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Impact of Body Dysmorphia, Social Media on Mental Health and Academic Achievement among Medical Students: A Cross-Sectional Study

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A B S T R A C T

Background: People who suffer from Body Dysmorphic Disorder (BDD) focus too much on their perceived imperfections in physical appearance that may or may not actually exist in reality. Social media's representation of perfect bodies creates dissatisfaction and a subsequent negative impact upon psychological well-being, which could have implications for one's academic performance as well. Medical Students represent an interesting cohort because they are under extreme academic stress, are continually subjected to push for excellent performance, and will be continually exposed to ideals of perfection.

Objective: To determine the prevalence and severity of body dysmorphia symptoms and its association with social media, mental health and academic performance.

Methodology: In 2024, a cross-sectional study examining a population of 288 medical students took place in Karachi. The focus was to measure relationships between key areas of concern: dysmorphic body image, intense use of Facebook, depression, anxiety and stress, as well as academic performance using various scales. The study analyzed the data using descriptive statistics and a chi-square test to provide valuable insights into these relationships.

Results: There was a total of 288 individuals who were eligible to be included in this study, with an average age of 22 - 23 years. In this group of individuals, 50.3% were found to be BDD positive, with females being found to have a higher prevalence (89.6%) than males and those in the Doctor of Physical Therapy (DPT) discipline had the highest proportion of individuals with BBD (59.4%). 74.4% exhibited mild dysmorphic concerns, 66% had low Facebook use and did not exhibit signs of depression (79.5%), anxiety (69.4%) or stress (91.3%). 42.7% received good academic performance scores. A marginal and not statistically significant association between BDD and social media intensity was found (k=0.103; p=0.052), while moderate correlations were noted between BDD and depression (r=0.258; p<0.05) and BDD and anxiety (r=0.163; p<0.05)

Conclusion: The research highlights the association between how bodies are depicted in online media and medical students' mental well-being and academic achievement. Continuous exposure to 'perfect' body images creates anxiety and distorts self-image perception. Medical schools should provide coping mechanisms for students by focusing on providing support for mental health issues, digital literacy, and supporting open conversation about body image.

Keywords: Academic Performance, Body Dysmorphic Disorder, Mental Health, Medical Students, Social Media

Introduction

Body Dysmorphic Disorder (BDD) is a psychological illness commonly accompanied by obsessive thoughts regarding one's appearance; people often become obsessed with their perceived flaws. Examples of BDD-related obsessions include weight, body size, and skin. Many people with BDD suffer from low body image due to these kinds of obsessions. BDD usually goes unnoticed or unrecognized by professionals diagnosing the individual as having different/other problems.[1]

The worldwide rate of Body Dysmorphic Disorder (BDD) is estimated to be between 1.9% and 3.3%, with more instances being reported in a variety of clinical settings. A Spanish study discovered that 10.6% of individuals suffering from acne exhibited mesotrophic symptoms, signifying that clinical dermatologic injuries increase the risks for developing BDD.[1,2]

A strong association exists between body dysmorphic disorder and poor mental health in individuals from Asia, according to research findings published across multiple studies. For example, 77.6% of females surveyed in India experienced dissatisfaction with their body image; however, only 34 % of males had similar feelings. Regression analysis also indicates that self-esteem and anxiety are significant predictors of satisfactory body image in students. Together, these variables account for 15.1% of the variance in the sample population studied.[3]

Research on body dysmorphic disorder in Pakistan is limited but indicates significant levels of concern. A study in the Hazara Pakistan found that both males (54.8%) and females (45.19%) report being very sensitive to how they look and experience depressive symptoms, negative body image and BDD symptoms, as a result of feeling imperfect in their appearance. The number of people with BDD is under-diagnosed as a result of individuals with BDD concealing their symptoms for fear of negative judgement from others, and because of the social stigma associated with this disorder.[4]

The Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) defines body dysmorphic disorder (BDD) as an obsessive-compulsive disorder that involves a preoccupation with perceived defects in one or more areas of the body, including skin, hair, nose, ears, lips, and breasts. Preoccupation produces significant difficulty in daily functioning and can lead to the co-occurrence of obsessive-compulsive disorder symptoms such as compulsive checking and/or mental acts that are time-consuming, burdensome, and difficult to control. Ultimately, the history of BDD is associated with significant impairment in many areas of life, including functioning, social interaction, and quality of life, as well as a higher incidence of suicidal ideation than those without BDD.[5,7]

