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Relationship between self-discrepancy and worries about penis size in men with body
dysmorphic disorder

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Abstract

We explored self-discrepancy in men with body dysmorphic disorder (BDD) concerned about penis size, men without BDD but anxious about penis size, and controls. Men with BDD ($n = 26$) were compared to those with small penis anxiety (SPA; $n = 31$) and controls ($n = 33$), objectively (by measuring) and investigating self-discrepancy: actual size, ideal size, and size they felt they should be according to self and other. Most men under-estimated their penis size, with the BDD group showing the greatest discrepancy between perceived and ideal size. The SPA group showed a larger discrepancy than controls. This was replicated for the perceptions of others, suggesting the BDD group internalised the belief that they should have a larger penis size. There was a significant correlation between symptoms of BDD and this discrepancy. This self-actual and self-ideal/self-should discrepancy and the role of comparing could be targeted in therapy.

Keywords: body dysmorphic disorder; penis size; self-discrepancy

There has been limited research interest concerning penis size despite it being of significant concern to many men. Surveys have focused on men's desire for a larger penis size but have not related it to actual size (Grov, Parsons, & Bimbi, 2010; Johnston, McLellan, & McKinlay, 2014; Son, Lee, Huh, Kim, & Paick, 2003). Men are more concerned with penis size than women are with the size of their partner's penis (Lever, Frederick, & Peplau, 2006). In an internet survey of 52,031 heterosexual men and women, 85% of women were satisfied with their partner's penis size, but only 55% of men were satisfied with their own penis size – 45% wanted to be larger, while only 0.2% wanted to be smaller (Lever et al., 2006). In three smaller studies, 15-21% of women reported that penis length was important, but that penile girth was considered more important functionally during intercourse (Eisenman, 2001; Francken, van de Wiel, van Driel, & Weijmar Schultz, 2002; Stulhofer, 2006). There are no similar studies on the importance of the aesthetics of penis size (whether flaccid or erect). In gay men, Grov et al. (2010) found that about a third expressed a desire for a larger penis.

Some men with body dysmorphic disorder (BDD) are extremely self-conscious, distressed, and preoccupied with the size of their penis and as a result experience significant interference in their life as a consequence of avoiding relationships and intimacy, private leisure activities (such as exercising or swimming), or experience comorbid depression (Veale, Miles, Read, et al., 2015c). There also exists a group of men with “small penis anxiety” (SPA), a condition that consists of dissatisfaction or worry about penis size without fulfilling the criteria for BDD (Veale, Miles, Read, et al., 2015c; Wylie & Eardley, 2007). For example, they may not fulfil the criteria for preoccupation or the degree of distress and interference in their life and are more akin to people who do not have BDD, but are dissatisfied with some aspect of their bodily appearance. Men with BDD and SPA are likely

to seek penis enlargement “solutions” from Internet sites that promote non-evidence based lotions, pills, exercises, or penile extenders (Veale, Miles, Read, Troglia, Phillips, et al., 2015). These men may also seek help from private urologists or plastic surgeons, and may be offered fat injections or surgical procedures to try to increase the length or girth of their penis. However, cosmetic phalloplasty is still regarded as experimental without any adequate outcome measures or evidence of safety (Ghanem, Glina, Assalian, & Buvat, 2013). Equally, there are no evidence-based studies that evaluate any psychological intervention for penis size anxiety, although one study reported a case series of counselling and reassurance to avoid penile surgery (Ghanem et al., 2007). However, there is evidence for the benefit of cognitive behaviour therapy for BDD in general, where individuals are asked to test out their fears (Veale, Anson, et al., 2014; Veale et al., 1996; Wilhelm et al., 2014).

Mondaini et al. (2002) reported that men with SPA tended to over-estimate the average penis size in *other* men. A case series of fifty-seven men with SPA estimated the length of a flaccid penis in other men to range from 10cm to 17cm (median 12cm). In a meta-analysis of 15,521 men from 20 studies worldwide, the mean flaccid penile length was found, however, to be approximately 9 cm (Veale, Miles, Bramley, & Hodsoll, 2015). The study by Mondaini and colleagues (2002) did not focus on relative size, there was no control group, and the men were not differentiated between those with SPA and those with BDD. Lee (1996) surveyed a group of 112 young (mainly heterosexual) male students. They tended to underestimate the size of their own penis compared to other men and 26% felt that it was smaller or much smaller than that of other men.

The present authors decided that self-discrepancy theory (Higgins, 1987) might be a useful tool to explore the male psychology of penis size and that it in turn could contribute to the development of a psychological intervention. In self-discrepancy theory, there are two perspectives: self and other. The self-perspective is the viewpoint of one’s self and the other

perspective is what the person believes to be the viewpoint of their self from a significant other. The theory proposes three basic domains of self-belief that are important for understanding emotional experience: (a) The ‘actual’ self: the individual’s representation of the attributes that someone (self or significant other) believes the individual actually possesses; (b) The ‘ideal’ self: the individual’s representation of the attributes that someone (self or significant other) would ideally hope the individual to possess, and; (c) The ‘should’ or ‘ought’ self: the individual’s representation of the attributes that someone (self or significant other) believes the individual should as a sense of duty possess (rather than intrinsically desire). This is usually related to a strong inner critic about how one should be in order to be, such as to be worthy or loved.

