

Review Article

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The management of body dysmorphic disorder in adolescents: A systematic literature review

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Abstract: Body dysmorphic disorder (BDD) is a pathological body dissatisfaction characterised by delusional beliefs of a flaw in appearance paired with obsessive-compulsive rituals. This disorder has a high prevalence in adolescence. This study examines the current state of treatment for BDD in adolescents in the UK to establish a baseline of current treatment, and to identify specific areas for further research. A systematic literature review of two databases was carried out and resultant papers were organised using an amended version of the current UK management standards. Six papers met the eligibility criteria and cognitive behavioural therapy was reported as the most effective current treatment. In drawing together the key findings, three areas for further research were highlighted that are of relevance to a broad range of clinicians working in BDD management in adolescence. These included inquiry into mental health professionals' perspectives, a review of the rate of remission rates, and research into the extent to which schools can influence adolescents' ideas about body image. The significance of BDD is not reflected in the current literature base. Education of professionals and the wider community is warranted, as is the drive for improved awareness and an increase in the availability of treatment.

Keywords: body dysmorphic disorder, adolescence, cognitive behavioural therapy, management, treatment

1 Introduction

Body dysmorphic disorder (BDD) is a chronic psychiatric condition, where patients are abnormally preoccupied with perceived

defects in parts of their bodies. BDD results from the complex relationship between biological predisposing factors and environmental stressors [1,2]. Over the last two decades, there has been a sharp increase in the prevalence of BDD, particularly in adolescence [3]. It has been hypothesised that the rising prevalence of BDD among adolescents is due to the increased use of social media, which precipitates comparison and body dissatisfaction [4,5]. For example, Facebook and Instagram are strongly associated with body image dissatisfaction, a precursor of BDD [6]. Psycho-social factors underpin BDD and these factors are reinforced through sociocultural beauty tropes [7], such as subconscious tendencies to categorise people as “attractive” or “unattractive” [8], inherent biases on feature symmetry and skin homogeneity [9], and links between feeling attractive and self-esteem [10]. Due to these factors, a degree of body dissatisfaction exists within society, leading to possible negative evaluations of a person's own body [11].

Unsurprisingly, it is often the same features that make an “attractive” face that become the subject of discontent, with skin homogeneity being one of the most significant areas of concern [12]. In extreme cases, body dissatisfaction can become pathological, with a perceived flaw in appearance consuming a person's life, leading to social withdrawal and even suicidality. Patients with BDD show a preference for symmetry and partake in repetitive compulsions [13]; however, there is a lack of compelling evidence to demonstrate the correlation between obsessive-compulsive disorder (OCD) and BDD from a neurobiological standpoint [14]. Similarly, the appearance-related concerns in patients with BDD have been described as ego-syntonic in nature, suggesting that they are less likely to be intrusive thoughts as seen in OCD, and more closely linked to overvalued ideas as seen in autism spectrum disorder (ASD) [13].

The Diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5), outlines the diagnostic criteria for BDD [15]. These criteria, which are outlined below, are commonly used to aid the clinical diagnosis of BDD.

A. Preoccupation with one or more perceived defects or flaws in physical appearance that are not observable or appear slight to others.

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- B. Repetitive behaviours such as mirror checking, excessive grooming, skin picking, camouflaging, and reassurance seeking.
- C. Clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- D. Preoccupation is not better explained by concerns with body fat or weight in an individual whose symptoms meet diagnostic criteria for an eating disorder.

There are issues within the hierarchical organisation of the DSM-5, as it states that a diagnosis of BDD should not be made if the presentation can be accounted for by another disorder, such as an eating disorder [16]. This highlights the link between BDD and eating disorders, as well as the somewhat diminished position of BDD. Additionally, the DSM-5 emphasises the importance of identifying the patient's level of insight into their condition, noting that over a third of patients have delusional BDD beliefs [15]. The presence of delusional beliefs differentiates BDD from other body dissatisfaction disorders, where the concern is often proportionate to reality [2,11]. Due to insufficient insight, patients with BDD rarely present to psychiatric services.

