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Environmental and Physical Risk Factors for men to develop Body Dysmorphic
Disorder concerning penis size compared to men anxious about their penis size and
men with no concerns: a cohort study

Running head: RISK FACTORS FOR DEVELOPING BDD

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Abstract

Aims: To explore the combination of environmental and physical factors associated with the development of body dysmorphic disorder (BDD) related to penis size and the differences between men who are anxious about their penis size (but do not meet criteria for BDD), and men who do not report concerns about penis size. **Method:** Men with BDD ($n = 26$) were compared to those with small penis anxiety (SPA) ($n = 31$) and men without concerns ($n = 33$), by their demographic characteristics, penile measurements, Childhood Trauma, Perception of Teasing Scale, and differential experiences including past medical conditions. Multinomial logistic regression was run to find predictors of group membership. **Results:** There were significant differences across the groups in which emotional and physical abuse and neglect, competency and general appearance teasing, smaller penis size, older age, and higher Body Mass Index were all identified as risk factors for developing BDD compared to those in the SPA and men without concerns. Only perceived specific genitalia teasing were identified as a risk factor in both BDD and SPA groups compared to men without concerns. **Conclusions:** The results have implications for our understanding of the development of BDD compared to body dissatisfaction and the prevention of psychiatric morbidity. Smaller penis size was not hypothesised to increase vulnerability to developing BDD but is consistent with being “different” during adolescence and for teasing by one’s peers or a sexual partner.

Keywords: body dysmorphic disorder; risk factors; penis size anxiety; small penis syndrome; childhood trauma; teasing; penile size.

Environmental and Physical Risk Factors for Men to develop Body Dysmorphic Disorder concerning Penis Size compared to men Anxious about their Penis Size and men with no concerns: a Cohort Study

Body dysmorphic disorder (BDD) consists of a preoccupation with a perceived defect or ugliness, usually around the face. The ‘flaw(s)’ is not noticeable to others, or appears only slight, yet causes enormous shame and interference in life and is associated with a high risk of suicide (Phillips et al., 2005; Veale, Boocock, et al., 1996). At the core of BDD is an excessive self-consciousness and often a distorted image from an ‘observer perspective’ (Osman, Cooper, Hackmann, & Veale, 2004). People with BDD usually avoid public settings and often spend hours mirror gazing, camouflaging, ruminating or constantly comparing their perceived defect with others (Phillips et al., 2006).

BDD frequently follows a chronic course and has a prevalence of about 2% in the general population (Koran, Abujaoude, Large, & Serpe, 2008; Rief, Buhlmann, Wilhelm, Borkenhagen, & Brahler, 2006). People with BDD often voluntarily undergo unnecessary dermatological treatment and cosmetic surgery (Phillips & Dufresne, 2000; Sarwer, Pertschuk, Wadden, & Whitaker, 1998; Veale, De Haro, & Lambrou, 2003). Alternatively, they may present to mental health practitioners with symptoms of depression, social anxiety or obsessive-compulsive disorder as these symptoms are perceived as less stigmatizing than those of BDD (Phillips, Nierenberg, Brendel, & Fava, 1996; Veale, Boocock, et al., 1996).

Little is known about the risk factors for developing BDD. Perceived teasing about general appearance has been associated with higher levels of body dissatisfaction, depression and lower self-esteem in people with binge eating disorder (Jackson, Grilo, & Masheb, 2000) and BDD (Buhlmann, Cook, Fama, & Wilhelm, 2007). Osman et al. (2004) also found that the experience of imagery in BDD was

emotionally linked to past aversive memories of being teased or bullied and being excessively self-conscious about appearance changes during adolescence. Another non-specific factor for vulnerability to BDD may be an association with emotional, physical or sexual abuse or neglect resulting in poor attachment and body shame (Didie et al., 2006; Kearney-Cooke & Ackard, 2000; Neziroglu, Khemlani-Patel, & Yaryura-Tobias, 2006).

There is some evidence for an increased aesthetic sensitivity in people with BDD (Lambrou, Veale, & Wilson, 2011). An indirect marker for this may be a greater likelihood of training or study in art or design (Veale & Lambrou, 2002). Lastly, there is some evidence that people with BDD may have a genetic predisposition for a need for symmetry or order (Monzani, Rijsdijk, Anson, et al., 2012; Monzani, Rijsdijk, Lervolino, et al., 2012; Veale, Gournay, et al., 1996).

Previous research investigating risk factors for the development of BDD has been limited mainly to studies that have investigated a single factor of interest (e.g., perceived teasing) and did not necessarily compare against a control group or a group that experienced body dissatisfaction without BDD (Didie et al., 2006; Jackson et al., 2000; Neziroglu et al., 2006) or did not use a validated abuse history questionnaire (Neziroglu et al., 2006).

The majority of existing research has used samples biased by containing more women than men. (Didie et al., 2006; Lambrou et al., 2011; Monzani, Rijsdijk, Anson, et al., 2012). Body image concerns manifest differently in men and women. A survey of 200 men found that their body image concerns were primarily about body weight, penis size and height (Tiggemann, Martins, & Churchett, 2008). Phillips and Diaz (1997) found gender differences in 188 patients with BDD, in which men were more likely than women to be excessively concerned about muscle shape and the size of their genitalia.

In order to tightly control the variable of interest, the focus of this study is on men in whom the size or shape of the penis is the main, if not their exclusive, preoccupation causing significant distress and shame (Veale et al., 2014; Veale et al., 2015c). We use the term “small penis anxiety” (SPA) to describe a condition that consists of dissatisfaction or worry about penis size where the man does not fulfil the criteria for BDD (Wylie & Eardley, 2007). In a previous study with this dataset (Veale et al, 2015), we identified men with BDD who had significantly higher scores than both the SPA group and no penile concern group for measures of imagery, avoidance, safety seeking and depression. They experienced significant interference in their life in terms of relationships and intimacy.

