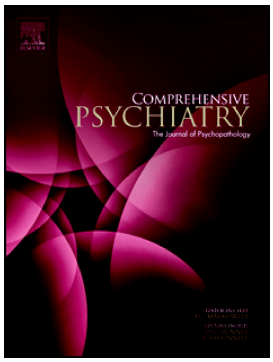

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Prevalence of Bullying in a Pediatric Sample of Body Dysmorphic Disorder

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Abstract

Little is known about etiological factors in Body dysmorphic disorder (BDD). Cognitive behavioral and diathesis-stress models have implicated teasing and bullying as significant early environmental stressful triggers. Due to these implications, this study aimed to assess the emergence of BDD in children during early development, and to see if bullying experiences played a role in its development. A total of 219 children ages 7 to 10 were screened for psychopathology. Children were separated into four groups including a BDD group, an OCD group, a clinical control group (consisting of depressive disorders, attention deficit hyperactivity disorder, oppositional defiant disorder, and anxiety disorders not otherwise specified), and a non-clinical control group. Children were given questionnaires to evaluate their bullying and victimization experiences. It was hypothesized that children with BDD would experience more instances of victimization than children with OCD, clinical controls, and non-clinical controls. Contrary to the hypothesis, results indicated that children with BDD symptoms were significantly more likely to be perpetrators of bullying than the other groups [$F(3, 27.082) = 17.892$, $p < .001$]. In addition to scoring high on the bullying questionnaires, children with BDD scored high on victim questionnaires as well, suggesting a link between these two peer interpersonal conflicts. The results of this study suggest that bullying behavior might be an unknown characteristic in young children with emerging BDD pathology.

Keywords: Body Dysmorphic Disorder, Bullying, Obsessive Compulsive Disorder, Obsessive Compulsive Related Disorders

1. Introduction

Body dysmorphic disorder (BDD) is a multifaceted condition that continues to be under-recognized by mental health professionals. The DSM-5 categorizes BDD as an Obsessive Compulsive Related Disorder consisting of a preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others [1]. Individuals with BDD engage in repetitive behaviors aimed at camouflaging or improving the perceived defect, such as excessive grooming and use of cosmetic products [1]. Mirror checking or avoidance or both is present in almost all cases. Mental compulsions, often in the form of comparing one's appearance to others, can cause significant distress [1]. The mean age of onset is 16 to 17 years, but the most common age of onset is between 12 and 13 years [1]. BDD is associated with high rates of functional and psychosocial impairment. Lifetime suicidal ideation is evident in almost all individuals with BDD (approximately 80%) [3]. Attempts are alarmingly high, with rates consistently 24% to 28% [2, 3, 4]. Rates of death by suicide in BDD are 45 times higher than in the general population [3]. Many factors may account for these high rates, including comorbid depression and level of functioning [5, 6]. Psychosocial impairment may be impacted by the high degree of avoidance. Because of the burden attributed to the disorder, etiological factors need to be researched further.

A diathesis stress model has been supported by promising research on biologically predisposing factors and early environmental influences. Neuroimaging research suggests that BDD individuals have deficiencies in visual processing, evidenced by fMRI studies demonstrating detailed vs. holistic visual processing of others' faces, abnormal holistic processing of objects, and abnormalities in frontostriatal activity while

viewing their own face [7, 8, 9]. Genetic studies suggest that 8% of BDD individuals have a family member with BDD [10] and a small study has found an association between two different genes and BDD [11].

Research has supported the existence of early traumatic experiences in BDD [12, 13]. Studies have found that having a history of childhood abuse impacts BDD symptomatology and is related to having a history of attempted suicide [12, 13]. A study conducted by Neziroglu, Khemlani-Patel, and Yaryura-Tobias (2006) examined the rates of sexual, physical, and emotional abuse in 50 patients with BDD and 50 patients with OCD [12]. Results indicated that individuals with BDD had experienced significantly more abuse than individuals with OCD and those in the general population. The most common form of abuse was emotional, followed by sexual and then physical [12]. This study was substantiated by a further study conducted by Didie and colleagues (2006), who found that 78% of BDD individuals had experienced abuse and/or neglect, which was moderately associated with symptom severity [13].