Although mental health expertise is required to determine the severity of BDD, simple screening tools, such as the BDD Questionnaire, are easily administered and interpreted to identify and diagnose BDD [17]. In the general adult population, the prevalence of BDD is 1.9%, which is higher than the prevalence of other body image disorders with greater public awareness, such as anorexia nervosa (0.3%) and bulimia nervosa (1%) [18]. It is suspected that the true prevalence of BDD is much higher than current estimates due to embarrassment and shame over the perceived “flaw,” which drives secrecy and fear of judgment [19]. BDD disproportionately affects adolescents, with over two-thirds of patients being diagnosed before they turn eighteen [19]. One-fifth of adolescents with BDD reported dropping out of school, severely impacting their learning, social life, and future career [20]. The diagnosis of BDD in adolescence is associated with high comorbidity with other psychiatric conditions, such as depression, anxiety, and OCD, and therefore, a large proportion of adolescents with BDD are hospitalised [20].

Treatment of BDD is challenging and spans cognitive behaviour therapy (CBT), pharmacology, and dermatology [21,22]. The National Institute for Health and Care Excellence (NICE) guidelines recommend offering CBT as the first-line treatment for adolescents with BDD, with selective serotonin reuptake inhibitors (SSRIs) used as second-line treatment [23]. Other management strategies have emerged with the development of psychodermatology [24], a relatively new field that addresses the bio-psycho-social interactions

between skin and mind. Although the availability of these services is increasing, it is still insufficient to meet patient demand, particularly for adolescent patients [25]. Further treatment may be informed by the suggested alignment of BDD and ASD [22], which proposes that therapies such as inference-based therapy and motivational interviewing could help increase engagement and maintain treatment adherence [26].

Greater insight is needed into the management of BDD in adolescence, as there are notable gaps in treatment evidence [27]. Therefore, a systematic literature review was conducted to examine the current state of treatment for BDD in adolescents in the UK, to establish a baseline of current treatment, and to identify specific areas for further research. The UK was selected as the context, as this is where the researchers are based. This enquiry is structured around the PICO model as outlined in the *Cochrane Handbook for Systematic Reviews of Interventions* [28]. PICO stands for: Patient or problem; Intervention; Comparison, and Outcome(s) and the application of this model is shown in Table 1.

2 Materials and methods

This systematic review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. The PRISMA statement consists of a checklist that acts as guidance on how to conduct, authorise, or report such a review. Following this resource ensures that a minimum standard of quality is met, facilitating repeatability, review updates, and contributing to the medical educational knowledge [29].

2.1 Eligibility criteria

Inclusion and exclusion criteria were decided based on a variety of factors. The language was restricted to English,

Table 1: PICO framing

PICO domains	Areas of enquiry
Patient or problem	The management of BDD in adolescents
Intervention	The treatment options available in the UK
Comparison	Treatment options as outlined in literature in relation to UK BDD guidelines
Outcomes	Effective current treatment options and areas for further research

as this was the researchers’ primary language and due to a lack of access of reliable translating software. The study design was also restricted to peer reviewed journal articles to maximise the reliability of the subsequent information. The content of the articles was restricted to those that dealt specifically with BDD, as opposed to the wider category of OCD or obsessive-compulsive and related disorders (OCRD). Each disorder within OCD or OCRD has unique pathophysiology, triggers and treatment, despite the overlapping symptomology of obsessions and compulsions; however, for clarity of purpose, the screening worked to ensure that sources were clearly focussed on BDD. Similarly, while aspects of eating disorders overlap with BDD, papers were excluded if they only focussed on eating disorders, without reference to BDD. This approach allowed for investigation of overlaps and specificity.

Articles were included where the focus was on the treatment, established or novel, of individuals aged between 10 and 19, using the World Health Organisation’s definition of adolescence [30]. Papers reporting on prevalence, pathophysiology, or risk factors were excluded as they did not meet the scope of the study. The researchers were based in the UK and NICE is the body that provides guidelines for clinicians in the UK, so only UK-based articles were included to maximise relevance. The NICE guidelines for Body Dysmorphia [23] were last updated in November 2005, which is used as the starting date for this review. The search was conducted in August 2024, so only papers published between November 2005 and August 2024 have been included. A summary of inclusion and exclusion criteria is displayed in Table 2, which outlines the eligibility criteria.