Men with BDD and SPA often seek solutions from internet sites that promote non-evidence based lotions, pills, exercises or penile extenders. As well as purchasing lotions or extenders, such men may also seek help from urologists or plastic surgeons, and may be offered fat injections or surgical procedures to try to increase the length or girth of their penis (Veale et al., in press). However, cosmetic phalloplasty is still regarded as experimental without any adequate outcome measures or evidence of safety (Ghanem, Glina, Assalian, & Buvat, 2013). Some studies report a minor increase in length but do not report psychosocial outcomes (Ghanem et al., 2013). Psychological research in this area is extremely limited and there are no psychological interventions that have been evaluated for men with BDD over penis size or for SPA.

In this study we wanted to determine whether the putative risk factors are exclusive to BDD or whether they occur in the experience of body dissatisfaction (without BDD). Men with penile concerns have been described in the urology literature as having “penile dysmorphic disorder” but without a formal diagnostic interview for BDD (Li et al., 2006; Perovic et al., 2006; Spyropoulos et al., 2005). Risk factors for developing BDD regarding penis size may be similar to those in BDD in general or there may be some specific factors for a preoccupation with penis size. A

history of past medical or surgical interventions for the genitalia may be relevant for the development of BDD with penis concerns as it may increase attention on an area that has been considered “defective” in the past.

Our study therefore aims to investigate the combination of environmental and physical risk factors associated with having BDD or SPA (that is, without BDD) compared to men without concerns. Our hypothesis was that men with BDD were more likely than either the SPA or men without concerns to report a history of (a) physical, emotional or sexual abuse, (b) perceived teasing about their competency or general appearance, (c) specific perceived teasing about their penis size, (d) an education or training in art and design, and (e) medical or surgical intervention to the genitalia as this may be associated with beliefs about the genitalia being abnormal during adolescence. The research also aims both to further previous research in understanding the development of BDD by examining a combination of factors and to contribute to the limited amount of body image research in an area specific to men. The study findings may be generalised to an understanding of the development of BDD in general.

Method

The study consisted of a cohort group design comparing men either (a) who fulfilled diagnostic criteria for BDD regarding penis size, or (b) who expressed dissatisfaction or worry about their penis size but did not fulfil diagnostic criteria for BDD (Small Penis Anxiety, SPA group), (c) and men who did not express any concerns about their penis size and did not fulfil criteria for BDD. The same dataset was used to describe the phenomenology and characteristics of men with BDD concerning penis size (Veale et al., 2015c). The Queen Square NHS Research Ethics Committee granted ethics permission for the research (Reference 11/LO/0803).

Participants

All men were recruited from one of three sources: (a) by email to staff and students at King's College London ($n = 36$), (b) by email to the Mind Search database of volunteers at the Institute of Psychiatry, Kings College London ($n = 10$) and (c) by a link on the "Embarrassing Bodies" website, following their feature on penis size concerns ($n = 44$). This is a television programme in which members of the public present to a doctor with physical and medical concerns that are regarded as embarrassing or shameful.

We sought to recruit men in a study on their beliefs about penis size, whether they had any concerns or not. In total, 90 men were included in the study. The demographic data are shown in Table 1. The inclusion criteria were men aged 18 or older who were proficient in English. Our exclusion criteria were men who:

- (1) Had a "micro-penis" (defined as 6cm or less in the flaccid state). This is based on 2 standard deviations below the mean for age (Wessells, Lue, & McAninch, 1996);
- (2) Had a penile abnormality (e.g., Peyronie's disease, hypospadias, intersex, phimosis);
- (3) Had had penile or prostatic surgery (which may reduce penile size).

Materials

All men completed the following questionnaires online.

Demographic information. Information was collected on age, body mass index (BMI), marital status, education level, employment status, ethnicity, and sexual orientation.

Cosmetic Procedure Screening Scale for BDD related to penile appearance (COPS-P) (Veale et al., 2015a). The COPS-P is a 9 item scale (range 0-72) based on the original COPS for general appearance concerns (Veale et al., 2011), which is validated as a screening questionnaire for identifying BDD. Higher scores reflect increased symptoms of BDD in terms of preoccupation, distress and

interference in life. The Cronbach's alpha value is .94. The COPS-P scale has a cut off score of 40, at which it yields highest kappa coefficient, sensitivity and specificity ($k = .819$) scores for discriminating between those with BDD, the SPA group, and men without concerns.

The Childhood Trauma Questionnaire (CTQ) (Bernstein et al., 2003). The CTQ is a 28-item self-report questionnaire that measures the severity of five types of perceived negative childhood experience: emotional abuse, physical abuse, sexual abuse, emotional neglect and physical neglect. The participant responds to each item in the context of "when I was growing up" using a 5-point Likert scale ranging from 1 ("never true") to 5 ("very often true"). Summed total scores range from 5 to 25 for each subscale, and the overall total ranges from 28 to 140. The measure has test-retest reliability over a 2 to 6-month period as well as convergent and discriminant validity with a structured trauma interview.

The Perception of Teasing Scale (POTS) (Modified for BDD) (Buhlmann et al., 2007). Buhlman et al (2007) adapted this measure from (Thompson, Cattarin, Fowler, & Fisher, 1995). The scale is an 11-item self-report questionnaire with two components, assessing: (a) general appearance-related teasing perceptions and (b) competency-related teasing perceptions. Each component assesses the frequency at which the respondent experienced perceived teasing, on a Likert scale ranging from 1 ("never") to 5 ("very often"). Two separate total scores are summed: one of items relevant to general appearance-related teasing, and the other of items relevant to competency-related teasing. Total scores range from 6 to 30 for the 6-item appearance-related subscale and from 5 to 25 for the 5-item competency-related subscale. Each component also assesses how much the teasing experience affected the individual using a Likert scale from 1 ("not upset") to 5 ("very upset"). Participants only rate the "affect" items if they have not rated the frequency as "never". The total affect score is divided by the number of items that were endorsed as occurring more

frequently than “never”. The scale has internal reliability as Cronbach’s alpha values for the original subscales ranged between the acceptable values .77 and .87.

Experience of specific genitalia teasing. Participants were asked if they had any experience of being teased, made fun of, humiliated, or commented upon regarding the size or appearance of their penis, or suggestions that it should be made bigger. Men who answered “yes” were subsequently asked how old they were at the time of their first experience of specific genitalia perceived teasing, how they rated, on a scale of 0 (“not at all distressing”) to 10 (“severely distressing”), their most distressing experience, what the situation was, and who was responsible for the teasing.