The ideal and should selves are referred to as ‘self-guides’. It is assumed that any discrepancy between the actual self and the self-guides determines the individual’s vulnerability to negative emotional states (Higgins, 1987). For example, in a self-actual/self-ideal discrepancy, the individual is vulnerable to dejection-related emotions (e.g., depression, hurt), resulting from the appraisal that one’s hopes and aspirations are unfulfilled (and is associated with the absence of positive reinforcement). In a self-actual/other-should discrepancy, the individual is vulnerable to anxiety and shame resulting from the appraisal that one has been unable to achieve one’s sense of duty. Here, one is anticipating “punishment” by rejection or humiliation by others. Patients with social phobias have a discrepancy between how they perceive themselves and how they think they should appear to others (self-actual /other–should; Strauman, 1989). Paranoid patients appear to have discrepancies between their own self-actual beliefs and those of their parents (parent-actual/parent-ideal or parent-ought discrepancy; Kinderman & Bentall, 1996).

Self-discrepancy theory has also been explored in body image disorders with some inconsistent results, perhaps because the research has not always been on clinical samples or

because they have not included a measure of the importance of their body image ideal (Cash & Szymanski, 1995). Body shape dissatisfaction and bulimic behaviours in a sample of female undergraduate students was found to be associated with self-actual/self-ideal discrepancy (Strauman, Vookles, Berenstein, Chaiken, & Higgins, 1991). In contrast, self-actual/self-ought discrepancy was associated with anorexic-related attitudes. In a subsequent study, only the self-actual/other-ought standpoint significantly predicted bulimic behaviour (Forston & Stanton, 1992). Self-ideal body shape perceptual discrepancy has been used as an indicator of body image dissatisfaction and binge eating (Anton, Perri, & Riley, 2000; Cafri & Thompson, 2004; Munoz et al., 2010; Price, Gregory, & Twells, 2014). Lastly people with BDD were found to have significant discrepancies between their self-actual, and both their self-ideal and self-should beliefs compared to a control group (Veale, Kinderman, Riley, & Lambrou, 2003).

There is some data available from previous studies on the discrepancy between people's *objective* attributes and their self-actual (objective-self/ self-actual discrepancy), such as whether people have "rose tinted glasses" and rate themselves and their partner as more attractive than they objectively are (Swami & Furnham, 2008; Swami, Waters, & Furnham, 2010). One hypothesis is that people with BDD or body image disorders have lost their "rose tinted glasses" or under-estimate the attractiveness of their self (Jansen, Smeets, Martijn, & Nederkoorn, 2006; Lambrou, Veale, & Wilson, 2011). Buhlmann, Etcoff, and Wilhelm (2006) found that people with BDD rated their own attractiveness as significantly lower than did an independent evaluator and they rated photographs of attractive people as significantly more attractive than did a control group.

We therefore hypothesised that: (1) Men with no concerns about their penis size will have a greater discrepancy between objective-self /actual-self compared to men with BDD and SPA; that is they are more likely to over-estimate their penis size compared to their

objective size; (2) Men with BDD and SPA will have a greater self-actual/self-ideal and self-actual/other-ideal discrepancy compared with men without concerns; (3) Men with BDD and SPA will have a greater self-actual/ self-should and self-actual/other-should discrepancy compared with men without concerns, and; (4) Increasing negative discrepancy on self-actual/self-ideal and self-actual/self-should will be associated with symptoms of BDD (increasing preoccupation, distress, and interference in life).

Method

Participants

The study consisted of a cohort group design comparing self-discrepancy measures in (a) men who fulfilled diagnostic criteria for BDD in whom penis size was their main if not exclusive preoccupation (BDD group); (b) men who expressed dissatisfaction or worry about their penis size but did not fulfil diagnostic criteria for BDD (SPA group), and; (c) controls who did not express any anxiety about their penis size and did not fulfil criteria for BDD.

Of note is that we have published previously on this sample and subsamples. Each of the previous manuscripts had specific aims and findings. Veale, Miles, Read, et al. (2015c) explored the phenomenology and characteristics of men with BDD concerning penis size compared to men anxious about their penis size, and to controls. This sample was also analysed in Veale, Miles, Read, Troglia, Phillips, et al. (2015) to understand the sexual functioning in such men, and Veale, Miles, Read, et al. (2015a) explored the risk factors in men that lead to BDD concerning penis size. Lastly, Veale, Miles, Read, et al. (2015b) analysed a subsample to validate a scale for men with BDD concerned about penis size, and Veale, Eshkevari, et al. (2014) analysed an earlier subsample to develop a scale to measure beliefs about penis size. The variables presented here that have already been reported in prior papers (Veale, Miles, Read, et al., 2015a, 2015c) are the demographics and size of the penis

(which has been converted into a percentile on a nomogram to obtain the objective size for self-discrepancy).