In addition to the negative impact of abuse on BDD development, studies have implicated the influence of teasing and bullying. BDD individuals report being teased about appearance and competency more often than healthy controls [14]. In fact, BDD participants remember appearance related teasing as more vivid and traumatic than controls [15]. For those that attribute their BDD to a specific triggering event, teasing and bullying appears to be the most common culprit [16]. Specifically, appearance related bullying incidents of an interpersonal nature during grade and middle school were reported. Corroborating other research, those with bullying histories had poorer

psychosocial outcomes than BDD individuals with other triggering events, suggesting that bullying specifically is an important variable to investigate further [16].

Individuals with BDD often describe distressing appearance images when worried or anxious [17]. Although normative in non-clinical populations, those with BDD experience these images as recurrent, more detailed, more negative, and from an observer perspective than controls [17]. Interestingly, out of the 18 BDD individuals that experienced spontaneous images, 88% reported specific stressful memories associated with these images, commonly teasing/bullying as well as self-consciousness with bodily changes in adolescence. This was in comparison to only 13% of the control sample, lending further support to the idea that early negative life experiences may contribute not only to the etiology of BDD, but to the symptomatology as well [17].

As promising as this abuse and bullying history suggests, unfortunately some of the research is limiting due to the reliance on retrospective self-report memories from adults with BDD. One recent study, however, investigated teasing and possible BDD in children between the ages of 10-13 [18]. Results indicate that the perception of appearance related teasing, especially by cross gender peers, as well as social anxiety was associated with BDD. Appearance related rejection sensitivity was thought to partially mediate the development of BDD [18], suggesting that the tendency to anxiously expect and readily perceive appearance-based rejection may impact BDD development. Another similar earlier study found that adolescents who have been victims of teasing have a tendency to anxiously expect more teasing and importantly, more readily perceive appearance related social rejection [19]. Understandably, being a victim of bullying influences the development of cognitive bias towards interpreting future social

interactions as rejection [19]. The cognitive bias in BDD may be a result of real trauma, which leads to hypersensitivity and vigilance to further negative experiences.

Cognitive and interpretive biases for social interactions have been supported by research findings. Individuals with BDD may have deficits in emotion recognition. A study in 2004 conducted by Buhlmann and colleagues that was aimed at examining such deficits demonstrated that individuals with BDD tended to misidentify facial expressions as angry [20]. A follow-up study by Buhlmann and colleagues presented individuals with self-referent versus other referent scenarios along with facial expressions. As predicted, BDD was associated with misinterpreting self-referent expressions as angry and contemptuous compared to controls [21]. One early study found that BDD individuals tend to interpret ambiguous body related and social scenarios in a negative way compared to OCD and healthy controls [22].

Of note, one recent study investigated self and peer reports of teasing and victimization in a childhood sample. [23]. Results indicated that greater peer victimization posed a risk for the escalation of symptoms congruent with BDD in the following year. Because both self and peers were the informants of victimization, this study corroborates that BDD individuals do experience elevated levels of social teasing and rejection. Furthermore, those children with BDD symptoms reported more negative perceptions of peer acceptance over time than their non-BDD counterparts. This supports a possible bi-directional social stress model, because it suggest that as a result of early teasing, individuals with BDD may distort objectively innocuous social situations, thereby self-perpetuating social difficulties over time [23].

Cognitive behavioral models of BDD have attempted to explain both the etiological and maintaining factors in BDD [24, 25, 26, 27, 28, 29]. The model suggests that occasional critical and negative appearance related thoughts are universal. Someone with BDD, on the other hand, reacts in a biased manner to these thoughts; selectively attending to appearance and making unhealthy interpretations about their appearance. These biased attention processes are influenced by life experiences (teasing, bullying, family values, physical changes in adolescence), along with personality traits, and neurobiological factors. These negative biases result in distressing emotional experiences, which in turn results in negative behavioral responses, like mirror checking and avoidance. The compulsive behaviors maintain BDD beliefs via negative reinforcement [24, 25, 26, 27, 28, 29].

