

## RELATIONSHIP OF PUBERTAL DEVELOPMENT AND BULLYING WITH BODY DYSMORPHIC TRAITS AMONG ADOLESCENTS IN PAKISTAN

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### Abstract

Puberty is a natural physiological transition from childhood to adolescence, marked by significant physical and psychological changes. During this stage, adolescents become more socially aware and sensitive to peer perceptions, making them vulnerable to experiences such as bullying. Bullying is commonly observed in adolescence, often involving peers mocking or dominating others (Lindner, Hughes, & Fahy, 2008). The present correlational study examined the relationship between pubertal changes, bullying, and body dysmorphic traits among adolescents. A sample of 264 adolescents (132 males, 132 females) aged 10–16 years were recruited from schools in Islamabad and Rawalpindi. Participants completed demographic information and three standardized questionnaires. Findings showed significant correlations between body dysmorphic traits and pubertal development ( $r = .295^{**}$ ), body dysmorphic traits and bullying ( $r = .166^{*}$ ), and pubertal development and bullying ( $r = .337^{**}$ ). Gender analysis revealed a significant difference in body dysmorphic traits across pubertal stages for females, but not for males. Thus, females exhibited greater body dysmorphic concerns during puberty compared to males. Overall, the study highlights that pubertal development, bullying, and body dysmorphic traits are interrelated, with females being more vulnerable to body image concerns during adolescence. This study is significant as it deepens the understanding of how pubertal development and bullying contribute to body dysmorphic concerns, particularly among females, thereby offering insights for early interventions to promote adolescent mental health.

### Introduction

Adolescence is a sensitive developmental stage during which pubertal changes and peer experiences, such as bullying, can significantly

influence body image and contribute to the emergence of body dysmorphic traits (Shahid, Rauf, Sarwar & Asif, 2022). Puberty is marked by significant physical, hormonal, and psychological

transitions (Blakemore, 2012). These transformations can precipitate heightened self-consciousness and visible differences from peers, making some adolescents targets for appearance-based bullying (Nawaz et al., 2024).

Bullying is a pervasive social issue that significantly impacts adolescents' mental health. Peer victimization, especially appearance-related bullying, has been shown to lead to cognitive distortions, social withdrawal, low self-esteem, and body dissatisfaction (Weingarden, Renshaw, & Wilhelm, 2017). When such experiences occur during the sensitive phase of puberty, they may contribute to the development of Body Dysmorphic Disorder (BDD) that is a condition consisting of excessive concern with imagined or minor physical flaws (Jack & Egan, 2018).

Body Dysmorphic Disorder (BDD) is a mental health condition where a person becomes very focused on one or more parts of their appearance, believing they look flawed or unattractive, even though these flaws are either not noticeable or appear very minor to others (American Psychiatric Association, 2013).

Research by Marengo et al. (2018) demonstrated that as adolescents navigate bodily changes, they often engage in negative self-appraisal, especially when their development does not align with societal or peer norms. The divergence between perceived and actual bodily changes can trigger psychological distress, increasing the risk for body dysmorphic disorder (BDD) symptoms.

A twin registry study of over 6,900 15-year-olds (and cohorts at age 18 and 20–28) in Europe found clinically significant body dysmorphic concerns in 1–2% of adolescents, with higher rates in females (1.3–3.3%) versus males (0.2–0.6%) (Enander et al., 2018). There are a number of systematic evaluation and meta-analysis which showed general BDD prevalence at about 1.9% (95% CI: 1.4–2.7) in community settings and about 3.3% (2.0–5.3%) in student/adolescent samples (McGrath et al., 2023). Similarly, a study found that 5.8% of Pakistani medical students met

the criteria for Body Dysmorphic Disorder (BDD), with notable gender differences in the areas of concern, suggesting a significant but underrecognized mental health issue in young adults (Taqui et al., 2008). Therefore, high commonness of Body Dysmorphic Disorder among adolescents suggests a growing mental health concern that warrants early identification, targeted interventions, and increased awareness among general population.

