

# SCREENING COLLEGE STUDENTS FOR BODY DYSMORPHIC DISORDER USING DYSMORPHIC CONCERN QUESTIONNAIRE: A CROSS SECTIONAL STUDY COMPARING PUBLIC SECTOR MEDICAL AND NON-MEDICAL STUDENTS IN PUNJAB, PAKISTAN

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## Abstract

**Background and Objectives:** Body Dysmorphic disorder (BDD) is a psychiatric condition characterized by preoccupation with an imagined flaw in appearance or slight defect in one's body. It is a disabling obsessive-compulsive spectrum disorder often goes unrecognized in clinical practice and found to be associated with social anxiety, distress and suicidal tendency. The aim of this study was to screen public sector college students for body dysmorphic disorder using a validated dysmorphic concern questionnaire® through an online survey and describing family, peers and media influences in relation to its occurrence.

**Methods:** This descriptive, cross-sectional study was undertaken in two public sector medical colleges (Lahore and Sialkot) and one public sector general education college (Sialkot) during November 2019 to June 2022. Overall, 378 students completed a validated 7-items Dysmorphic Concern Questionnaire (DCQ)® online. Participants provided responses on a 4-point scale. They also responded to questions regarding social pressures and media influencing the dysmorphic concern. A BDD score was computed as per method described by Mancuso et al. and participants with score more than 14 were labelled as having BDD. Association between family, peers and media influences with BDD score was analyzed using logistic regression technique in SPSS version 25.®

**Results:** Of 378 participants, 251 (66%) were medical students and 127 (34%) were general education students. About 1.3% medical students and 5.0% non-medical students were classified having potential body dysmorphic disorder respectively. Adjusted odds ratio comparing medical and non-medical students for BDD is 4.4 (95% CI: 1.2-15.9; p=0.02) with higher odds of BDD observed for those aged 18-20 years (OR=3.3) and in females (OR=1.1, 95% CI=0.4-2.8; p=0.83).

**Conclusion:** BDD is comparatively frequent in non-medical female students aged 18-20 years. Family and peer pressure alongside the influences from social, print and electronic media had considerable effect on non-medical students comparatively and may contribute the occurrence of body dysmorphic disorder.

**Key words:** Body Dysmorphic Disorder, Medical students, Non-medical students, Depression and suicide, Social pressure, Obsessive-compulsive spectrum disorder, Dysmorphic Concern Questionnaire

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**B**ody Dysmorphic Disorder (BDD) is a psychiatric condition characterized by preoccupation with perceived defect in one's body and appearance.<sup>1</sup> American Psychiatric Association has classified this disorder within obsessive-compulsive spectrum according to the fourth revision of Diagnostic and

Statistical manual of Mental Disorder (DSM-IV); currently included in DSM-V as well.<sup>2</sup> Previously known as dysmorpho-phobia, BDD is one of the most prevalent body imaging disorder which often remains undiagnosed. Individual cannot stop thinking about an imagined body defect or function, associated with repetitive mirror gazing, seeking assurance from peers and repeated consultations with dermatologists and cosmetic surgeons. Over concern regarding a perceived defect is an important diagnostic criterion of BDD. This behavior may result in extreme distress and dysfunction in social, academic and occupational settings.<sup>3</sup> Individuals may attempt to 'fix' the imagined defect or negative image (related to nose, skin, jaw shape, hair, baldness, muscle size, acne, scar, lips, hips, skin tone, defects in hands, genitalia, breast or any other part) with cosmetics, 'camouflage with dressing'

According to Veale et al. the weighted prevalence of BDD is 1.9% and 3.3% among adults and students in the community respectively with sex ratio of 1.27 for women to men, and a ratio of 1.64 for women to men among students.<sup>4</sup> The prevalence further rises to 7.4% - 20.2% in psychiatric and plastic surgery in patients.<sup>3,4</sup> BDD patients may experience poor quality of life, avoid social interactions, feeling depressed, and are at high risk of committing suicide.<sup>5</sup> Early identification, especially in teen years (the most vulnerable age) is an essential public health measure to reduce the burden of this condition and introduce cognitive behavioral therapy to treat this disorder. However, it has been observed that available therapies provide temporary relief and there remains a higher chance of recurrence until underlying factors are controlled.<sup>6</sup> These factors may range from childhood teasing, bullying to comparison by parents among siblings, peer pressures and increasingly media beauty standards.

