THE PREVALENCE OF BODY DYSMORPHIC DISORDER IN A SOUTH AFRICAN UNIVERSITY STUDENT SAMPLE.

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I, Antonia Gueorguieva Dlagnekova, hereby declare that this dissertation is my own original work. Secondary sources have been carefully acknowledged and referenced in accordance with departmental requirements.

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Abstract

Body dysmorphic disorder is a somatoform disorder characterised by a preoccupation with an imagined defect in appearance, causing clinically significant distress or impairment in functioning. An electronic search of articles and dissertations yielded no results on the prevalence of body dysmorphic disorder in South Africa. This study aimed to determine the prevalence of body dysmorphic disorder among 395 undergraduate students at an inner-city university. Proportionate stratified random cluster sampling was used to select the sample. The students completed a demographics survey and the Body Image Disturbance Questionnaire. Results indicated an overall prevalence of 5.1%, which is similar to prevalence rates reported in existing literature among student populations. No clinically significant differences were found on the demographic variables of gender, race or sexual orientation. However, students differed significantly in their experience of the severity of the disorder in terms of age, such that students over the age of 21 reported higher severity levels than did students under the age of 21.

Keywords: Body dysmorphic disorder; somatoform disorders; prevalence

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CHAPTER 1

Introduction

Humans are visual beings and, in today's world, much emphasis is placed on the way one looks. Indeed, few would deny a desire to have some aspect of their appearance altered. However, imagine looking in the mirror to discover a reflection so repulsive that the mere thought of leaving the house is frightening, and suicide seems to be the only escape (Phillips, 2005). This is the morbid reality for many individuals who suffer from body dysmorphic disorder, a condition where the affected person feels deformed or hideously ugly, yet appears normal to everyone else (Phillips, 2005).

Body dysmorphic disorder is a somatoform disorder characterised by a preoccupation with a slight or imagined defect in one's appearance, leading to clinically significant distress or impairment in functioning (American Psychiatric Association; APA, 2000). As discussed in the literature review, the definition and classification of body dysmorphic disorder is in the process of review due to several issues that have been raised regarding the disorder's status in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision* (DSM-IV-TR; APA, 2000).

A number of theories have been used to explain the aetiology of the disorder. Some emphasise the role of genetics, neurochemistry and brain abnormalities, while others consider neurocognitive functioning and aspects related to cognition, behaviour and learning (Feusner, Neziroglu, Wilhelm, Mancusi, & Bohon, 2010; Neziroglu, Khemlani-Patel, & Veale, 2008; Phillips, 2005). The existing theories are unable to assume causality due to the cross-sectional nature of most of the studies but they provide important insights. It seems that body dysmorphic disorder is the result of a number of biological, psychological and social factors.

The prevalence of body dysmorphic disorder is unclear. Prevalence represents the number of existing cases of body dysmorphic disorder in a given population, as opposed to incidence, which refers to the frequency of occurrence of new

cases (Bonita, Beaglehole & Kjellström, 2006). This study focuses on the former because it determines where clinical services are needed (Thomas, 2009). To date, prevalence studies have produced a large variability in data, depending on the differing samples, methodology and research objectives (Boroughs, Krawczyk, & Thompson, 2010). There is a lack of literature examining the prevalence of body dysmorphic disorder in samples that include ethnicity and sexual orientation as variables, with most studies either including women only or having gender as the only variable (Boroughs et al., 2010). Furthermore, existing prevalence studies may be inapplicable to the South African context because they are predominantly European and American (Bartsch, 2007).

In developing a clear picture of the prevalence and demographic differences in body dysmorphic disorder, high risk groups can be identified which would in turn guide prevention and treatment (Bartsch, 2007). There is a need for investigating the prevalence of body dysmorphic disorder particularly in a non-clinical sample, as many patients seek help at dermatologists or plastic surgeons, thereby underestimating true prevalence figures (Cansever, Uzun, Dönmez, & Ozşahin, 2003). This means that by only examining body dysmorphic disorder in clinical samples, true prevalence rates may be distorted.

The core question of the study is as follows: "What is the prevalence of body dysmorphic disorder within a South African university student sample?" More specifically, the study aims to achieve the following research objectives:

- To determine the prevalence of body dysmorphic disorder at a South African university.
- To determine gender differences in the prevalence of body dysmorphic disorder at a South African university.
- To determine racial or ethnic differences in the prevalence of body dysmorphic disorder at a South African university.
- To determine sexual orientation differences in the prevalence of body dysmorphic disorder at a South African university.

The participants for the study comprised a cross-sectional sample of students enrolled at an inner-city university. Proportionate stratified random cluster

sampling was used, in order to ensure that the sample is representative of the student population at the university. A total of 395 students completed a demographics survey as well as the Body Image Disturbance Questionnaire. The results indicated a prevalence rate of 5.1% and no statistically significant differences were found in any of the demographic variables stated in the research objectives above.

The contents of the dissertation will be as follows:

Chapter 2 will consist of a review of the most recent literature on body dysmorphic disorder. In Chapter 3, the researcher will discuss the methodology followed in this study. The results of this study will be presented in Chapter 4, followed by a discussion of the findings in Chapter 5. Lastly, in Chapter 6, the researcher will conclude the dissertation with an evaluation of the study's strengths and shortcomings, and recommendations for future research will be made.

The next chapter will explore the literature on previous research undertaken on the subject of body dysmorphic disorder. This will include an overview of the disorder and its aetiology, as well as a review of recent prevalence studies.

CHAPTER 2

Literature review

2.1 Introduction

Body dysmorphic disorder is largely an under-studied disorder and an interest in understanding this condition has only recently begun to emerge. In this chapter, the existing literature on body dysmorphic disorder will be reviewed, and findings will be discussed. In the first section, the researcher will introduce the definition and diagnostic criteria of body dysmorphic disorder, and will include a discussion on current diagnostic issues. The sections that follow will provide an overview of the clinical, psychological and demographic features of body dysmorphic disorder. Thereafter, comorbidity and closely related disorders will be discussed, followed by the most prominent theories on aetiology and existing treatment modalities. Finally, an exposition on the most recent prevalence studies will be provided and the limitations of these findings will be discussed.

2.2 Definition of body dysmorphic disorder

Body dysmorphic disorder has featured in literature for over a century but has only recently been formally recognised as a disorder (APA, 1987). In this section, the researcher will provide an overview of the ways in which body dysmorphic disorder has been defined, followed by a critical reflection and recommendations for future classifications.

Body dysmorphic disorder was first described in psychiatry as *dysmorphophobia,* referring to the fear that one has a physical defect (Wolrich, 2011). Affected individuals reported feelings of ugliness and shame, despite their reasonably normal appearance (Wolrich, 2011). Dysmorphophobia made its first appearance in classification systems in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III), where it was mentioned parenthetically as an example of an atypical somatoform disorder (APA, 1980). In 1987, the APA

changed the name of the disorder to body dysmorphic disorder and diagnostic criteria were assigned to it. Body dysmorphic disorder was also introduced in the *International Statistical Classification of Diseases and Related Health Problems, 10th edition* (ICD-10) as a type of hypochondriachal disorder, also in the section on somatoform disorders (World Health Organization; WHO, 1992). The ICD-10 further differentiates between delusional and non-delusional body dysmorphic disorder (WHO, 1992). The revised edition of the DSM-III also differentiated between the two types, but this distinction was omitted in the DSM-IV, where a person can receive a secondary diagnosis of delusional disorder, somatic type if the individual's preoccupations reach delusional intensity (APA, 1994; APA, 2000).

According to the DSM-IV-TR (APA, 2000), the following criteria must be met for the diagnosis of body dysmorphic disorder:

(a) Preoccupation with an imagined defect in appearance. If a slight physical anomaly is present, the person's concern is markedly excessive.

(b) The preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

(c) The preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in Anorexia Nervosa; APA, 2000, p. 510).

A number of issues regarding the classification of body dysmorphic disorder have been posed in recent literature. One involves the contention of body dysmorphic disorder as a somatoform disorder, due to it having little in common with the rest of the somatoform disorders (Castle, Rossell, & Kyrios, 2006). Although all the somatoform disorders centre on somatic concerns where no organic explanation can be found, few other similarities have been found between body dysmorphic disorder and other somatoform disorders (Gunstad & Phillips, 2003). Somatoform disorders, excluding body dysmorphic disorder, seem to frequently co-occur but body dysmorphic disorder rarely co-occurs with any other somatoform disorders (Barlow & Durand, 2008). In fact, body dysmorphic disorder shares far more similarities with obsessive-compulsive disorder and social phobia, and these

conditions are often comorbid (Phillips & Stout, 2006). Perhaps, for this reason, it would be more appropriate for body dysmorphic disorder to be classified as an anxiety disorder, as are obsessive-compulsive disorder and social phobia. The relationship between body dysmorphic disorder and these two disorders will be explored later in this chapter.

A second issue is that the categorical classification of individuals with a delusional form of body dysmorphic disorder has been contested. According to Castle et al. (2006), it is more useful to classify the level of delusional conviction on a continuum, and this approach has been indicated as more applicable to body dysmorphic disorder. Research (Phillips et al., 2010) indicates that the two variants have more similarities than differences, with the main difference being higher morbidity for the delusional variant. Another motivating factor for combining the two disorders is that antipsychotic medication is not effective for either variant (Phillips & Hollander, 2008). Thus, keeping the delusional variant in the psychotic section of the DSM would result in ineffective treatment for it (Phillips et al., 2010). In light of these findings, Phillips et al. (2010) suggest that the two variants be combined into one disorder in the next edition of the DSM while the delusional variant is removed from the psychotic section. They further recommend that insight specifiers be added to body dysmorphic disorder. This method would not only provide richness in information regarding symptoms, but it could also be applied to other disorders such as obsessive-compulsive disorder (Phillips et al., 2010). Regardless of the specific method used, a growing body of research warrants the reshaping of the categorical classification of delusional body dysmorphic disorder in favour of a dimensional form.

Thirdly, the ICD-10 classification of body dysmorphic disorder as a form of hypochondriasis is problematic. One of the issues is that the core preoccupations of the two conditions are different. Hypochondriasis entails the fear that one has a serious illness, which is unlike body dysmorphic disorder preoccupations with an appearance defect (Phillips et al., 2010). Studies have also shown that individuals with body dysmorphic disorder are less likely to have hypochondriachal concerns or comorbid hypochondriasis than are those with other psychiatric conditions (Didie, Kuniega-Pietrzak, & Phillips, 2010; Gunstad & Phillips, 2003; Phillips, Menard, Fay, & Weisberg, 2005; Phillips, Siniscalchi, & McElroy, 2004).

Therefore, although there is a lack of research directly comparing hypochondriasis and body dysmorphic disorder, there is no evidence that they are the same disorder (Phillips et al., 2010). In light of this, it has been recommended that body dysmorphic disorder be listed as a separate disorder (Veale & Neziroglu, 2010).

A further issue pertains to the proposed inclusion of *muscle dysmorphia* as a subtype of body dysmorphic disorder. This has been suggested from recent research but it has not yet been formally recognised in either the DSM or the ICD (Pope, Gruber, Choi, Olivardia, & Phillips, 1997). Muscle dysmorphia refers to a condition, in which the individual, usually male, is preoccupied with the belief that their body is insufficiently lean and muscular (Pope et al., 1997). The rest of the symptoms are the same as criteria (b) and (c) in the DSM-IV-TR as for body dysmorphic disorder (Pope et al., 1997). Muscle dysmorphia was previously termed *reverse anorexia* or *bigorexia* because an individual with anorexia nervosa perceives their emaciated body as too large in a similar way that a person with muscle dysmorphia believes that their muscular body is too small (Olivardia, 2001). Research shows that muscle dysmorphia is fairly common in males with body dysmorphic disorder (Pope at al., 1997; Pope et al., 2005). According to Pope et al. (2005), men who have both body dysmorphic disorder and muscle dysmorphia display more severe psychopathology than do men who have body dysmorphic disorder without muscle dysmorphia. They also engage in behaviours that differ, such as lifting weights, abusing steroids and being more at risk to substance abuse (Pope et al., 2005). According to Phillips et al. (2010), due to these and other differences between individuals with body dysmorphic disorder and those with muscle dysmorphia, treatment strategies need to be tailored to the specific symptoms of muscle dysmorphia. Thus, there is clinical utility in listing muscle dysmorphia as a subtype of body dysmorphic disorder (Phillips et al., 2010).

