventions.⁹

Amidst the global surge in cosmetic procedures, Pakistan has not remained unaffected by this phenomenon.¹⁰ As such, it becomes imperative to gain a comprehensive understanding of the attitudes held by adolescents toward cosmetic procedures and to delve into the addictive behaviors that might underlie recurrent requests for such treatments. As far as our knowledge extends, no study of this nature has been undertaken in Pakistan.

In this context, the primary objective of our study is to explore the potential occurrence of a

Substance-Related Disorder (SRD) associated with the repetitive utilization of cosmetic procedures.

Methods

This cross-sectional study was done in HIT hospital Taxila from Jan 23 to June 23. The study received ethical approval from the IRB committee under the reference letter no HITEC-IRB-33-2023. 112 participants between 18-65 years of age who had undergone cosmetic procedures at the Dermatology department were included in study through non-probability convenience sampling. The participants who had undergone at least 2 sessions of cosmetic procedures in the last year were included. These cosmetic procedures included IPL (Intense Pulse Light), different types of lasers (Erbium Glass, Q-switch), Mesotherapy, and Microneedling, Fillers and Botox. Those females with history of psychiatric disorders and using anti-psychotic drugs or any medical illness were excluded from the study.

Written informed consent was taken and the purpose of research was explained in Urdu. Basic demographic data was noted on a proforma. We used two previously validated assessment tools, originally designed to identify other Substance-Related Disorders (SRDs): the CAGE (Cut down, Annoyed, Guilty, Eye-opener) questionnaire and the diagnostic criteria from the American Psychiatric Association Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-V). This approach is akin to a previous dermatological study that employed modified SRD assessment tools to investigate addictive behaviors associated with ultraviolet light tanning¹¹ (but has not been formally validated in the context of cosmetic procedures).⁹ A positive response on the modified-CAGE (mCAGE) questionnaire was defined as a score of 2 or higher out of 4

questions, mirroring the threshold used for screening Alcohol Use Disorder (AUD). Similarly, positive findings on the modified-DSM-V (mDSM-V) questionnaire were defined as a score of 2 or higher out of 11 questions, consistent with the criteria for diagnosing AUD. As per mDSM-V criteria, we categorized scores of 2-3 as indicating mild SRD severity, 4-5 as moderate, and 6 or more as severe on the adapted instrument. Our analysis focused on identifying the presence of an SRD in relation to the utilization of cosmetic procedures.

We conducted a chi square test to evaluate the correlation between the mCAGE and mDSM-V assessments. Furthermore, we compared cosmetic utilization by analyzing the number of treatments considered in the preceding 12 months and the overall lifetime treatments, differentiating between subjects classified as positive and negative for SRD.

Results

This study enrolled 112 participants with the age range between 18-65 years and mean age of 31.82 ± 9.25 . Out of 112 participants 87.8% (97) were females and 12.19% (15) were males. Mean age at the time of first procedure was 30.94 ± 9.24 . Characteristics of study participants are shown in **Table 1**. Out of 112 participants 50.89% (57) met the mCAGE criteria and 58.03% (65) met the mDSM-V criteria for SRD. As per mDSM-V criteria out of 65 participants, majority had mild (52.30%) addictive behavior, 29.23% had moderate and only 18.46% had severe addictive behavior.

In the mCAGE assessment, a predominant

Table 1 Characteristics of study participants.

	Mean $\pm$ SD	Percentage % (N=112)
Age	31.82 ± 9.25	
Age at the time of first procedure	30.94 ± 9.24	
Gender		
Female		87.8% (97)
Male		12.19% (15)
Marital status		
Married		59.82% (67)
Unmarried		40.17% (45)
Employment status		
Employed		38.39% (43)
Unemployed		12.5% (14)
Students		21.42% (24)
Housewife		27.67% (31)
Life Time Count of Procedures		
0-5		52 (46.42%)
6-10		47 (41.96%)
11-15		8 (7.14%)
16-20		5 (4.46%)
No of Considerations in Last One Year		
0-5		43 (38.3%)
6-10		35 (31.25%)
11-15		31 (26.67%)
16-20		3 (2.67%)
mCAGE	1.42 ± 0.91	50.89% (57)
mDSM-V	2.43 ± 2.1	58.03% (65)