Experience of past surgery or medical problems. Participants were asked whether they had undergone any past surgical procedures or had experienced medical problems with their penis or testicles. We excluded family planning, vasectomy, or circumcision in the first year of life or due to cultural beliefs.

Training, education or employment in art or design. Participants were asked if they had ever had any training, education or employment in art or design. Only those employed in the industry or who were educated in the subject to A-level or above were considered to have significant art or design experience, and were included in the analysis.

Procedure

Initial advertisements for participants sought to recruit men to a study that was interested in their beliefs about their penis size. Participants completed online questionnaires and only those who expressed any concerns or worries about their penis size were interviewed by a trained research worker using the Structured Clinical Interview for DSM-IV disorders (SCID) (First, Spitzer, Gibbon, & Williams, 1995) to determine whether they were part of the BDD or SPA group. DSM-IV was used as the study commenced before publication of DSM-5. Participants came to an outpatient

urology department for examination and measurement of their penis size so that any penile abnormalities could be excluded. On arrival, participants completed a consent form and were then given privacy in an air-conditioned consulting room at a constant temperature (21°C) at sea level. Using a disposable tape measure, each participant had three parameters measured in the flaccid state: circumference (girth) of the penile mid shaft; length from suprapubic skin to distal glans (skin-to-tip); and pubis to distal glans (bone-to-tip). A further flaccid state, measurement was also recorded: the glans was grasped and stretched. Maximum stretch was taken to be the point at which the participant began to feel mild discomfort.

After the flaccid measurements were taken, each participant was offered the chance to watch a selection of pornography genres on a provided laptop. Watching pornography was either accepted and chosen privately and anonymously, or declined. The use of pornography was not monitored, in order to maintain participant dignity. At this point the urologist left the room. Participants pressed a digital bell to alert the urologist when they were erect and ready to repeat the measurements. The three measurements were then repeated in the fully erect state without stretching. Therefore a total of 7 penile size measurements were completed; 4 in the flaccid state, of which 3 were repeated in the erect state. Three men were unable to achieve full erection manually, and they were offered an intra-cavernous injection of 10 micrograms of Prostaglandin E1, administered by an urologist.

Eleven men out of the 80 (13.8%) (5 in the BDD group, 3 in the SPA group, and 3 in the men without concerns group) were unable to attend the clinic and were interviewed with the SCID over the telephone. In order to exclude the possibility that they had a micro-penis (that would exclude them from the study), they were sent instructions and an electronic video link made by a consultant urologist within our research team, on how to administer penis size self-measurement. These eleven men then emailed their measurements to the researchers and self-reported if they had any

penile abnormalities (e.g., curvature). The Queen Square NHS Research Ethics Committee granted ethics permission (Reference 11/LO/0803)

Statistical Analysis

Data were analyzed using SPSS v22. As data did not meet the parametric assumption of normality, non-parametric Kruskal-Wallis comparisons were run to test for differences between the three groups. Mann Whitney-*U* post-hoc tests were then conducted to find where differences were. Significance levels were set as $\alpha = 0.05$ for Kruskal-Wallis comparisons. To reduce the influence of error as a result of running multiple post-hoc analyses, the significance level (α) for post-hoc tests was adjusted to 0.017.

Forward entry multinomial logistic regression was used to find predictors of which group participants belonged to, whether the BDD, the SPA, or men without concerns group. Due to the assumption of multi-collinearity only one penis size measurement was entered into the model - flaccid length (skin-to-tip). Significance levels were set at 0.05 for each test.

Results

Demographic Information

Demographic data are shown in Table 1. Men with BDD were significantly older than the men with SPA and men without concerns. Men with BDD also showed higher body mass index (BMI) scores in comparison to those in the SPA and men without concerns. However, there were no significant differences between the groups for marital status, employment, education level, ethnicity or sexual orientation. All men in the BDD group fulfilled DSM-IV criteria for body dysmorphic disorder, of whom 10 (38.5%) had delusional BDD. Additional comorbidity in the BDD group was major depression in 7 (26.9%); generalised anxiety disorder in 1 (3.8%) and comorbidity of the above with social phobia in 5 (19.2%). In the SPA group, 2 (6.5%) had major depression; 3 (9.7%) had social phobia; 2 (6.5%) had generalised anxiety

disorder and 1 (3.2%) had combinations of the above. Men with BDD had significantly higher scores than both the SPA group and men without concerns group on the COPS-P. The SPA group scores on the COPS-P were also significantly higher than the men without. The mean score indicates that the SPA group was in the sub-clinical range.

-----INSERT TABLE 1 ABOUT HERE-----

Childhood Trauma and Abuse

Men with BDD reported significantly greater perceived experience of emotional abuse, physical abuse and neglect in comparison with the SPA group, as well as more emotional abuse and neglect, and physical abuse and neglect, in comparison with the men without concerns. There were no significant differences between the three groups for sexual abuse. The SPA group did not differ from the men without concerns for any of the variables (see Table 2).

-----INSERT TABLE 2 ABOUT HERE-----

Perception of Teasing Scale (POTS)

In comparison with the SPA and men without concerns, men with BDD showed significantly higher perceptions of general appearance and competency related teasing, as well as related perceived distress. However, there were no significant differences between POTS scores for the SPA and men without concerns (see Table 3).

-----INSERT TABLE 3 ABOUT HERE-----

Penile Measurements

Penis size comparisons indicate that there were significant differences in penis size across the groups for flaccid and erect length and flaccid girth (see Table 4 & 5). Erect girth was the only measurement with no significant differences between groups. Post-hoc analyses indicated that men with BDD were on average significantly smaller in comparison to with men without concerns for both for erect and flaccid length as

well as the two measurements to the pubic bone. Men with BDD were also were significantly smaller in their flaccid but not erect girth in comparison to those with SPA and men without concerns. There were no significant differences between men with SPA and the men without concerns for any of the flaccid or erect measurements (see Table 4 & 5).