Multiple studies in the West have highlighted the association of Pubertal development and Body Dysmorphic Disorder. A study suggested that earlier pubertal timing was significantly associated with increased body dissatisfaction, particularly among girls recognized as a potential precursor to BDD (Padrutt et al., 2023). In a large-scale study of youth (ages 5–19), the prevalence of BDD sharply increased during adolescence, particularly among females (1.8% vs. 0.3% in males) which the notion that pubertal maturation with associated body changes and self-image concerns is a key period for BDD onset (Krebs et al., 2024).

Despite a growing global interest in adolescent mental health, there is a stark lack of research within South Asian contexts particularly Pakistan where sociocultural expectations around appearance, gender norms, and silence around psychological distress may further exacerbate vulnerability to BDD traits. Research findings underscore the importance of early screening, supportive school environments, and mental health education during puberty.

The present study addresses a crucial gap by examining how appearance-related bullying and the physical transformations of puberty may jointly fuel body dissatisfaction and dysmorphic thinking. Findings from this research will guide school-based mental health programs, inform early detection and intervention strategies, and promote awareness among parents, educators, and healthcare professionals ultimately contributing to the psychological well-being of adolescents.

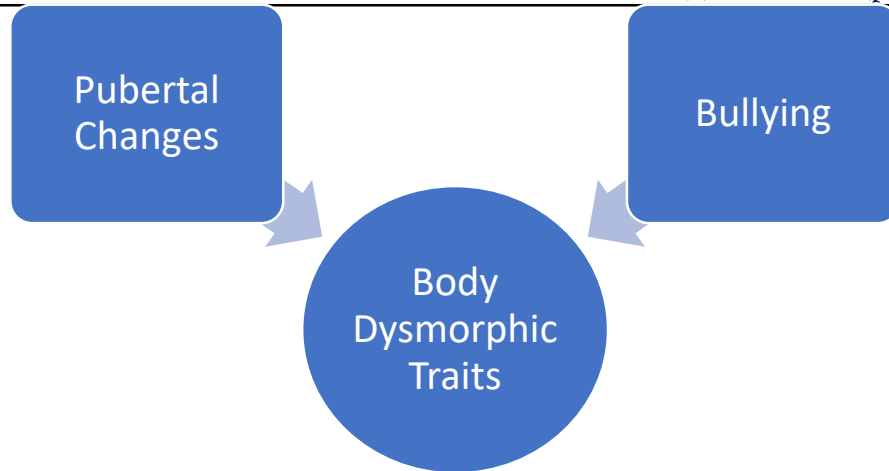


Figure 1: Conceptual Framework

### Material and Method

The current research utilized the correlational research design in order to investigate the correlation between pubertal development, body dysmorphic traits, and bullying in adolescents. Data collection was carried out over the course of four months in Islamabad and Rawalpindi schools after due permission from the institutions and participants' parents. Survey-based approach was utilized where self-report questionnaires were administered. The targeted age group of the participants was 10 to 16 years, which is the middle and higher secondary levels of education. Convenience sampling was employed to draw a sample size of 264, and boys and girls took part in it. In order to assist with describing the participants, each was required to complete a demographic questionnaire that collected information such as their gender, age, and whether their school was public or private.

The Adolescent Peer Relations Instrument – Bully/Target (APRI-BT) (Parada et al., 2000) was utilized to measure bullying experiences. The Body Dysmorphic Disorder Modification of the Yale-Brown Obsessive-Compulsive Scale (BDD-YBOCS) was utilized to measure body dysmorphic features (Phillips et al., 1997). The Pubertal Development Scale (PDS 2.0) was employed in the research to measure the phases of physical development among adolescents (Petersen et al., 1988). Through the use of IBM SPSS Statistics version 28, the correlation and regression analyses were run to examine and predict the correlations between pubertal development, bullying and body dysmorphic tendencies in adolescents.

### Results and Analysis

The research study was led to assess the relationship of pubertal changes and bullying with body dysmorphic traits among adolescents in Pakistan.