There are few reports of examining the burden of BDD among teenage students and adolescents in Pakistan and similar social settings in Asia. Tauqir et al. investigated the frequency of BDD among university medical students in Karachi and found that 5.8% of these students showed sign and symptoms of BDD.<sup>7</sup>

Similarly, Hakim et al. reported higher BDD prevalence (13.9%) in university students of Jeddah, Saudi Arabia.<sup>8</sup> Further, 19.1% of Iranian adolescents between 17-20 years had BDD with gender differences in emotional and cognitive effects.<sup>9</sup> Skin, hair, nose, weight problems abdominal measurements and assumed body asymmetry are the most common sites of BDD.<sup>10</sup> Concern about a specific area of the body and spending much time looking at or avoiding mirrors can affect daily life, including studies, social life, self-esteem, and relationships. According to a recent study in Karachi University, 78.8% of the students reported dissatisfaction with some aspect of their appearance.<sup>5</sup> BDD typically follows a chronic course and is associated with marked functional impairment across multiple domains. Alghamdi et al. reported that the mean age of onset is 14-19 years, with gradual disease course; risk factors include family history of BDD or obsessive-compulsive disease, negative life experience during childhood, social pressure, beauty expectation or perfectionism.<sup>11</sup>

Since most patients are reluctant to seek mental health support for their symptoms and condition remain undiagnosed even in primary and secondary healthcare settings, therefore efforts have been made to design assessment tools to screen individuals for dysmorphic concerns and high-risk individuals are then further evaluated by psychiatrists. Body Dysmorphic Disorder Questionnaire (BDDQ) is a 4-items assessment tool which explicitly asked about the symptoms and its effects on mental health. This tool has more than 94% sensitivity 83%-93% specificity to identify BDD.<sup>12</sup> Main limitation of using BDDQ in community or non-clinical settings is that this questionnaire is based on dichotomous response and no continuous scale is used. This may be suitable for use in clinical settings. Dysmorphic Concern Questionnaire (DCQ) is a modification of BDDQ with 7-items developed by Oosthuizen et al.<sup>13</sup> to identify dysmorphic concern as the main symptom set for BDD. It is not a diagnostic tool but a screening tool for further evaluation of BDD. Responses are recorded on 4-point scale. DCQ cutoff score of 9 resulted in correct classification of 96.4% of BDD patients and 90.6% of undergraduates.<sup>14</sup> Considering

the limited data on prevalence of BDD in Pakistan and factors related to its occurrence in college students, current descriptive study was designed to screen medical and non-medical college students using validated Dysmorphic Concern Questionnaire. This study also described the contributing role of family, peers and media in developing this devastating mental health condition among college students.

## METHODS

This descriptive, cross-sectional study was undertaken in two public sector medical colleges (Lahore and Sialkot) and one public sector general education college (Sialkot) during November 2019 to June 2022. A formal permission was obtained from Institutional Ethical Review Boards of respective colleges (44/REC/KMSMC). Sample size of 376 was found to be suitable for this study using 50% anticipated population proportion at 5% absolute precision. A 10% additional sample size was added to account for missing data and non-response. This sample size was calculated using WHO software calculation software. A total of 417 college students were invited using social media invitations and by in-person contact with students through visiting the included colleges. A stratified random technique was used to ensure participation of both males and female students. In each strata every 3<sup>rd</sup> student was selected randomly. Twenty-nine students refused to participate and data of ten students were excluded since their main concern was weight and not dysmorphophobia. Overall, 378 students completed a self-administered, validated 7-items Dysmorphic Concern Questionnaire (DCQ)<sup>®</sup> online as well as using printed questionnaire. Themes covered in this questionnaire encompasses how a person perceived a defect or imagined defect in his/or her body despite being told that they are normal, how frequently they spent lot of time thinking about this issue and take necessary and compulsive measures (including consulting physicians/ surgeons) to eliminate the perceived defect. Participants provided responses on a 4-point scale (Not at all, same as most people, more than most people, Much more than most people). They also give

