

CYBERBULLYING AND VIDEO CONFERENCE EFFECTS ON BODY IMAGE DISTURBANCE IN MEDICAL STUDENTS DURING COVID-19 PANDEMIC

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ABSTRACT

Medical students are often expected to have the ideal appearance and thus, may be susceptible to body dysmorphic disorder (BDD). Limited data exist about the influence of demographic factors on the severity of BDD in this population, especially during the COVID-19 pandemic. The researchers aimed to understand the association between demographic variables and the severity of body image disturbance in Indonesian medical students. The second-year medical students of the Islamic University of Indonesia participated in the study (n=116). Participants completed the informed consent form, self-reported demographic questionnaire, Body Image Disturbance Questionnaire (BIDQ), and additional questions about bullying, cyberbullying, videoconference, and COVID-19. Data were analyzed using Pearson's correlation and linear regression. We found significant correlations between height, female gender, history of being bullied, history of being cyberbullied, history of being body-shamed, history of being sexually harassed, lack of confidence about appearance during video conference, and the behavior of comparing appearance during a video conference with total BIDQ score ($|r|=0.304-0.433$, $p=0.000-0.002$). Regression analysis showed that only history of being cyberbullied, lack of confidence about appearance during video conference, and the behavior of comparing appearance during video conference ($p=0.009 - 0.037$) significantly predicted BIDQ score. Internet-related factors such as cyberbullying and worrying or comparing appearance during teleconference could significantly affect the body image of medical students.

KEYWORDS

Medical students, Body dysmorphic disorder, Cyberbullying

INTRODUCTION

Medical students are often seen as role models with a healthy lifestyle and attractive appearance. Body image is considered a reflection of the professionalism and can help build positive relationships between doctors and patients [1]. This public perception causes a tendency to prioritize physical appearance and ideal body image which are risk factors for body dysmorphic disorder (BDD) [2]. In addition, the adaptation process, especially in the early years of university education, with the new environment and peers, a fairly busy lecture schedule, and worries about failure, are all potentially significant stressors for these medical students, possibly aggravating existing symptoms of BDD [3]. The prevalence of BDD in students in several countries varies considerably between 2.3-5.8% [4], which is higher than the prevalence in the general population (1.7-2.9%) [5]. The prevalence in medical students ranges from 4.4-5.8% [1,6].

BDD in students can affect academic performance, social interaction, and self-actualization; it may cause low self-esteem [1,7]. This pattern behavior can lead to severe distress, decreased social functioning and quality of life, and even lead to self-harm or suicide. Research by Philips and Menard found that 79.5% of BDD patients had had suicidal thoughts or ideas, and 27.6% had even attempted suicide [8]. A meta-analysis study found that individuals with BDD were 4 times more likely to have suicidal ideation and had a 2.6 times higher risk of committing suicide attempts than individuals without BDD [9]. Furthermore, psychotic disorders can appear in severe BDD conditions [10].

The COVID-19 pandemic has forced society to adapt to a new normal in almost all areas of life, including the learning process, which now must be done entirely online. This condition has become an obstacle, especially to efforts to improve clinical skills and laboratory practice, causing frustration among medical students [11]. In addition, the use of video lessons during online lectures can worsen the condition of students with a tendency toward BDD. These individuals tend to improve their physical appearance by using filters on their camera to enhance their photos or videos; some even compare their appearance with others seen in the video [12, 13].

Prevention of BDD requires a better understanding of risk factors contributing to the illness. However, there are limited data about demographic variables that might increase BDD severity in Indonesian medical students, especially about novel risk factors associated with the pandemic. More research is needed to understand, prevent, screen, and better treat BDD before it causes disability or further suffering.

MATERIALS AND METHODS

The participants in this study were the second-year students of the Islamic University of Indonesia Faculty of Medicine. The inclusion criteria included being 18 years old or older, willing to sign an agreement or informed consent form, and willing to participate as research respondents. The exclusion criteria were not completing all the question items in the questionnaire and having physical disabilities. The data collection was done in September 2020.

The instruments used in this study were a demographic questionnaire and the Body Image Disturbance Questionnaire (BIDQ). The Indonesian version of the BIDQ questionnaire had been validated by Sari with Cronbach alpha 0.892; each item was significantly correlated with total score ($r=0.686-0.859$, $p=0.000$); and the construct could explain 61.49% of variance [14].

We included several additional questions to reflect the current situation of the pandemic, such as: "Have you ever been bullied?", "Have you ever been body-shamed?", "Have you ever been cyberbullied in social media or other platform?", "Have you ever been sexually-harassed?", "Have you been significantly affected by the pandemic?", "Have you been uncomfortable with online teaching method?", "Do you lack confidence about your appearance during a video conference?" and "Do you compare your appearance with other people during a video conference?"