The existing literature investigating environmental influences in BDD etiology suggest an early teasing and bullying history. Much of the studies have consisted of retrospective data via self-report recollections by adults with BDD [12, 13]. Given the research supporting memory deficits, information processing biases, rejection sensitivity in BDD, retrospective data should be cautiously interpreted [7, 8, 9]. This study aimed to investigate the presence of bullying and victimization and BDD prevalence in a population of elementary school children to better identify the possible connections of bullying as the BDD symptomology. Because BDD is considered an OCD spectrum disorder with overlap in symptomology and treatment response, children with BDD and OCD were given their own separate groups for comparative analyses. It was predicted that children with emerging BDD would be victims of bullying to a higher degree as compared to healthy controls. It was also predicted that those with OCD and other

clinical diagnoses, specifically depressive disorders, attention deficit hyperactivity disorder, oppositional defiant disorder, and anxiety disorders not otherwise specified would be victims of bullying, but significantly less than those with BDD.

2. Method

2.1 Participants

A total of 225 children ages 7-10 (M= 7.95, SD= 1.024) from three regular education private primary schools located in Buenos Aires, Argentina were recruited for this study. Parents were given a written consent form to sign. Out of the 225 children, a total of 219 completed the study. Children who were diagnosed as Autism Spectrum Disorder, Psychotic Disorders, and Eating Disorders according to school personnel were excluded from participation.

2.2. Measures

The Peer Interaction in Primary School Questionnaire: (PIPS) The PIPS is 22-item measure designed to identify direct and indirect forms of bullying and victimization in elementary school children [30]. Items are written at a third grade reading level. Exploratory factor analysis yielded two factors (bullying and victimization), allowing for identification of victims and bullies. Internal consistency is high (Cronbach's alpha=.90). Test-retest reliability based on intraclass correlation coefficients (ICC) Spearman's rho (rho) for bullying (ICC = .84; rho = .76) and victimization (ICC = .88; rho = .87) was high.

The Mini International Neuropsychiatric Interview for Children and Adolescents: The Spanish version is a short structured diagnostic interview for DSM-IV and ICD-10 psychiatric disorders [31]. The scale was designed to accurately diagnose the 30 most

common disorders and subtypes seen in pediatric mental health. The Spanish version has been validated and the sensitivity and specificity of the most common diagnoses were found to be adequate [32]. Participants of this study were administered all 30 modules of the MINI by a trained clinical psychologist.

The Body Dysmorphic Disorder Questionnaire (BDDQ): The BDDQ is a brief self-report measure that uses DSM-IV criteria to screen for BDD [33]. The scale shows high sensitivity (100%) and specificity (89%) in inpatient psychiatric settings, and is frequently used as an effective way to identify BDD in both general and psychiatric populations. The BDDQ identifies clinically significant BDD through assessing the extent that body-related concerns impact an individual's life [33].

2.3 Procedures

The current study was approved by the Institutional Review Board of Catholic University of Buenos Aires, Argentina. Students from all three private elementary schools were sent home with informed consent letters for voluntary participation in a study screening for negative peer interaction and subsequent enrollment in a peer interaction program based on screening results. A trained clinical psychologist (Ph.D.) administered all the study measures during the school day with a parent present in the room. After administering the MINI, the order of the other measures given was randomized to control for testing effects.

3. Results

Analyses were conducted by dividing the clinical population into three groups to investigate bullying prevalence in BDD and OCD versus the other remaining disorders. These other disorders were grouped into one clinical control group, which enabled us to

compare BDD and OCD results to a clinical and non-clinical control. The clinical control group was comprised of depressive disorders, attention deficit hyperactivity disorder, oppositional defiant disorder, and anxiety disorders not otherwise specified.

3.1 Participant Characteristics

A total of 219 children (N = 110 females, N = 109 males) completed the measures. Average age of the sample was 7.95 (+/- 1.02). According to results on the MINI KID, 27.7% of children screened positive for psychiatric conditions (N = 61). Results based on BDDQ self-report scale indicated that 10.5 % (N = 23) of children were experiencing clinically significant BDD symptoms, 4.5% (N = 10) were experiencing OCD symptoms, and the remainder 12.7% (N = 28) fell into the clinical control category (12.7%), comprised of depressive disorders (4.9%), attention deficit hyperactivity disorder (ADHD; 6.2%), oppositional defiant disorder (ODD; 4.9%) and anxiety disorders not otherwise specified (anxiety NOS; 17.3%).