The gender distribution of BDD remains controversial. Some studies report almost equal prevalence among males (51%) and females (49%), while others indicate a significantly higher prevalence among females, reaching up to 68.5%. Symptoms typically begin during adolescence, around the age of 17. Younger individuals appear to be more affected, with 78.6% of reported cases occurring among individuals aged 18–27, compared to much lower prevalence in older age groups. This suggests that early adulthood is a particularly sensitive period for the development of BDD symptoms.[2]

Individuals who are seeking cosmetic procedures frequently experience eating disorders and body image issues such as BDD which are often increased by a distorted self-image. Prior to undergoing surgery, many individuals show up symptoms of dysmorphia, which can begin from various influences including education, cultural background and past traumas such as abuse or bullying. People affected by the BDD frequently face feelings of despair, social withdrawal, diminished quality of life, and an elevated risk of suicide.[7]

The influence of social media has been increasingly recognized as a contributing factor to body dysmorphia. Platforms such as Instagram promote appearance-based comparison, particularly among users aged 18–25. Prolonged exposure has been associated with elevated BDD symptoms, lower self-esteem, and increased dissatisfaction with physical appearance.[8]

A network analysis particularly among adolescents indicates a strong correlation between BDD, depression, and low self-esteem. Depressive symptoms are frequently accompanied with body image issues and low self-esteem, which may reinforce one another. BDD frequently starts throughout adolescence, when self-esteem naturally drops and vulnerability to linked disorders increases.[9]

Borderline personality disorder patients experience ongoing depression, anxiety, and worry about their appearance to the extent that it significantly hinders their everyday functioning. They strongly believe that some aspect of their appearance makes them unattractive or malformed. As a result, they feel tense. According to a review of the literature, it is still unclear which risk factors are connected to BDD. However, a variety of risk factors are suggested to play a role in the development of BDD, including genetic predisposition and childhood adversity, such as bullying or taunting. Sexual assault, lack of family, and becoming more sensitive to aesthetics than the average person are examples of non-specific factors.[10]

In Saudi Arabia, the number of cosmetic treatments is increasing abruptly, but few is known about how they relate to body dysmorphic disorder (BDD). To find out potential symptoms of BDD, practitioners often overlook psychological assessment during initial consultations. Healthcare professionals in Saudi Arabia are aware of BDD; But they lack certain diagnostic skills that are unable to assess its prevalence among their patients.[11]

Rhinoplasty is most common among individuals aged 13 to 34. Diagnosing BDD is essential as it creates a distinction between psychiatry and cosmetic surgery. Effective treatments require both psychological and physical interventions, particularly for patients with pre-existing mental health issues.[12]

However, people often try to use dermatology/cosmetic procedures for help with their body dysmorphia disorder (BDD) but doing that could incur disappointments from either

failed results or getting emotionally stressed (financially) from paying so much money for those procedures. To help people with BDD, therapists can implement appropriate interventions addressing both psychological components, using both screening tools for BDD as well as public education programs that will teach them what BDD includes.[13,14]

Negative body images have been linked to lower levels of academic achievement. Individuals with low self-esteem often miss school more frequently or focus less in class and perform poorly in academic settings.[15] Adolescents and young adults with Body Dysmorphic Disorder (BDD) typically have accompanying symptoms of depression, anxiety or low self-worth which also interfere with their ability to succeed in school and have a negative impact on their education overall.[16]

Although there is increasing evidence of an association between BDD and psychological distress as well as social media exposure and academic challenges, little research has studied the medical student population directly. Medical students are likely to endure high levels of academic pressure and have increased expectations of themselves, which may place them at greater risk for developing body dysmorphic disorder. In this way, the current study will examine the prevalence of Body Dysmorphic Disorder among medical students as well as its correlation with mental health variables, social media use, and academic performance, thereby filling a significant gap within the current body of literature.