However, this raises the question of whether other subtypes should be included as well. For instance, there has been a growing interest in *acne dysmorphia* as a subtype of body dysmorphic disorder, where the individual's preoccupations revolve around their acne (Paliechesky, 2007). If other subtypes are included, it is the researcher's opinion that sound criteria need to be established on what constitutes a difference from the standard notion of body dysmorphic disorder in

symptoms and treatment requirements. Failure to do so could lead to redundant categories.

2.3 Comorbidity and closely correlated disorders

Body dysmorphic disorder has high rates of comorbidity and most individuals with body dysmorphic disorder have at least one comorbid disorder (Allen & Hollander, 2004). The number of comorbid disorders is positively correlated with morbidity. In other words, the more additional disorders an individual with body dysmorphic disorder has, the more likely they are to commit suicide (Gunstad & Phillips, 2003). Gunstad and Phillips (2003) report that the most commonly co-occurring disorders with body dysmorphic disorder are social phobia, obsessive-compulsive disorder, major depressive disorder and substance abuse. Owing to body dysmorphic disorder's similarities and frequent comorbidity with obsessive-compulsive disorder and social phobia, the three disorders require further investigation (Coles et al., 2006). Existing research examining the relationship between them indicates that they are related and these correlations will be the focus of the following section.

2.3.1 Body dysmorphic disorder and obsessive-compulsive disorder

The relationship between body dysmorphic disorder and obsessive-compulsive disorder has received considerable attention, owing to the striking similarity in symptoms (Coles et al., 2006). For instance, individuals with body dysmorphic disorder have thoughts about an aspect of their appearance that are, as with obsessive-compulsive disorder obsessions, intrusive, unwanted and persistent (Hollander, Zohar, Sirovatka, & Regier, 2010). In response to such thoughts, individuals often engage in mirror-checking, skin-picking, camouflaging unwanted areas and other compulsions aimed at reducing anxiety (Hollander et al., 2010). As was mentioned earlier, although body dysmorphic disorder has been categorised as a somatoform disorder, it has more in common with anxiety disorders. As a result, it has been proposed that body dysmorphic disorder be

moved to fall under the category of *obsessive-compulsive-spectrum disorders* or even be included as an obsessive-compulsive disorder subtype (McKay, Taylor, & Abramowitz, 2009).

Three studies have directly compared body dysmorphic disorder and obsessive-compulsive disorder on demographic features, clinical features and comorbidity (Frare, Perugi, Ruffolo, & Toni, 2004; Phillips, Gunderson, Mallya, McElroy, & Carter, 1998; Phillips et al., 2007). All three studies were conducted on three groups of patients, with a diagnosis of body dysmorphic disorder, obsessive-compulsive disorder and both.

Data on demographic characteristics indicate that age and sex ratios between body dysmorphic disorder and obsessive-compulsive disorder are similar (Frare et al., 2004; Phillips et al., 2007; Saxena et al., 2001). Body dysmorphic disorder sufferers are also less likely to be married (Frare et al., 2004; Phillips et al., 2007) and more likely to have higher unemployment rates and lower levels of education (Frare et al., 2004). Frare et al. (2004) and Phillips et al. (1998) report that age of onset tends to be earlier for body dysmorphic disorder although more recent findings (Phillips et al., 2007) indicate that there is no difference. Illness duration is likewise similar between the two disorders (Phillips et al., 2007). However, individuals with body dysmorphic disorder have significantly poorer insight than those with obsessive-compulsive disorder, which further deteriorates with severity (Eisen, Phillips, Coles, & Rasmussen, 2004; Marazziti et al., 2006; Phillips et al., 2007).

Frare et al. (2004) report equal suicide ideation in body dysmorphic disorder and obsessive-compulsive disorder patients. However, according to Phillips et al. (2007), suicide *attempts* are equally prevalent whereas suicide ideation is more common in people with body dysmorphic disorder. Social, occupational and other important areas of functioning are significantly impaired, with Global Assessment of Functioning scores indicating serious symptoms for both body dysmorphic disorder and obsessive-compulsive disorder (Phillips et al., 2007).

In terms of comorbidity, body dysmorphic disorder and obsessive-compulsive disorder seem to have similar rates of major depressive disorder, anorexia nervosa, social phobia and panic disorder (Frare et al., 2004; Phillips et al., 2007).

There are also differences, in that individuals with body dysmorphic disorder are more likely to have comorbid bulimia nervosa as well as substance-related disorders, including alcohol abuse (Frare et al., 2004; Phillips et al., 2007). Individuals with obsessive-compulsive disorder are more likely to also have generalised anxiety disorder (Frare et al., 2004).

While the three studies shed some light on the nature of the relationship between body dysmorphic disorder and social phobia and some of the findings have received support from studies indirectly examining the same variables, their limitations should be considered as they have implications for the generalisability of the data. For instance, in the Italian study (Frare et al., 2004), the severity of the two disorders had not been determined, and functioning levels were assessed only indirectly. In the American study (Phillips et al., 2007), a convenience sample was used and participants had been on medication, which may have influenced results.

To summarise, there are many similarities between body dysmorphic disorder and obsessive-compulsive disorder, both demographically and in terms of psychological features, but several differences have been found as well. Thus, while body dysmorphic disorder may be more aptly classified as an anxiety disorder than a somatoform disorder, the researcher would like to caution that classifying it as an obsessive-compulsive disorder subtype may neglect aspects of the disorder that are unlike obsessive-compulsive disorder. As mentioned earlier, body dysmorphic disorder also shares many similarities with social phobia and this correlation will be discussed next.

2.3.2 Body dysmorphic disorder and social phobia

Body dysmorphic disorder and social phobia have similarities in clinical features, such as a tendency to feel ashamed, afraid of embarrassment and to be socially anxious (Phillips et al., 1998). In the eastern cultures, this relationship has been acknowledged to the extent that body dysmorphic disorder is conceptualised as a form of social phobia (Coles et al., 2006). In addition, the two conditions are often comorbid (Coles et al., 2006).

In contrast to the relatively abundant literature on the relationship between body dysmorphic disorder and obsessive-compulsive disorder, little attention has been paid to the relationship between body dysmorphic disorder and social phobia (Coles et al., 2006). To date, only one study has attempted to assess the relationship between the two disorders (Coles et al., 2006). This study used a single sample comprised of participants with body dysmorphic disorder, some of whom have comorbid social phobia. Studies indirectly assessing correlates between body dysmorphic disorder and social phobia include Kelly, Walters and Phillips (2010) and Pinto and Phillips (2005), which examined social anxiety in body dysmorphic disorder. Findings indicate that social anxiety is a core component of body dysmorphic disorder and its severity is positively correlated with functional impairment (Kelly et al., 2010; Pinto & Phillips., 2005).

Coles et al. (2006) reported that in comparing body dysmorphic disorder to body dysmorphic disorder with comorbid social phobia, gender distribution, age, marital status and education levels appear to be the same, although those with comorbid body dysmorphic disorder are more likely to be unemployed. No difference was found in body dysmorphic disorder severity and age of onset, and there is no data on relative severity levels (Coles et al., 2006). Social phobia typically appears before body dysmorphic disorder in individuals with both disorders, and suicidal ideation and functional impairment are more severe in individuals with body dysmorphic disorder and comorbid social phobia (Coles et al., 2006). Comorbidity appears to be the same for Axis II disorders, including avoidant personality disorder, whereas individuals with body dysmorphic disorder and comorbid social phobia have more Axis I disorders (Coles et al., 2006).

In conclusion, the available literature suggests that body dysmorphic disorder, obsessive-compulsive disorder and social phobia are related. In order to clarify the nature and extent of the relationships between them, a study directly comparing all three disorders is needed. The existing studies have left several unanswered questions, such as whether body dysmorphic disorder is more closely related to obsessive-compulsive disorder or to social phobia (Coles et al., 2006), and whether social anxiety levels differ between the three disorders (Phillips et al., 2007). Thus, the researcher proposes that studies establishing a clear picture with directly comparable data on all three disorders be conducted. Results will shed

light on relative clinical features such as age of onset, functional measures and suicide tendencies, as well as insight levels and demographic characteristics. Such studies may also aid in resolving the classification debate for body dysmorphic disorder.

2.4 Clinical features

Apart from the diagnostic criteria, certain features have been outlined in literature that aid in understanding the patterns that tend to form with body dysmorphic disorder. Some of these patterns have been clustered as clinical features as they represent the core body dysmorphic disorder symptoms, and will be discussed below.

As one of the clinical features is a preoccupation with a perceived defect or a number of defects, body dysmorphic disorder should be differentiated from normal appearance concerns. In a sample of German college students, nearly 29% expressed appearance concerns; however, only 4% met the criteria for body dysmorphic disorder (Bohne, Keuthen, Wilhelm, Deckersbach, & Jenike, 2002). Therefore, a difference between normal concerns about appearance and body dysmorphic disorder is that individuals with body dysmorphic disorder are *preoccupied* with their concerns, with some individuals thinking about their defect for several hours a day without being able to resist or control these thoughts (Grant & Phillips, 2005). Areas of preoccupation usually involve the face or head although it can be any part of the body (APA, 2000). Body dysmorphic disorder may resemble concerns present in an eating disorder, but there is a distinction between them. Although sometimes individuals with body dysmorphic disorder may consider some part of their body as too fat, their concerns usually pertain to isolated body parts and are commonly around the head (Phillips & Feusner, 2010). For instance, a person with body dysmorphic disorder may believe that their face is too round and resort to dieting in order to change the shape of their face, which is unlike dieting to become thin, as in an eating disorder (Phillips & Feusner, 2010).

A second feature concerns insight into body dysmorphic disorder. Individuals with body dysmorphic disorder appear normal to everyone else and any perceived defects are slightly noticeable at most (Phillips & Feusner, 2010). However, not only do their preoccupations tend to persist despite reassurance from others, many individuals with body dysmorphic disorder experience ideas of reference, or the belief that others are taking special notice of their perceived flaw and are talking about or even mocking it (APA, 2000; Phillips & Feusner, 2010). Although insight levels differ, few patients have good insight prior to effective treatment (Bjornsson, Didie, & Phillips, 2010). A high portion of affected individuals display poor global insight according to the Brown Assessment of Beliefs Scale (Eisen et al., 2004). In one sample, 39% of body dysmorphic disorder patients were delusional, meaning that they had low scores on all aspects of insight, including the willingness to question their belief, the perception of others' views on the belief and the recognition that the belief is due to a psychiatric cause. Although the Brown Assessment of Beliefs Scale is a valid and reliable measure of insight, the researcher cautions that the cross-sectional nature of the assessment should be taken into consideration because it has also been reported that insight levels may fluctuate (Eisen et al., 2004; Phillips, 2005).

In response to the beliefs and preoccupations that individuals with body dysmorphic disorder display, nearly all engage in repetitive behaviours, such as mirror-checking or reassurance-seeking (Grant & Phillips, 2005). These are time-consuming, with approximately half of body dysmorphic disorder patients engaging in such behaviours for over three hours per day (Phillips, 2009). This may resemble the rituals performed by individuals with obsessive-compulsive disorder in that they are repetitive, time-consuming and difficult to resist or control (Phillips & Feusner, 2010). However, they are different in that they do not reduce anxiety reliably, and may even worsen anxiety levels (Phillips & Feusner, 2010). Behaviours are sometimes extreme, including plastic surgery or even self-surgery in a desperate attempt to remedy perceived defects (APA, 2000).