Men were recruited from one of three sources: (a) by email to staff and students at King's College London ($n = 53$), (b) by email to a database of volunteers at a Psychology department ($n = 11$), and; (c) by a link on the *Embarrassing Bodies* website (www.channel4embarrassingillnesses.com), following their feature on penis size concerns ($n = 62$). The latter is a UK-aired television programme in which members of the public presented to multiple doctors with physical and medical concerns. They were recruited between January 2013 and July 2014.

We sought to recruit men for a study on their beliefs about penis size, whether they had any concerns or not. In total, 125 men were included in the study; 30 in the BDD group, 60 in the SPA group, and 35 in the control group. 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 4cm or less in the flaccid state; Wessells, Lue, & McAninch, 1996); this is based on 2.5 standard deviations below the mean for age; (2) had a penile abnormality (e.g., Peyronie's disease, hypospadias, intersex, phimosis), and; (3) had had penile or prostatic surgery (which may affect penis size).

Materials

Cosmetic Procedure Screening Scale for Penile Dysmorphic Disorder (COPS-P) (Veale, Miles, Read, et al., 2015b). This questionnaire is a 9-item self-report scale and has been validated as a screening questionnaire for identifying BDD in men with concerns about penis size (commonly called Penile Dysmorphic Disorder). The wording was modified from the original COPS for general appearance concerns (Veale et al., 2012) to focus on worries about penis size. Participants rated each item on a 9-point Likert scale ranging from 0 (*Not at*

all) to 8 (*Extremely*). Higher total scores reflect increased preoccupation and distress over the penis size and therefore the likelihood of a diagnosis of BDD. Cronbach's alpha for this scale was .94.

Self-discrepancy questionnaire. Each participant completed questions on his estimate of the size of his flaccid and erect penis in relation to other men for (a) self-actual; (b) self-ideal, and; (c) self-should. The wording for the flaccid version was as follows: "The scale below represents the length of a man's NON-ERECT penis compared to that of other men. '0' represents the shortest penis length, '50' is the average penis length and '100' is the longest penis that exists. Anything below 50 is below average. Anything above 50 is above average." Three estimates were made according to the following instructions: (1) Self-actual: "Using this scale, what do you believe the ACTUAL length of your NON-ERECT penis is in relation to those of other men?"; (2) Self-ideal: "Using this scale, what IDEALLY do you want the length of your NON-ERECT penis to be in relation to those of other men?"; (3) Self-should: "Using this scale, what do you believe the length of your NON-ERECT penis SHOULD be in relation to those of other men (for whatever reason)?"

The same format of questions was repeated for each respondent to estimate his erect penis: (d) self-actual erect length; (e) self-ideal erect length, and; (f) self-should erect length. Lastly, he was asked to estimate the girth of his erect penis: (g) self-actual erect girth; (h) self-ideal erect girth, and; (i) self-should erect girth. Thus, in all, nine estimates were made for what the respondent believed the size of his flaccid length, erect girth, and erect length was in comparison to other men.

The same format of questions was repeated for the respondent from the perspective of another person to estimate: (j) other-actual; (k) other-ideal, and; (l) other-should. The wording for the question on the other perspective about the size of the erect penis was as follows: "The scale below represents the length of a man's NON-ERECT penis compared to

that of other men. “0” represents the shortest penis length that exists, “50” is the average penis length and “100” is the longest penis that exists. Anything below 50 is below average. Anything above 50 is above average.” The wording of the three questions was as follows: (1) Other-actual: “Using this scale, what do you think OTHERS believe the ACTUAL length of your NON-ERECT penis is in relation to those of other men?”; (2) Other-ideal: “What do you think OTHERS want the length of your NON-ERECT penis to be IDEALLY in relation to those of other men?”; (3) Other-should: “Using this scale, what do you think OTHERS believe the length of your NON-ERECT penis SHOULD be (for whatever reason)?”.

The same format of questions was then repeated for what the respondent believed others estimate (a) the length of their erect penis (other-actual, other-ideal, and other-should), and; (b) the girth of their erect penis (other-actual, other-ideal, and other-should). Thus, all nine discrepancy dimension estimates were made for what the respondent believed, others believe, and for the flaccid length, erect girth, and erect length in comparison to other men.

Procedure

Initial advertisements for participants sought to recruit men to a study about their beliefs about their penis size. Participants completed online questionnaires and 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 met criteria for the BDD group. The Diagnostic and Statistical Manual of Mental Disorders – 4th edition (*DSM-IV*; American Psychiatric Association, 1994) was used as the study commenced before publication of *DSM-5* (American Psychiatric Association, 2013). Each participant had an objective measure of his penis size in cm (length and circumference in both flaccid and erect) taken by three different urologists in a hospital setting. The urologist was blind to which group they were allocated. Details of the measurement procedure are reported elsewhere

(Veale, Miles, Read, et al., 2015c). No inter-rater reliability of the urologists was conducted. Participants' objective size was then converted into a percentile on a nomogram taken from a meta-analysis of studies on penile size in 15,540 men (Veale, Miles, Bramley, et al., 2015) in order to determine the objective-actual length and girth of his flaccid and erect penis, and to determine any discrepancy with his self-actual measure. Participants were not told their actual length or girth until after they had completed all of the questionnaires. Size was discussed as part of a post-study counselling session.