Methodology

The study, which took place over a period of one year after receiving all necessary approvals, was designed to be a cross-sectional study. Data was collected from various medical school students who were between the ages of 18 - 26 and who attended all types of medical schools in Karachi. The sample size consisting of 288 participants, was determined using the Open Epi software, based on a reference study conducted at Taibah University Medical Sciences in 2021.[17] A 95% confidence interval, a 5% margin of error and 80% statistical power were employed for estimation. A non-probability convenient sampling method was used for participants involved in the study.

The study included students from all medical fields, like MBBS, DPT, and Nursing, who were between 18 and 26 years old and currently studying in medical colleges. To take part, students needed to use social media at least one hour a day and agree to participate by giving their consent. Including students from all medical fields helped to get a better idea of how social media affects body image and concerns in different types of medical students.

Individuals who are either under 18 or over 26 years of age, as well as who are not enrolled in medical institutes. In Addition, participants who engage in social media for less than one hour per day. Moreover, individuals who refuse to participate in the study and do not provide informed consent were excluded from further study consideration.

The study was designed as a cross-sectional study and was carried out from October 2024 to March 2025 after taking the required ethical approval. Following ethical approval from the Ethical Review Committee (ERC) at the United College of Physical Therapy **(ERC Approval No: UCPT/Ethics/2024/07/02)** on the 4th of October 2024. Prior to beginning data collection, informed consent was taken from all subjects involved in this study. The confidentiality of your personal information will be maintained throughout this project, and every attempt will be made to minimize or eliminate any risk or discomfort to you during the study. All procedures will be carried out according to relevant ethical guidelines and standards. You will be informed of your right to withdraw from the project at any time without any negative consequences.

A sample of 288 individuals participated in the study after providing informed and voluntary consent. Different questionnaires and scales collected the data. The instruments for data collection comprised 4 main instruments: the Dysmorphic Concern Questionnaire (DCQ) to measure Body Dysmorphic Disorder (BDD) with a reported reliability of $\alpha = 0.85$, the Modified Multidimensional Facebook Intensity Scale (MMFIS) for social media engagement with a reported reliability of $\alpha = 0.80 - 0.88$, DASS-21 for assessing mental health with a reported reliability of $\alpha = 0.87 - 0.91$, and the Academic Performance Scale (APS) to measure the academic achievement as a mediating factor with a reported reliability of $\alpha = 0.78 - 0.85$. The researchers protected participants' privacy and confidentiality by protecting all completed questionnaires until after they were taken. All reliability estimates for the instruments demonstrate they were consistent and good for the study.

The Statistical Package for the Social Sciences (SPSS) version 22, for data analysis, was used on all data. The participant demographic details were analyzed descriptively using statistics, including frequencies, means, and standard deviations. Pearson correlations were used to assess the relationships between various variables. Chi-square testing assessed the strength of agreement of DCQ, MMFIS, DASS-21, and APS as categorical variables. A p-value of ≤ 0.05 was considered statistically significant.

Results

A total of 288 participants were included in the study, out of which 89.6% were female while 10.4% were male; this shows that females represented a larger proportion of our sample than males did. The demographic information listed in (Table 1) indicates that the participants were primarily 22-23 years old (50.3% of all subjects). The prevalence of BDD is depicted in (Table 2), showing that 215 (74.7%) reported mild dysmorphic concerns and 63 (21.9%) experienced moderate dysmorphic concerns, while 10 (3.5%) had a severe dysmorphic concern. The study assessed the frequency of social media use by using the Modified Multidimensional Facebook Intensity Scale (MMFIS) (Table 3), showing that most of the participants 190 (66.0%) exhibited Low Facebook Intensity. A smaller portion of participants were categorized under Moderate and High Facebook Intensity. The prevalence of depression, anxiety and stress is illustrated in (Table 4), showing that 59 (20.5%) students had depression, 88 (30.5%) had anxiety, and 20 (6.9%) of participants had stress.

Academic performance of medical students was assessed using the Academic Performance Scale. (Table 5). Majority of the students showed good academic performance. A moderate level of performance was observed in 29.9% of participants, while 28 students (9.7%) showed poor performance. Only a very small proportion of students, specifically 5 participants (1.7%), failed to meet the expected performance level. The total score was considered as a continuous variable and mean and standard deviation were calculated. Performance severity levels (mild, moderate and severe) were developed using mean ± 1 SD cut-off values and were analyzed as ordinal categories using only frequencies and percentages.