Table 1: Demographic characteristics of participants (N=264)

| Variables | Categories | F   | %     |
|-----------|------------|-----|-------|
| Age       | 10-13      | 115 | 43.5  |
|           | 14-16      | 149 | 56.43 |
|           |            |     |       |
| Gender    | Male       | 132 | 48.9  |
|           | Female     | 132 | 48.9  |
| Schools   | Public     | 119 | 44.1  |
|           |            |     |       |

|         |     |      |
|---------|-----|------|
| Private | 145 | 54.9 |
|---------|-----|------|

The total of 264 participants' data was analyzed, there were two categories of age including 10-13 ( $F = 115$ , 43.5%) and 14-16 ( $F = 149$ , 56.4%). There were 132 females (48.9%) and 132 males (48.9%) in the sample. Participants attended either public schools ( $n = 119$ , 44.1%) or private schools ( $n = 145$ , 54.9%) [Table 1].

**Table 2: Correlation analysis (N=264)**

| Variables | M    | SD   | 1      | 2      | 3 |
|-----------|------|------|--------|--------|---|
| BDD       | 18.2 | 11.2 |        |        |   |
| PDS       | 11.4 | 4.6  | .295** |        |   |
| APR       | 45.9 | 25.6 | .166** | .337** |   |

$p < .001$

Correlation analysis was run to examine the relationship between pubertal development, bullying and body dysmorphic traits among adolescence. The results revealed a strong, statistically significant positive correlation between body dysmorphic traits and pubertal development, as well as between body dysmorphic traits and bullying ( $p < .01$ ) [Table 2].

**Table 3: Multiple Regression Analysis**

| Variables        | B     | SE   | $\beta$ | t    | P    |
|------------------|-------|------|---------|------|------|
| Constant         | 12.08 | 1.39 |         |      |      |
| Pubertal Changes | 0.58  | 0.11 | 0.32    | 5.22 | .000 |
| Bullying         | 0.04  | 0.02 | 0.11    | 1.82 | .069 |
| R-square         | 0.131 |      |         |      |      |

$F(2, 261) = 20.89$ ,  $p < .001$

A multiple regression was conducted to examine whether pubertal changes and bullying predicted body dysmorphic traits among adolescents. The overall regression model was significant,  $F(2, 261) = 20.89$ ,  $p < .001$ , and explained 13.8% of the variance in body dysmorphic traits ( $R^2 = .14$ , Adjusted  $R^2 = .13$ ) [Table 3].

**Table 4: Independent sample  $t$  test**

| Variables | female (n=132) |        | Male (n=132) |       | t    | p    | Cohen's d |
|-----------|----------------|--------|--------------|-------|------|------|-----------|
|           | M              | SD     | M            | SD    |      |      |           |
| BDD       | 27.5           | 14.2   | 24.64        | 12.4  |      |      |           |
|           | 169.00         | 107.49 | 100.2        | 147.4 | 2.66 | .008 | 0.360     |

An independent-samples  $t$ -test was conducted to compare body dysmorphic traits between female and male adolescents. The results showed that females ( $M = 27.50$ ,  $SD = 14.20$ ) scored significantly higher than males ( $M = 24.64$ ,  $SD = 12.40$ ),  $t(262) = 2.66$ ,  $p = .008$ , Cohen's  $d = 0.36$ , indicating a small-to-moderate effect size. This suggests that while the difference is statistically significant, the magnitude of the difference between males and females is not very large [Table 4].

### Discussion:

The present study sought to investigate the relationship of pubertal development and bullying with body dysmorphic traits among adolescents, and to explore whether these variables predicted the extent of dysmorphic concerns. Additionally, potential gender differences in body dysmorphic traits were examined. Overall, the findings supported the hypotheses and contribute to the growing literature on adolescent development, peer victimization, and body image disturbances.

The correlation analyses revealed significant positive associations between pubertal development and bullying with body dysmorphic traits, as well as between bullying and pubertal development. These findings suggest that adolescents who experience greater pubertal changes, as well as those who are more frequently exposed to bullying, are more likely to report elevated body dysmorphic concerns. This is consistent with developmental and clinical theories proposing that puberty is a sensitive period during which heightened self-consciousness and bodily changes may trigger dissatisfaction with appearance (Mendle, 2014). Likewise, bullying particularly appearance-related victimization has been consistently linked to negative self-evaluations and body image disturbance (Puhl & Luedicke, 2012).