2.2 Search strategy

In accordance with guidance from Cochrane [28] and the PRISMA statement [29], at least two databases should be searched during systematic reviews. The two databases

searched as part of this research were PubMed and PsychInfo (Table 3). These databases were selected due to their alignment with the area of enquiry. Other databases were excluded as they were too generic (JSTOR, Web of Science), underpowered (DOAJ, Embase), or niche (Statista, Box of Broadcasts). PubMed was selected as it is the largest and widest source of medical journal articles, whereas PsychInfo was selected as this database is more specific to psychodermatology, the specialty of interest related to this topic.

This systematic review involved a Boolean search using the following keywords formed of derivatives of “Management,” “Body Dysmorphic Disorder,” and “Adolescence.” Furthermore, these were used in combination with a series of Boolean “AND/OR” operators and asterisk wildcards which are summarised in Table 4.

2.3 Screening procedure

The citations from the search engines of each electronic database were downloaded and imported into the EndNote 20.4. In total, 7,995 articles were identified. EndNote highlighted 7,270 duplicate articles – all which were removed. All remaining articles were then manually screened by author, year, and title, and further duplicates were removed. The abstracts of the identified articles were then manually screened for relevance. After this process all remaining articles were examined in relation to the eligibility criteria, resulting in the final selection of work.

2.4 Data collection and extraction

Data collection and extraction from each article was conducted by one reviewer and confirmed by a second. Each

Table 2: Eligibility criteria

Inclusion	Exclusion
Language is English	Language is not in English
Peer reviewed journal articles	Not peer reviewed journal articles – e.g. books, conference papers
BDD specifically	Not solely focussed on OCD, OCRD, eating disorders, or body image dissatisfaction
Treatment specific	Not related to treatment e.g. prevalence, pathophysiology, risk factors
November 2005 to January 2024	Outside of the specified date range
Age range 10–19	Outside of the specified age range
Published in the UK	Not published in the UK

Table 3: Information sources

Database	Provider/interface	Date accessed
PubMed	National Centre for Biotechnology Information, at the U.S. National Library of Medicine, located at the National Institute of Health	01/08/24
PsychINFO	American Psychological Association	08/08/24

Table 4: Search synonyms

Management	BDD	Adolescents
Manag*	BDD	Adolescen*
Therapy*	Dysmorphophobia	Teen*
Treat*	Body Dysmorphia	Youth
Assess*	Body Dysmorph*	
Intervention		

record was assessed rigorously following the eligibility criteria (Table 2).

The data outcomes for each research article are as follows:

1. Characteristics of all included studies: title, author, date published, study design, and primary outcome measure.
2. Characteristics of participants included in study: number of participants, demographics, and recruitment process.
3. Key findings and conclusions derived from the results.

2.5 Quality assessment

To assess the risk of bias, appraisal of each article was conducted using the Joanna Briggs Institute (JBI) evidence-based critical appraisal tools – due to their universal usage and trustworthiness. After consideration of study design, the appropriate appraisal tool was applied to each article to ensure an

element of standardisation. The JBI tool for randomised control trials has been recently updated to mirror best practice in risk of bias assessment and the case series and case studies tool have been approved as a reliable mechanism of assessment of methodological quality [31,32].

2.6 Data presentation

Current clinical practice in the UK uses the Stepped Care Model to manage BDD [23]. After analysis, a simplified version of the Stepped Care Model was used to frame the findings of this review. Steps 3–6 of the NICE Stepped Care Model were combined as they were variations on treatments. This allowed for data to be discussed under three headings specific to the research focus (Table 5).

2.7 Limitations

This systematic literature review was carried out by two researchers with no funding, leading to limitations related to time and resource constraints. The protocol for this systematic review was not registered, thus increasing the probability of unplanned duplication. However, there was no deviation from the planned protocol and the PRISMA guidelines were adhered to strictly to ensure validity of the method.