-----INSERT TABLE 4 AND 5 ABOUT HERE-----

Experience of specific genitalia teasing

More men with BDD ($n = 22$, 84.6%) and SPA ($n = 15$, 48.4%) reported humiliation and receiving negative comments or reactions towards their penis size compared to with the men without concerns ($n = 4$, 12.3%), Fisher's Exact Test $p < .001$. In addition, significantly higher proportions of the BDD group in comparison with the SPA group reported specific genitalia perceived teasing, Fisher's Exact Test $p = .006$. There were no significant differences between the groups for the settings in which specific genitalia perceived teasing occurred, the people involved in the teasing, the distress caused by the negative comments, the age of the men when they first experienced specific genitalia teasing, or their age at their most distressing experience. The most common specific genitalia teasing took place in: (a) intimate settings with a sexual partner (BDD, $n = 15$ (57.7%), SPA $n = 12$ (38.7%), NPC $n = 1$, (3.0%) and (b) shower, toilet or changing room settings with friends (BDD $n = 9$, (34.6%), SPA $n = 5$, (16.1%), men without concerns $n = 3$, (97.0%).

Experience of past surgery or medical problems

There were no significant differences across the groups for the number of past surgical procedures or medical problems related to the genitalia, Fisher's Exact Test $p = .099$. Specifically, 7 (26.9%) men with BDD, 15 (48.4%) with SPA and 8 (24.2%) men without concerns reported such experiences. In addition there was no significant difference between the types of medical problem or surgical procedure patients reported, Fisher's Exact Test $p = .847$. Of those reporting foreskin related problems or

procedures, 3 (20%) had BDD, 9 (60%) had SPA, and 3 (20%) were men without concerns. Of those reporting testes related problems or procedures, 3 (21.4%) had BDD, 6 (42.9%) had SPA, and 5 (35.7%) were men without concerns. Two men, one with BDD and one with SPA did not disclose specific details on their reported problem or procedure. Foreskin related problems and procedures that were reported included phimosis, circumcision and frenuloplasty. Testes related problems and procedures that were reported included undescended testicle, testicular cancer, testicular cysts hydrocele and varicocele. Therefore, the types of medical problem or corrective surgery were not significantly different across the groups.

Training, education or employment in art or design

There were no significant differences between the frequencies of men from the BDD ($n = 2$, 7.7%), SPA ($n = 7$, 22.6%) and men without concerns ($n = 3$, 9.1%), who had experience of training, education or employment in art or design, Fisher's Exact Test $p = .211$. The majority of men (86%) did not have such experience.

Predictors of diagnostic group membership

Of variables that significantly differed between groups, the following were entered into a multinomial logistic regression model; age, BMI, experience of specific genitalia teasing, appearance related teasing experience, competency related teasing experience, CTQ score, and flaccid penis length. A multinomial logistic regression model comparing SPA and men without concerns to the BDD group was significant, $\chi^2 (14) = 76.21, p < .001$. BMI ($O.R. = 0.70$, 95% $C.I. = .498, .974, p = .034$), and experience of specific genitalia teasing ($O.R. = 35.65$, 95% $C.I. = 4.02, 316.41, p = .001$) significantly predicted whether men had BDD or no penis concern at all. As BMI increased, men were less likely to be unconcerned and more likely to have BDD. The odds of having BDD in comparison to no concern were 35.7 times higher for those men who had a previous experience of specific genitalia teasing.

In addition, general appearance related teasing ($O.R. = 0.76$, 95% $C.I. = .600, .953$, $p = .018$) age ($O.R. = 0.92$, 95% $C.I. = .848, .996$, $p = .039$), and BMI ($O.R. = 0.73$, 95% $C.I. = .538, .997$, $p = .048$) significantly predicted whether men had BDD or SPA. As general appearance related teasing, age and BMI increased, men were more likely to have BDD than SPA.

A multivariate logistic regression model comparing BDD and SPA men against men without concerns was also significant $\chi^2 (14) = 76.21$, $p < .001$. Experience of specific genitalia perceived teasing ($O.R. = 0.74$, 95% $C.I. = .015, .370$, $p = .002$) significantly predicted whether men had SPA or no concerns. Those with previous experience of specific genitalia teasing were 1.35 times more likely to have SPA than no concerns. No other variables entered into the logistic regression models were significant predictors of diagnostic group membership.

Associations with COPS-P outcomes

There were significant differences across the groups for total COPS-P scores, $H(2) = 56.29$, $p = .000$. Participants with BDD, had significantly higher COPS-P scores (Median = 43.5, IQR = 31.3, 60.5) in comparison with SPA participants (Median = 21.5, IQR = 7.8, 27.8), $U = 551.00$, $Z = 4.64$, $p = .000$, $d = 1.74$ and controls (Median = 2.0, IQR = 0, 7.3), $U = 720.00$, $Z = 6.29$, $p = .000$, $d = 3.31$, indicating higher symptomatology. The SPA group scores were also significantly higher than the control group scores, $U = 704.00$, $Z = 5.19$, $p = .000$, $d = 1.91$.

Following non-parametric tests, and tests for multi-collinearity, 7 variables were entered into regression models: age, BMI, perceived appearance related teasing, perceived competency related teasing, childhood teasing total score, flaccid length (skin-to-tip), and experience of specific genitalia teasing.

Multiple linear regression indicated that experience of specific genitalia teasing ($B = 17.77$, $S.E. = 3.04$, $\beta = .45$, $p = .000$), higher perceived appearance related teasing ($B = 1.23$, $S.E. = 0.31$, $\beta = .30$, $p = .000$), and a shorter skin-to-tip

flaccid length of the penis ($B = -0.19$, $S.E. = 0.64$, $\beta = -.23$, $p = .005$) were significantly associated with increases in COPS-P scores. In addition, as COPS-P scores increased, there was a trend towards BMI increasing, although this relationship was not quite significant ($B = -0.73$, $S.E. = 0.38$, $\beta = -.16$, $p = .060$). No other variables entered into the model were significantly associated with COPS-P scores. Adjusted R^2 suggested that the model explains 63.9% of the variance in the dependent variable.