Statistical Analyses

Planned discrepancies were calculated for: (a) Objective-Actual – Self-Actual; (b) Self-Actual – Self-Ideal; (c) Self-Actual – Self-Should; (d) Self-Actual – Other-Ideal; (e) Self-Actual – Other-Should; (f) Other-Actual – Other-Ideal, and; (g) Other-Actual – Other-Should. We conducted analyses of variance (ANOVAs) for discrepancies between the groups. For each analysis, only those with the necessary data were included. Fisher's Exact test was conducted on categorical analyses. A Bonferroni correction was applied in the *post hoc* tests, which meant that the significance level was set at $< .017$. A Kruskal-Wallis test was used to analyse age and COPS-P.

Results

Demographic Information

Demographic data are shown in Table 1. The men with BDD were significantly older than those with SPA ($d = 0.95$, 95% *CI*: 1.16-1.49) and those without concerns ($d = 0.73$, 95% *CI*: 1.08-1.50). However, there were no significant differences between the groups for marital status, employment, ethnicity or sexual orientation. Of the men in the BDD group, 10 (33.3%) had delusional BDD. Additional comorbidity in the BDD group included major depression in $n = 7$ (26.9%), generalised anxiety disorder in $n = 1$ (3.8%), and social phobia in $n = 5$ (19.2%). In the SPA group, $n = 2$ (6.5%) had major depression, $n = 3$ (9.7%) had

social phobia, $n = 2$ (6.5%) had generalised anxiety disorder, and $n = 1$ (3.2%) had combinations of the above. Men with BDD had significantly higher scores on the COPS-P ($M = 44.25$, $SD = 15.70$) than both the SPA group ($M = 18.20$, $SD = 11.78$, $d = 1.88$, 95% CI : 1.98-3.02) and men without concerns group ($M = 3.48$, $SD = 3.42$, $d = 2.08$, 95% CI : -0.10-0.26), $H(2) = 73.81$, $p < .001$. The SPA group scores on the COPS-P were also significantly higher than the men without concerns ($d = 0.81$, 95% CI : -0.23-0.63). The mean score (18.20) indicates that the SPA group was in the sub-clinical range.

Objective-Actual

Table 2 provides the mean and standard deviation converted into percentiles for the objective-actual dimensions of each group. The BDD group had on average a significantly smaller erect length on approximately the 40th percentile, compared to the control group (approximately the 70th percentile) but not the SPA group (approximately the 60th percentile; Table 2). This pattern was replicated for the flaccid length (see Supplementary Table 1), but not for the erect girth, for which there was no significant difference between the groups (see Supplementary Table 2). Objectively, all groups were on average approximately the 60th percentile for their girth.

Self and Other-Actual, Ideal, and Should

Table 2 demonstrates that the BDD group believed from their own (self-actual) and other's perspective (other-actual) that they were significantly smaller in size compared to the SPA and control group in erect length. There was no significant difference for self-ideal: on average, men across all groups *ideally* wanted to be on approximately the 70th percentile. There was also no significant difference between the groups for self-should: on average men believed that they *should* be on approximately the 62nd percentile. These findings were replicated for flaccid length (see Supplementary Table 1) and erect girth (see Supplementary Table 2).

Objective-Actual/Self-Actual Discrepancy

Table 3 demonstrates that the discrepancy between objective-actual and self-actual for erect length was positive across all groups. Thus, all groups tended to *underestimate* their own size by a mean difference of at least 10 percentile points. There was no significant difference in the pattern of findings in the estimates of flaccid length or erect girth (see Supplementary Tables 3 and 4), although the underestimate in the percentile was larger for flaccid length than erect girth (between 15 and 30 percentile points).

Self-Actual/Self-Should Discrepancy

Table 3 demonstrates that a negative discrepancy was found for all three groups between self-actual and self-should erect length. This discrepancy was significantly higher in the BDD group than the SPA or control group, and significantly higher in the SPA group compared to the control group (Table 4). This pattern was replicated for flaccid length and for erect girth (see Supplementary Table 5). This means that the BDD group believed that they should be significantly larger compared to the size they believed they were.

Self-Actual/Self-Ideal Discrepancy

Table 3 also demonstrates the negative discrepancy that was found for all three groups between self-actual and self-ideal erect length. This discrepancy was significantly higher in the BDD group than the SPA or control group, and significantly higher in the SPA group compared with the control group (Table 4). This pattern was replicated for the flaccid length and the erect girth (see Supplementary Tables 5 and 6). This means that the BDD group believed that they would ideally like to be significantly larger compared to the size they believed they were.