(Mean and standard deviation was calculated for the total continuous score. Severity levels (mild, moderate and severe DCQ) were determined using mean ± 1 SD cut-off values and analyzed as ordinal categories by using frequencies and percentages only).

The study evaluated the correlations utilizing Spearman correlation to assess the level of agreement between the Dysmorphic Concern Questionnaire (DCQ) and a range of scales. The results indicated that the Modified Multifunctional Facebook Rating Scale (MMFIS) has a low level of correlation, as demonstrated by the low Spearman's coefficient (0.103, p=0.052). In contrast, the Academic Performance Rating Scale (Academic Performance Rating Scale) has no correlation as indicated by the Spearman's coefficient (-0.059, p=0.013). Additionally, the depression and anxiety subscales of DASS-21 showed moderate levels of positive correlation with the dysphoria concern scale (Spearman ρ = 0.258 for depression, ρ = 0.163 for anxiety, both p<0.05). The only weak correlation with dysphoria concerns was for the stress subscale (Spearman ρ = 0.088), although this correlation was also statistically significant (p<0.05). Depression and anxiety have more substantial and more evident correlations to dysphoria concern than does stress.

Table 1: Demographic profile of participants

Baseline Characteristics		Frequency	Percentage
Gender (n= 288)	Male	30	10.4
	Female	258	89.6
Age (n=288)	18-19	23	8.0
	20-21	75	26.0
	22-23	145	50.3
	24-25	43	14.9
	26-27	2	.7
Year of study (n=288)	1st Year	17	5.9
	2nd Year	45	15.6
	3rd Year	50	17.4
	4th Year	49	17.0
	5th Year	127	44.1
Field of study (n=288)	DPT	171	59.4
	MBBS	61	21.2
	BDS	10	3.5
	BSMT	10	3.5
	Pharmacology	9	3.1
	Public Health	3	1.0
	Psychology	15	5.2
	Medicine	8	2.8
	Nursing	1	.3

Table 2: Prevalence of Body Dysmorphic Disorder among medical students

DCQ Scoring	Frequency	Percentage
Mild Dysmorphic Concern	215	74.4
Moderate Dysmorphic Concern	63	21.9
Severe Dysmorphic Concern	10	3.5

Table 3: Frequency of social media use by MMFIS

MMFIS	Frequency	Percentage
Low Social media Intensity	190	66.0
Moderate Social media Intensity	97	33.7
High Social media Intensity	1	0.3

Table 4: Prevalence of depression, anxiety, stress among medical students			
Variables		**Frequency**	**Percentage**
Depression	Normal	299	79.5
	Mild	32	11.1
	Moderate	25	8.7
	Severe	02	0.7
Anxiety	Normal	200	69.4
	Mild	20	6.9
	Moderate	47	16.3
	Severe	16	5.6
	Extreme severe	05	1.7
Stress	Normal	268	93.1
	Mild	15	5.2
	Moderate	05	1.7

Table 5: Frequency of Academic Performance among medical students		
APS Scoring	**Frequency**	**Percentage**
Excellent Performance	46	16.0
Good Performance	123	42.7
Moderate Performance	86	29.9
Poor Performance	28	9.7
Failing Performance	05	1.7

Discussion

This study reveals that the greater part of the participants, 59.4% were from DPT and MBBS represented 21.2%. The representations are low in other disciplines, for instance, psychology 5.2%, BDS, and BSMT 3.5%. The two disciplines with low numbers of participants are nursing 0.3%, and public health. This indicates that the greater part of the students is undertaking health-related majors, particularly DPT. However, the earlier research indicates that there was low participation in the science and art careers (15.7%) and (7.5%) respectively. This indicates that the study has high representation from technical and education fields.[18]

The results show that most participants were senior students, particularly from the fifth year, while first-year students were least represented. This differs from previous research, where students from earlier academic years were more commonly included. This difference may be explained by greater maturity and higher academic pressure among senior medical students. Increased clinical exposure, academic workload, and career stress may increase self-awareness and concerns related to body image, making senior students more likely to recognize and report such issues and participate in studies focusing on mental well-being.[19]