We used Pearson's correlation to measure the correlation of each demographic data with total BIDQ score and linear regression to understand which of the demographic variables significantly affected the total BIDQ score. All statistical analyses used Statistical Package for Social Sciences (SPSS) version 25 (IBM Corp., Chicago) with $p < 0.05$ and 95% confidence interval (CI).

RESULTS AND DISCUSSION

The demographic characteristics of participants are shown in Table 1. The respondents were 116 medical students, with 26 (22.4%) males and 90 (77.6%) females. The average BIDQ total score was 12.24 ± 4.86 .

Among the demographic variables, we found that body height (stature), female gender (77.6% of respondents), history of being bullied (positive in 53.4% of respondents), history of being cyberbullied (positive in 19.0% of respondents), history of being body-shamed (positive in 69.8% of respondents), history of being sexually-harassed (positive in 68.1% of respondents), lack of confidence about appearance during videoconference (41.4% of respondents), and the behavior of comparing appearance during videoconference (in 44.0% of respondents) were significantly correlated with the BIDQ total score (Table 2). A positive correlation means that the increase of the value of independent variable value increases BIDQ scores, while negative correlation means that the increase of the value of independent variables decreases BIDQ score. The significant variables were further analyzed using multivariate analysis.

We did linear regression analysis because not all variables are bivariate (such as height and BMI). Furthermore, as body image disturbance is not a frequent condition, categorizing independent variables into bivariate would result in significant loss of data. The result showed that only history of being cyberbullied, lack of confidence about appearance during video conference, and the behavior of comparing appearance during video conference predicted the total score of BIDQ. The small regression residual means that the model is a good fit with small error (Table 3 and Figure 1).

We found that height, gender, history of being bullied, history of being body-shamed, and history of being sexually harassed were significantly correlated to BIDQ scores. However, our research design did not include qualitative assessment, and therefore, only mentioned the subjective experience of being bullied, body-shamed, or sexually-harassed. Our findings confirmed with previous research that female subjects, especially those who had received sexual harassment, were more likely to score higher in body image disturbance instruments, although the gender difference might be caused by other

variables [15]. Our research also reemphasized the significant impact of any form of bullying and body-shaming on adolescent body image. This finding was similar to research by Duarte et al. in adolescent girls in Portugal [16].

Our findings also found that height had a significant negative correlation with BIDQ score. However, weight and BMI did not have a significant correlation with body image. Although most respondents were women, our data contradict the common assumption that women are conscious about body weight. Our findings differed from other research, such as the study by Bricio-Barrios et al., which found that BMI was the most significant physical factor affecting body image [17]. This difference might mean that our population was more self-conscious about short stature than weight or BMI. However, our research method did not allow for further qualitative exploration about the reason for these findings.

During the COVID-19 pandemic, there might be changes in lifestyle, study activity, and work activity that significantly affect a person's body image. One study by Robertson et al. found that the COVID-19 pandemic significantly worsened body image [18]. Some of the possible reasons were the lack of physical interaction and the increasing number of online activities. However, there were limited data about the effect of online activities on adolescent body image.

We found that history of being cyberbullied, lack of confidence about appearance during video conference, and the behavior of comparing appearance were significantly correlated to BIDQ scores. After adjusting for other variables in linear regression, these variables remained significant predictors of BIDQ score with small residual error. On the other hand, we found that height, gender, history of being bullied, history of being body-shamed, and history of being sexually-harassed were inter-correlated and could not become significant predictors of BIDQ. Our findings contrasted with the research by King et al. which found that there is no correlation between cyberbullying and body image [19].

Our study could improve understanding about factors related to body image disturbance during the COVID-19 pandemic, and might also provide insights about risk factors that might hinder prevention and management of the disorder. However, our study was limited by the usage of self-report questionnaire and the broad definition of bullying, cyber-bullying, and sexual-harassment. To further explore the impact of bullying, online behavior, and the pandemic on body image, in-depth qualitative research might be needed.

There were many interventions that can be used to prevent body image disturbance, for example, cognitive behavioral therapy to alter the automatic thought about negative body image [20]. However, to enable the intervention, there needs to be a better understanding about which students were at risk and which were not. Our study could improve the understanding of body image disturbance and assist the development of prevention programs in the future.

CONCLUSIONS AND SUGGESTION

We conclude that during the COVID-19 pandemic, an online activity could significantly affect medical students' body image. Other demographic factors might also be involved, but online activities, without reasonable control, could become a strong predictor for body image disturbance.

