

Metacognitions as mediators of gender identity-related anxiety

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### Abstract

**Objective:** Research has found that the prevalence of psychological distress is substantially higher in transgender compared to cisgender populations. This study explored the role of metacognitions as mediators of anxiety in a sample comprising of cisgender and transgender individuals. **Method:** 125 individuals (19 trans-male; 24 male; 25 trans-female; 57 female) completed a series of measures that assessed metacognitions, worry, and anxiety. **Results:** Correlation analyses were used to identify potential mediators of the relationship between gender identity and anxiety. A mediation model indicated that beliefs about thoughts concerning uncontrollability and danger entirely mediated the relationship between gender identity and anxiety ( $b=2.00$ , BCa CI [0.68, 3.49]). **Conclusions:** Metacognitions play an important role in anxiety in transgender individuals.

### Highlights

- Metacognitions were found to mediate anxiety in transgender and cisgender individuals.
- The exploration of metacognitions in transgender individuals experiencing psychological distress may have clinical utility.

Keywords: anxiety; cisgender; metacognitions; psychological distress; transgender.

## 1. Introduction

The term cisgender refers to individuals whose gender identity matches their biological sex, while transgender refers to a mismatch between these two factors. Research has found much higher prevalence rates of psychological distress in transgender samples than typically found in the cisgender population. For example, Clements-Nolle, Marx, Guzman, and Katz (2001) found that 62% of male-to-female and 55% of female-to-male transgender individuals that they sampled could be classified as depressed. More recently, Budge, Adelson, and Howard (2013) found similar high prevalence of depression of approximately 50% in transgender individuals and between 40.4% and 47.5% for anxiety.

The Minority Stress Model (MSM: Meyer, 1995, 2003) described three processes to help explain the high rates of psychological distress found in lesbian, gay, and bisexual populations and has, more recently, been applied to transgender individuals (Hendricks & Testa, 2012). Firstly, the model suggests that individuals are subjected to objective environmental stressors that directly result from their minority status (e.g., discrimination and transphobia), secondly the anticipation of these environmental stressors further contributes to distress through the adoption of (often maladaptive) coping strategies (such as avoidance and vigilance), and thirdly both experienced and expected stigma are internalized becoming, in the case of transgender individuals, an internalized transphobia (Hendricks & Testa, 2012).

In relation to the first process of the MSM, social support, planning (but yet to complete) medical transition, levels of income and education, and exposure to transphobia and violence have also been found to be associated with depression in transgender samples (Iwamoto, 2011; Rotondi et al., 2012). Regarding the second

process, Budge et al. (2013) found that an avoidant coping strategy mediated the relationship between transitional status and anxiety/depression.

Common to these correlates of psychological distress in transgender individuals seems to be the theme of isolation. Low levels of social support, experiencing transphobia, and having an avoidant coping style are likely to reduce the opportunity for an individual to employ external sources of problem solving, leading to the internalization of feelings and the activation of worry and rumination as 'last resort' problem solving strategies. Worry in particular has been found to be associated with high levels of depression and anxiety (Borkovec, Robinson, Pruzinsky, & DePree, 1983; Muris, Roelofs, Rassin, Franken, & Mayer, 2005).

Worry might help to maintain levels of psychological distress, but why might transgender individuals be particularly prone to developing worry in the first place? In terms of biological sex, studies have indicated that adolescent females have an elevated risk of anxiety and sleep disturbances, and that the prominence to worry exacerbates vulnerability to depression (Danielsson, Harvey, MacDonald, Jansson-Fröjmark, & Linton, 2013). However, psychological distress in transgender samples is high whether the individual was of female or male sex at birth. In regards to the development of worry, other research suggests that fear of social evaluation appears to be an increasingly prevalent worry as children age (Vasey & Daleiden, 1994). This may have particular relevance to transgender individuals. Research has found that worrying is a common occurrence amongst transgender individuals, particularly with regards to the perception of others pertaining to their gender presentation and behaviour (Bauerband & Galupo, 2014).

Since the early 1990s metacognition has been introduced as a basis for understanding and treating psychological distress (Wells & Matthews, 1994; 1996).