Discussion

A number of significant risk factors were found to be associated with the development of BDD compared with men with SPA and without concerns. Men with BDD in comparison with the SPA and men without concerns were more likely to have experienced emotional and physical abuse and neglect in childhood. As they grew up, men with BDD compared with SPA and men without concerns were more likely to have experienced perceived teasing about their appearance in general or their competency by their peers. Contrary to our hypotheses, the BDD group were also more likely to have a smaller penis size than those with SPA and men without concerns. It is important to acknowledge that while men with BDD had smaller penile measurements compared with the SPA and men without concerns, all men had measurements within the normal range. However, both the BDD and SPA groups experienced specific teasing about the size of their genitalia by their peers during adolescence or early sexual experiences. At the time of participating in the study, men with BDD were now significantly older and had a higher BMI than the SPA men or the men without concerns. The only factor that differentiated the SPA group from men without concerns was the experience of specific genitalia teasing (apart from the fact that they were smaller in size than the men with no concerns).

The main strength of our study was that our design was tightly controlled on one perceived defect in BDD (penis size) as the main problem. We were also able to

include a group who expressed worries or dissatisfaction about their penis size but did not fulfil the diagnostic criteria for BDD. This is the first study to examine a combination of psychosocial risk factors that may be relevant for the development of BDD. The results support the findings of previous research that has examined single factors in isolation such as teasing about appearance being a risk factor for the development of BDD (Buhlmann et al., 2007; Osman et al., 2004). The role of emotional abuse and neglect is also supported by previous research suggesting that experiences of abuse or neglect are linked to body shame, general psychopathology (Andrews, 1997) or a diagnosis of BDD (Didie et al., 2006).

As there were no differences between training or education in art or design, the findings do not support research suggesting an increased aesthetic sensitivity in people with BDD of their face (Lambrou et al., 2011; Veale, Gournay, et al., 1996). This may be because increased aesthetic sensitivity is more relevant to features that are publicly exposed or features that can be symmetrical.

The finding that men with BDD were older could imply that as the preoccupation and distress with penis size developed, the natural ageing processes such as developing looser and wrinkled skin might have a negative impact on males' perceptions of their genitalia. In addition, the finding that men with BDD had a higher BMI implies that they were more likely to be more overweight. Characteristics of being overweight such as being fatter around the midriff and at the base of the penis (the pubic fat pad), which increases with age, could have an impact on an individual's perception of their own penis. For example, a protruding stomach or fat pad could cause the penis to appear smaller, especially when flaccid. However, measures that were taken into the fat pad did not alter the finding that this group had on average a smaller penile length than the men without concerns. Such concerns are often chronic and the onset of the BDD is likely to have occurred before the weight was gained.

Those with BDD could have been more sensitive to comments from others and more likely to retain such comments due to emotional abuse or neglect as a child. This study suggests that targeting teasing about competency, appearance in general or specific features in the context of poor attachment has the potential for reducing psychiatric morbidity during adolescence.

There was no significant difference between the three groups for reports of sexual abuse. Therefore, from our findings, sexual abuse does not appear to be a risk factor for developing BDD. However, the existing literature does suggest that sexual abuse is a risk factor for developing body image psychopathology in general (Neziroglu et al., 2006). This discrepancy may be explained by sexual abuse victims more frequently being female (Briere & Elliott, 2003), and so sexual abuse may be more of a predictor of psychopathology in females (Molnar, Buka, & Kessler, 2001; Spataro, Mullen, Burgess, Wells, & Moss, 2004). There was no significant difference in sexual identity across the groups perhaps because of the perceived importance of penis size to women by heterosexual men (Lever, Frederick, & Peplau, 2006). The frequency of homosexual men was however relatively high in all three groups. There may be a bias in the recruitment of homosexual men who may have been more interested than heterosexual men in volunteering for our study. Further research is required to replicate the study in exclusively homosexual men who may be both attracted to men with a larger penis size and have more opportunities for comparing their penis size with that of other men.

There were no significant differences between the groups for marital status, employment, or past surgical procedures. The population recruited could influence all of these findings. As BDD is characterised by reduced functioning in social and occupational areas, one might expect more men with BDD in a psychiatric setting to be single and/or unemployed in comparison with the SPA and men without concerns. A large number of our sample had experienced a past surgical procedure on their

penis. It may be that this had an underlying influence on their decision to participate in the research, thus skewing the data.

Limitations

The main limitation of the study is that the sample was non-clinical and self-selected from three different sources. We therefore do not know the degree to which the data are representative of men who are concerned about penis size in the general population. Because it is difficult to recruit such men and so little has been published in this area, we believe these results represent an important first step in the research literature. Our sample may also be unrepresentative of men who present to urologists, cosmetic surgeons or psychiatric services, although our BDD and SPA groups did have the opportunity to simultaneously take part in a controlled trial and the BDD group was fulfilling the relevant diagnostic criteria. However such men are typically ashamed and do not seek help from a conventional care pathway. Even when they are part of a care pathway, they are extremely ashamed of seeking help for their main problem: they are more likely to present with symptoms of depression or social anxiety than of BDD and opt not to reveal their main concern. Our sample is probably more representative of men in the community who are searching for solutions on the Internet or going to private surgeons (who are less likely to participate in research). There was no significant difference in size between the SPA group and men without concerns. There may be a selection bias for our men without concerns who might have been more confident about their size and therefore more ready to volunteer to participate in research of this nature. This may mean that they were slightly above average size compared with members of the BDD group who were slightly below average size. We relied on self-measurement of penis size in 12 out of 90 (13.3 %). It is possible that some of these men may be exaggerating their size but the instructions were standardised, written by the urologist, and guided by a video used by clinicians. In addition, there were no significant differences in the numbers of participants who

self-measured their size from each group and so any bias that was introduced is likely to be small. It is possible that some of the risk may be mediated by general psychopathology but there was no significant difference between the BDD and SPA groups for co-morbidity (Veale et al., 2015c). The experience of teasing is based on self-report, which has a confirmatory bias based on hindsight. This needs to be controlled for in future studies. Finally, the use of the Childhood Trauma Questionnaire as well as the Perception of Teasing Scale – two theoretically similar scales that were also correlated, could explain why Childhood Trauma Questionnaire scores did not predict group membership. Another limitation is that we did not enquire about the frequency of teasing about the genitalia. The POTS however measures the frequency of appearance related teasing, but a respondent may answer in relation to teasing about their penis size or appearance in general. It may be that for some men one experience of teasing about genital size is sufficient as a risk factor to develop BDD or SPA and others may require repeated experiences before it becomes a risk factor. We measured aesthetic sensitivity by an indirect marker (training or education in art or design) and in future studies it may be necessary to measure this more directly (for example (Lambrou et al., 2011)). Lastly we assessed the severity of BDD symptoms by the COPS-P and did not use an observer rated measure of BDD severity (e.g Yale Brown Obsessive Compulsive Scale modified for BDD (Phillips et al., 1997)). It is probable that our BDD group is more representative of those in the community and may experience less severe symptoms than those recruited from a specialist service. Therefore despite being a less severe group, we were able to demonstrate significant differences in most of the hypothesised risk factors.