responses to questions regarding family influences, peer pressure and media effect in relation to the dysmorphic concern. These additional questions used responses in dichotomous scale. After manual checking of data for missing values and inconsistencies, data were transferred to SPSS version 25 for coding, cleaning and analysis. A BDD score was computed as per method described by Mancuso et al.<sup>15</sup> and participants with score more than 14 were labelled as having BDD. Sociodemographic characteristics were classified and presented mostly as dichotomous variables (age, gender, area of residence) and three categories for education and monthly income. Seven item DCQ were analyzed and presented as tornado (comparison) chart comparing medical and non-medical students. Similarly, factors related to family influences and media effect were analyzed as frequency distribution and presented as percentages. Association between sociodemographic factors with BDD score was analyzed using logistic regression technique in SPSS version 25.<sup>®</sup> Unadjusted and adjusted odds ratios with 95% confidence intervals were computed and p value of less than 0.05 was considered as statistically significant. Statistical models were adjusted for age, sex, monthly income mother's education and area of residence.

## RESULTS

Of 417 college students invited for this study, 388 college students completed DCQ<sup>®</sup>. Non-response rate was 7%. Data of 10 students were excluded since their main concern was body weight (too thin or obese) and not dysmorphophobia. Finally, there were 251 medical and 127 non-medical students whose data were analyzed respectively (Figure 1). Sample of medical students were mostly females (65%) aged between 21-25 years, whereas 56 (44%) non-medical students were females, and more than 50% students were younger than medical students (within age between 18-20 years). Both groups reported that they belonged to urban areas (78% versus 82% for medical and non-medical students respectively). Regarding parental education, 142 out of 251 (57%) mothers of medical students had completed university education, whereas only 30% of

mothers of non-medical students completed university education. Majority of medical students (28% against 10%) reported that their fathers were professionals (doctors, engineers, bank managers, officers) (Table 1).

Based on the score from seven items DCQ® using cut-off value of 14, five percent of non-medical college students were potentially suffering from body dysmorphic disorder. Comparatively, 1.3% of medical students had potential body dysmorphic disorder (Figure 2). About individual items of DCQ®, we found that 11% of non-medical students against 3% of medical students considered themselves misformed. Further, 26% of non-medical students did not believe their peers that they are normal (against 5% medical students reporting). Similarly, about 16% of medical students reported that they spent lot of time thinking about the perceived defect and they tried to cover-up this defect (Figure 3).

Our adjusted logistic regression models shows that odds of having body dysmorphic disorder is 4-times higher in non-medical college students compared to the medical students (OR=4.4, 95% CI:1.2-15.9; p=0.02), after adjusting for age, sex, income and parental education (Table 2). Similarly, age was found to be statistically significant when we compared those below 20 years and higher. Those aged 18-20 years has three times higher odds of having body dysmorphic disorder compared to those more than 20 years. (OR=3.3, 95% CI: 1.1-10; p=0.03) after adjusting for other socio-demographic characteristics. Adjusted models indicated no association between BDD and area of residence, parental education and family income (Table 2). Lastly, we asked participants regarding media, family and peer influences on their perception about physical appearance and body form. Almost half of non-medical college students and two-third of medical students in these public sector institute reported that they are influenced from media personalities and idealize their body physique. Media influences were more frequent among non-medical than the medical students (Figure 4). It was found that two-third of non-medical students avoids being photographed due to their perceived body defect and use cosmetics to cover-up for this defect.

Comparatively, 33% of medical students showed that they were advised by the family members constantly to work on their body appearances and they were compared with other siblings. Moreover, 47% of non-medical students and 38% of the medical students always use beauty filters before they upload their picture on social media or for sharing to other platforms (Figure 4).

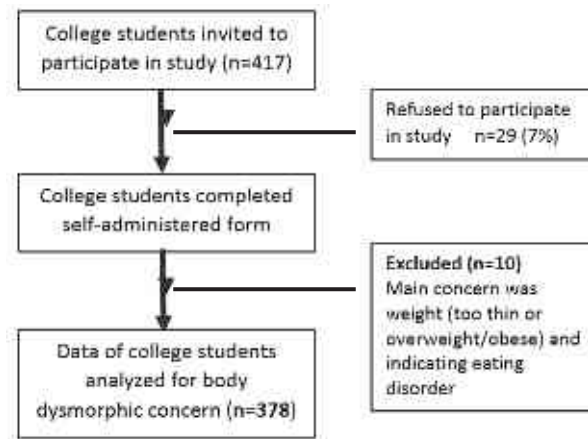


Figure 1: Flow of Study Participants for Screening College Students Regarding Body Dysmorphic Disorder in Public Sector Educational Institutes