3.2 Bullying and Psychopathology

To analyze the relationship between bullying behavior and psychopathology, the clinical population (N = 61) was compared to the non-clinical population (N = 158) on the bully subscale of the PIPS [30]. An independent samples t-test indicated that children with a psychiatric diagnosis (M = 7.85, SD = 4.919) were significantly more likely to be bullies than those without a diagnosis (M = 4.02, SD = 1.930), [t (217) =-8.301, $p > .01$].

A one-way between subjects' ANOVA was conducted to compare the effects of diagnosis on bullying behaviors. Due to unequal sample sizes, the assumption of homogeneity of variance was not met for this data. Therefore, the Welch's ANOVA was used to obtain the adjusted F ratio (17.892), which was statistically significant, [F (3,

27.082) = 17.892, p <.001]. Post hoc analyses using the Bonferroni test indicated that children with BDD symptoms (M = 10.65, SD = 4.706) engaged in significantly more bullying behaviors than the other three groups. The clinical control group (M = 7.00, SD = 4.329) engaged in more bullying behaviors than both the OCD (M = 3.80, SD = 3.225) and the non-clinical control group (4.02, SD =1.930). Those with OCD and those in the non-clinical control group reported the least amount of bullying behaviors, but did not differ in a meaningful way.

3.3 Victimization and Psychopathology

A one-way between subjects' ANOVA was conducted to analyze the effects of diagnosis on frequency of being victimized. Again, due to the unequal sample sizes, the assumption of homogeneity of variance was not met for this data. Therefore, the Welch's ANOVA was used to obtain the adjusted F ratio (31.424), which was statistically significant, [F (3, 29.041) = 31.424, p < .001]. Post hoc analyses using the Bonferroni test indicated a significant difference between BDD (M = 10.17, SD = 5.087), OCD (M = 15.90, SD = 4.202), and non-clinical controls (M = 6.16, SD = 3.938), but not between BDD and clinical controls (M = 13.21, SD = 5.188). The results of this test suggest that children with OCD experience the most victimization, followed by clinical controls and then BDD; with the latter two groups not differing. Children within the non-clinical control group experience the least amount of victimization.

3.4 Bullying and Victimization in Adjusted Non-Clinical Sample

Because the Welch's test does not guarantee homogeneity of variance, 25 non-clinical controls were randomly selected to compute another analysis to control for group differences. The new sample was composed of 86 children with a mean age of 8.13 +/-

1.060 (males= 52, females= 34). A one-way between subjects' ANOVA was conducted to compare the effects of diagnosis on bullying behaviors with the new non-clinical control sample (non-clinical control, n=25; overall, n=86). There was a significant effect of diagnosis on bullying behaviors at the $p < .01$ level for the four diagnostic conditions; [$F (3, 82) = 17.187$, $p < .001$]. Post hoc comparisons using the Tukey HSD test indicated that the mean for the BDD group ($M = 10.65$, $SD = 4.706$) was significantly greater than the remainder of the three groups ($p < .05$). The clinical control group ($M = 7.00$, $SD = 4.329$) had the second highest mean, and significantly differed from both the OCD group ($M = 3.80$, $SD = 3.225$) and the non-clinical control group ($M = 3.28$, $SD = 1.860$). There were no noteworthy differences between the OCD and non-clinical control conditions. The results of this analysis suggest that children with BDD tend to engage in the most bullying behaviors followed by those in the clinical control group. Children with OCD and non-clinical controls engage in the least amount of bullying behaviors.

An additional one-way between subjects' ANOVA with the new sample size ($N = 86$) was conducted to analyze the effects of diagnosis on frequency of being victimized. There was a significant effect of diagnosis on the frequency of reported victimization experiences at the $p < .01$ level for the four diagnostic conditions; [$F (3, 82) = 15.944$, $p < .001$. Post hoc analyses using the Tukey HSD test indicated that children in the non-clinical control group ($M = 5.88$, $SD = 3.632$) reported significantly less victimization experiences than the other three groups ($p < .05$). Children with OCD ($M = 15.90$, $SD = 4.202$) endorsed the most victimization experiences. The BDD group ($M = 10.17$, $SD = 5.087$) and the clinical control group ($M = 13.21$, $SD = 5.188$) did not meaningfully differ. The results of this analysis indicate that children in the non-clinical group

experience less victimization than those with BDD, OCD, and clinical controls, while those with OCD experience the most victimization. Individuals with BDD and clinical controls report similar victimization experiences.