The time spent in engaging in compulsive behaviours as well as the reluctance of having their defects exposed leads to impaired functioning, such as the avoidance of social situations and/or difficulty functioning at work (Wolrich, 2011). In severe cases, these individuals may become housebound, sometimes for years and, in

one study (Phillips et al., 2005), 36% of individuals with body dysmorphic disorder reported having been housebound for at least a month due to their condition (APA, 2000; Phillips & Diaz, 1997). They may drop out from school, avoid job interviews or only leave home at night when their perceived defects are camouflaged by the dark (APA, 2000).

2.5 Psychological features

In addition to the clinical features observed in body dysmorphic disorder, trends have emerged in literature on associated psychological features that are not mentioned in the body dysmorphic disorder criteria. Most individuals with body dysmorphic disorder report low self-esteem, feelings of worthlessness and a heightened sensitivity to criticism (Phillips, 2005). Approximately 80% of individuals report having had suicidal ideation at some point during the course of their illness and up to 28% have attempted suicide (Phillips, 2005). A shortcoming of these studies is that they specifically assessed for self-esteem, feelings of worthlessness, sensitivity to criticism and suicidal ideation and attempts, instead of exploring respondents' experiences by means of open-ended questions. As a result, these particular features were highlighted at the expense of overlooking other possibly equally prevalent characteristics. It is also unclear whether the identified features form part of the pathology as the clinical features of body dysmorphic disorder or are pre-existing tendencies that are perhaps amplified by the condition. The researcher suggests that longitudinal studies be conducted to explore this, as more research is required in order to determine the nature of these psychological features.

2.6 Demographic features

Research on the clinical and psychological features of body dysmorphic disorder will aid in developing a better understanding on the nature of the disorder. It is also important to investigate the demographic features of the individuals with body dysmorphic disorder so that high-risk groups can be identified. Thus, in this

section the researcher will report on identified demographic features from existing prevalence studies. Variables that have been measured thus far include gender, racial or ethnic differences, nationality, age of onset, marital status, employment status, occupational- or study-field and sexual orientation.

It is uncertain whether there is a difference in prevalence between men and women because findings are inconsistent, but existing evidence suggests that muscle dysmorphia occurs almost exclusively in men (Bjornsson et al., 2010; Phillips, 2005; Wolrich, 2011). Regardless of the male-female ratio in the prevalence of body dysmorphic disorder, men tend to have more severe and chronic body dysmorphic disorder than women (Didie, Menard, Stern, & Phillips, 2008; Phillips, Menard, & Fay, 2006).

In terms of racial or ethnic differences, a series of studies determined that body dysmorphic disorder is more prevalent in Caucasian individuals than in those of other racial or ethnic groups (Phillips, 2005). However, more research is needed to verify this finding due to the high portion of Caucasian participants (87%) which possibly reflects a bias in sampling (Wolrich, 2011). Nonetheless, body dysmorphic disorder seems to occur in a variety of cultures and has been reported throughout the world, including Hainan (Zhu & Deng, 2010), Brazil (Fontenelle et al., 2006), Germany (Kollei et al., 2011), Turkey (Cansever et al., 2003), Pakistan (Taqui et al., 2008), Australia (Bartsch, 2007) and the United States (Koran, Abujaoude, Large, & Serpe, 2008). One's culture may influence the particular expression of symptoms, such as the focus area of preoccupation, but research directly examining this in relation to body dysmorphic disorder is yet to be conducted (Feusner et al., 2010).

Throughout the world, the mean age of onset has consistently been reported at 16-17 (Bjornsson et al., 2010; Phillips et al., 2005). The disorder can, however, occur across the life-span, with cases having been reported in children as young as 5, through to adults as old as 80 (Phillips, 2009). The course is uncertain due to differences in findings. The first prospective study of the course of body dysmorphic disorder indicates that it is a chronic condition that responds poorly to treatment, with only 21% of patients recovering fully and 15% relapsing during the course of the year (Phillips, Pagano, Menard, & Stout, 2006). However, Bjornsson

et al. (2011) reported a far more optimistic recovery rate of 76% and a relapse rate of 14%.

Marital status is a further variable that has been explored in a number of studies on body dysmorphic disorder. Research indicates that individuals with body dysmorphic disorder are less likely to be married and more likely to be divorced than those without the disorder (Koran et al., 2008; Rief, Buhlmann, Wilhelm, Borkenhagen, & Brähler, 2006).

In addition to differences in marital status, employment status differences have also been reported, with unemployment rates being higher in individuals with body dysmorphic disorder (Koran et al., 2008; Rief et al., 2006). One study of 141 adults with body dysmorphic disorder showed that those who were unable to work in the past month due to their disorder had more severe and chronic body dysmorphic disorder (Didie et al., 2008). These individuals also tended to have lower levels of education (Didie et al., 2008).

In terms of educational or occupational choice, Veale and Lambrou (2002) found that 20% of 100 consecutive body dysmorphic disorder patients had an occupation or education involving art or design, compared to equally sized samples of patients with major depressive disorder (4%), obsessive-compulsive disorder (3%) and posttraumatic stress disorder (0%) respectively. While the researcher will explore this later in the aetiology section, the findings suggest that body dysmorphic disorder is more prevalent in individuals with a higher aesthetic sensitivity. Aesthetic sensitivity has been defined as an appreciation of beauty and harmony, including general attractiveness, symmetry and secondary sexual characteristics (Veale & Neziroglu, 2010). However, this was an isolated study and the findings are yet to be replicated.

Finally, research on differences between sexual orientation groups is minimal. Boroughs et al. (2010) reported that body dysmorphic disorder is higher among gay and lesbian students than heterosexual students and to date, this is the only prevalence study on body dysmorphic disorder that included sexual orientation as a variable. Previous studies indicate that gay men and heterosexual women experience higher levels of body image disturbances than lesbians and heterosexual men (Boroughs & Thompson, 2002; McCreary, Hildebrandt,

Heinberg, Boroughs & Thompson, 2007; Morrison, M. A., Morrison, & Sager, 2004). While this is an indication of dysmorphic concern, it does not warrant the assumption that the groups with higher dysmorphic concern would meet the full criteria for body dysmorphic disorder. Nonetheless, the available research suggests that there may be differences among sexual orientation groups and thus the researcher recommends that future prevalence studies include this variable. It has been included in the current study.

2.7 Aetiology

The aetiology of body dysmorphic disorder remains largely unknown (Wolrich, 2011). The limited research available indicates that it is the result of a complex interplay of neurobiological and psychosocial factors (Feusner et al., 2010). While this may aid in understanding the nature of body dysmorphic disorder, causality is uncertain because the studies are cross-sectional (Feusner et al., 2010). The following sections will introduce the existing theories on aetiology in the order of genetics, neurochemistry, structural abnormalities in the brain, aspects related to neurocognitive functioning, and the role of cognitive, behavioural and learning factors.

2.7.1 Genetics

To date, only one study has been conducted on the genetic factors associated with body dysmorphic disorder, hence findings should be interpreted with caution until they are replicated (Phillips et al., 2003). Phillips and her colleagues compared certain alleles of genes hypothesised to play a role in body dysmorphic disorder in a group of body dysmorphic disorder patients and a group of individuals without the disorder. They found that subjects in the body dysmorphic disorder group were more likely to have the short allele of the serotonin transporter gene than those in the healthy control, which suggests that this allele increases the risk for body dysmorphic disorder. Support for body dysmorphic disorder heritability is also found in family studies and the disorder is up to 8 times more

likely to occur if an immediate family member has body dysmorphic disorder (Bienvenu et al., 2000; Saxena & Feusner, 2006). In addition, the condition is more common in those who have a first-degree relative with obsessive-compulsive disorder (Phillips et al., 1998). However, these results do not necessarily indicate that body dysmorphic disorder is inherited, since many individuals with body dysmorphic disorder do not have relatives with the disorder (Phillips, 2005). It may also be that those with body dysmorphic disorder pick up the disorder through social learning from affected relatives (Phillips, 2005). It is likely that both genetic and environmental factors play a role in the development of body dysmorphic disorder as this is the case for most other psychiatric disorders. In addition, the genetic component to body dysmorphic disorder involves a complex interplay of multiple genes (Feusner et al., 2010; Phillips, 2005). In order to clarify the roles of genes versus the environment in body dysmorphic disorder, twin studies are needed. However, to the researcher's knowledge, none have yet been conducted. It is also unclear whether the hypothesised genetic contribution leads to body dysmorphic disorder specifically or more to a general predisposition, such as the tendency to obsess (Phillips, 2005).

2.7.2 Neurochemistry

It seems that disturbed brain chemistry may be partially involved in the development of body dysmorphic disorder (Phillips, 2005). This assumption stems from body dysmorphic disorder patients' response to treatment that affects neurotransmitters including dopamine, gamma-Aminobutyric acid and serotonin, with the most consistent findings supporting the role of serotonin (Phillips, 2005). Both body dysmorphic disorder and obsessive-compulsive disorder patients respond to high dose Serotonin Reuptake Inhibitors (SRI's; Saxena & Feusner, 2006). This may indicate low serotonin levels in those with body dysmorphic disorder – an abnormality similar to that found in those with obsessive-compulsive disorder. However, an increase in serotonin does not necessarily mean that a lack of the neurotransmitter is part of the underlying pathology (Feusner et al., 2010). Furthermore, a case study of a patient with body dysmorphic disorder and obsessive-compulsive disorder showed that depletion of a serotonin precursor

exacerbated body dysmorphic disorder symptoms, but not obsessive-compulsive disorder symptoms (Barr, Goodman, & Price, 1992). This suggests that serotonin does not play an identical role in body dysmorphic disorder and obsessive-compulsive disorder.

While serotonin's function in modulating body dysmorphic disorder symptoms appears to be complex and is not clearly understood, it is hypothesised that adequate serotonin levels reduce the likelihood that one will overreact to environmental stimuli (Feusner et al., 2010; Phillips, 2005). This is due to the neurotransmitter's partial role in visual processing, leading individuals with body dysmorphic disorder to overreact to the visual stimuli of physical defects that are not so apparent to others (Phillips, 2005). Perhaps this is the underlying mechanism for the heightened aesthetic sensitivity described in body dysmorphic disorder patients.

2.7.3. Structural abnormalities

In addition to genetics and neurochemistry, certain parts of the brain have been implicated in body dysmorphic disorder. Rauch et al. (2003) scanned the brains of eight women with body dysmorphic disorder and eight healthy controls using Magnetic Resonance Imaging (MRI). They found that those with body dysmorphic disorder tended to have greater total white matter and a leftward shift in caudate asymmetry (a larger left caudate relative to that on the right). The caudate may be involved in repetitive behaviours, which could account for the rituals performed by individuals with the disorder. The same is also implicated in obsessive-compulsive disorder (Phillips, 2005). It is tempting to conclude from these findings that the two disorders are related on the basis of their common structural abnormalities, but they are not identical because subtle differences have been found as well (Phillips, 2005).

It is important to note that while this research provides valuable clues into the structural abnormalities that may lead to body dysmorphic disorder, the study was small and it requires replication. In addition, it is unclear whether the abnormalities were present before birth or were developed; hence the researcher recommends

that longitudinal MRI studies be conducted. A further gap in existing research is that studies using functional MRI scans are needed in order to determine any possible brain malfunctions as well, because no such research specifically for body dysmorphic disorder has yet been conducted.