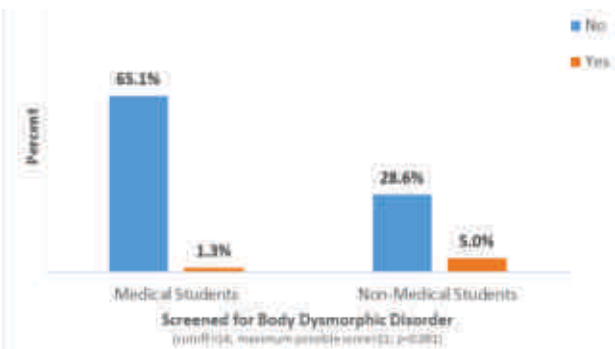
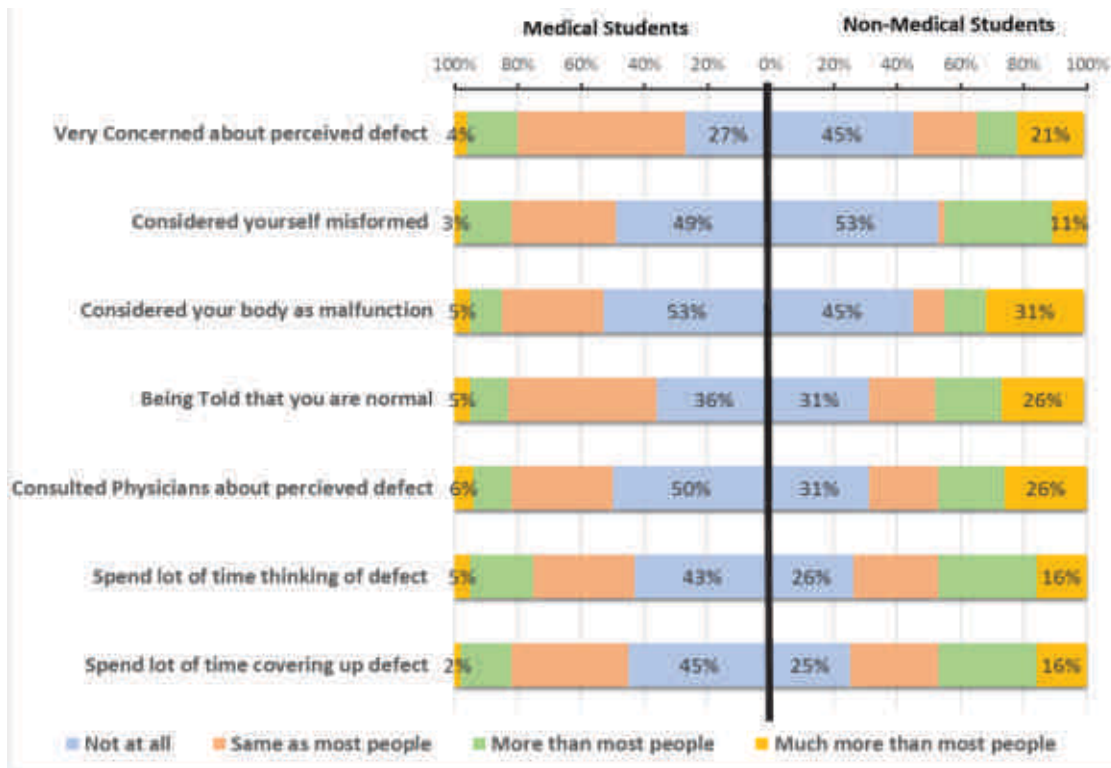