3.5 Bullying versus Victimization in Sample

Paired samples t-test were conducted on the subscales of the PIPS scale to investigate if participants were bullies, victims or experienced both forms of peer negative interactions.

3.5.1 Body Dysmorphic Disorder

A paired-samples t-test was conducted to compare the bullying means and victimization means of those with BDD (N = 23). There was not a significant difference in the scores for bullying (M = 10.65, SD = 4.706) and victimization (M = 10.17, SD = 5.087); t(22) = .242, p = .81. This indicates that the sample of individuals with BDD were equally as likely to be bullies and victims.

3.5.2 Obsessive Compulsive Disorder

A paired-samples t-test was used to analyze the bullying and victimization means of those with OCD (N = 10). There was a significant difference in the scores for bullying (M = 3.80, SD = 3.225) and victimization (M = 15.90, SD = 4.202); t(9) = 5.677, p <.001. This indicates that children with OCD were significantly more likely to be victims than bullies.

3.5.3 Clinical Controls

A paired-samples t-test was used to compare the bullying and victimization scores of those in the clinical control group (N = 28). There was a significant difference in the scores for bullying (M = 7.00, SD = 4.329) and victimization (M = 13.21, SD = 5.188);

$t(27) = 3.710$, $p < .001$. This indicates that the children screening positive for psychological conditions were significantly more likely to be victims than bullies.

3.5.4 Non-Clinical Controls

A paired-samples t-test was used to analyze the bullying and victimization means of those in the non-clinical control group (N = 158). There was a significant difference in the scores for bullying (M = 4.02, SD = 1.930) and victimization (M = 6.16, SD = 3.938); $t(157) = 7.544$, $p < .001$. This indicates that the non-clinical control group were significantly more likely to be victims than bullies. Overall scores on the PIPS were low, suggesting that children who screened negative for clinical disorders experience very few negative peer interactions. They do not appear to be victims or bullies.

4. Discussion

Bullying has been implicated as an etiologically relevant factor in BDD, with previous research suggesting these early incidences impact not just etiology but symptomology as well. This study gathered data on bullying experiences in children during a developmental period of emerging psychopathology, thereby controlling for the confounding influences of interpretive and memory bias in adulthood. Outcome prevalence statistics on BDD in children this young is also of value, as there is little data on children and adolescents with BDD.

The study found that approximately 10% of the sample had clinically significant BDD symptoms. Prevalence rates for BDD are typically 1.7% to 2.4% of the population, so a rate of 10% in these children was unexpected. Argentina society has a strong emphasis on appearance with cosmetic surgeries openly discussed in social situations. Appearance focused preoccupation may develop at a younger age resulting from this

societal reinforcement. Given the lack of data on childhood BDD, it also possible that negative appearance based self-perception develops younger than believed. It may remit during late childhood when other values, such as academic and athletic ability are emphasized, and then re-emerge during adolescence.

The results on bullying were surprising and somewhat contrary to the proposed hypothesis. Although experiencing more victimization than the non-clinical sample, children with BDD did not experience more or less victimization than any other clinical group, with the exception of the OCD group. In fact, children with OCD experienced significantly more victimization than any of the other groups. Interestingly, children demonstrating BDD symptoms were more likely to be perpetrators of bullying behavior compared to other participants. They did, however, score similarly on both the bullying and victim subscales of the PIPS, suggesting a possible unique pattern in BDD. Children with BDD may be both victims as well as aggressors. The OCD and the clinical control group, on the other hand, were significantly more likely to be victims of bullying than perpetrators.

The higher rates of victimization found in children with OCD substantiated previous findings by Borda, Feinstein, Neziroglu, Veccia, and Perez-Rivera (2013). They also found that children with OCD were not only more victimized as compared to non-clinical controls, and they also demonstrated more compromised social functioning, and more interpersonal difficulties. The authors concluded that victimization led to social isolation in OCD and that clinicians and school personnel should be alert to OCD youth's risk of being victimized, similarly to children demonstrating other adjustment and clinical issues.