response was indicating a desire for a cosmetic procedure upon awakening in the morning (n=63; 56.2%). In the context of the mDSM-V assessment, the most frequent endorsement was to spent a lot of time thinking about procedures and to continue sessions in order to maintain an ideal look (n=42; 64.6%). Furthermore, participants also frequently reported missing scheduled activities (social, occupational, and recreational) due to their decision to undergo a procedure (n=34; 30.3%).

Significant correlation between the results obtained from the mCAGE and mDSM-V assessments ($P < 0.000$), as indicated in **Table 2**.

Table 2 Association between mCAGE and mDSM-V.

		mDSM-V		Total	P-value
		Negative	Positive		
mCAGE	Negative	45(40.17%)	10(9.09%)	55 (49.1%)	<0.000
	Positive	2(1.87%)	55(49.1%)	57 (50.89%)	
	Total	47 (41.96%)	65 (58.03%)	112	

Table 3 Cosmetic procedure dependence and abuse.

	<i>m CAGE</i>		<i>mDSM-V</i>		<i>p-value</i>
	<i>Positive</i>	<i>Negative</i>	<i>Positive</i>	<i>Negative</i>	
	<i>(N=57)</i>	<i>(N=55)</i>	<i>(N=65)</i>	<i>(N=47)</i>	
No. of considerations in last one year.					
0-5	8 (14.03%)	35 (63.63%)	10 (15.3%)	33 (70.2%)	<0.000
6-10	18 (31.57%)	17 (30.90%)	23 (35.3%)	12 (25.5%)	
11-15	28 (49.12%)	3 (5.45%)	29 (44.6%)	2 (4.25%)	
16-20	3 (5.26%)	0 (0%)	3 (4.61%)	0(0%)	
Life time count of procedures.					
0-5	15 (26.31%)	37 (67.27%)	19 (29.2%)	33 (70.2%)	<0.000
6-10	31 (54.38%)	16 (29.09%)	34 (52.3%)	13 (27.6%)	
11-15	7 (12.28%)	1 (0.64%)	7 (10.7%)	1 (2.12%)	
16-20	4 (7.01%)	1 (0.64%)	5 (7.6%)	0 (0%)	

Table 4 Association between ages at the time of first procedure, mCAGE mDSM-V.

	Positive	Negative	p-value
mCAGE			
18-30 yrs.	34	27	<0.342
31-45 yrs.	21	23	
45-65 yrs.	2	5	
mDSM-V			
18-30 yrs.	38	23	<0.226
31-45 yrs.	25	19	
45-65 yrs.	2	5	

Individuals identified as positive for SRD based on either the mCAGE or mDSM-V responses displayed a heightened tendency for considering or utilizing cosmetic procedures within the previous 12 months compared to those identified as SRD negative ($P < 0.000$). A larger proportion of SRD positive participants reported contemplating more than ten treatments during the preceding 12 months. Furthermore, those identified as SRD positive exhibited a higher cumulative count of cosmetic procedures undergone over their lifetime ($P = 0.000$), with a notable proportion having experienced more than five procedures as shown in **Table 3**. However, no significant association was noted between age at the time of procedure, mCAGE and mDSM-V (P -value < 0.342 and < 0.226 respectively) as shown in **Table 4**.