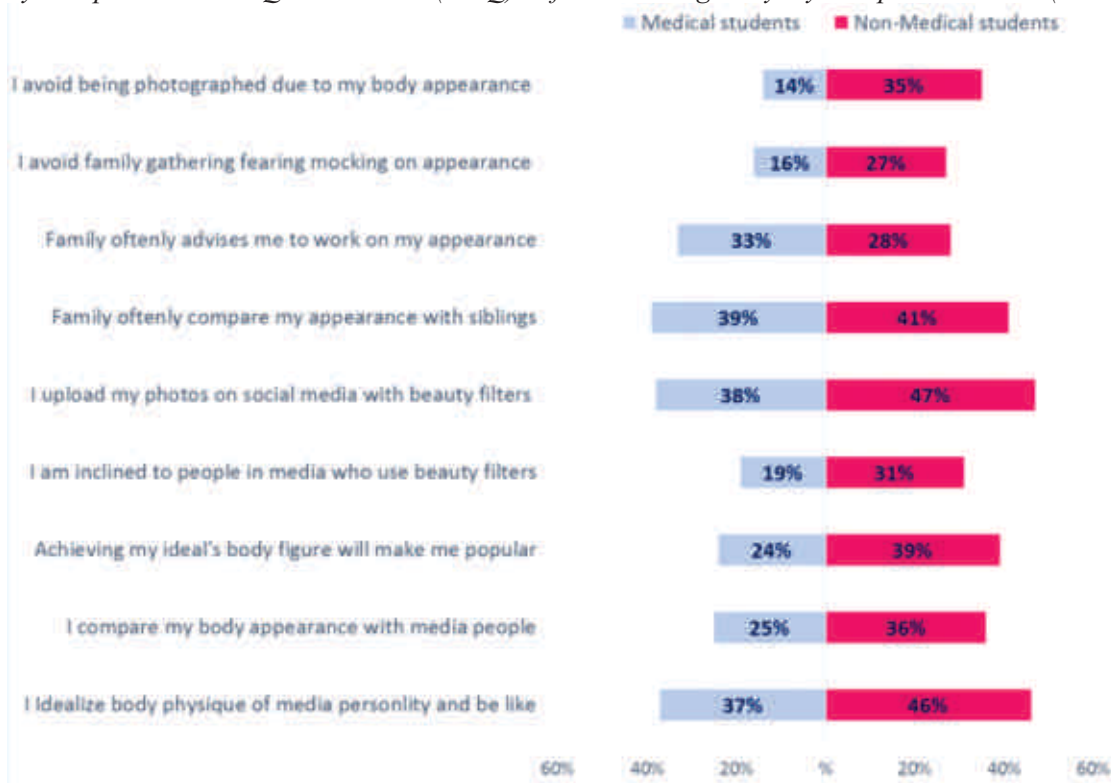
Figure 2: Bar Diagram showing Proportion of Public Sector College Students Screened for Body Dysmorphic Disorder using 7-Items Dysmorphic Concern Questionnaire (DCQ)® (n=378)

DISCUSSION

The purpose of this study was to assess the frequency of potential body dysmorphic disorder among undergraduate college students enrolled in public sector educational institutes of largest province of Pakistan. We used Dysmorphic Concern Questionnaire (DCQ) to screen these students and also investigated



**Figure 3.** Diagram Showing Responses of Public Sector College Students on Seven Items of Dismorphic Concern Questionnaire (DCQ) ® for Screening Body Dysmorphic Disorder (n=378)



**Figure 4.** Role of media, family influences and peer pressure on college students in relation to Body Dysmorphic Disorder (n=378; Medical students=251, non-medical students=127)

**Table 1:** Socio-demographic characteristics of college students in public sector educational institutes in Punjab, Pakistan participated in screening for body dysmorphic disorder (n=378)

Characteristics	Medical Students (n=251)		Non-medical Students (n=127)		p
	Numbers	Percentage	Numbers	Percentage	
<b>Age (in year)</b>					
18-20	33	13.1%	69	54.3%	<0.001
21-25	218	86.9%	58	45.7%	
<b>Sex</b>					
Males	89	35.5%	71	55.9%	<0.001
Females	162	64.5%	56	44.1%	
<b>Area of residence</b>					
Urban	190	75.7%	104	81.9%	0.17
Rural	61	24.3%	23	18.1%	
<b>Monthly Family income (Rs)</b>					
<50 K	53	21.1%	57	44.9%	<0.001
50 k-100 K	94	37.5%	65	51.2%	
>100 K	104	41.4%	05	3.9%	
<b>Mother's education</b>					
Completed Primary School	36	14.3%	48	37.8%	<0.001
Completed Secondary School	73	29.1%	40	31.5%	
University education	142	56.6%	39	30.7%	
<b>Father's education</b>					
Completed Primary School	12	4.8%	28	22.0%	<0.001
Completed Secondary School	56	22.3%	29	22.8%	
Completed University education	183	72.9%	70	55.1%	
<b>Father's Occupation*</b>					
Agriculture	34	13.5%	01	0.8%	<0.001
Business (self-employed)	78	31.1%	53	41.7%	
Office Workers	70	27.9%	60	47.2%	
Professionals	69	27.5%	13	10.3%	

Footnote: Statistical significance for difference in proportions was calculated using Pearson's Chi-Squared test. Fisher's Exact test was used when cell values are less than 5. P less than 0.05 was considered statistically significant. Percentages are column wise. Data are numbers and percentages (%) unless indicated otherwise.