Self-Actual/Other-Should Discrepancy

Because of an error in data collection, a smaller number of participants completed the Other-Ideal and Other-Should measures ($n = 88$). Table 3 and 4 shows a significantly higher

negative discrepancy between self-actual and other-should in the BDD group compared to the SPA or control group, and significantly higher in the SPA group compared to controls. A similar effect was found for flaccid length (see Supplementary Table 3 and 5). However, for erect girth, *post hoc* tests revealed this significant discrepancy was only between the BDD group and controls (see Supplementary Table 4 and 5). The same pattern was repeated for Other-Actual/Other-Should discrepancies. Thus, the BDD group believed that others were demanding they should be a larger size.

Self-Actual/Other-Ideal Discrepancy

Tables 3 and 4 show a significantly higher negative self-discrepancy for the self-actual/other-ideal discrepancy for erect length in the BDD group compared with the control group, and for the SPA group compared with controls. This was repeated for flaccid length and between the BDD group and controls only for erect girth. The same pattern was repeated for Other-Actual/Other-Ideal discrepancies.

Correlation with BDD Symptoms

For all the groups combined, there was a strong and significant correlation between the symptoms of BDD on the COPS-P and the self-actual/ self-should erect discrepancy ($r = -.69$), or self-actual/other-ideal ($r = -.63$), or self-actual/other-should erect discrepancy ($r = -.66$; see Table 5). Thus, increasing symptoms of BDD were associated with a higher negative discrepancy between self-actual or self-should or self-ideal. These correlations were larger than that found in the objective-actual correlation ($r = -.30$). This pattern was replicated in the correlations for flaccid length and erect girth (see Supplementary Table 6).

Discussion

We explored whether self-discrepancy theory might be helpful in our understanding of men who were concerned about their penis size. Most of our hypotheses were confirmed in that men with BDD showed the greatest discrepancy between perceived size and their ideal

or should size. The SPA group showed a larger discrepancy than controls. This was replicated for the perceptions of others. We also confirmed our hypothesis that increasing negative discrepancy between perceived size and one's ideal or should size would be associated with increasing symptoms of BDD. However, contrary to our hypothesis, most men under-estimated their penis size. Each of these findings are discussed below.

Objective-Actual

The BDD and the SPA group were on average smaller for the erect and flaccid length than the control group, with the BDD group being significantly so. This suggests that on average such men were objectively different. This would be relevant if they make comparisons of their flaccid length (e.g., in changing rooms) or if they have received comments (e.g., from a sexual partner). It should be emphasised that penis size is a normal variation (like height or breast size) and only a micropenis would exclude the diagnosis of BDD as a perceived defect. Our control group was, however, above average: on about the 70th percentile (see limitations). However, our main variable of interest was in the perceived self and various discrepancies with the perceived self.

Self and Other-Actual, Ideal, and Should

There was no significant difference between the groups suggesting that all groups believed that their estimate of penis size was correct in the eyes of others. Of note is that, irrespective of group, men believed they *should* be a bigger than average by about 12 percentile points and would *ideally* like to be about 20 percentile points bigger in their penis size. This therefore appears to be an affliction of being male and is consistent with large surveys suggesting that about 45% of the male population ideally want to be bigger (Lever et al., 2006).

Objective-Actual/Self-Actual Discrepancy

Men in this study, whether they had concerns about their penis size or not, on average tended to *under-estimate* their penis size by about 10%. Positive bias in one's attributes is a well-recognised phenomenon that occurs, for example, in women rating their attractiveness (Jansen et al., 2006) and in non-depressed individuals compared to depressed (Strunk, Lopez, & DeRubeis, 2006). However, our study found that positive bias does not occur in men regarding their perceived penis length: they tended to under-estimate their size, whether they had concerns or not (that is, they do *not* wear rose-tinted glasses.) Thus, our first hypothesis that the BDD group would tend to lose their positive bias compared to the SPA and control groups was not confirmed. This finding is, however, in keeping with Mondaini et al. (2002), who found that men under-estimate the average size penis. Our added finding is that men with BDD or SPA are no different from those without concerns. This suggests that psycho-education about penile size needs to be individualised, as there was a large variance in the estimate of individual percentile on the nomogram within each group. It also raises the question of whether it is helpful to reveal to a man concerned about size where his position is on a nomogram. For example, it may be helpful for some of the 50% of men who are above the mean to be told of their relative size but not helpful for some of the 50% for those who are below the mean.

Self-Actual/Self-Ideal Discrepancy

We confirmed the hypothesis that one of the main significant differences between the groups is the discrepancy between the self-actual and self-ideal. The BDD group had a significantly higher discrepancy compared to the SPA group, which in turn was significantly greater than the control group. This may relate to the BDD group internalising their beliefs about wanting to be larger. In accordance with self-discrepancy theory, this will be associated with a sense of loss and feeling depressed and inadequate if they compare with other men.