Bullying is a complex phenomenon influenced by individual characteristics and a multitude of socio ecological factors. Family dynamics, parenting styles, school environment, peer responses, and community characteristics are just some of the significant socio ecological influences [35]. Investigation of personality factors indicates that both perpetrators and victims display psychological vulnerabilities and long-term psychopathology [35]. Perpetrators of bullying have been shown to be victims of abuse in the home environment and unfortunately exposed to other forms of violence [35]. Bullies typically display aggressive behavior, impulsivity, callousness, oppositional defiant and conduct disorders, all of which are congruent with externalizing behavioral problems [35]. Interestingly, one study to the contrary found that children with depression, anxiety, and attention deficit hyperactivity disorder had significant bullying behavior [36], suggesting that internalizing symptoms may also characteristic of bullies. In fact, those categorized as both bullies and victims exhibit the highest level of adjustment problems [37]. Bullying behavior may also be correlated with perceived provocation from peers [38] thus may at times be an emotional reaction to feeling threatened or as a retaliation to being a victim themselves [39].

Given the complex nature of bullying, the results of this study may offer a more multidimensional perspective on BDD. Perhaps bullying in BDD is correlated with being a victim of bullying by peers or siblings, as supported by almost identical mean scores on the victim and bully subscale of the PIPS. It is also possible that emerging self-consciousness and distress over appearance at such a young age results in externalizing behaviors versus the expected social avoidance and depression more typically associated with BDD in the later adolescent years. Anger and hostility has been associated with

BDD and other obsessive compulsive related disorders, especially when rituals are interrupted or disrupted. It may be that parental responses to early BDD symptoms are disciplinary versus supportive since the disorder is unlikely to be recognized by parents. The lack of understanding by authority figures and peers may contribute to anger and frustration in children who cannot express the causes of their distress.

Although this study had some strengths, there were some limitations. One limitation was its cross-sectional nature, because it did not allow assessing directionality and temporality in the associations between peer victimization, bullying behaviors, and BDD. Results are based on a relatively large sample size and valid measures of bullying, psychopathology, and BDD. The study could have been strengthened with diagnostic confirmation via parental interview may have highlighted additional characteristics of BDD at a young age. Furthermore, screening of other developmental disorders like Tourette Syndrome may have provided more information on the sample. Psychosocial interviews to support the experience of bullying could have helped support the notion that bullying and victimization are uniquely present in BDD versus other clinical conditions, including OCD.

This study provides interesting perspective on BDD pathology. Future studies on early BDD pathology and characteristics may help identify at risk youth. Given the seriousness and chronicity of BDD, early identification may lead to more promising outcomes. Interventions involving the development of positive peer relationships for individuals with BDD may moderate the later social isolation and avoidance. Specifically, modules for social skills training targeting accurate identification of emotional cues, perception of threat or provocation in peer to peer relations could provide

a reduction in bullying behaviors in response to perceived rejection and threat. In addition, children with OCD and other psychopathology were victims of bullying and may require additional academic supports and interventions to reduce the long term negative impact of bullying.

5. Conclusion

Environmental etiological factors, including teasing and bullying, have been implicated in BDD development. This study found that bullying behavior might be an unknown characteristic in children with emerging BDD pathology. This may be a result of victimization experiences leading to the pattern of bully-victim. BDD may also be evident in a higher percentage of children than initially believed.

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Table 1. Mean scores and Paired Sample T-tests on the Peer Interaction in Primary School Questionnaire (PIPS) (N= 219).

Group	Bullying Subscale	Victimization Subscale	P
BDD	10.65 ± 4.71	10.17 ± 5.10	.81
OCD	3.80 ± 3.23	15.90 ± 4.20	.000
Clinical Controls	7.00 ± 4.33	13.21 ± 5.19	.001
Nonclinical Controls	4.02 ± 1.93	6.16 ± 3.94	.000

Highlights

1. Children with BDD symptoms were significantly more likely to be perpetrators of bullying than clinical controls children with OCD, as well as non-clinical controls.
2. Children with BDD scored high on both bullying and victim experiences, suggesting a link between these two peer interpersonal conflicts.
3. Children with OCD as well as clinical controls, on the other hand, were victims of bullying.