- Office workers include clerk, typist, data entry, despatcher; Professionals include doctor, engineer, lawyer, accountant, managers, etc

the influence of media, family and peer influences on the perception of these students about their physical appearance and perceived body defect and thus ‘body shaming’. We found that BDD is more frequent among non-medical compared to medical students and students below 20 years of age had significant association with BDD. Those showed potential for BDD are influenced by media personalities, family constantly comparing them with siblings and they use few remedial measures to cover-up for the perceived body defect.

Our study is one of few studies on BDD investigating the frequency of BDD in undergraduate college students using a validated standardized Dysmorphic

Concern Questionnaire. It has not only assessed the BDD frequency but also compared the general educational and professional undergraduate college students. This study went beyond the screening of these students by examining the social factors which might contribute to the development of BDD and findings may be used by the educational counsellors to take remedial actions for these students.

The results of this study may be interpreted after considering few limitations and constraints. Being a descriptive and cross-sectional observational study, its results may be generalizable to the similar population and there are number of social factors which may

**Table 2:** Odds ratio with 95% confidence interval for Body Dysmorphic Disorder among college students in a public sector educational institutes of Punjab, Pakistan (n=378)

Characteristics	Unadjusted (univariate) Model			Adjusted (Multivariable) Model		
	Odds ratio (OR)	95% CI. of OR	p	Odds ratio (OR)	95% CI. of OR	p
<b>College Students</b>						
Medical	Reference	Reference	<0.001	Reference	Reference	<b>0.02</b>
Non-Medical Students	8.7	3.2-23.8		<b>4.4</b>	<b>1.2-15.9</b>	
<b>Age (in year)</b>						
18-20	Reference	Reference	<0.001	Reference	Reference	<b>0.03</b>
21-25	0.2	0.1-0.4		<b>0.3</b>	<b>0.1-0.9</b>	
<b>Sex</b>						
Males	Reference	Reference	<b>0.43</b>	Reference	Reference	<b>0.83</b>
Females	0.7	0.3-1.6		<b>1.1</b>	<b>0.4-2.8</b>	
<b>Area of residence</b>						
Rural	Reference	Reference	<b>0.50</b>	Reference	Reference	<b>0.45</b>
Urban	1.5	0.5-4.4		<b>0.6</b>	<b>0.2-2.1</b>	
<b>Monthly Family Income (Rs)</b>						
<50 K	Reference	Reference		Reference	Reference	
50 K-100 K	0.3	0.1-0.8	<b>0.02</b>	<b>0.3</b>	<b>0.1-0.9</b>	<b>0.03</b>
>100 K	0.2	0.05-0.7	<b>0.01</b>	<b>0.8</b>	<b>0.2-3.8</b>	<b>0.79</b>
<b>Mother's education</b>						
Primary School	Reference	Reference		Reference	Reference	
Secondary School	1.1	0.3-3.3	<b>0.83</b>	<b>1.7</b>	<b>0.6-5.6</b>	<b>0.33</b>
University education	1.1	0.4-3.2	<b>0.86</b>	<b>2.3</b>	<b>0.7-7.7</b>	<b>0.16</b>

**Abbreviations:** CI, confidence interval; p stands for probability of rejecting a null hypothesis when it is true, SD, Standard deviation; K=1000 Rupees, BDD, Body Dysmorphic disorder.

**Footnotes:** Null hypothesis states (i.e there is no difference in BDD risk in medical students compared to non-medical students after adjusting for age, sex, education status, monthly income, area of residence; Model estimates adjusted for age, sex, monthly income, mother's education and area of residence

be different in Western social settings. We collected data online and there was an element of self-selection by the students after out invitation for the study. Though, we used anonymity and confidentiality of the participants, it is possible that those having potential for BDD may have decided for not participating this study. Sample size for this study is comparatively smaller than number of earlier studies which computed BDD prevalence, however, we used maximum size feasible to improve precision of the estimates.