The results of the current study differ from those of Saab et al. (2023), where most participants were not diagnosed with BDD. In contrast, this study found varying levels of dysmorphic concern, with the majority showing mild concerns and fewer participants experiencing moderate to severe levels. These differences may be due to variations in sample characteristics and measurement methods. Previous studies also suggest that higher social media use is linked to increased dysmorphic concern, which may help explain the findings.[20]

This study also looked at how much medical students use social media and its relation to body dissatisfaction using the Modified Multidimensional Facebook Intensity Scale. Most of the students, about 66%, used Facebook less often, while around 33% used it moderate, and only very few used it a lot. This shows that majority don't use it very intensely. Previous studies also suggest that social media, especially visual based platforms, can affect body image and make people unhappier with their own looks.[21]

A previous study reported that around 36.3% of students were depressed, 41.5% were anxious, and 31.3% experienced stress. In comparison, the present study showed that most of the participants had scores within the normal range, with 79.5% having normal depression scores, 69.4% showing normal anxiety levels, and 93.1% falling in the normal stress range. Mild stress was seen in 5.2% of the participants, while 16.3% reported moderate anxiety and 11.1% showed mild depression. Only a very small number of participants reported severe symptoms, as 5.6% had severe anxiety and no cases of severe stress were found. Overall, symptoms of depression, anxiety, and stress were quite low in this sample. However, even with generally normal DASS-21 scores, participants with higher dysmorphic concerns still appeared to be more psychologically vulnerable, pointing toward the role of Body Dysmorphic Disorder (BDD). A concluded finding of a study in gyms across the United Kingdom, Italy, the Netherlands, and Hungary reported a strong correlation between BDD and DASS scores. Students diagnosed with BDD showed a much higher chance of experiencing depression, anxiety, and stress, suggesting that BDD may act as an important risk factor for these psychological problems.[17,22]

In this study, academic performance was measured using the Academic Performance Scale among medical students. The results showed that 42.7% of students had good performance, 29.9% were moderate, 16% were excellent, and 9.7% were poor. Only very few, 1.7%, were considered failures. Most of the group were moderate performers, but even more were outstanding or excellent. This also goes with previous studies which say that perfectionism and self-image problems can happen even with high academic achievers.

Body Dysmorphic Disorder (BDD) appears to be on the rise, particularly among heavy social media users. Constant

exposure to idealized and filtered images online could create negative feelings about one's body, exacerbating symptoms of BDD, especially for teens and young adults. The prevalence of BDD among study participants was 1.8%. Higher levels of social media use were associated with BDD, in addition to other correlates like age, relationship status (single), and being a student. People who suffer from BDD tend to compare their bodies to others via social media; tend to judge individuals based on their appearance, and use social media platforms that are celebrity-, fashion-, or music-oriented. Previous research indicates that viewing perfect images online is related to increased levels of body dissatisfaction and associated psychological stress. Individuals with BDD are often afflicted with some combination of anxiety, depression, and difficulty with concentration, all of which could negatively impact academic performance. Medical students are already subject to high levels of stress; therefore, these additional pressures associated with body image could represent an increased threat to the mental health of medical students.[23]

Limitation: This present study had a small sample size and only included medical students, so the results cannot be generalized to the larger population. Some participants may have underreported their symptoms due to shame or lack of awareness, and recall bias is also possible since all data was based on self-reported questionnaires. Moreover, BDD and related outcomes like stress, anxiety and depression were measured at the same time, making it difficult to identify cause and effect, therefore future longitudinal studies are needed.

Conclusion

The study confirms that social media-induced body dysmorphic significantly impacts medical students' mental health and academic performance. The findings concluded that the association between DCQ and DASS was significant. Long term exposure to idealized body images can lead to anxiety, low mood, and a distorted way of seeing oneself. These issues can be addressed by providing better mental health support, improving digital literacy, and creating a more open and supportive environment. Awareness campaigns and organized workshops can also help in reducing the negative effects and improving student well-being overall.

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Disclaimer: *We authors want to declare that we used AI-assistant tools in this article for improving language. We authors are fully responsible for the accuracy, originality, integrity, and scientific validity of this article.*

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