2.7.4. Neurocognitive functioning

Several abnormalities with neurocognitive functioning have been found in body dysmorphic disorder patients. These involve issues with the way these individuals quantitatively process information as well as with emotional reactions to the information that is processed. In terms of quantity, individuals with body dysmorphic disorder do not encode information holistically but over-focus on details, as evidenced in hypo-activity in areas of the brain that are responsible for holistic processing (Feusner et al., 2010). In a number of studies, body dysmorphic disorder patients viewed various images including their own faces, those of others and neutral images such as houses, and all studies revealed an exaggerated focus on detail (Feusner, Hembacher, Moller, & Moody, 2011; Feusner et al., 2010; Feusner, Townsend, Bystritsky, & Bookheimer, 2007). In another study, patients were instructed to draw a complex figure that they were exposed to, and their memory of the whole was ultimately compromised due to their exaggerated focus on detail (Deckersbach et al., 2000).

Research on the quality of information processing in body dysmorphic disorder patients shows that they seem to interpret neutral or ambivalent emotional stimuli as hostile or negative (Feusner et al., 2010). Buhlmann, Etcoff and Wilhelm (2006) asked body dysmorphic disorder patients to look at facial photographs and respond to self-referent scenarios (e.g. imagining that the person in the picture is looking at them and guessing their emotion) and other-referent scenarios (e.g. imagining that the person in the picture is looking at a friend). Body dysmorphic disorder patients were consistently more likely to misinterpret the emotions in the self-referent scenarios as contemptuous or angry than did controls, but not in the other-referent scenarios. These findings are in line with an earlier study by Buhlmann, McNally, Etcoff, Tuschen-Caffier, & Wilhelm (2004) and were also

recently replicated in research on three case studies (Labuschagne, Castle, & Rossell, 2011). This bias in individuals with body dysmorphic disorder may contribute to the poor insight and ideas of reference that are often reported (Feusner et al., 2010).

Another study by Buhlmann, McNally, Wilhelm and Florin (2002) found that body dysmorphic disorder patients exhibited a greater delay in responses to positive words related to body dysmorphic disorder such as "beauty" or "attractive" than did the healthy controls. This is in line with the appearance ideal preoccupations found in body dysmorphic disorder patients (Feusner et al., 2010). As mentioned earlier, individuals with body dysmorphic disorder seem to have a greater appreciation for aesthetics than those without body dysmorphic disorder, as reflected in their educational or occupational choices. A study in a sample of women showed that those from the body dysmorphic disorder group were more accurate in rating the degree of distortion in images of faces with altered features than were the women from the control group (Stangier, Adam-Schwebe, Muller, & Wolter, 2008).

Two more recent studies confirmed that individuals with body dysmorphic disorder are more aesthetically sensitive and also showed that this heightened sensitivity increases self-consciousness and distress over appearance flaws (Lambrou, Veale, & Wilson, 2011; 2012). These studies used control groups, and the respondents from these groups reported appearance concerns and similar aesthetic ideals to those reported by individuals with body dysmorphic disorder. The difference was that the respondents from the body dysmorphic disorder group reported more severe concerns and greater distress over these concerns. As such, the findings suggest that body dysmorphic disorder concerns may simply be at a different point on a continuum with normal appearance concerns. If this is the case, there are important implications for both the definition and diagnosis of body dysmorphic disorder. Perhaps the focus should not be on a preoccupation with an *imagined* defect as outlined in criterion (a) of the DSM-IV-TR definition but rather on being excessively preoccupied with a slight existing defect. This serves as further justification for plotting the diagnosis on a continuum (as discussed in 2.2).

2.7.5 Cognitive, behavioural and social learning perspectives

Within this framework, body dysmorphic disorder arises from an interaction of cognitive, cultural and social factors by means of classical and operant conditioning (Feusner et al., 2010). Cognitive factors include maladaptive beliefs about body image, such as the need for perfection and symmetry in appearance (Veale at al., 1996). As distorted thinking is rehearsed over time, the thoughts become increasingly automatic and result in deep-rooted beliefs (Veale et al., 1996). The origins of these beliefs tend to occur during the sensitive period of puberty, which is associated with physiological and emotional changes (Feusner et al., 2010). Many individuals with body dysmorphic disorder report that they were teased during adolescence, often about signs of puberty, such as acne or other appearance features (Buhlmann, Cook, Fama, & Wilhelm, 2007; Feusner et al., 2010). As such, the object of teasing which is initially an unconditioned stimulus may lead to a conditioned response in the form of feelings of disgust, shame or anxiety (Feusner et al., 2010).

As discussed earlier, individuals with body dysmorphic disorder engage in repetitive and time-consuming behaviours aimed at reducing anxiety. These behaviours serve as negative reinforcement in that the individual reduces short-term anxiety by not coming into contact with the source of distress (Neziroglu et al., 2008). This in turn increases the likelihood that this behaviour will be repeated, thereby perpetuating a cycle (Neziroglu et al., 2008). For instance, one may avoid mirrors to reduce the anxiety of seeing one's own reflection (Feusner et al., 2010). As a result, the person is less likely to habituate to his or her appearance feature and becomes more preoccupied (Feusner at al., 2010). In addition to teasing, other significant traumatic events may similarly result in a maladaptive cycle. According to Didie et al. (2006), 79% of individuals with body dysmorphic disorder reported childhood abuse or neglect. These and other negative life events such as sexual assault, sexual harassment, illness or injury, or failure in activities including dance or athletics may lead to low self-esteem as well as to negative beliefs about one's appearance (Didie et al., 2006).

At first glance, this perspective may resemble simple behaviourism in that it is based on conditioning. However, it also takes into account cognitions which may

be at least partially biologically-predisposed and it includes the influence of puberty.

In conclusion, the causes of body dysmorphic disorder remain unclear. The available literature suggests that body dysmorphic disorder develops due to a complex interplay of biological predispositions such as genes or brain abnormalities and environmental factors such as teasing. These may in turn lead to maladaptive beliefs and maintenance behaviours. However, there is no conclusive evidence as to the causal direction of the identified factors, thus longitudinal research is needed in order to identify whether they are predispositions, part of the underlying pathology of body dysmorphic disorder, or perhaps even effects of the disorder. The researcher has also identified the need for a coherent integrated model as studies tend to focus on single aspects of the aetiology.

2.8 Treatment

Current treatment methods for body dysmorphic disorder include both medication and psychotherapy. As mentioned earlier, body dysmorphic disorder patients respond to high-dose SRI's and to date, this is the most effective pharmacological treatment (Phillips & Hollander, 2008). The use of medication becomes more necessary with severe body dysmorphic disorder patients (Phillips & Hollander, 2008). In addition, it has been shown as a prerequisite for the effectiveness of psychological methods in such cases (Neziroglu & Khemlani-Patel, 2003). Psychological methods include psycho-education, cognitive behavioural therapy (CBT), cognitive restructuring and exposure with response prevention, with CBT showing most promise (Wolrich, 2011). There is however a lack of research on how to treat patients who are non-compliant as well as those who do not respond to treatment (Phillips, Didie, Feusner, & Wilhelm, 2008). Regardless of the methods used, it is vital for the therapist to build and maintain a trusting relationship with the individual (Phillips & Hollander, 2008).

2.9 Recent prevalence studies

Body dysmorphic disorder has been measured among different populations, producing varied prevalence rates. The two main contexts in existing literature are clinical and community samples, discussed below.

2.9.1 Clinical studies

Clinical studies have been conducted on psychiatric populations as well as among individuals seeking cosmetic and dermatological treatment. These are presented in Table 2.1. General prevalence studies among psychiatric patients report the prevalence of body dysmorphic disorder between 0.8%-16% of the population (Conroy et al., 2008; Dyl, Kittler, Phillips, & Hunt, 2006; Kollei et al., 2011; van der Meer et al., 2011; Vinkers, van Rood, & van der Wee, 2008). Conroy et al. (2008) measured body dysmorphic disorder in 100 inpatients, 16 of whom had body dysmorphic disorder (16%) whereas Kollei et al. (2011) found a far lower prevalence (1.9%) in 185 inpatients. Dyl and her colleagues (2006) used a sample of 208 adolescent inpatients, with 6.7% meeting the criteria for body dysmorphic disorder. Van der Meer et al. (2011) measured body dysmorphic disorder in an outpatient sample (n = 3 798) and reported the prevalence at 1.98%, while Vinkers et al. (2008) also used an outpatient sample (n = 5 848) and found body dysmorphic disorder to be prevalent in 0.8% of the participants. The last two studies have the methodological merit of conducting the study on the entire hospital populations; they did not sample and thus representativeness is unquestionable.

Table 2.1 Prevalence of body dysmorphic disorder in clinical populations

Study	Population	Prevalence rates (%)
Conroy et al. (2008)	100 inpatients	16
Dyl et al. (2006)	208 inpatients	6.7
Kollei et al. (2011)	185 inpatients	1.9
van der Meer et al. (2011)	3 798 outpatients	1.98
Vinkers et al. (2008)	5 848 outpatients	0.8
Dingemans et al. (2012)	158 inpatients with any form of eating disorder	45
Grant et al. (2002)	41 inpatients with anorexia nervosa	39
Semiz et al. (2008)	70 inpatients with borderline personality disorder	54.3
Calderón et al. (2009)	281 dermatology patients	12.1
Conrado et al. (2010)	150 cosmetic surgery patients	14
	150 dermatology patients	6.7
Picavet et al. (2011)	226 rhinoplasty patients	33

Body dysmorphic disorder has also been assessed in specific inpatient populations. Body dysmorphic disorder in patients with anorexia nervosa (n = 41) have been reported at 39% (Grant, Kim, & Eckert, 2002) and at 45% in 158 patients with any form of eating disorder (Dingemans, van Rood, de Groot, & van Furth, 2012). An even higher rate (54.3%) was found in 70 patients with borderline personality disorder (Semiz et al., 2008). This particular study also used a control group which enhances the validity of the data.

Demographic differences among the groups in these studies are unclear, since not all made provision for differentiation in terms of racial or ethnic background. The available research, however, indicates a higher prevalence rate among females

(Conroy et al., 2008; Kollei et al., 2011; Vinkers et al., 2008). The variability in data may have been due to differences in sample size and composition or measures used (Kollei et al., 2011). Kollei et al. (2011) suggest that future studies be conducted on larger samples in order to provide more robust data. Some of these studies also used convenience samples which may have compromised their representativeness. These two shortcomings in the literature will be addressed in the current study and will be discussed in more detail in the next chapter.

Apart from measuring body dysmorphic disorder in psychiatric patients, due to the increase of cosmetic and dermatologic concerns, there has been an interest in examining the prevalence of body dysmorphic disorder among cosmetic and dermatologic patients (Conrado et al., 2010). Findings indicate that body dysmorphic disorder is highly prevalent in these populations. Conrado et al. (2010) found a prevalence of 14% body dysmorphic disorder in 150 cosmetic surgery patients, 6.7% body dysmorphic disorder in 150 dermatology patients and 2% in the control group (n = 50). In a Chilean study among 281 dermatologic patients, prevalence was 12.1%, with a higher prevalence in females, although 75.1% of the sample was female, which could have distorted these findings (Calderón et al., 2009). In a recent study on 226 patients seeking rhinoplasty, 33% had body dysmorphic disorder (Picavet, Prokopakis, Gabriëls, Jorissen, & Hellings, 2011).

2.9.2 Community studies

A community study is one that is conducted in a non-psychiatric setting and thus excludes both inpatients and outpatients. Community studies have been done in general geographic communities as well as in student populations and are presented in Table 2.2. Prevalence in a community sample of 976 women was found at 0.7% by Otto, Wilhelm, Cohen and Harlow (2001). To date, there were three nationwide studies, one in the America and two in Germany (Buhlmann et al., 2010; Koran et al., 2008; Rief et al., 2006). Both German studies reported a lower prevalence (1.7% and 1.8%) than the United States study (2.4%), suggesting that Americans are at a higher risk of being diagnosed with body

dysmorphic disorder than are Germans. In all three nationwide studies, females had higher prevalence rates, although the sample of one of the studies was comprised of 65.5% female respondents which may have accounted for the higher prevalence in them (Koran et al., 2008).