The weighted prevalence of BDD in community settings is reported to be about 1.9% and 5.8%-7.4% in psychiatric settings.<sup>6</sup> Schneider et al. reported a BDD prevalence of 1.7% in community settings and 6.7% to 14.3% in Psychiatric clinics, with mean age of 16 years.<sup>2,3</sup> Most of these studies are from European and North American population settings. Very few studies examined BDD in Asia, where social upbringing

and culture is different with varied beauty standards. Al-ghamdi et al.<sup>11</sup> reported that 8.8% of Saudi general population had potential for BDD. Similarly, Taqui et al.<sup>7</sup> used DSM-IV criteria for BDD and reported that 5.8% of medical students in Karachi met the criteria for BDD with male to female ratio of 1.7. The frequency of BDD among medical students in our study is lower than reported by Taqui et al.<sup>7</sup> with BDD was more common in females, where the said study observed that BDD is common in males. This difference may be due to different screening tools used by Taqui et al. (DSM-IV), where we used Dysmorphic Concern Questionnaire. Other studies have reported varied findings for sex differences. For instance, Veale et al.<sup>12,16</sup> showed BDD is commoner in females, whereas Schneider et al.<sup>2</sup> found no difference in occurrence of BDD across genders. Again, these differences may be due to methodological differences across studies.<sup>3</sup> Further, studies

have shown that males are predominantly occupied with their genitals and thinning hair, where as females are occupied with hips, breasts, legs and excessive hair.<sup>5</sup> Ahamed et al.<sup>17</sup> also reported that BDD concern in female Saudi Arabian medical students is fairly common, with more concern shown for skin, fats and chest.

BDD is a serious psychological illness which pose extra burden on health system in terms of repeated patient visits in dermatology, cosmetic surgery and psychiatric clinics. It is an obsessive- compulsive disorder and higher chance of recurrence. Studies have shown that these individuals have higher suicidal tendency and morbidity in terms of depression and social anxiety.<sup>17-19</sup>

Various assessment tools for BDD have been developed over the years and current classification of BDD is under DSM-5 along with obsessive- compulsive illnesses. Yet, large proportion of individuals go undiagnosed. This may be on one hand due to shame and reluctance of individuals to seek mental health support and on the other hand, the physicians are more likely to misclassify illness unless they specifically asked detailed questions before referring to cosmetic surgery or dermatology. Body Dysmorphic Disorder Questionnaire (BDDQ) is a four items questionnaire designed to screen these individuals in clinics. This questionnaire has high sensitivity (94%–100%) and specificity (89%–93%) in detecting BDD in a range of settings.<sup>2,17,20-21</sup> However, this instrument is more appropriate for clinical settings and DCQ is more appropriate to screen in community settings. DCQ is based on BDDQ in general with specific questions on dysmorphic concern, which is an important sign for BDD. It has good internal consistency (Cronbach’s alpha: 0.88).<sup>20,21</sup>

Future investigators should focus on finding prevalence of BDD among individuals aged 12 years or under since no enough evidence is available for this population. Owing to the higher exposure of these children of social media platforms, there may be rising tendency among children to be influenced by the media, with altered beauty standards, which may influence

the children to perceive their physical appearance faulty and may suffer from anxiety and depression. Furthermore, most data are coming from Europeans countries and North America, therefore, there is a gap in our knowledge about BDD in Asian and African populations which might have different social upbringings, culture values and beauty standards. More studies like ours may be designed in these social groups to decipher the prevalence and correlates of BDD in these groups.

**CONCLUSIONS**

BDD is comparatively more frequent in non-medical female students aged 18-20 years. Family and peer pressure alongside the influences from social, print and electronic media had considerable effect on non-medical students comparatively and may contribute to the occurrence of body dysmorphic disorder among college students in public sector educational institutes.

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**REFERENCES**

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorder, 4th ed. 1994. American Psychiatric Publishing, Washington, DC.
2. Schneider SC, Mond J, Turner CM, Hudson JL. Sub-threshold body dysmorphic Disorder in adolescents: Prevalence and impact. Psych Research.2017. S0165-1781(16)30794-6. <http://dx.doi.org/10.1016/j.psychres.2017.01.085>
3. Georgina Krebs, Fernandez L, Mataix-Cols D. Recent advances in understanding and managing body dysmorphic disorder. Evid Based Mental Health. 2017; 1(1):23-25
4. Phillips KA. The Broken Mirror: Understanding and treating body dysmorphic disorder. Revised and expanded. New York, NY: Oxford University Press; 2005
5. Phillips KA, Stein DJ, Rauch SL, et al. Should an obsessive-compulsive spectrum grouping of disorders be included in DSM-V? Depress Anxiety. 2010; 27: 528–55.
6. Veale D, Miles S, Valiollah N. The effect of self-focused attention and mood on appearance dissatisfaction after mirror-gazing: an experimental study. J Behav Ther