Table 5: Simplified NICE stepped care model

NICE stepped care model	Core headings
Step 1: Awareness and recognition	Awareness and recognition of BDD in adolescents
Step 2: Recognition and assessment	Screening and assessment of BDD in adolescents
Step 3: Management and initial treatment of OCD or BDD	Treatment options for BDD in adolescents
Step 4: OCD or BDD with comorbidity or poor response to initial treatment	
Step 5: OCD or BDD with significant comorbidity or more severely impaired functioning and/or treatment resistance, partial response or relapse	
Step 6: OCD or BDD with risk to life, severe self-neglect, or severe distress or disability	

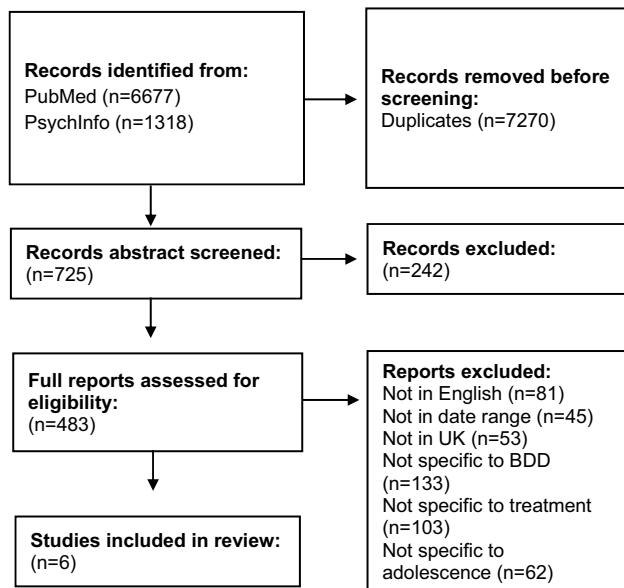


Figure 1: A flow diagram to illustrate the selection process.

3 Results

In adherence to the PRISMA guidelines for systematic literature reviews, the selection process is displayed in Figure 1, which shows the number of papers collected, screened, and

excluded. The systematic search resulted in six articles that met the stated eligibility criteria.

Of the six papers, three investigated the effectiveness of CBT in adolescence, of which one was a case series which inferred the rationale for the other two studies: A randomised control trial and a follow up study. One was a retrospective case note review of access to treatment specific to BDD in adolescence, and two were narrative literature reviews written from the nursing perspective: One analysing the practical challenges of implementing the NICE guidelines and the other synthesising all current treatment approaches [23]. Data extraction was done in adherence to the defined outcomes. In Table 6, the characteristics of selected studies, primary outcome measure, and key findings are displayed.

The characteristics of the participants enrolled in each study are outlined in Table 7. In total, 119 participants were included in this systematic review, taking into consideration that Krebs et al. [36] utilised the same participants as Mataix-Cols [35]. Other than Krebs et al. [34], most of the studies had a female bias, perhaps reflecting the higher prevalence of BDD amongst women. The studies did not specify other demographics of participants such as race, ethnicity, or socioeconomic status, so it is difficult to assess generalisability.

Table 6: Study characteristics

Title	Author (s)	Year	Key finding
Implementing the NICE OCD/BDD guidelines*	Lovelle and Bee [33]	2008	Several barriers to the implementation of the NICE guidelines, including lack of awareness of BDD, low evidence-base, and lack of resources for stepped care system
CBT for adolescents with BDD: A case series*	Krebs et al. [34]	2012	Four out of six participants were treatment responders, with an average of 44% improvement from baseline post treatment and average of 57% improvement from baseline after 3 or 6 months follow up
A pilot randomised controlled trial of CBT for adolescents with BDD*	Mataix-Cols et al. [35]	2015	Treatment group showed significantly greater improvement than the control group, both at post treatment and 2 months follow up. Also, improvement of insight, reduced depression, and improvement in quality of life
Long-term outcomes of CBT for adolescent BDD*	Krebs et al. [36]	2017	Symptom severity remained stable over the 12 months follow up, indicating outcomes from CBT are durable long term, with minimal therapist input. Treatment response increased from 35 to 50% at 12 months follow up
BDD in children and young people*	Watson and Ban [37]	2021	CBT is first line but emphasis on encouraging engagement is important. SSRIs should be used with caution due to increased suicidality in young people. Public health interventions such as education in school could be an avenue to prevent the development of BDD
Access to evidence-based treatments for young people with BDD*	Krebs et al. [38]	2023	Currently significant barriers for young people to access CBT specific to BDD due to misdiagnosis and shortage of trained clinicians. Fewer than half of patients with BDD had received CBT for BDD whereas three-quarters of those with OCD had received OCD specific CBT