The multiple regression analysis showed that, together, pubertal development and bullying explained approximately 14% of the variance in body dysmorphic traits. Importantly, while the model was statistically significant, the amount of variance explained was modest. Within the model, pubertal development emerged as a stronger predictor of BDD traits than bullying, indicating that the biological and psychological challenges of puberty may play a particularly salient role in shaping body-related concerns (Murray et al., 2017). Although bullying was positively associated with BDD traits in the bivariate analyses, its unique contribution to the regression model was weaker, which may reflect overlap between the effects of bullying and developmental changes. This finding is consistent with research suggesting that while bullying is a significant stressor, its

impact on body image is often mediated by other developmental processes (Klomek et al., 2010).

Independent-samples t-test indicated that female teens indicated significantly more body dysmorphic characteristics than males. While the effect size was small-to-moderate, the result is congruent with past research indicating adolescent girls report greater body dissatisfaction and appearance concerns compared to boys (Grogan, 2016). Cultural and societal demands promoting thinness and beauty standards for women might be responsible for these differences, while boys might be more concerned with muscularity-based standards not adequately measured by this current measure of body dysmorphic features (Mitchison & Mond, 2015).

This current study highlights the significance of both pubertal development and bullying as correlates of body dysmorphic features in adolescents. Although pubertal changes were a more robust predictor, both played significant roles in explaining adolescents' susceptibility to dysmorphic worries. Additionally, female adolescents scored higher on body dysmorphic features compared to their male peers, although the effect size was small. In aggregate, these results identify the interactions among biological maturation, social experiences, and gender as predictors of body image challenges, and suggest directions for focused prevention and intervention activities.

### Conclusion:

The present study underscores the importance of both pubertal development and bullying as correlates of body dysmorphic traits in adolescence. While pubertal changes emerged as a stronger predictor, both factors contributed to explaining adolescents' vulnerability to dysmorphic concerns. Moreover, female adolescents reported higher levels of body dysmorphic traits than their male counterparts, though the effect was modest. Together, these findings highlight the interplay of biological maturation, social experiences, and gender in shaping body image difficulties, and point toward avenues for targeted prevention and intervention efforts.



## References:

- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). <https://doi.org/10.1176/appi.books.9780890425596>
- Blakemore, S. J. (2012). Imaging brain development: The adolescent brain. *NeuroImage*, 61(2), 397–406. <https://doi.org/10.1016/j.neuroimage.2011.11.080>
- Enander, J., Ivanov, V. Z., Mataix-Cols, D., Kuja-Halkola, R., Ljótsson, B., Lundström, S., Pérez-Vigil, A., Monzani, B., Lichtenstein, P., & Rück, C. (2018). Prevalence and heritability of body dysmorphic symptoms in adolescents and young adults: A population-based nationwide twin study. *Psychological Medicine*, 48(16), Article 2740-2747. <https://doi.org/10.1017/S0033291718000375>
- Grogan, S. (2016). *Body image: Understanding body dissatisfaction in men, women and children* (3<sup>rd</sup> ed.). Routledge. <https://doi.org/10.4324/9781315681528>
- Jack, S. J., & Egan, S. J. (2018). The role of bullying and negative body image in the development of body dysmorphic disorder. *BodyImage*, 26, 47–54. <https://www.sciencedirect.com/science/article/abs/pii/S1740144517304874?via%3Dihub>
- Klomek, A. B., Sourander, A., & Gould, M. (2010). The association of suicide and bullying in childhood to young adulthood: A review of cross-sectional and longitudinal research findings. *Canadian Journal of Psychiatry*, 55(5), 282–288. <https://doi.org/10.1177/070674371005500503>
- Krebs, G., et al. (2024). Epidemiology of body dysmorphic disorder and appearance preoccupation in youth: Prevalence, comorbidity and psychosocial impairment. *Journal of the American Academy of Child & Adolescent Psychiatry*. <https://doi.org/10.1016/j.jaac.2024.01.017>
- Marengo, D., Settanni, M., Longobardi, C., Fabris, M. A., & Scabini, E. (2018). The association between appearance-related teasing and body image in adolescents: A moderated mediation model. *Journal of Adolescence*, 68, 88–96.
- McGrath, L. R., Oey, L., McDonald, S., Berle, D., & Wootton, B. M. (2023). Prevalence of body dysmorphic disorder: A systematic review and meta-analysis. *Body Image*, 46, 202–211. <https://doi.org/10.1016/j.bodyim.2023.06.008>
- Mendle, J. (2014). Beyond pubertal timing: New directions for studying individual differences in development. *Current Directions in Psychological Science*, 23(3), 215–219. <https://doi.org/10.1177/0963721414530144>
- Mitchison, D., & Mond, J. (2015). Epidemiology of eating disorders, eating disordered behaviour, and body image disturbance in males: A narrative review. *Journal of Eating Disorders*, 3(20), 1–9. <https://doi.org/10.1186/s40337-015-0058-y>
- Murray, S. B., Nagata, J. M., Griffiths, S., Calzo, J. P., Brown, T. A., Mitchison, D., ... & Mond, J. M. (2017). The enigma of male eating disorders: A critical review and synthesis. *Clinical Psychology Review*, 57, 1–11. <https://doi.org/10.1016/j.cpr.2017.08.001>