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Table 1. Demographic Characteristics

Variables		n	Percentage (%)
Gender	Male	26	22.4
	Female	90	77.6
Age	18	16	13.8
	19	66	56.9
	20	32	27.6
	21	2	1.7
Body mass Index	Ideal (18.5-25)	71	61.2
	Less ideal	45	38.8
Grade Point Average (Maximum 4.0)	< 2.0	1	0.9
	2.0 – 2.5	5	4.3
	> 2.5 – 3.0	21	18.1
	> 3.0 – 3.5	42	36.2
	> 3.5 – 4.0	47	40.5
History of being bullied	Yes	62	53.4
	No	54	46.6
History of being body-shamed	Yes	81	69.8
	No	35	30.2
History of being bullied through internet/social media (cyberbullied)	Yes	22	19.0
	No	94	81.0
History of being sexually-harassed	Yes	79	68.1
	No	37	31.9
Feeling significant impact of COVID-19 pandemic	Yes	100	86.2
	No	16	13.8
Uncomfortable with online teaching method	Yes	91	78.4
	No	25	21.6
Lack of confidence about appearance during videoconference	Yes	48	41.4
	No	68	58.6
Comparing appearance during videoconference	Yes	51	44.0
	No	65	56.0
BIDQ total scores	Normal	111	95.7
	High	5	4.3

Source: Primary Data; BIDQ, COVID-19, Coronavirus-2019; n, number

Table 2. Correlation of demographic factors with the BIDQ score

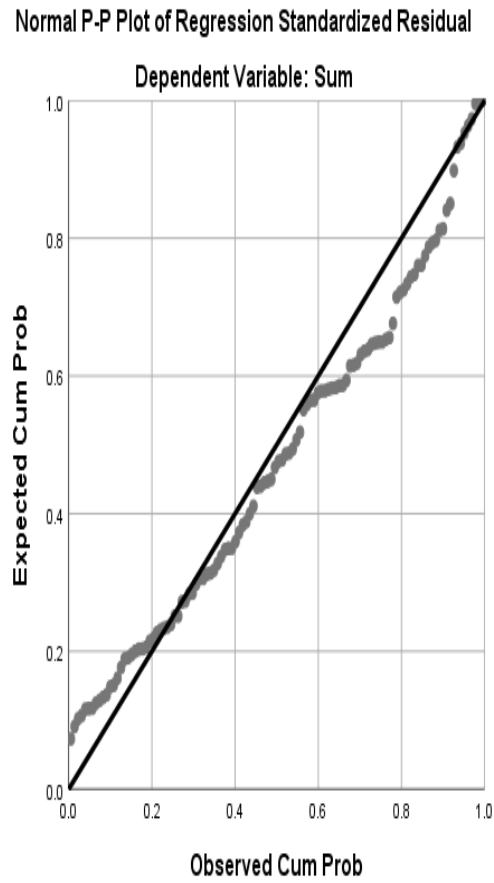
Factors	BIDQ total score	
	r	p
Age	0.010	0.919
Gender	0.357**	0.000
GPA	0.094	0.314
Height	-0.330**	0.000
Weight	-0.089	0.345
BMI	0.102	0.276
BMI category (ideal/not)	-0.020	0.829
History of being bullied	0.314**	0.001
History of being body-shamed	0.285**	0.002
History of being cyberbullied	0.304**	0.001
History of being sexually-harassed	0.354**	0.000
Feeling significant impact of pandemic	-0.007	0.943
Discomfort with online teaching	0.134	0.153
Lack of confidence about appearance during videoconference	0.369**	0.000
Compare appearance during videoconference	0.433**	0.000

** denotes significant correlation with $p < 0.01$; BIDQ, Body Image Disturbance Questionnaire BMI, body mass index; GPA, grade point average

Table 3. Multivariate analysis of demographic factors with BIDQ score

Variables	Unstandardized Coefficients		Standardized Coefficients	t	p
	β	Std. Error	Beta		
(Constant)	27.109	37.482		0.723	0.471
Bodyshaming	0.359	0.821	0.039	0.438	0.662
Cyberbullying	2.282*	0.861	0.211	2.650	0.009
Bullying	1.398	0.770	0.164	1.814	0.073
Sexual harassment	0.647	0.798	0.071	0.811	0.419
Gender	0.923	1.207	0.091	0.764	0.446
Body weight	0.118	0.309	0.338	0.380	0.704
Height	-0.203	0.231	-0.393	-0.878	0.382
Lack of confidence about appearance during videoconference	1.854*	0.721	0.215	2.572	0.012
Comparing appearance during videoconference	1.634*	0.775	0.191	2.110	0.037
BMI category (ideal/not)	0.628	0.686	0.072	0.916	0.362
BMI	-0.127	0.817	-0.108	-0.155	0.877

* denotes significant beta value; BIDQ, Body Image Disturbance Questionnaire; BMI, body mass index; Result of standardized beta denotes that the most important variable is lack of confidence during videoconference, followed by history of being cyberbullied and the behavior of comparing appearance during video conference.



Source: Primary data, generated using Statistical Package for Social Sciences (SPSS) version 25
Figure 1. P-P Plot for Regression Analysis