Table 2.2 Prevalence of body dysmorphic disorder in community populations

Study	Population	Prevalence rates (%)
Buhlmann et al. (2010)	2510 men and women, nationwide in Germany	1.8
Koran et al. (2008)	2048 men and women, nationwide in America	2.4
Otto et al. (2001)	976 women, metropolitan area communities in America	0.7
Rief et al. (2006)	2552 men and women, nationwide in Germany	1.7
Bartsch (2007)	619 students, university in Australia	2.3
Bohne et al. (2002)	133 students, university in Germany	5.3
Boroughs et al. (2010)	1 041 students, university in America	4.9
Cansever et al. (2003)	420 female students, university in Turkey	4.8
Taqui et al. (2008)	156 medical students, university in Pakistan	5.8
Zhu & Deng (2010)	2 463 students, 5 universities in Hainan, China	4.95

Prevalence of body dysmorphic disorder among students ranges from 2.3% of 619 students at a university in Australia to 5.8% of 156 medical students at a university in Pakistan (Bartsch, 2007; Taqui et al., 2008). It was found at 5.3% at a university in Germany (n = 133; Bohne et al., 2002), 4.8% in a female sample at a university in Turkey (n = 420; Cansever et al., 2003), 4.95% in a sample from 5

universities in Hainan, China (n = 2 463; Zhu & Deng, 2010), and 4.9% at an American university (n = 1 041; Boroughs et al., 2010). Zhu and Deng (2010) reported body dysmorphic disorder to be equally prevalent in male and female students. However, Taqui et al. (2008) indicated a higher prevalence of body dysmorphic disorder in male students, while a higher prevalence in female students was found by Bartsch (2007), Bohne et al. (2002), and Boroughs et al. (2010).

Compared to the general community studies, this data suggests that body dysmorphic disorder is more prevalent among students. This may be a reflection of differences in methodology, the possibility that prevalence is rising among students or because students are more willing to disclose their body dysmorphic disorder. There is also a clear difference in gender between the community samples and student samples, with the community studies reporting a consistently higher prevalence in females whereas student samples show mixed results on gender differences. The authors of these studies did not offer any explanations for these gender differences in prevalence. While the sample composition may have led to a seemingly higher prevalence in females in some studies, Taqui et al. (2008) had a higher prevalence in males despite the sample containing fewer males and females. Perhaps age is a relevant variable, since students tend to have a younger mean age than participants from community studies. It is possible that body dysmorphic disorder affects both genders indiscriminately during the late teens or early twenties and with time, begins to affect more women than men. Longitudinal studies are needed in order to explore this hypothesis.

In addition to measuring gender differences in body dysmorphic disorder, Bartsch (2007) and Boroughs et al. (2010) included ethnic or racial differences in their studies. Bartsch (2007) found that dysmorphic concern was lower among Asian Australian students than among white Australian students. However, the validity of these findings in Bartsch (2007) is questionable due to their exclusion of individuals with eating disorders, because as seen in the clinical studies, the two conditions often coexist. In addition, the study used a convenience sample. Probability sampling was also used by Bohne et al. (2002). Boroughs et al. (2010) found a lower level of concern among African American women than white and Latina women. The latter study proceeded to examine differences in sexual

orientation as well, indicating that body dysmorphic disorder was higher among gay and lesbian students than among heterosexual students. A limitation of this study was that the mean scores were below the clinically significant cut-off scores and thus the data should be considered as provisional.

2.9.3 Limitations of recent prevalence studies

The available literature has several shortcomings. Firstly, although there is ample data on clinical samples, studies within community populations are limited. Secondly, the existing literature in both clinical and community samples rarely differentiates further than gender. Only two studies noted racial or ethnic differences and just one investigated sexual orientation. Since the recent data indicates a difference on these variables, the researcher deemed them essential for inclusion in this study. Thirdly, many of the studies used convenience sampling, thereby compromising the representativeness of the sample. Finally, no data was found on the prevalence of body dysmorphic disorder in any South African population.

CHAPTER 3

Methodology

3.1 Introduction

In this chapter, a detailed account of the methodology of the study will be provided, including an elucidation of all the methods used as well as the rationale behind the choices. Specifically, this includes the research strategy and design, target population, sampling method, sample size, data collection method, assessments and statistical analysis.

The researcher selected a quantitative methodology for this study. Quantitative research is empirical, as variables are measured to obtain scores and data is typically represented in numerical form (Gravetter & Forzano, 2009). The theoretical point of departure for this type of research is positivism, which holds that human nature is objective and ought to be observed scientifically (Yates, 2004). This is in contrast to qualitative research, which is based on rich descriptions and subjective reports (Hartmann & Pelzel, 2005). The former is more suitable to this study, as the research is aimed at determining the number of individuals who have body dysmorphic disorder rather than their experience of the disorder. Examples of studies that made use of this methodology include Bartsch (2007) with a prevalence study of body dysmorphic disorder in a sample of 619 students at a university in Australia, Otto et al. (2001) with their prevalence study on 976 women, and Picavet et al. (2011), who determined the prevalence of body dysmorphic disorder in a sample of 226 rhinoplasty patients.

3.2 Research strategy

Once the broad methodology was determined, the research strategy was chosen. The research strategy refers to the general framework of the study and is guided by the type of question that it aims to answer (Gravetter & Forzano, 2009). The strategy for this study is descriptive, involving the measurement of variables as

they naturally exist in a specific group. There is no manipulation of variables and the prevalence results are not explained in terms of causality but are merely described (Marczyk, DeMatteo, & Festinger, 2010). The study's aim of describing the prevalence of body dysmorphic disorder as it naturally exists renders this an appropriate strategy.

3.3 Research design

Following on the research strategy, a cross-sectional research design was selected. This design refers to the time-frame of the observations, in that they are made at a single point in time in a cross-section of the undergraduate population at an urban inner-city university (Babbie, 2010). A prevalence study is a type of cross-sectional study, where the aim is to determine the number of existing cases of a condition or ailment, which in the current study is body dysmorphic disorder (Bonita et al., 2006). This differs from incidence studies, which determine the number of new cases that arise during a specified time period (Bonita et al., 2006).

A shortcoming of the cross-sectional research design is that it does not permit for observations of changes in the prevalence of body dysmorphic disorder. However, it is easier to conduct and requires fewer resources than a longitudinal study (Mann, 2003).

3.4 Target population

A target population is the group from which the data will be gathered and is specified according to the researcher's particular interests (Gravetter & Forzano, 2009). Since it is not possible to study the entire population, a representative sample (one that possesses the same characteristics as the population) is selected (De Vaus, 2002). The population with the required characteristics for this study is comprised of undergraduate students. The sample was selected from this particular university because it is convenient for the researcher in terms of accessibility.

3.5 Sampling method

As discussed in the literature review, a limitation of existing studies is their tendency to use convenience samples, which compromised the generalisability of the data. In order to ensure optimal representativeness within the current study, the researcher employed a proportionate stratified random cluster sampling method, which entails that different groups or clusters are drawn at random (Singh, 2007). This is a partial replication of the methodology of Taqui et al. (2008) in which a stratified random sampling was used, with an equal distribution of questionnaires distributed to students in each academic year. The current study takes this sampling method a step further by ensuring that the proportions of the sample mirror those of the undergraduate population at the university (Singh, 2007). Thus, a number of academic modules on undergraduate level, in proportion to the faculty size, were drawn at random from each of the nine faculties at the university. On a specified date and time, students who wanted to participate were invited to remain behind in the venue of their lecture after class in order to complete the questionnaire.

Permission from the lecturers and informed consent from the students were obtained in written form. On these forms, the study was introduced as "The Body Image Study" so that it would not prime the students to the nature of the questions in the survey (see Appendix A). The title was borrowed from Boroughs et al. (2010). A record was also requested from the university's Corporate Governance Website containing the numbers of students registered in each faculty, in order to determine the relevant proportions.

3.6 Sample size

In addition to the use of convenience sampling methods, a number of the prevalence studies used sample sizes that were relatively small. Thus, one of the methodological aims of this study was to ensure that an appropriate sample size was used in order to provide sound data. The sample size was determined by considering the level of precision, the confidence level and the degree of variability (Weathington, Cunningham & Pittenger, 2010). Respectively, these refer to the

degree to which the sample accurately reflects the population, the likelihood that the sample falls within the confidence interval (distance estimate of a population parameter) and the degree of heterogeneity of variables (Krysik & Fin, 2010). The researcher used a recommended 5% ($p < 0.05$) significance level rendering, a 95% confidence interval as the statistical parameter for this study (Krysik & Fin, 2010).

3.7 Data collection method

The data was collected by means of a survey that includes the Body Image Disturbance Questionnaire (Cash, Phillips, Santos, & Hrabosky, 2004), where a sample of respondents was selected from the population and each respondent completed a standardised paper-and-pencil questionnaire (De Vaus, 2002). A survey is conducive to the description of variables, and it permits the use of a larger sample as well as flexibility during analysis (Babbie, 2010). In addition to rendering large amounts of data simultaneously, the questionnaire granted anonymity to the respondents, which may have served as motivation to participate. Clear verbal and written instructions were given to ensure minimal confusion. In addition, before the survey was distributed to the students, a pilot study was conducted on a group of 11 students who were approached at the university in order to ensure that the wording of the questions in the survey was understandable and appropriate for this population.

The variables in the study were prevalence, demographic features and sexual orientation. These concepts were operationalized as follows:

Prevalence: The total number of students registered at the university in 2012 for modules on undergraduate year levels with current body dysmorphic disorder (Bonita et al., 2006).

Demographics: Age, sex (male, female, other), race or ethnicity (black, white, mixed, Asian, other), first year of registration, current academic year (first, second, third), sexual orientation (heterosexual, gay or lesbian, other).

3.8 Assessments

The abovementioned constructs were assessed using a demographics questionnaire and the Body Image Disturbance Questionnaire (see Appendix B). The Body Image Disturbance Questionnaire was developed by Cash et al. (2004) and was published along with scoring information in Taqui et al. (2008). Permission for its use in the study was obtained from the authors of the questionnaire.

3.8.1 Demographics questionnaire

With this questionnaire, basic demographic information was gathered, including age, sex, race or ethnicity, first year of registration, current academic year and sexual orientation. Sexual orientation was presented in a list consisting of the abovementioned categories, requiring respondents to select one. Each sexual orientation category was reported as a percentage of the participants with body dysmorphic disorder relative to the total sample of university students.

3.8.2 Body Image Disturbance Questionnaire

A methodological limitation of the existing body dysmorphic disorder prevalence studies involves the use of the Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder (Phillips, Hollander, Rasmussen, & Aronowitz, 1997) and the Body Dysmorphic Disorder Questionnaire (Phillips, 2005). The Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder has been criticised for its focus on obsessive-compulsive type symptoms (Boroughs et al., 2010; Cororve & Gleaves, 2001) and the Body Dysmorphic Disorder Questionnaire, despite being considered an adequate instrument for determining the presence of body dysmorphic disorder, is limited in that it offers a dichotomous yes/no response format (Boroughs et al., 2010; Cash et al., 2004). In response, the Body Image Disturbance Questionnaire was developed based on the Body Dysmorphic Disorder Questionnaire. The Body Dysmorphic Disorder Questionnaire is a 4-item self-report scale used to screen for body dysmorphic

disorder based on the DSM-IV-TR criteria for the disorder (Cash et al., 2004). The Body Image Disturbance Questionnaire was developed to improve on the Body Dysmorphic Disorder Questionnaire by modifying some of the wording and converting the response format into 5-point Likert scales, thereby providing for a more comprehensive measurement of body dysmorphic disorder (Cash et al., 2004).