Members of the SPA group were more flexible in their beliefs than the BDD group, but still had a significantly higher discrepancy than the control group.

Self-Actual/Self-Should Discrepancy

We confirmed the hypothesis that the other main difference between the groups is the discrepancy between the self-actual and self-should. The BDD group had a significantly higher discrepancy than the SPA group, which in turn was significantly greater than the Control group. This implies that the BDD group had stronger beliefs that they *should* be larger. This may relate the BDD group experiencing a strong inner critic of their inadequacy compared with other men, and feelings of internal shame (Veale & Gilbert, 2014). The concept has a long tradition. For example, the term “tyranny of the shoulds” was coined in the 1950s (Horney, 1950), and is based on the discrepancy between a person’s should self and their actual self, for which they can never live up to. This leads to a failure to achieve these goals and therefore a spiraling into self-criticism or self-hate, shame and depression.

Self-Actual and Other-Ideal or Other-Should Discrepancy

The BDD group had a significantly higher discrepancy between their perceived self and what they believed was others’ ideal or others’ should compared to the SPA group, which in turn was significantly greater than the control group. In accordance with self-discrepancy theory, the BDD group may have experienced more external shame and believed that others would be critical of their inadequacy and should be larger. Both internal and external shame are, in learning theory terms, forms of punishment that may be motivated by a desire to keep one’s self safe from rejection or humiliation (Veale & Gilbert, 2014). This is, in turn, is likely to be associated with safety-seeking (e.g., camouflaging) or avoidance behaviours (Veale, Miles, Read, et al., 2015c). The SPA group may, however, be more flexible in their beliefs and may be easier to help in behavioural interventions and psycho-sexual counselling.

Correlation with BDD Symptoms

There was a strong and significant correlation between the symptoms of BDD on the COPS-P and relevant discrepancies, and also between the COPS-P scores and the actual-objective penis size. However, the correlation was larger between the COPS-P scores and the discrepancies, providing some evidence that one's ideals and demands concerning penis size are associated with the degree of distress and symptoms of BDD and actual size less so. This is evidence that the psychological aspects of penile size are more important than the anatomical size.

This study represents work on a neglected and under-researched area. It was possible to identify the two main cognitive processes in men with BDD with concerns about penis size. According to self-discrepancy theory, actual-ideal discrepancies relate to a sense of loss and perceived rejection and actual-should discrepancies relate to humiliation and shame. In a similar vein, Cash and Szymanski (1995) developed the Body Ideals Questionnaire and demonstrated that the degree of discrepancy (from ideals) should also be multiplied by the degree of importance (of the ideal) in the prediction of body image distress in a non-clinical population. By definition, people with BDD place great importance on their features in defining their self (Baldock & Veale, in press; Veale et al., 1996). Our findings are therefore consistent with the body image literature in that the degree of discrepancy and the degree of importance attached to the body feature relate to the degree of distress rather than the actual feature.

Overall, the strengths of the study are that we were able to include a group who expressed worries about their penis size (but did not have BDD) as well as a group with BDD. We also had an objective measure of participants with which to compare against their perceived size and found that men may be objectively different. Further research on self-discrepancy theory might focus on the discrepancy between (a) feared and actual selves; (b)

partner's estimation of their penis size (Partner-Actual/Other-Actual; Partner-Ideal/Other-Ideal; Partner-Should/Other-Should), and; (c) combining a measure of self-ideal discrepancy with a degree of importance of the ideal of a larger penis. Comparing may also occur against men who appear in pornographic videos (whether heterosexual or gay) and this may fuel the Self-Actual/Self-Ideal and Self-Should discrepancy.

Limitations

The main limitation of the study is that the sample was non-clinical and self-selected from three different sources. We do not therefore know how representative it is of men who are concerned about their penis size in the community. However, due to the difficulty in recruiting such men to be measured and there being few psychological studies published in this area, this is an important first step in this field. Our sample may not be representative of men who present to urologists, cosmetic surgeons, or mental health services, but the BDD group did fulfil the relevant diagnostic criteria. Such men are extremely ashamed and do not tend to seek help via conventional care pathways. The sample is probably more representative of men in the community who search for solutions on the Internet or go to private surgeons (who are less likely to participate in research). Because of the small numbers we were not able to separately analyse gay men. Some gay men might have a particular difficulty in that they may have an erotic ideal size of their partner that may be larger than their own size or one to which they compare themselves and this would be an important group to investigate.

There were no significant differences in size between the SPA and the group without concerns. However, the men without concerns might have volunteered to participate in research of this nature because they were more confident of their size than most. If the non-concerned group were on average on the 50th percentile, then the differences in actual size may no longer have been significant. In addition, the study relied on self-measurement of

penis size in 12 out of 90 participants. It is possible that some of these men may be exaggerating their size, but the instructions were standardised, written by the urologist, and guided using a video used by clinicians in order to reduce error. However, 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 also possible that some of the risk may be mediated by general psychopathology, but there were no significant differences between the BDD and SPA for co-morbidity. Men in the control group may have been more confident about their penis size to volunteer for this study, as on average they were on the 70th percentile of a nomogram. Lastly, the main preoccupation reported by our sample was of penis size, but some men may have had additional concerns about their genitalia (e.g., testicular size, smell of their genitalia; Davis, Binik, Amsel, & Carrier, 2013).