In conclusion, this study may be generalised for understanding risk factors for developing BDD with general appearance concerns. We identified that men with BDD had a penis that was smaller than average and this had been commented upon during adolescence or early sexual experiences; this may have led to increased self-

consciousness. The definition of BDD is of a *perceived* defect or ugliness in general, and we used the definition of a micropenis to determine whether there was an actual “defect” or not. One would use the same principles for breast size or height, which are on a continuum of normality. Individuals with BDD (which is not related to penis size) frequently report perceived teasing or negative comments by their peers as a young person for being *different*. Even if the person is not teased then they may still internalise their sense of being different. They may observe others who are “different” being teased or they may compare themselves with others and conclude that they are different and vulnerable to rejection. However as an adult the difference may no longer be visible or relevant. They may have been teased as a young person about a condition that has since been surgically corrected (e.g., pinnaplasty for “bat ears”) or that has improved or has been treated so as to become hardly noticeable (e.g., “pizza face” for acne). Or the difference may still be noticeable but of little importance to others. They may for example have been teased or felt different about variations of a normal appearance (e.g., having red hair) or one that is less valued in society (e.g., smaller height or breast size or use of glasses). Alternatively a young person may have been teased or felt different generally (e.g., being homosexual, from a different race or culture or having a specific learning disability). Thus we need to acknowledge the difference between a perceived defect or ‘flaw(s)’ which is not noticeable to others, or appears only slight in context *now* compared to an actual difference that either existed in past (e.g., acne) or persists (e.g., penis size) but is being over-valued (Veale, 2002). In this case there may be additional socio-cultural pressures for one’s penis size to be bigger. Thus a model for the development of BDD is that negative memories about being different (or believing oneself to be different by comparison) or memories of abuse may not have been emotionally processed and are conditioned to a distorted body image (Neziroglu, Khemlani-Patel, & Veale, 2008; Osman et al., 2004). The only variables that distinguished between the SPA and NPC groups were

experiences of perceived specific genitalia teasing. Thus, in comparison to those with BDD, the SPA group may have had more protective factors reducing their likelihood of developing BDD, such as genetic factors, more secure attachments in childhood (Egeland & Sroufe, 1981) and resilience to appearance and competence teasing. Thus the group with SPA are more similar to individuals with body dissatisfaction, which is very different from BDD. This is important in body image research because the use of analogue studies of BDD in the general population may have significant limitations if a population of body dissatisfaction is recruited and conclusions are then made about the development of BDD.

Other clinical implications are that if a heterosexual man with BDD has a smaller than average penis size, he may be reassured that, in surveys, erect penis size is only important to about 15-20% of women and that erect girth was more important than length (Eisenman, 2001; Lever et al., 2006). This is important because we found no difference in erect girth between our three groups.

Future research could investigate the value of our predictors in a larger sample so that the findings can be generalizable to a population of BDD with general appearance concerns. In addition, as seen in the evidence base for obsessive compulsive disorder (Hemmings et al., 2013), research should now consider the interaction with a genetic predisposition and replicating in a clinical population (Monzani, Rijdsdijk, Anson, et al., 2012).

References

- Andrews, B. (1997). Bodily shame in relation to abuse in childhood and bulimia: a preliminary investigation. *British Journal of Clinical Psychology*, 36, 41-49. doi: 10.1111/j.2044-8260.1997.tb01229.x
- Bernstein, D. P., Stein, J. A., Newcomb, M. D., Walker, E., Pogge, D., Ahluvalia, T., . . . Zule, W. (2003). Development and validation of a brief screening version of the Childhood Trauma Questionnaire. *Child Abuse and Neglect*, 27(2), 169-190. doi: 10.1016/S0145-2134(02)00541-0
- Briere, J., & Elliott, D. M. (2003). Prevalence and psychological sequelae of self-reported childhood physical and sexual abuse in a general population sample of men and women. *Child Abuse and Neglect*, 27(10), 1205-1222. doi: 10.1016/j.chiabu.2006.03.007
- Buhlmann, U., Cook, L. M., Fama, J. M., & Wilhelm, S. (2007). Perceived teasing experiences in body dysmorphic disorder. *Body Image*, 4(4), 381-385. doi: 10.1016/j.bodyim.2007.06.004

- Didie, E. R., Tortolani, C. C., Pope, C. G., Menard, W., Fay, C., & Phillips, K. (2006). Childhood abuse and neglect in body dysmorphic disorder. *Child Abuse and Neglect*, 30, 1105-1115.
- Egeland, B., & Sroufe, L. A. (1981). Attachment and early maltreatment. *Child Development*, 52(1), 44-52.
- Eisenman, R. (2001). Penis size: Survey of female perceptions of sexual satisfaction. *BMC Women's Health*, 1(1), 1-1. doi: 10.1186/1472-6874-1-1
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured clinical interview for DSM-IV axis I disorders*: New York State Psychiatric Institute, New York.
- Ghanem, H., Glina, S., Assalian, P., & Buvat, J. (2013). Position paper: Management of men complaining of a small penis despite an actually normal size. *Journal of Sexual Medicine*, 10(1), 294-303. doi: 10.1111/j.1743-6109.2012.02725.x
- Hemmings, S. M. J., Lochner, C., van der Merwe, L., Cath, D. C., Seedat, S., & Stein, D. J. (2013). BDNF Val66Met modifies the risk of childhood trauma on obsessive-compulsive disorder. *Journal of Psychiatric Research*, 47(12), 1857-1863. doi: 10.1016/j.jpsychires.2013.08.012
- Jackson, T. D., Grilo, C. M., & Masheb, R. M. (2000). Teasing history, onset of obesity, current eating disorder psychopathology, body dissatisfaction, and psychological functioning in binge eating disorder. *Obesity*, 8(6), 451-458. doi: 10.1038/oby.2000.56
- Kearney-Cooke, A., & Ackard, D. M. (2000). The effects of sexual abuse on body image, self-image, and sexual activity of women. *Journal of Gender Specific Medicine*, 3(6), 54-60.
- Koran, L., Abujaoude, E., Large, M., & Serpe, R. (2008). The prevalence of body dysmorphic disorder in the United States adult population. *CNS Spectrums*, 13(4), 316-322.