The Body Image Disturbance Questionnaire consists of 7 two-part items (Taqui et al., 2008). Three of the total 14 items require open-ended responses (Taqui et al., 2008). The first two questions assess the level of concern with an appearance feature, the third question assesses the degree of subjective distress, and the rest of the items determine the level of functional impairment in different areas (Taqui et al., 2008). To screen positive for body dysmorphic disorder, the responses must total at least 21 or have a mean of more than 3 (Taqui et al., 2008). For the purpose of this study, the open-ended questions were eliminated because they do not form part of the scoring, with the exception of item 1B, in which the respondents are required to write down the appearance feature they are most preoccupied with. For this item, the researcher used the wording of the Body Dysmorphic Disorder Questionnaire, which asks whether the appearance feature one is most concerned with is weight-related. The motive behind this modification was that the study merely aims to determine the prevalence of body dysmorphic disorder, as opposed to the focal area of body dysmorphic disorder concerns.

The psychometric properties of the Body Image Disturbance Questionnaire have been tested on student samples, with the results indicating that it has excellent internal consistency and test-retest reliability (Cash & Grasso, 2005; Cash et al., 2004). Internal consistency was found at a Cronbach's alpha of 0.89-0.90 for women 0.87-0.89 for men, and test-retest reliability was 0.88. These findings were replicated by Rudiger, Cash, Roehrig and Thompson (2007), although the sample was comprised of female students only and thus applies only to females. In addition, Veale and Neziroglu (2010, p. 6) state that, "Cash (personal communication) found in a preliminary study that .... a score greater than or equal to a summed score of 21 would detect 98% of individuals with BDD...."

3.9 Data analysis method

The researcher consulted Statistical Consultation Services at the university for the coding and analysis of the data. The variables were measured using descriptive statistics. Relationships, including all variables for relative demographics were analysed with the Pearson product moment correlation (Gravetter & Forzano, 2009). Differences were tested using chi-square analyses for categorical variables and independent samples t-tests and analysis of variance (ANOVA) for continuous variables (Marczyk et al., 2010). Categorical variables are values that serve as labels rather than numbers, such as race or ethnicity or sex, whereas continuous variables can take on any numeric value (Babbie, 2010). The prevalence is reflected as a proportion of the number of participants with body dysmorphic disorder relative to the total population of students at the university.

3.10 Conclusion

In conclusion, this study endorsed a quantitative methodology, with the aim of describing the prevalence of body dysmorphic disorder among the undergraduate population at the university. The research design is cross-sectional in that the data is collected at a single point in time in a cross-section of the population. From the literature review, the researcher identified two shortcomings of a number existing studies, namely, the use of convenience sampling and small sample sizes. In order to address these, the current study employed proportionate stratified random cluster sampling, and a pre-calculated sample size that renders a 95% confidence interval.

Data was collected by means of a paper-and-pencil survey, consisting of a demographics questionnaire and a body dysmorphic disorder diagnostic assessment with sound psychometric properties, namely, the Body Image Disturbance Questionnaire. Prior to the data collection, a pilot study was conducted in order to ensure that the survey was appropriate for this population. Once the data was collected, it was analysed with the assistance of the Statistical Consultation Services at the university.

CHAPTER 4

Results

4.1 Introduction

In this chapter, the results of the study will be presented. In the first section, the sample will be described, and the relationships between the variables will be explored in order to determine whether there are any significant associations with body dysmorphic disorder. The second section of the chapter will contain a report on the prevalence of body dysmorphic disorder and the descriptives of the students who met the criteria for the disorder.

4.2 Descriptive statistics

Descriptive statistics entail using methods to summarise, organise and simplify data obtained from a study (Gravetter & Forzano, 2009). As such, the data from the demographics questionnaire will be used below to describe the sample with the aid of frequency distribution tables. To begin with, the students' academic context will be described, followed by their personal background. In the second subsection, the results of cross-tabulations will be presented, indicating whether there are associations between the various demographic variables and the presence of body dysmorphic disorder. These results are similarly presented in terms of academic context and personal background respectively.

4.2.1 Description of sample

A total of 395 students completed the demographics questionnaire and the Body Image Disturbance Questionnaire. This corresponded with the recommended sample size of at least 381 to ensure statistical power for this population. As it was indicated in the previous chapter, a stratified random cluster sample was drawn from all the faculties at the university, in proportion to the number of

students in each faculty. As such, most of the students were selected from the Faculty of Economic and Financial Sciences (n = 94; 24%), due to it being the largest faculty at the university (see Table 4.1). The second and third most students were from the Faculty of Engineering (n = 68; 17.2) and the Faculty of Science (n = 67; 17.0) respectively. There were 55 students from the Faculty of Humanities (13.9%) and 32 students from the Faculty of Education (8.1%). The Faculty of Health (n = 29) and the Faculty of Management (n = 28) were of similar size, and the smallest samples were drawn from the Faculty of Art, Design and Architecture and the Faculty of Law, with both samples containing only 11 students (2.8%) each.

Most of the students had registered for the first time in 2012 (n = 184; 46.6%). The first year of registration was 2011 for 128 of the students (32.4%) and 2010 for 52 students (13.2%). Most of the participants are from the last three years as they are the students currently in the undergraduate programmes at the university. The number of participants decreases significantly from 2009 to 2004. It is possible that the students who registered for the first time in 2009 (n = 24; 6.1%) have failed the module or are perhaps postgraduate students taking an undergraduate module. A significantly lower number of students registered in the preceding years, with 4 students having first registered in 2008 (1.0%) and one student each (0.3%) in the years of 2007, 2005 and 2004. These students are also likely to have failed the module and are repeating it, unless the modules were taken for non-degree purposes, since most students who had registered during those years have already completed their studies.

The largest part of the sample consisted of first-year students (n = 256; 64.8%). This was followed by second-years (n = 103) and third-years (n = 33). Only four students were currently in fourth year (as some undergraduate courses are 4 year courses). These results appear in Table 4.1.

The mean age for this sample was 25.93 with a standard deviation of 8.35. As indicated in Table 4.2, the majority of the students were aged between 18 and 22. The largest group consisted of students aged 19 (n = 143; 36.2%), followed by 20-year-old students (n = 101; 25.6%). A similar number of students were 18 (n = 50; 12.7%) and 21 (n = 48; 12.2%) respectively, and this number was lower for

students aged 22 (n = 29; 7.3%). There were significantly fewer students who fell outside the bracket of age 18-22. There were seven students aged 23 (1.8%), three students (0.8%) per age group for the ages of 17 and 24, and two students (0.5%) per age group for the ages of 29 and 30. Lastly, there was one student (0.3%) for each of the age groups aged 26, 27, 41 and 47. These older students could be individuals who began their studies later in life or perhaps pursued a change in career path.

Table 4.1 Frequency of students' academic context

	n	%
Faculty		
Faculty of Art, Design and Architecture	11	2.8
Faculty of Economic and Financial Sciences	94	24.0
Faculty of Education	32	8.1
Faculty of Engineering	68	17.2
Faculty of Health	29	7.3
Faculty of Humanities	55	13.9
Faculty of Law	11	2.8
Faculty of Science	67	17.0
Faculty of Management	28	7.1
First year of academic registration		
2004	1	0.3
2005	1	0.3
2007	1	0.3
2008	4	1.0
2009	24	6.1
2010	52	13.2
2011	128	32.4
2012	184	46.6
Current academic year		
First year	256	64.8
Second year	103	26.1
Third year	33	8.4
Fourth year	4	1.0

Table 4.2 Frequency of students' personal background

	n	%
Age		
17	3	0.8
18	50	12.7
19	143	36.2
20	101	25.6
21	48	12.2
22	29	7.3
23	7	1.8
24	3	0.8
25	4	1.0
26	1	0.3
27	1	0.3
29	2	0.5
30	2	0.5
41	1	0.3
47	1	0.3
Gender		
Male	160	40.5
Female	235	59.5
Race		
Black	257	65.1
White	89	22.5
Mixed	19	4.8
Asian	25	6.3
Other	6	1.5
Sexual orientation		
Heterosexual	375	95.0
Gay or lesbian	8	2.0
Bisexual	6	1.5
Other	6	1.5

The gender of the participants is presented in Table 4.2 above. Most of the participants were female (n = 235; 59.5%), while only 160 (40.5%) of the sample were male. Both genders are well-represented in the study.

In this sample, most of the students were black (n = 257; 65.1%). This was followed by white students (n = 89; 22.5%) and Asian students (n = 25; 6.3%). Nineteen students were of mixed race (4.8%) and the remaining six students were neither black, white, Asian or mixed (1.5%). These racial proportions are representative of the population of students at the university.

The sexual orientation of the participants was predominantly heterosexual (n = 375; 95%). There were eight gay or lesbian students (2.0%), while six (1.5%) were bisexual students. A further six students (1.5%) responded with "other", possibly indicating that they are asexual or perhaps that they are uncertain of their sexual orientation.

In sum, the sample used in the study may be considered an adequate representation of the population of the university, owing to the use of proportionate stratified random cluster sampling and the statistical power offered by the sample size (n = 395). Most of the students were from the Faculty of Economic and Financial Sciences, registered in 2012 and in first year. A variety of ages was represented in the study, with a mean age of 25.93, and both genders were well-represented. The students presented from various racial backgrounds, while their sexual orientation was predominantly heterosexual. Generally the sample was of diverse composition of a number of variables.

4.2.2 Relationships between variables

Thus far, the sample in this study has been described. Next, the researcher will report the associations between the demographic variables and the presence of body dysmorphic disorder by means of cross-tabulation. Students with body dysmorphic disorder are compared to those without the disorder by means of chi-square analysis, and statistically significant relationships or ones that are not due to chance are evidenced by a Pearson correlation of less than 0.05 (Pallant,

2011). For statistically significant differences, the effect sizes or the strength of these differences will be presented as well, using phi coefficients for 2 by 2 tables in the data output files and Cramer's V for tables larger than 2 by 2 (Pallant, 2011).

Table 4.3 presents the findings of the cross-tabulation for body dysmorphic disorder in terms of the students' academic context. A chi-square test for independence indicated no significant association between the faculty in which the students are enrolled and body dysmorphic disorder, χ^2 (8, n = 395) = 4.17, p = 0.841. A significant association between first year of academic registration and body dysmorphic disorder was found, χ^2 (7, n = 395) = 25.42, p = 0.001; however, the effect size was small (Cramer's V = 0.25). There was no significant association between the students' current academic year and the presence of body dysmorphic disorder, χ^2 (3, n = 395) = 2.57, p = 0.463.

In Table 4.4, the findings of the cross-tabulation for body dysmorphic disorder in terms of the students' personal background are presented. There was no significant association between the students' age and body dysmorphic disorder, χ^2 (1, n = 395) = 4.48, p = 0.190. The researcher dichotomised the age category, since there was a scattered spread of data with few students in each age group. The dichotomised category is comprised of late adolescents (grouping students aged up to 20 years) and young adults (including students 21 and older). The choice for the cut-off between the two groups was determined by Erikson's stages of development (Erikson, 1963).

No significant association was found between the students' gender and body dysmorphic disorder, χ^2 (1, n = 395) = 1.26, p = 0.262. Similarly, none was found for race, χ^2 (3, n = 390) = 1.57, p = 0.666, or for sexual orientation χ^2 (2, n = 389) = 1.22, p = 0.544.