Clinical Implications

Measuring the objective penis size and the perceived actual, ideal, and should size on a nomogram (Veale, Miles, Bramley, et al., 2015) may be a helpful intervention in men expressing concerns about their penis size. This is because they may be under-estimating their size and there may be a large discrepancy between their perceived size, and the size they ideally would like to be or believe they should be. The larger the discrepancy, the higher the distress and frequency of symptoms of BDD. Large discrepancies between perceived and ideal size are likely to be associated with depression and hurt. Large discrepancies between perceived and should size are likely to be associated with shame. These findings are likely to generalise to other body features in BDD in terms of perceived actual and ideal or should discrepancies. These cognitive processes and the role of comparing against other men could be targeted in psychological interventions for such men.

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Table 1. *Demographic Comparisons Between Groups.*

Measure		BDD <i>n</i> (%)	SPA <i>n</i> (%)	Control <i>n</i> (%)	Comparison
<i>N</i>		30	60	35	
Mean age (<i>SD</i>)		40.86 (10.42)	31.06 (10.15)	32.32 (12.87)	$H(2) = 15.75, p < .001$
Employment	Unemployed / student	7 (23.3)	4 (6.7)	5 (14.3)	Fisher's Exact Test $p = .086$
	Employed	21 (70.0)	49 (81.7)	29 (82.9)	
Ethnicity	White British	24 (80.0)	40 (66.7)	30 (85.7)	Fisher's Exact Test $p = .525$
	Other	4 (13.3)	11 (18.3)	4 (11.4)	
Marital status	Single	16 (53.3)	36 (60.0)	22 (62.9)	Fisher's Exact Test $p = .595$
	In a relationship / married	12 (40.0)	17 (28.3)	12 (34.3)	
Sexuality	Heterosexual	19 (63.3)	34 (56.7)	26 (74.3)	Fisher's Exact Test $p = .483$
	Gay / bisexual	9 (30.0)	19 (31.7)	8 (22.9)	

*Note:*BDD = Body Dysmorphic Disorder; SPA = Small Penis Anxiety; H = Kruskal-Wallis H Statistic.

Table 2. Means and Standard Deviation: Erect Length Variables Before Calculating Discrepancy Variables.

Measure	BDD group	SPA group	Control group	Comparison	Post-hoc test
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>H, (df), p</i>	<i>U, Z, p</i>
Objective-actual	41.30 (34.49)	60.76 (31.48)	71.56 (29.51)	$H(2) = 12.24, p = .002$	BDD x SPA $U = 365.00, Z = -2.20, p = .028, d = 0.55$
					BDD x Control $U = 208.50, Z = -3.33, p = .001, d = 0.96$
					SPA x Control $U = 551.00, Z = -1.85, p = .064, d = 0.43$
Self-actual	32.00 (14.10)	42.45 (16.61)	62.22 (17.93)	$H(2) = 50.57, p < .001$	BDD x SPA $U = 450.50, Z = -4.06, p < .001, d = 0.94$
					BDD x Control $U = 40.50, Z = -6.48, p < .001, d = 2.64$
					SPA x Control $U = 442.50, Z = -4.72, p < .001, d = 1.11$
Self-should	61.35 (12.93)	62.27 (11.54)	63.67 (12.64)	$H(2) = 0.11, p = .946$	
Self-ideal	69.15 (13.54)	70.11 (11.98)	71.61 (14.84)	$H(2) = 0.09, p = .955$	
Other-actual	38.69 (13.34)	42.70 (17.33)	61.94 (18.95)	$H(2) = 18.31, p < .001$	BDD x SPA $U = 487.50, Z = -1.04, p = .298, d = 0.25$
					BDD x Control $U = 73.50, Z = -4.02, p < .001, d = 1.49$
					SPA x Control $U = 180.50, Z = -3.59, p < .001, d = 1.02$

Other-should	61.58 (14.58)	58.75 (13.73)	59.72 (11.44)	$H(2) = 0.81, p = .666$
Other-ideal	68.69 (14.06)	65.11 (14.12)	66.39 (13.48)	$H(2) = 1.27, p = .530$

Note: BDD = Body Dysmorphic Disorder; SPA = Small Penis Anxiety; d = Cohen's d ; Z = Z statistic; U = Mann Whitney U statistic; df = degrees of freedom; SD = standard deviation; M = mean; H = Kruskal-Wallis H Statistic.