- Lambrou, C., Veale, D., & Wilson, G. (2011). The role of aesthetic sensitivity in body dysmorphic disorders. *Journal of Abnormal Psychology, 120*(2), 443-453. doi: 10.1037/a0022300
- Lever, J., Frederick, D. A., & Peplau, L. A. (2006). Does size matter? Men's and women's views on penis size across the lifespan. *Psychology of Men and Masculinity, 7*(3), 129-143. doi: 10.1037/1524-9220.7.3.129
- Li, C., Kayes, O., Kell, P. D., Christopher, N., Minhas, S., & Ralph, D. J. (2006). Penile suspensory ligament division for penile augmentation: Indications and results. *European Urology, 49*, 729-733 doi: 10.1016/j.eururo.2006.01.020
- Molnar, B. E., Buka, S. L., & Kessler, R. C. (2001). Child sexual abuse and subsequent psychopathology: results from the National Comorbidity Survey. *American Journal of Public Health, 91*(5), 753-760.
- Monzani, B., Rijdsdijk, F., Anson, M., Lervolino, A. C., Cherkas, L., Spector, T., & Mataix-Cols, D. (2012). A twin study of body dysmorphic concerns. *Psychological Medicine, 42*(9), 1949-1955. doi: 10.1017/S0033291711002741
- Monzani, B., Rijdsdijk, F., Lervolino, A. C., Anson, M., Cherkas, L., & Mataix-Cols, D. (2012). Evidence for a genetic overlap between body dysmorphic concerns and obsessive-compulsive symptoms in an adult female community twin sample. *American Journal of Medical Genetics, 159*(4), 376-382. doi: 10.1002/ajmg.b.32040
- Neziroglu, F., Khemlani-Patel, S., & Veale, D. (2008). Social learning theory and cognitive behavioral models of body dysmorphic disorder. *Body Image, 5*(1), 28-38. doi: 10.1016/j.bodyim.2008.01.002
- Neziroglu, F., Khemlani-Patel, S., & Yaryura-Tobias, J. A. (2006). Rates of abuse in body dysmorphic disorder and obsessive compulsive disorder. *Body Image, 3*(2), 189-193. doi: 10.1016/j.bodyim.2006.03.001

- Osman, S., Cooper, M., Hackmann, A., & Veale, D. (2004). Spontaneously occurring images and early memories in people with body dysmorphic disorder. *Memory*, 12(4), 428-436. doi: 10.1080/09658210444000043
- Perovic, S. V., Byun, J.-S., Scheplev, P., Djordjevic, M. L., Kim, J.-H., & Bubanj, T. (2006). New perspectives of penile enhancement surgery: tissue engineering with biodegradable scaffolds. *European Urology*, 49(1), 139-147. doi: 10.1016/j.eururo.2005.08.016
- Phillips, K. A., Coles, M., Menard, W., Yen, S., Fay, C., & Weisberg, R. B. (2005). Suicidal ideation and suicide attempts in body dysmorphic disorder. *Journal of Clinical Psychiatry*, 66 (6), 717-725.
- Phillips, K. A., & Diaz, S. F. (1997). Gender differences in body dysmorphic disorder. *Journal of Nervous Mental Disorders*, 185(9), 570-577.
- Phillips, K. A., Didie, E. R., Menard, W., Pagano, M. E., Fay, C., & Weisberg, R. B. (2006). Clinical Features of Body Dysmorphic Disorder in Adolescents and Adults. *Psychiatry Research*, 141(3), 305-314.
- Phillips, K. A., & Dufresne, R. G. (2000). Body dysmorphic disorder: A guide for dermatologists and cosmetic surgeons. *American Journal of Clinical Dermatology*, 1(4), 235-243.
- 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.
- Phillips, K. A., Nierenberg, A. A., Brendel, G., & Fava, M. (1996). Prevalence and clinical features of body dysmorphic disorder in atypical major depression. *Journal of Nervous and Mental Disease*, 184(2), 125-129.

- Rief, W., Buhlmann, U., Wilhelm, S., Borkenhagen, A., & Brahler, E. (2006). The prevalence of body dysmorphic disorder: a population-based survey. *Psychological Medicine, 36*(6), 877-885.
- Sarwer, D. B., Pertschuk, M. J., Wadden, T. A., & Whitaker, L. A. (1998). Psychological investigations in cosmetic surgery: a look back and a look ahead. *Plastic and Reconstructive Surgery, 101*, 1136-1142.
- Spataro, J., Mullen, P. E., Burgess, P. M., Wells, D. L., & Moss, S. A. (2004). Impact of child sexual abuse on mental health: prospective study in males and females. *British Journal of Psychiatry, 184*(5), 416-421.
- Spyropoulos, E., Christoforidis, C., Borousas, D., Mavrikos, S., Bourounis, M., & Athanasiadis, S. (2005). Augmentation phalloplasty surgery for penile dysmorphism in young adults: Considerations regarding patient selection, outcome evaluation and techniques applied. *European Urology, 48*(1), 121-128. doi: 10.1016/j.eururo.2005.02.021
- Thompson, J. K., Cattarin, J., Fowler, B., & Fisher, E. (1995). The Perception of Teasing Scale (POTS): a revision and extension of the Physical Appearance Related Teasing Scale (PARTS). *Journal of Personality Assessment, 65*(1), 146-157.
- Tiggemann, M., Martins, Y., & Churchett, L. (2008). Beyond muscles : Unexplored parts of men's body image. *Journal of Health Psychology, 13*(8), 1163-1172. doi: 10.1177/1359105308095971
- Veale, D. (2002). Over-valued ideas: a conceptual analysis. *Behaviour Research and Therapy, 40*(4), 383-400. doi: 10.1016/S0005-7967(01)00016-X
- Veale, D., Boocock, A., Gournay, K., Dryden, W., Shah, F., Willson, R., & Walburn, J. (1996). Body dysmorphic disorder. A survey of fifty cases. *The British Journal of Psychiatry, 169*(2), 196-201. doi: 10.1192/bjp.169.2.196