Table 4.3 Cross-tabulation for body dysmorphic disorder in terms of students' academic context

	No body dysmorphic disorder		Body dysmorphic disorder		Sign. ($p < 0.05$)
	n	%	n	%	
Faculty					**0.841**
Faculty of Art, Design and Architecture	10	90.9	1	9.1	
Faculty of Economic and Financial Sciences	90	95.7	4	4.3	
Faculty of Education	30	93.8	2	6.2	
Faculty of Engineering	65	95.6	3	4.4	
Faculty of Health	26	89.7	3	10.3	
Faculty of Humanities	52	94.5	3	5.5	
Faculty of Law	11	91.7	1	8.3	
Faculty of Science	64	95.5	3	4.5	
Faculty of Management	28	100	0	0	
First year of academic registration					**0.001**
2004	1	100	0	0	
2005	1	100	0	0	
2007	0	0	1	100	
2008	4	100	0	0	
2009	22	91.7	2	8.3	
2010	47	90.4	5	9.6	
2011	120	93.8	8	6.2	
2012	180	97.8	4	2.2	
Current academic year					**0.463**
First year	246	96.1	10	3.9	
Second year	95	92.2	8	7.8	
Third year	31	93.9	2	6.1	
Fourth year	4	100	0	0	

Table 4.4 Cross-tabulation for body dysmorphic disorder in terms of students' personal background

	No body dysmorphic disorder		Body dysmorphic disorder		Sign. ($p < 0.05$)
	n	%	n	%	
Age (dichotomised)					**0.190**
Late adolescent	283	75.7	12	4.2	
Young adult	91	24.3	8	8.8	
Gender					**0.262**
Male	149	93.1	11	6.9	
Female	226	96.2	9	3.8	
Race					**0.666**
Black	244	94.0	13	5.1	
White	83	93.3	6	6.7	
Mixed	19	100	0	0	
Asian	24	96	1	4	
Other	5	100	0	0	
Sexual orientation					**0.544**
Heterosexual	356	94.9	19	5.1	
Gay or lesbian	7	87.5	1	12.5	
Bisexual	6	100	0	0	

The results above indicate that there are no statistically significant associations between the demographic variables queried and the presence of body dysmorphic disorder. It seems then, that the disorder occurs throughout the students' academic context and personal background.

4.3 Inferential statistics

While descriptive statistics aid in describing the overall sample, inferential statistics enable the researcher to make generalisations about the population by using some of the data to answer specific research questions (Gravetter & Forzano, 2009). In this case, inferential statistics were used to answer questions about the group of students with body dysmorphic disorder. The prevalence of body dysmorphic disorder will be reported, followed by the descriptives of the students with the disorder, on the various demographic variables.

4.3.1 Prevalence of body dysmorphic disorder

As indicated in Table 4.5 below, the prevalence of body dysmorphic disorder at this university was reported at 5.1% (n = 20). Three hundred and fifty of the students (88.4%) reported no body dysmorphic disorder. A further twenty four students (6.1%) met the cut-off mean score for body dysmorphic disorder (score > 3.0); however, they were eliminated because their primary concern was limited to weight and thus they did not meet the criteria. This was evidenced by students responding with "agree" or "strongly agree" on item 1B, "Is your main concern with your appearance that you aren't thin enough or that you might become too fat?"

Table 4.5 Prevalence of body dysmorphic disorder

	n	%
Participants with no body dysmorphic disorder	350	88.4
Participants excluded due to weight concerns	24	6.1
Participants with body dysmorphic disorder	**20**	**5.1**

4.3.2 Descriptives of students with body dysmorphic disorder

In this section, a clearer picture of the body dysmorphic disorder group will be provided. The mean scores on the Body Image Disturbance Questionnaire for the body dysmorphic disorder group were compared in order to determine whether the disorder is more severe in students of specific demographic groups. In addition, the researcher determined whether there were statistically significant differences between students with the disorder on the respective demographic variables. The results are represented in Table 4.6.

The faculties were dichotomised for the same reasons that the ages were pooled into two groups; the scores were scattered with few numbers of students in each group. The researcher divided the faculties into sciences (Faculty of Art, Design and Architecture, Faculty of Economic and Financial Sciences, Faculty of Engineering, Faculty of Science and Faculty of Health) and non-sciences (Faculty of Education, Faculty of Law, Faculty of Humanities and Faculty of Management). While most of the students who reported body dysmorphic disorder were from faculties involving sciences (n = 14; 70%), their experience of the severity of body dysmorphic disorder was not significantly different ($p = 0.567$). The means for the two faculty categories are 3.49 for sciences and 3.45 for non-sciences, indicating that the students reported similar severity rates of body dysmorphic disorder across all faculties.

Most students who reported body dysmorphic disorder first registered in 2011 (n = 8; 40%). Five students (25%) first registered in 2010 and four students (20%) first registered in 2012. These numbers decrease to two students (10%) who first registered in 2009 and only one student (5%) who first registered in 2007. While there appears to be differences in the number of students with body dysmorphic disorder and the respective years during which they first registered, a one-way ANOVA indicated no significant differences in their experience of the severity of the disorder, $F(4, 15) = 0.821$, $p = 0.532$. The mean scores range from 3.25 for 2012 to 3.74 for 2010, indicating that students who first registered in 2010 experience more severe body dysmorphic disorder than do students who first registered during 2007, 2009, 2011 and 2012.

Fifty per cent of students with body dysmorphic disorder were in first year (n = 10), 40% (n = 8) were in second year and 10% (n = 2) were third-year students. In terms of severity, mean scores were 3.27 for first-years, 3.63 for second-years and 3.93 for third-year students. This shows a progressive increase in severity from first-year students to third-year students, indicating that third-year students report the highest severity levels in their body dysmorphic disorder. However, the difference in their experience of the severity of their body dysmorphic disorder was not significant (p = 0.057).

In terms of age, more students who reported body dysmorphic disorder were late adolescents (n = 12; 60%) than young adults (n = 8; 40%). While body dysmorphic disorder was more prevalent among the late adolescents, the young adult students reported more severe body dysmorphic disorder, with a mean of 3.78, compared to 3.27 for the late adolescents. This was a statistically significant difference (p = 0.005) in their experience of the severity of body dysmorphic disorder.

Slightly more students who reported body dysmorphic disorder were male (n = 11; 55%). Although males reported more severe body dysmorphic disorder (M = 3.58) than did females (M = 3.34), there was no significant difference in the experience of the severity of body dysmorphic disorder between males and females (p = 0.234).

Most of the students who reported body dysmorphic disorder were black (n = 13; 65%). This number is almost halved for white students (n = 6; 30%) and there was only one Asian student (5%) with the disorder. White students reported more severe body dysmorphic disorder, with a mean of 3.71. Black students reported less severe body dysmorphic disorder (M = 3.41) than did white students, but more severe than the Asian student (M = 3.00). A one-way ANOVA was used to test for differences between black, white and Asian students' experience of severity of body dysmorphic disorder. Experiences of the severity of the disorder did not differ significantly among these students, $F(2, 17) = 1.851$, $p = 0.187$.

Table 4.6 Frequency of individuals with body dysmorphic disorder

	n	%	M	SD	T-test/ANOVA Sign. ($p < 0.05$)
Faculty (dichotomised)					**0.567**
Sciences	14	70	3.49	0.41	
Non-sciences	6	30	3.45	0.51	
First year of academic registration					**0.532**
2007	1	5	3.29	N/A	
2009	2	10	3.57	0.81	
2010	5	25	3.74	0.38	
2011	8	40	3.43	0.43	
2012	4	20	3.25	0.34	
Current academic year					**0.057**
First year	10	50	3.27	0.27	
Second year	8	40	3.63	0.50	
Third year	2	10	3.93	0.30	
Age (dichotomised)					**0.005**
Late adolescent	12	60	3.27	0.31	
Young adult	8	40	3.78	0.41	
Gender					**0.234**
Male	11	55	3.58	0.44	
Female	9	45	3.34	0.11	
Race					**0.187**
Black	13	65	3.41	0.43	
White	6	30	3.71	0.37	
Asian	1	5	3.00	N/A	
Sexual orientation					**0.115**
Heterosexual	19	95	3.44	0.41	
Gay or lesbian	1	5	4.14	N/A	

Lastly, almost all of the students who reported a body dysmorphic disorder were heterosexual (n = 19; 95%); however, there was not a statistically significant difference (p = 0.115) for their experience of the severity of body dysmorphic disorder. The gay or lesbian student reported a higher severity (M = 4.14) in their body dysmorphic disorder than did the heterosexual students (M = 3.44).

In conclusion, no statistically significant differences were found between students with body dysmorphic disorder on any demographic variables, with the exception of age. An independent sample t-test indicated that students entering young adulthood experience their body dysmorphic disorder much more severely than do late adolescent students. In terms of faculty, students from both faculty types (sciences and non-sciences) experienced similar levels of body dysmorphic disorder. The highest severity levels were reported by students who first registered in 2010 for first year of academic registration, third year students for current academic year, male students for gender, white students for race and the gay or lesbian student for sexual orientation. However, these results are not statistically significant.

CHAPTER 5

Discussion

5.1 Introduction

Following on the results reported in the previous chapter, in this section, the researcher will review the findings that emerged from the study in terms of existing literature on the prevalence of body dysmorphic disorder in student samples. The chapter is structured according to the research questions posed in chapter one, namely, the prevalence of body dysmorphic disorder at the university, as well as differences in gender, race and sexual orientation in the prevalence rate. An additional section has been allocated for further noteworthy observations that emerged.

5.2 The prevalence of body dysmorphic disorder

The researcher found a prevalence rate of approximately 5% for body dysmorphic disorder in a non-clinical student sample. This indicates that one in twenty students might have a diagnosis of body dysmorphic disorder at the university. This was similar to most of the prevalence rates found among student populations, where percentages ranged between 4.8% and 5.8% (Bohne et al., 2002; Boroughs et al., 2010; Cansever et al., 2003; Taqui et al., 2008; Zhu & Deng, 2010). The results indicate that the prevalence of the disorder among South African students is comparable to the prevalence among German, American, Turkish, Pakistani and Hainanese students. This may be a reflection of more accurate assessment tools for the disorder, since all of the above mentioned studies applied the DSM-IV-TR criteria, as opposed to the DSM-III-R criteria used in previous research (Bartsch, 2007).

However, the prevalence was higher than the 2.3% found in a sample of Australian students (Bartsch, 2007). The lower percentage found by Bartsch (2007) may have been due to the use of convenience sampling in the study,

although Bohne at al. (2002) used a convenience sample as well and the prevalence was found at 5.3%.

5.3 Differences in gender, race and sexual orientation

In the current study, there were no statistically significant gender differences in the prevalence of body dysmorphic disorder. This is a replication of the findings by Zhu and Deng (2010) among Hainanese students. However, it is contrary to the results reported by Bartsch (2007), Bohne et al. (2002) and Boroughs et al. (2010) where the prevalence was higher among female students. In contrast, Taqui et al. (2008) found a higher prevalence among male students. In addition, in the current study, there were no statistically significant differences in the severity of symptoms between male and female students, which also corresponded with the findings in the Hainanese sample (Zhu & Deng, 2010). However, the other three studies that reported on severity levels all found body dysmorphic disorder to be more severe among female students (Bartsch, 2007; Bohne et al., 2002; Boroughs et al., 2010). Thus, the absence of statistically significant gender differences in the prevalence of body dysmorphic disorder as well as in its severity levels are both supported by and in contrast with existing literature. Results are therefore still inconclusive for gender differences in a student population.

There were also no statistically significant differences in race in the prevalence of body dysmorphic disorder. As was mentioned in the literature review, two recent studies conducted on student samples included racial or ethnic background differences in their analysis. Bartsch (2007) found that body dysmorphic disorder, as well as severity of symptoms, were highest among white students. These findings were concurrent with the results of Boroughs et al. (2010). According to Wolrich (2011), the higher prevalence found among the white population (including general communities and clinical populations) may have been a reflection of the large portion of white participants in the samples used. However, the sample in the current study was comprised of mostly black students and the prevalence of body dysmorphic disorder was still higher among white students, with 6.7% among white students compared to 5.1% among black students. While the difference is

not statistically significant, it provides provisional support for existing research that the disorder tends to be more prevalent among white students.

Lastly, both the current research and the study by Boroughs et al. (2010) found body dysmorphic disorder to be higher among the gay or lesbian students but in both instances, these differences were below the statistically significant cut-off mark. In the current study, there was only one gay or lesbian student with body dysmorphic disorder and thus the findings should be interpreted with caution. Since only one other study has included sexual orientation as a variable in their analysis, more research is needed in order to explore this trend.