- Nawaz, B., Fatima, B., Yousuf, T., Muryum, H., Jamal, N., Ahmed, K., & Maheshwary, N. (2024). Body dysmorphic disorder, social anxiety and the role of rejection sensitivity in Karachi's adolescents. *Journal of Pakistan Association of Dermatologists*, 34(1), 134-140.  
<https://www.jpap.com.pk/index.php/jpad/article/view/2444>
- Padrutt, E. R., Harper, J., Schaefer, J. D., Nelson, K. M., McGue, M., Iacono, W. G., & Wilson, S. (2023). Pubertal timing and adolescent outcomes: Investigating explanations for associations with a genetically informed design. *Journal of Child Psychology and Psychiatry*, 64(8), 1232-1241.  
<https://doi.org/10.1111/jcpp.13808>
- Parada, R. H., Bălan, R., Dobrea, A., Balazsi, R., & Predescu, E. (2022). Measurement invariance of the APRI-BT across gender, age, and clinical status. *Journal of School Psychology*.
- Petersen, A.C., Crockett, L., Richards, M. et al. A self-report measure of pubertal status: Reliability, validity, and initial norms. *J Youth Adolescence* 17, 117-133 (1988).  
<https://doi.org/10.1007/BF01537962>
- Phillips, K. A., Hollander, E., Rasmussen, S. A., Aronowitz, B. R., DeCaria, C., & Goodman, W. K. (1997). A severity rating scale for body dysmorphic disorder: Development, reliability, and validity of a modified version of the Yale-Brown Obsessive-Compulsive Scale. *Psychopharmacology Bulletin*, 33(1), 17-22.
- Puhl, R. M., & Luedicke, J. (2012). Weight-based victimization among adolescents in the school setting: Emotional reactions and coping behaviors. *Journal of Youth and Adolescence*, 41(1), 27-40.  
<https://doi.org/10.1007/s10964-011-9713-z>
- Shahid, M., Rauf, U., Sarwar, U., & Asif, S. (2022). Impact of bullying behavior on mental health and quality of life among pre-adolescents and adolescents in Sialkot, Pakistan. *Pakistan Journal of Humanities and Social Sciences*, 10(1), 324-331.  
<https://doi.org/10.52131/pjhss.2022.10.01.0200>
- Taqi, A. M., Shaikh, M., Gowani, S. A., Shahid, F., Khan, A., Tayyeb, S. M., ... Naqvi, H. A. (2008). Body Dysmorphic Disorder: Gender differences and prevalence in a Pakistani medical student population. *BMC Psychiatry*, 8, Article 20.  
<https://doi.org/10.1186/1471-244X-8-20>
- Weingarden, H., Renshaw, K. D., & Wilhelm, S. (2017). A meta-analytic review of the relationship between childhood maltreatment and body dysmorphic symptoms. *Clinical Psychology Review*, 57, 26-35. Doi: 10.1016/j.bodyim.2017.02.0