- Veale, D., De Haro, L., & Lambrou, C. (2003). Cosmetic rhinoplasty in body dysmorphic disorder. *British Journal of Plastic Surgery*, 56(6), 546-551. doi: 10.1016/s0007-1226(03)00209-1
- Veale, D., Ellison, N., Werner, T. G., Dodhia, R., Serafty, M., & Clarke, A. (2011). Development of a Cosmetic Procedure Screening questionnaire (COPS) for body dysmorphic disorder. *Journal of Plastic and Reconstructive Aesthetics*, 65(4), 530-532. doi: 10.1016/j.bjps.2011.09.007
- Veale, D., Eshkeviri, E., Read, J., Miles, S., Trogia, A., Phillips, R., . . . Muir, G. (2014). Beliefs about penis size: Validation of a scale for men with shame about the size of their penis. *Journal of Sexual Medicine*, 11(1), 84-92. doi: 10.1111/jsm.12294
- Veale, D., Gournay, K., Dryden, W., Boocock, A., Shah, F., Willson, R., & Walburn, J. (1996). Body dysmorphic disorder: A cognitive behavioural model and pilot randomised controlled trial. *Behaviour Research and Therapy*, 34(9), 717-729. doi: 10.1016/0005-7967(96)00025-3
- Veale, D., & Lambrou, C. (2002). The importance of aesthetics in body dysmorphic disorder. *CNS Spectrums*, 7(6), 429-431.
- Veale, D., Miles, S., Read, J., Trogia, A., Carmona, L., Fiorito, C., . . . Muir, G. (2015a). Penile Dysmorphic Disorder: Development of a screening scale. *Archives of Sexual Behavior*, 44, 1573-2800. doi: 10.1007/s10508-015-0484-6
- Veale, D., Miles, S., Read, J., Trogia, A., Carmona, L., Fiorito, C., . . . Muir, G. (2015c). Phenomenology of men with body dysmorphic disorder concerning penis size compared to men anxious about their penis size and to controls: a cohort study. *Body Image*, 13, 53-61. doi: 10.1016/j.bodyim.2014.09.008
- Veale, D., Miles, S., Read, J., Trogia, A., Phillips, R., Carmona, L., . . . Muir, G. (in press). Sexual functioning and behaviour of men with body dysmorphic

disorder concerning penis size and men anxious about penis size with controls: a cohort study *Sexual Medicine*. doi: 10.1002/sm2.63

Wessells, H., Lue, T. F., & McAninch, J. W. (1996). Penile length in the flaccid and erect states: Guidelines for penile augmentation. *Journal of Urology*, 156(3), 995-997. doi: 10.1016/S0022-5347(01)65682-9

Wylie, K. R., & Eardley, I. (2007). Penile size and the 'small penis syndrome'. *BJU international*, 99(6), 1449-1455. doi: 10.1111/j.1464-410X.2007.06806.x

Table 1 *Demographic comparison between BDD, SPA and control groups*

	BDD group	SPA group	Men with no concerns group	Comparisons
<i>N</i> = 90	<i>n</i> = 26	<i>n</i> = 31	<i>n</i> = 33	
Mean age, (SD)	42.04 (10.01)	31.77 (10.61)	32.42 (13.06)	$H(2) = 14.40, p = .001$ BDD x SPA $U = 491.00, Z = 3.15, p = .002, d = 0.98$ BDD x Control $U = 634.00, Z = 3.13, p = .002, d = 0.9$ SPA x Control $U = 519.00, Z = .101, p = .920, d = 0.0$
Mean BMI, (SD)	28.57 (4.12)	25.01 (4.21)	23.67 (2.59)	$H(2) = 21.23, p < .001$ BDD x SPA $U = 592.00, Z = 3.03, p = .002, d = 0.88$ BDD x Control $U = 731.00, Z = 4.61, p < .001, d = 1.5$ SPA x Control $U = 615.00, Z = 1.39, p = .164, d = 0.3$
Marital status, <i>n</i> (%)				
Single	14 (53.8)	22 (71.0)	21 (63.6)	
Married / Long-term relationship	12 (46.2)	9 (29.0)	12 (36.4)	Fisher's Exact Test $p = .407$
Education level, <i>n</i> (%)				
Secondary	10 (38.5)	8 (25.8)	12 (36.4)	Fisher's Exact Test $p = .564$
Tertiary	16 (61.5)	23 (74.2)	21 (63.6)	
Employment, <i>n</i> (%)				
Unemployed	7 (26.9)	3 (9.7)	5 (15.2)	
Employed / Self-employed or Student	19 (73.1)	28 (90.3)	28 (84.8)	Fisher's Exact Test $p = .221$
Ethnicity, <i>n</i> (%)				
White	23 (88.5)	25 (86.2)	29 (87.9)	Fisher's Exact Test $p = 1.00$
Other	3 (11.5)	4 (13.8)	4 (12.1)	
Sexual orientation, <i>n</i> (%)				
Heterosexual	19 (73.1)	22 (71.0)	26 (78.8)	Fisher's Exact Test $p = .790$
Bisexual / Homosexual	7 (26.9)	9 (29.0)	7 (21.2)	
COPS-P	43.5 (16.1)	18.7 (11.7)	3.4 (3.4)	$H(2) = 59.9, p < .001$ BDD x SPA $U = 572.00, Z = 4.68, p < .001, d = 1.74$ BDD x Control $U = 832.00, Z = 6.52, p < .001, d = 3.3$ SPA x Control $U = 868.00, Z = 5.13, p < .001, d = 1.6$

Table 2-5 are on additional material