Table 3. *Self-Discrepancies and Erect Length, Compared by Group.*

Measure	BDD group				SPA group				Control group				Comparison	
	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>Range</i>	<i>N</i>	<i>H</i> , (df), <i>p</i>	
Objective-actual/ self-actual	10.82	27.74	-32.50 65.00	25	16.77	24.49	-40.00 64.00	43	10.93	27.62	-50.00 52.00	3 4	<i>H</i> (2) = 1.19, <i>p</i> = .550	
Self-actual/ self-should	-32.63	20.84	-80.00 0.00	30	-18.12	15.90	-80.00 10.00	60	-2.09	9.49	-20.00 20.00	3 5	<i>H</i> (2) = 47.23, <i>p</i> < .001	
Self-actual/ self-ideal	-39.4	18.87	-80.00 10.00	30	-25.53	16.37	-80.00 0.00	60	-10.26	11.11	-40.00 10.00	3 5	<i>H</i> (2) = 44.64, <i>p</i> < .001	
Self-actual/ other-actual	-6.69	17.01	-55.00 7.00	26	-.25	10.07	-30.00 30.00	44	0.00	8.31	-20.00 15.00	1 9	<i>H</i> (2) = 1.53, <i>p</i> = .466	
Self-actual/ other-should	-29.58	60.61	-80.00 0.00	26	-16.30	19.92	-90.00 30.00	44	-2.11	14.29	-15.00 40.00	1 9	<i>H</i> (2) = 27.95, <i>p</i> < .001	
Self-actual/ other-ideal	-36.69	18.03	-80.00 10.00	26	-22.66	20.27	-90.00 25.00	44	-4.21	19.44	-50.00 25.00	1 9	<i>H</i> (2) = 24.53, <i>p</i> < .001	
Other-actual/ other-should	-22.88	19.09	-65.00 0.00	26	-16.05	20.26	-95.00 20.00	44	2.11	14.27	-20.00 40.00	1 9	<i>H</i> (2) = 18.85, <i>p</i> < .001	
Other-actual/ other-ideal	-30.00	16.37	-70.00 0.00	26	-22.41	21.00	-95.00 25.00	44	4.21	20.30	-60.00 20.00	1 9	<i>H</i> (2) = 19.09, <i>p</i> < .001	

Note: BDD = Body Dysmorphic Disorder; SPA = Small Penis Anxiety; *d* = Cohen's *d*; *Z* = *Z* statistic; *U* = Mann Whitney *U* statistic; df = degrees of freedom; *SD* = standard deviation; *M* = mean; *H* = Kruskal-Wallis *H* Statistic.

Table 4. *Post-hoc Comparisons Erect Length.*

Measure	Post-hoc comparisons <i>U, Z, p, d</i>		
	BDD vs SPA	BDD vs Controls	SPA vs Controls
Self-actual/self-should	$U = 505.00, Z = -3.41$ $p = .001, d = 0.77$	$U = 90.00, Z = -5.81$ $p < .001, d = 2.08$	$U = 357.50, Z = -5.43$ $p < .001, d = 1.34$
Self-actual/self-ideal	$U = 461.00, Z = -3.78$ $p < .001, d = 0.87$	$U = 84.50, Z = -5.82$ $p < .001, d = 2.09$	$U = 435.50, Z = -4.77$ $p < .001, d = 1.12$
Self-actual/other-should	$U = 351.00, Z = -2.70$ $p = .006, d = 0.68$	$U = 32.50, Z = -4.96$ $p < .001, d = 2.20$	$U = 174.00, Z = -3.70$ $p < .001, d = 1.05$
Self-actual/other-ideal	$U = 342.00, Z = -2.81$ $p = .004, d = 0.71$	$U = 45.00, Z = -4.66$ $p < .001, d = 1.93$	$U = 205.00, Z = -3.21$ $p = .001, d = 0.88$
Other-actual/other-should	$U = 446.00, Z = -1.55$ $p = .123, d = 0.38$	$U = 68.00, Z = -4.16$ $p < .001, d = 1.58$	$U = 195.00, Z = -3.39$ $p < .001, d = 0.94$
Other-actual/other-ideal	$U = 424.00, Z = -1.81$ $p = .071, d = 0.44$	$U = 67.00, Z = -4.16$ $p < .001, d = 1.58$	$U = 199.00, Z = -3.30$ $p = .001, d = 0.92$

Note: BDD = Body Dysmorphic Disorder; SPA = Small Penis Anxiety; d = Cohen's d ; Z = Z statistic; U = Mann Whitney U statistic; df = degrees of freedom; SD = standard deviation; M = mean; H = Kruskal-Wallis H Statistic.

Table 5. *Correlations between COPS-P and erect length (objective-actual percentile and self-actual discrepancies).*

	Erect Length				
	Objective	Self-Actual/ Self-Ideal	Self-Actual/ Self-Should	Self-Actual/ Other-ideal	Self-Actual/ Other-Should
<i>n</i>	88	214	214	112	112
<i>r_s</i>	-0.30	-0.69	-0.69	-0.63	-0.66
<i>p</i>	0.004	< .001	< .001	< .001	< .001

Note: n = number of participants; r_s = Spearman's correlation coefficient; p = significance level