*Researchers who study BDD often utilise the Yale Brown Body Dysmorphia Scale for BDD, which has been proven to be a reliable indicator of severity while being sensitive to change [39]. This is useful to determine the effectiveness of interventions.

Table 7: Participant characteristics

Study title (author, year)	No.	Sex	Ave. Age	Age of BDD onset	Recruitment method
CBT for adolescents with BDD: A case series (Krebs et al., 2012) [34]	6	3 F, 3 M	15.83	NA	Recruited from a specialist OCD Clinic ($n = 5$) and Anxiety Disorders Clinic ($N = 1$)
A pilot randomised controlled trial of CBT for adolescents with BDD (Mataix-Cols et al., 2015) [35]	30	26 F, 4 M	16 SD = 1.7	12.5 SD = 1.9	Recruited from patients referred to the National and Specialist OCD, BDD, and Related Disorders Clinic. Also, through media and social media
Long-term outcomes of CBT for Adolescent BDD (Krebs et al., 2017) [36]	26	Not clear	Not clear	Not clear	Participants from above study from both CBT and control groups
Access to evidence-based treatments for young people with BDD (Krebs et al., 2023) [38]	83	58 F, 25 M	15.59 SD = 1.31	12.64 SD = 2.74	Reviewed consecutive referrals to the National and Specialist OCD, BDD, and Related Disorders Clinic between Jan 2015 and May 2022

SD = standard deviation.

The two narrative literature reviews have been excluded from this table due to the nature of the study which means they do not have any participants.

3.1 Quality assessment

After using the JBI Risk of Bias Assessment to critically appraise the papers, all selected studies were deemed good quality and therefore, appropriate to include for analysis. Only one study identified was a true randomised control trial – the highest level of research quality. Although all papers identified were deemed appropriate quality after critical appraisal, some papers were of lower “quality” as they were narrative literature reviews, which is a less rigorous approach compared to a systematic review. Three of the papers were written by Krebs, and the paper by Mataix-Cols et al. also listed Krebs as an author. This suggests that all four studies were conducted by the same research group in the same research environment, implying some level of inter-researcher reliability, and a possible lack of generalisability to the wider population due to exposure to the same patient population. The studies themselves had a small sample size across the four studies. While this discrete population and specific environment may suggest some limitations, it should also be recognised that as a specialist unit, the data here were collected by an expert team.

4 Discussion

The analysis of findings is presented here using three headings drawn from the NICE Stepped Care Model [23]. The original model has six steps, but we combined steps 3–6 as they were variations on treatments (Table 5). This left three areas of discussion:

- Awareness and recognition of BDD in adolescence
- Screening and assessment of BDD in adolescence
- Treatment for BDD in adolescents

4.1 Awareness and recognition of BDD in adolescence

The findings show that sufferers of BDD delay getting help by up to 20 years, perhaps due to associated stigma [33]. The population particularly impacted by this stigma are adolescent boys [35]. In recent epidemiological studies, there is a female dominance in the community for BDD; however, in psychiatric settings, the prevalence between sexes is equal [18]. It was suggested that school-based education about body image ideals and perfectionism might help prevent the development of body image related disorders such as BDD through raising awareness, reducing

stigma, detecting sufferers earlier, and improving support pathways [36,37,40].