5.4 Further observations that aid in understanding the nature of appearance concerns at the university

In addition to the results that answered the research questions to this study, a number of further analyses are discussed below. These observations include differences in the experience of the severity of body dysmorphic disorder between the two age groups, differences in the prevalence of the disorder between the different faculties, as well as the significant portion of students who reported weight concerns.

5.4 1 Differences in age

While age was not included in the research questions for this study, it emerged in the data analysis that young adult students (over the age of 21) experience more severe body dysmorphic disorder than do late adolescent students (under the age of 21). A possible reason for this could be that these students have entered the intimacy versus isolation stage of development, a period during which the individual is either able to form intimate relationships or becomes isolated due to fear of rejection (Erikson, 1963). Thus, perhaps young adult students experience more pressure to find romantic relationships than do students who have recently begun university, and this may have contributed to them developing a preoccupation with their appearance. Another possibility may involve academic

stressors. As discussed in the literature review, stressful life events have been known to contribute to the development in body dysmorphic disorder (Feusner et al., 2010). Thus, it is possible that students in this group may be prone to the disorder due to the academic stressors associated with completing their degree, especially if one considers the perfectionism and obsessive-compulsive traits noted in individuals with the disorder (Veale, 2004). In order to fully explore these differences in age, qualitative research is needed.

In terms of the recent prevalence studies in student samples, the only study that included age as a variable reported that age was not related to the prevalence of body dysmorphic disorder among students in Hainan. Research in general community populations that assessed differences in age in the prevalence of body dysmorphic disorder is limited and inconclusive. As it was discussed in the literature review, some studies included age but the age groups differed to the ones used in the present study and they also did not assess severity levels. Thus, more research is needed in order to replicate the findings in the current study because the available data in existing literature is not directly comparable.

5.4.2 Differences in faculty

From the literature review, it emerged that body dysmorphic disorder tends to be more prevalent among individuals whose academic or occupational choices are in the fields of art or design (Veale and Lambrou, 2002). For this reason, the researcher compared prevalence rates in terms of faculty. The results from the current study showed that students from the Faculty of Art, Design and Architecture had the second highest prevalence rate of body dysmorphic disorder, whereas there were no students with body dysmorphic disorder from the Faculty of Management. While there were no statistically significant differences in the prevalence rates among the different faculties, these findings provide provisional support for the hypothesis that body dysmorphic disorder is more prevalent among individuals who likely have a greater sense of aesthetic appreciation than others.

None of the existing studies in student populations compared the prevalence rates relative to different faculties or fields of academic interest. These studies used

one category of students, such as psychology students (Bohne et al., 2002), nursing students (Cansever et al., 2003) and medical students (Taqui et al., 2008). Thus, the current study was the first to differentiate prevalence rates between different study areas and as such, the results require replication.

5.4.3 Weight concerns in students

As was mentioned in the previous chapters, part of the screening process for determining the prevalence of body dysmorphic disorder entailed excluding students who met the criteria but their primary concern was with body weight. More than half of the students who met the criteria (6.1% of the total sample) were predominantly preoccupied with weight, which suggests that weight concerns are of notable prevalence at the university. This finding could be pursued further by conducting a prevalence study on eating disorders at the university or qualitative research on the nature of these concerns. Further research could also be conducted to determine the number of students with body dysmorphic disorder who have a secondary preoccupation with weight and/or a comorbid eating disorder.

5.5 Conclusion

In summary, this study replicated some of the findings in existing literature and also produced new results that require replication. To the researcher's knowledge, it was the first study on the prevalence of body dysmorphic disorder in a South African student sample and was also the first study in any student sample to include differences in prevalence rates among different faculties.

The prevalence of body dysmorphic disorder at the university was approximately 5%, which corresponds with the findings of most existing prevalence studies in student populations. There were no significant differences in any of the demographic variables assessed by the research questions, including gender, race and sexual orientation. However, students differed significantly in their experience of the severity of the disorder in terms of age, such that young adults

reported higher severity levels than did late adolescents. This could be due to social pressures of finding romantic relationships or from pressures related to their studies. While no significant differences were found between the different faculties, the second highest prevalence was in the Faculty of Art, Design and Architecture, which provides preliminary support for the hypothesis that body dysmorphic disorder is related to an appreciation for aesthetics. Lastly, the study revealed that a large number of students at this university experience weight concerns.

CHAPTER 6

Conclusion

6.1 Introduction

This chapter will conclude the present study with a three-fold evaluation. In the first part of the chapter, the strengths of the study will be outlined. This will be followed by a review of the study's limitations. Lastly, the researcher will offer suggestions for future research on the prevalence of body dysmorphic disorder.

6.2 Merits of the present study

The aim of this study was to determine the prevalence of body dysmorphic disorder among undergraduate students at an inner-city university and to identify any differences in the prevalence of the disorder in terms of a number of demographic variables. This aim was fulfilled and additional findings that were relevant to the research questions were presented and discussed. In addition, this appears to be the first study of its kind in South Africa, since a literature review discovered no previous local research on body dysmorphic disorder. It therefore provides a contribution to the existing body of knowledge on the disorder.

A further merit of this study is that the research methodology is sound. With reference to the literature review, a number of studies relied on convenience samples and used small sample sizes. The current study addressed these limitations by endorsing a non-probability sampling method and an adequate sample size. In addition, the researcher selected a diagnostic instrument, the Body Image Disturbance Questionnaire, which has been developed as an improved version of previous ones, such as the Body Dysmorphic Disorder Questionnaire or the Yale-Brown Obsessive-Compulsive Scale Modified for Body Dysmorphic Disorder. As such, the representativeness of the sample and the validity of the data may be considered to be relatively strong.

6.3 Limitations of this study

The main limitation of this study is that it relied on self-report measures to determine the prevalence of body dysmorphic disorder. The researcher addressed this by using a self-report measure with reliable psychometric properties. However, it is possible that some of the individuals who reported a body dysmorphic disorder had a physical anomaly that is objectively visible to others. An example of this is an amputated limb.

A second limitation is that the researcher relied on students who were present in the lecture halls on the days of the data collection and, as discussed in the literature review, many individuals with the disorder are housebound at times (Phillips et al., 2005). As a result, the true prevalence rate may be higher than the one reported.

Thirdly, some confusion was reported in the demographics questionnaire on race and sexual orientation. It seems that some students were unsure about which racial category they belong to. Specifically, on two occasions, an Indian student raised their hand asking which category they should tick. In addition, a number of students asked about the meaning of the words "heterosexual" and "bisexual". The researcher attempted to prevent such confusion with the pilot study that was conducted but these queries only emerged during the data collection for the formal study. Once these issues were brought to the researcher's attention, an announcement was made before the subsequent data collections, requesting Indian students to tick the "Asian" category. In addition, explanations of the sexual orientation categories were provided.

6.4 Recommendations for future research

Following on the limitations identified above, the researcher recommends that future studies screen for objective anomalies by asking specific questions, such as, "do you have an amputated limb?", or that individuals who are diagnosed with body dysmorphic disorder be asked to attend a follow-up interview. The

researcher also recommends that future research be conducted online, in order to accommodate students who are housebound due to their condition.

In order to address the ethnic category confusion, future studies should provide enough categories in order to accommodate everyone, including the addition of "Indian" in the demographics questionnaire. The demographics section should also include a written explanation of the sexual orientation categories in order to ensure that they are understood, e.g. "bisexual (attracted to both men and women)".

In addition to the above recommendations, this study needs replication owing to the fact that an electronic search did not identify others of its kind in South Africa. Prevalence studies are also needed in general communities in South Africa, as well as in clinical populations. In addition, further studies could assess which body parts individuals with body dysmorphic disorder are most concerned with.

Lastly, researcher has identified the need for qualitative research. This would aid in explaining the statistically significant differences that were found, such as reasons for which older (young adult) students are more likely to have body dysmorphic disorder. From the literature review, the researcher also identified the need for longitudinal research. This would provide data on the course of the disorder as well as on the aetiology, since it is unclear whether the identified causal factors are predispositions, part of the underlying pathology or effects of the disorder.

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Appendix A

Informed consent

THE BODY IMAGE STUDY

Dear Student,

My name is Antonia Dlagnekova and I am a master's student in psychology at UJ. I am conducting research on body image concerns in undergraduate students, in partial fulfilment of the requirements for my degree. The results of this study will aid in identifying groups that are at risk for body image concerns and will improve prevention and treatment practices. I would like to request you to participate in this study. Completing the questionnaire will not take more than 10 minutes of your time.

The following questionnaire is divided into two parts. The first part consists of a number of demographics questions. The second part includes questions on how you view yourself and your body. Your identity will remain anonymous and all results are confidential. Participation is completely voluntary. You are not required to answer questions that you are uncomfortable with and you may withdraw from this study at any time. Should you wish to participate, please complete the questionnaire as honestly as possible and return it in front as you exit the venue. Please note that by completing and returning the questionnaire, you are providing informed consent to participate.

If you have any questions or concerns, please do not hesitate to contact me at antonia.dlagnekova@gmail.com. You may also contact my research supervisor, Dr Leon van Niekerk, Senior Lecturer at the Department of Psychology, at leonvn@uj.ac.za. If you feel that you need to speak to someone about any problems or questions pertaining to this process, you may contact the Centre for Psychological Services and Career Development (PsyCaD) on 011 559 3106/3324 (Kingsway Campus), 011 559 1318 (Bunting Road Campus), or 011 559 5752 (Soweto Campus). Their services are free of charge.

Thank you in advance for your participation.

Sincerely,
Antonia Dlagnekova

Appendix B

Demographics questionnaire and the Body Image Disturbance Questionnaire

PAGE 1 OF 2
PART 1: Demographics questionnaire

Please fill in your answer in the space provided:

1. Your age: [ ] years

2. During which year did you first register at the university? [ ]

Please circle the relevant number for each answer (1,2,3,4 or 5):

3. Your current academic year:

1	2	3	4	5
First year	Second year	Third year	Fourth year	Fifth year

4. Gender:

1	2	3
Male	Female	Other

5. Race:

1	2	3	4	5
Black	White	Mixed	Asian	Other

6. Sexual orientation:

1	2	3	4
Heterosexual	Gay or lesbian	Bisexual	Other

PLEASE TURN OVER

PART 2: This questionnaire assesses concerns about physical appearance. Please read each question carefully and circle the answer that best describes your experience (1, 2, 3, 4 or 5).

1A. Are you concerned about the appearance of some part(s) of your body, which you consider especially unattractive? (Circle the best answer)

1	2	3	4	5
Not at all concerned	Somewhat concerned	Moderately concerned	Very concerned	Extremely concerned

1B. Is your main concern with your appearance that you aren't thin enough or that you might become too fat? (Circle the best answer)

1	2	3	4	5
Strongly agree	Agree	Neither agree	Disagree nor disagree	Strongly disagree

2. If you are at least somewhat concerned, do these concerns preoccupy you? That is, you think about them a lot and they're hard to stop thinking about? (Circle the best answer)

1	2	3	4	5
Not at all preoccupied	Somewhat preoccupied	Moderately preoccupied	Very preoccupied	Extremely preoccupied

3. Has your physical "defect" often caused you a lot of distress, torment, or pain? How much? (Circle the best answer)

1	2	3	4	5
No distress	Mild, and not too disturbing	Moderate and disturbing but still manageable	Severe, and very disturbing	Extreme, and disabling

4. Has your physical "defect" caused you impairment in social, occupational or other important areas of functioning? How much? (Circle the best answer)

1	2	3	4	5
No limitation	Mild interference but overall performance not impaired	Moderate, definite Interference,	Severe, causes substantial but still manageable	Extreme, incapacitating impairment

5. Has your physical "defect" significantly interfered with your social life? How much? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

6. Has your physical "defect" significantly interfered with your schoolwork, your job, or your ability to function in your role? How much? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

7. Do you ever avoid things because of your physical "defect"? How often? (Circle the best answer)

1	2	3	4	5
Never	Occasionally	Moderately often	Often	Very often

END OF SURVEY