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Dysmorphic concern is related to delusional proneness and negative affect in a community sample

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ABSTRACT

Body image concerns are common in the general population and in some mental illnesses reach pathological levels. We investigated whether dysmorphic concern with appearance (a preoccupation with minor or imagined defects in appearance) is explained by psychotic processes in a community sample. In a cross-sectional design, two hundred and twenty six participants completed an online survey battery including: The Dysmorphic Concern Questionnaire; the Peters Delusional inventory; the Aberrant Salience Inventory; and the Depression, Anxiety, Stress Scale. Participants were native English speakers residing in Australia. Dysmorphic concern was positively correlated with delusional proneness, aberrant salience and negative emotion. Regression established that negative emotion and delusional proneness predicted dysmorphic concern, whereas, aberrant salience did not. Although delusional proneness was related to body dysmorphia, there was no evidence that it was related to aberrant salience. Understanding the contribution of other psychosis processes, and other health related variables to the severity of dysmorphic concern will be a focus of future research.

1. Introduction

A key developmental milestone in adolescence is the formation of a positive, realistic body image. Body image is a multifaceted construct consisting of physical, psychological (i.e., thoughts, feelings, attitudes towards one's body) and sociological components (Cash and Pruzinsky, 1990; Parks and Read, 1997; Roberts et al., 2006). Body image concerns can be the result of a distortion in perception, behaviour, or cognition and affect related to appearance (Castle et al., 2006). Typically, such concerns form part of a social norm, and do not result in pathological preoccupation or distress. In some cases, body image can be attributed such significance for an individual's self-concept that concerns contribute to diminished self-esteem and poorer psychological adjustment; for example, increased depression, anxiety, impaired sexual functioning and use of illegal substances (Smolak and Levine, 2001).

Dysmorphic concern with appearance describes an individual's pre-occupation with a minor or imagined defect in physical appearance (Castle and Rossell, 2006; Phillips et al., 1993) that usually appears only slight, or not observable to others (Castle et al., 2004). Dysmorphic concern is typically associated with considerable distress in clinical disorders including body dysmorphic disorder (BDD) (Castle et al., 2004; Mancuso et al., 2010). For example, evidence demonstrates that individuals with BDD experience increased levels of negative emotionality when compared with healthy controls (Kollei et al., 2012).

For some individuals with BDD, dysmorphic beliefs can be held with delusional levels of conviction (Mancuso et al., 2010) giving rise to the possibility that common processes are involved. Evidence in support of a potential role for delusional processes in BDD comes from a study in which 53% of individuals with BDD (n=224) were reported to have held the belief about their appearance "flaws" with delusional conviction for at least several weeks during the course of their illness–and were completely convinced that their belief was true and were unwilling to consider the possibility that it was not true (Phillips, 2004; Phillips et al., 1993, 1994). Although delusions are traditionally associated

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with psychotic disorders, beliefs consistent with delusional themes arise in healthy samples, and there is evidence that delusional proneness represents a continuum (Peters et al., 2004; Van Os et al., 2000).

In the psychosis literature, a leading model of delusional beliefs is that they are associated with the aberrant assignment of *salience* or significance to otherwise innocuous stimuli (Kapur, 2003). Salience is usually attributed to stimuli which are experienced as inconsistent with what is expected (based on experience) and the surrounding context.

It has been proposed that salience becomes arbitrarily assigned to innocuous stimuli in psychosis leading to high levels of preoccupation with them, and the formation of strongly held explanatory beliefs in the form of delusions. In the context of BDD, a parallel process may be arising with body parts as a specific focus of attention, resulting in particular body parts being assigned salience.

The aim of this investigation was to determine whether psychosis related processes contribute to dysmorphic concern with appearance. We propose that these processes can be usefully investigated in terms of trait level variation in a general community population. We hypothesised that dysmorphic concern in a community based sample will be predicted by delusional ideation (reflecting delusion *proneness)* and more specifically by aberrant salience, when controlling for negative affect.

Outcomes of this research could illuminate potential mechanisms in the development of BDD, or the pathway from normative bodily concerns to clinical body dysmorphic concern, which may include delusional and emotional pathways.