- Exp Psychiatry. 2016;52:38–44. doi: 10.1016/j.jbtep.2016.03.002
7. Taqui AM, Shaikh M, Gowami SA, Shahid E, Khan A, Tayyab SM, et al. Body dysmorphic disorder: gender differences and prevalence in Pakistani medical students, BMC psychiatry.2008;19 (2):20-25
  8. Hakim RF, Alrahmani DA, Ahmed DM, Alharthi NA, Fida AR, Al-Raddadi RM. Association of body dysmorphic disorder with anxiety, depression, and stress among university students. J Taibah Univ Med Sci. 2021;16 (5):689-694. doi:10.1016/j.jtumed. 2021. 05. 008
  9. Weingarten H, Renshaw KD, Wilhelm S, Tangney JP, Di Mauro J. Anxiety and shame as risk factors for depression, suicidality, and functional impairment in body dysmorphic disorder and obsessive compulsive disorder. J Nerv Ment Dis. 2016;204(11):832.
  10. Veale D. Body dysmorphic disorder. Postgrad Med J. 2004; 80:67–71. Doi: 10.1136/pmj.2003.015289
  11. Alghamdi WA, Subki AH, Khatib HA, Butt NS4, Alghamdi RA, Mohammed Alsallum MS. Body Dysmorphic Disorder Symptoms: Prevalence and risk factors in an Arab Middle Eastern population. Int J of Gen Med. 2022; 15: 2905–2912
  12. Angelakis I, Gooding PA, Panagioti M. Suicidality in body dysmorphic disorder (BDD): a systematic review with meta-analysis. Clin Psychol Rev. 2016; 49:55–66. doi:10.1016/j.cpr.2016.08.002
  13. Oosthuizen P, Lambert T, Castle DJ. Dysmorphic concern: prevalence and associations with clinical variables. Australian and New Zealand J Psych. 1998; 32:129-132
  14. Casha TF, Phillips KA, Santos MT, Hrabosky JI. Measuring “negative body image”: validation of the Body Image Disturbance Questionnaire in a nonclinical population. Body Image 1 (2004) 363–372. doi: 10.1016/j.bodyim.2004.10.001
  15. Mancuso SG, Knoesen NP, Castle DJ. The Dysmorphic Concern Questionnaire: A Screening Measure for Body Dysmorphic Disorder. Australian & New Zealand J Psych. 2010; 44(6):535-542. doi: 10.3109/ 0004867 1003596055
  16. Veale D, Matsunaga H. Body dysmorphic disorder and olfactory reference disorder: proposals for ICD-11. Rev Bras Psiquiatr 2014;36:(Suppl 1):14–20
  17. Ahamed SS, Enani J, Al Faradi L, Sannari L, Ajgani R, Ajsawah Z, et al. Prevalence of Body dysmorphic disorder and its association with body features in female medical students. Iran J Psychiatry Behav Sci. 2016 May 15;10(2) e3868.
  18. Liao Y, Knoesen NP, Deng Y, Tang J, Castle DJ, Bookun R, et al. Body dysmorphic disorder, social anxiety and depressive symptoms in Chinese medical students. Soc Psychiatry. 2010 ; 45(1D):963-71
  19. Aknarbegloo M, Z Habibpur Z, Motaareli H. Perception of body images in students and related factors. The social sciences. Med well Journals.2010; 5(4): 368-372
  20. Danesh M, Kouros BS, Beroukhim BS, Nguyen C, Levin E, KOO J. Body Dysmorphic Disorder Screening Tools for the dermatologist: A systematic review. Pract Derm. 2015. 12(1):44-49.
  21. Brohede S, Wingren G, Wijma B, Wijma K. Validation of the Body Dysmorphic Disorder Questionnaire in a community sample of Swedish women. Psychiatry Research. 2013;210;647–652

**THERE IS ONLY ONE THING THAT MAKES A DREAM  
IMPOSSIBLE TO ACHIEVE: THE FEAR OF FAILURE**

Paulo Coelho, The Alchemist