4.2 Screening and assessment of BDD in adolescence

The literature reported a significant shortage of trained clinicians, and that misdiagnosis of BDD was commonplace [38]. The literature also identified that BDD is only fleetingly mentioned in curricula and called for the integration of BDD training into the core curriculum for clinical training programmes [38]. It was also reported that there were very few training courses on identifying BDD which specifically address young people’s needs [33] and recommended that local healthcare providers work to increase the availability and accessibility of resources. Screening in non-mental health settings such as cosmetic surgeries or dermatological clinics was also identified as playing a role [18] especially since delusional BDD beliefs have significantly high risk of patients seeking cosmetic surgery [36].

4.3 Treatment options for adolescents with BDD

Three studies were found to have investigated the effectiveness of CBT for BDD [34–36], one of which found that adolescents who received CBT showed a statistically significant improvement post treatment and at 2 months follow up [35]. Another paper suggested that depression may be secondary to the BDD symptoms, and that treating BDD suppresses depression severity [34]. A follow up study concluded that developmentally tailored CBT is an effective

treatment for adolescents with BDD long term [36]. Despite this, it was reported that there are significant barriers for adolescents accessing CBT, mainly due to a lack of awareness and resources [37] and low levels of patient engagement [37]. Pharmacological treatment, namely, SSRIs such as sertraline or fluvoxamine were found to be of some use, if used with caution and under regular monitoring [33]. None of the studies specifically discussed psychodermatology clinics as places of treatment

4.4 Triangulating findings

In drawing together the topics reported above, three areas for further research were identified (Table 8).

5 Conclusion

Although all six of the identified papers supported current best-practice of psychological intervention as first-line treatment, several issues were raised regarding lack of awareness, lack of training, poor resource allocation, and insufficient rigorous evidence in the field. With the disproportional impact of BDD on adolescents and the rapid acceleration in prevalence, this is an avenue that demands more research. The identified papers revealed issues in the current state of management of BDD for adolescents in the UK. It was found that there is a societal stigma towards BDD, which results in delayed help seeking by up to two decades [33]. This stigma was found to be propelled by the growth of social media which has normalised body dissatisfaction – a significant risk factor for developing BDD [37]. Misdiagnosis of BDD was found to be commonplace because BDD is not a part of

Table 8: Areas for further research

Research topic/question	Proposed methodology
What are the mental health professionals’ perspectives on the current state of management of BDD in adolescence? [33,38]	Focus groups with mental health professionals in different roles and at different levels of training to gather a consensus on their experiences and needs related to managing BDD in adolescence
What is the rate of BDD remission in relation to CBT treatment? Is it possible to assess rates of remission against each additional hour of CBT? [33–36]	Identify individuals with different disease severity starting CBT for BDD. Ask them to complete an approved tool for BDD severity before starting CBT and after each session. Plot the number of sessions vs severity scores to identify the number of hours of CBT to result in significant disease remission
To what extent are schools able to influence teenagers’ ideas about body image? [37]	Organise a teaching session on body image, with students filling out questionnaires on their experiences and ideas immediately before, immediately after, and a few months after the teaching session

the core curriculum for mental health professionals working with adolescence, leading to a lack of trained staff to manage this increasingly prevalent condition [33,38]. Therefore, it was reported that when sufferers finally build the courage to seek help, they may not be met with understanding or appropriate support. If psychological support is inadequate to disrupt a patient's delusional beliefs, they are far more likely to request cosmetic procedures, causing unnecessary patient harm [36]. Despite the issues raised, three papers affirmed that psychological therapy, specifically CBT with exposure with response prevention, is an effective tool to reduce the severity of BDD in adolescence [34–36].

The NICE Stepped Care Model [23] provides guidance for the management of adults, adolescence, and young people with BDD and OCD in the UK. The identified literature criticised this grouping, identifying that BDD is diagnostically distinct from OCD [33]. It was also revealed that the guidelines are based on significantly limited evidence, especially for young people where both the number and quality of studies were negligible [33]. This systematic review echoes this sentiment, as the search only revealed one novel randomised control trial.

In drawing together the key findings, this systematic review identifies three areas of further research. These include inquiry into mental health professionals' perspectives on the current state of BDD management in adolescence, a review of the rate of BDD remission in relation to CBT treatment, and research into the extent to which schools are able to influence teenagers' ideas about body image.

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