2. Methods

2.1. Participants

Two hundred and twenty six participants (162 were female; 64 were male) from a broader program of research involving a community sample reported in Keating et al. (2016), that met inclusion criteria were involved (please see Table 1). Participation was voluntary and was not incentivised. All participants provided consent to participate, and the study was approved by the human ethics committee at Swinburne University of Technology.

Table 1
Demographic information.

Age	(M, SD) 25.4 yrs (6.05)
Gender	(N=Men, N=Women) 64, 162
Country of origin Australia Other	(N, %) 204 (90.3%) 22 (9.7%)
Depression, anxiety stress severity (DASS) severity scores Depression Anxiety Stress	(M, SD) 4.1 (.99) 4.43 (0.81) 3.84 (1.20)
Dysmorphic Concern Questionnaire (DCQ)	(M, SD) 5.6 (4.7)
Number of respondents (N, %) with a score above the cut-off of 9	61 (27%)
Peters Delusional Inventory (PDI)	(M, SD) 4.99 (4.11)
Aberrant salience sores (ASI)	(M, SD) 8.7 (7.74)

2.2. Procedure

Four questionnaires and demographic items (age, gender, education, nationality and ethnicity) were placed on a survey platform called Opinio. Participants were recruited to the site via global invitations (hyperlinked to the survey platform) posted on various university newsletters, online community forums and websites. Inclusion criteria for the study required participants to be living in Australia, English speaking and between 18 and 40 years old. Using a 'snowball' data gathering technique, provision was also made for the invitation to be sent onto other individuals via various networks and community platforms (e.g., Facebook). The entire battery of questionnaires took 15–20 minutes to complete.

The Dysmorphic Concerns Questionnaire (DCQ) (Oosthuizen et al., 1998) is a 7-item questionnaire measuring extent of concern with appearance (each item rated 0–3, with 3 being most concerned). Items cover: concern with physical appearance; belief in being misshapen or malformed; belief in bodily malfunction (e.g. malodour); consultation with cosmetic specialists; having been told by others that you are normal looking, but not believing them; spending excessive time worrying about appearance; and spending a lot of time covering up 'defects' in appearance. The DCQ is a dimensional measure of appearance concern and has been used in multiple clinical settings (Jorgensen et al., 2001; Kisely et al., 2002; Oosthuizen et al., 1998). DCQ scores correlate strongly with scores on the Body Dysmorphic Disorder Examination (BDDE), a reliable and valid measure of BDD (Pavan et al., 2008). A DCQ cut-off score of 9 is considered indicative of BDD (Mancuso et al., 2010). The DCQ does not assess BDD per se but instead assesses both 'clinical' and 'subclinical' appearance concerns without prejudice as to aetiology or nosology (Oosthuizen et al., 1998). The DCQ has been reported to have good psychometric properties (Jorgensen et al., 2001; Mancuso et al., 2010).

The Aberrant Salience Inventory (ASI) (Cicero et al., 2010) contains 29 'yes' or 'no' items covering experiences of aberrant salience (e.g., 'Do normally trivial observations sometimes take on an ominous significance?'). The ASI has demonstrated sound psychometric properties and is considered useful for measuring aberrant salience and psychosis proneness in clinical and non-clinical samples (Cicero et al., 2010).

The 21-item Peters Delusional inventory (PDI) is a measure designed to assess delusion proneness in the general population. The PDI assesses the level of endorsement of a number of experiences which are reported in the general population but which correspond to common themes of delusional beliefs in psychosis (e.g., 'have your thoughts ever been so vivid that you were worried other people would hear them?'). The PDI is a reliable and valid instrument to measure delusional ideation (Peters et al., 2004). It has good internal consistency (Cronbach's alpha, 0.82), test re-test reliability (spearman's $r=0.78–0.81$, $P<0.001$), and validity (Peters et al., 2004). Dysmorphic concern could be considered one of a number of unusual or delusional ideas that persons can hold. Inclusion of the PDI will permit for establishing whether persons who have dysmorphic concern experience an increased frequency of other delusional ideas.

To control for negative emotion, we also included the 21-item version of the Depression, Anxiety, Stress Scales (DASS) (Lovibond and Lovibond, 1995). The DASS is a widely used measure of negative emotion along the three axes of: depression (e.g., 'I felt that I had nothing to look forward to'), anxiety (e.g., 'I felt scared without any good reason') and stress (e.g., 'I found it hard to wind