Discussion

Our study comprised 112 participants aged between 18 and 65, with a mean age of

31.82±9.25. Among these participants, 87.8% (97) were females, and 12.19% (15) were males. These findings were aligned with an Irish study by Redmond *et al.*, where females exhibited a more pronounced interest in cosmetic procedures. Additionally, Redmond findings indicated that individuals with lower self-esteem related to their body, a propensity for unfavorable social comparison, and a pronounced addiction to social media demonstrated an increased inclination toward cosmetic procedures.¹³

In our study, among 112 participants, 50.89% fulfilled the mCAGE criteria, and 58.03% met the mDSM-V criteria for SRD. According to the mDSM-V criteria, the majority (52.30%) of the participants displayed mild addictive behavior, while 29.23% showed moderate addictive behavior, and only 18.46% demonstrated severe addictive behavior. A previous study conducted by Shah *et al.* in 2020 included 153 participants, revealing that 22.2% met the mCAGE criteria, and 26.1% fulfilled the mDSM-V criteria for SRD. Among those satisfying the mDSM-V criteria, most exhibited mild addictive behavior ($n = 30/34$, 88.2%), with a minority demonstrating moderate addictive behavior ($n = 9/36$, 25.0%).⁹

The relatively higher percentages of individuals meeting the mCAGE and mDSM-V criteria in our study could be attributed to the fact that

SRD-positive individuals underwent a higher number of procedures within the last 12 months (more than ten) compared to the study by Shah *et al.* (more than four). However, the cumulative count of cosmetic procedures undergone over their lifetime in our study was lower (more than five) compared to Shah *et al.* (more than ten).⁹

It is essential to recognize that despite these discrepancies, both studies showed a significant correlation between the results obtained from the mCAGE and mDSM-V instruments, with a p-value of <0.000 in our study and <0.0002 in the study by Shah *et al.* Furthermore, in our study, participants identified as SRD-positive according to the mCAGE and mDSM-V instruments exhibited a notable association with considering or utilizing cosmetic procedures within the past 12 months compared to those identified as SRD-negative ($P < 0.000$). Additionally, SRD-positive participants showed a higher cumulative count of cosmetic procedures undergone over their lifetime ($P = 0.000$), mirroring the findings reported by Shah *et al.* (p-value <0.0001 and <0.019, respectively).⁹

Numerous studies have provided insights into the factors influencing the desire for cosmetic procedures and their broader societal implications. Madeleine's research in 2023 involved interviews with females who underwent lip filler procedures, uncovering motivations influenced by prevailing social media beauty standards. The study also introduced the intriguing concept of "perceptual drift," highlighting how exposure to augmented images on social media reshaped participants' expectations of natural facial appearance.¹³ In 2021, Ozturk's study in Turkey compared social media addiction between women who had breast augmentation surgery and a control group. The surgery group exhibited notably elevated addiction scores, emphasizing the significance

of psychological assessment before elective surgery.¹⁴ Additionally, Saha *et al.*'s 2017 study in India delved into the influence of an image-centric society on surgical modifications. The study recognized the potential link between dissatisfaction, the persistent desire for change, and underlying psychological concerns, investigating the demand for cosmetic surgery and its possible association with body dysmorphic disorder and the compulsion for multiple procedures.¹⁵

The use of modified versions of assessment tools, namely mCAGE and mDSM-V, although commonly used for SRDs, may not fully capture the complexities of addictive behaviors related to cosmetic procedures. These modifications might not entirely align with the nature of cosmetic procedures and their potential addictive aspects. As the study attempts to investigate addictive behaviors related to cosmetic procedures, the cross-sectional nature of the research design limits the ability to establish causal relationships and draw definitive conclusions about the underlying factors driving these behaviors.

In light of these limitations, cautious interpretation of the study's findings is recommended, and future research with larger and more diverse samples, comprehensive assessment tools, and longitudinal designs would provide a more robust understanding of the complex interplay between cosmetic procedures and potential addictive tendencies.

Conclusion

In today's digital characterized by heightened emphasis on appearance, where there is a growing pursuit of aesthetic enhancements, this study serves as initial step to explore the complex interconnection between cosmetic procedures and potential SRDs. As media

platforms evolve rapidly, cosmetic procedures have become a prevalent aspect of dermatological practices, necessitating a comprehensive exploration of their implications.

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