Wells and Matthews argue that psychological distress is maintained by maladaptive coping strategies (e.g. rumination and worry, threat monitoring, avoidance, and thought suppression) that cause negative thoughts and emotions to become perseverative (Wells, 2000). The activation and persistence of these maladaptive coping strategies is dependent on metacognitions (or metacognitive beliefs).

Metacognitions refer to the information individuals hold about their own cognition and about the coping strategies that impact on it: for example, beliefs such as “Worry will help me cope” or “My worry is uncontrollable” explicitly refer to appraisals of such processes. A wide research base has indicated the pivotal role played by metacognitions in the activation and maintenance of worry (Wells & Matthews, 1994, 1996). These same dimensions may play a crucial role in the gender identity – psychological distress (particularly anxiety) relationship by contributing to persistent and negative interpretations of experience (linked to the various experiences of changing gender) and subsequent escalation of worry. We thus hypothesized that metacognitions would be significantly associated with anxiety and worry. We also hypothesized that the relationship between gender identity (i.e., cisgender or transgender) and anxiety would be mediated by worry and metacognitions.

## **2. Method**

### **2.1 Participants and Procedure**

One hundred and twenty-five individuals completed an online survey consisting of demographic questions and a battery of self-report measures. Of these, 44 participants reported that they identified as transgender (consisting of 19 females and 25 males) and 81 identified as cisgender (consisting of 57 females and 24 males). 25.6% of participants reported that they were on hormone replacement therapy (HRT) at the time the study was undertaken. The mean age of the participants was 26.5 years

(SD=10.2; range=13 to 60). The majority of respondents were white, accounting for 88% of the sample. The survey URL was initially distributed through the social media by the second author and subsequently via various LGBT charities.

## **2.2 Materials**

Participants were asked to respond to several demographic questions regarding their age, ethnicity, sex, and current gender identity (with cisgender coded as zero and transgender as one for the analyses), and were asked to disclose whether they were currently taking HRT (coded as one for 'yes' and zero for 'no'). Participants were also asked to complete the Depression Anxiety Stress Scale (DASS: Crawford & Henry, 2003), the Penn State Worry Questionnaire (PSWQ: Meyer, Miller, Metzger, & Borkovec, 1990), and the Metacognitions Questionnaire 30 (MCQ-30: Wells & Cartwright-Hatton, 2004).

The DASS consists of three factors (measured by 21 items) that measure 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 was intolerant of anything that kept me from getting on with what I was doing"). Higher scores indicate higher levels of depression, anxiety, and stress. The scores from the three factors can be totaled to give a measure of psychological distress, although for this study only the anxiety subscale was used. The DASS has been reported to have good psychometric properties with internal consistencies for each of the subscales (Page, Hooke, & Morrison, 2007; Sinclair et al., 2012) calculated as Cronbach's alphas of .91 (depression), .80 (anxiety), and .84 (stress) in nonclinical populations.

The PSWQ measures the tendency to worry and consists of 16-items (e.g., "I have never worried about anything" and "I worry all the time"), using a five-point, Likert-type response format. The scale has good content and discriminant validity

(Meyer et al., 1990) and adequate internal consistency (Brown, Antony, & Barlow, 1992). Higher scores indicate a greater tendency to worry.

This MCQ-30 assesses individual differences in metacognitions, judgments and monitoring tendencies. It consists of five factors assessed by 30 items in total. The five factors measure the following dimensions of metacognition: (MCQ-1) positive beliefs about worry (e.g., “worrying helps me cope”); (MCQ-2) negative beliefs about thoughts concerning uncontrollability and danger (e.g., “when I start worrying I cannot stop”); (MCQ-3) cognitive confidence (e.g., “my memory can mislead me at times”); (MCQ-4) beliefs about the need to control thoughts (e.g., “not being able to control my thoughts is a sign of weakness”); and (MCQ-5) cognitive self-consciousness (e.g., “I pay close attention to the way my mind works”). Higher scores indicate higher levels of maladaptive metacognitions. The MCQ-30 possesses good internal consistency and convergent validity, as well as acceptable test-retest reliability (Spada, Mohiyeddini, & Wells, 2008; Wells & Cartwright-Hatton, 2004).

### **3.0 Results**

A series of Kolmogorov-Smirnov tests were conducted and revealed that the distributions of all experimental variables were significantly different than normal, except cognitive self-consciousness (MCQ-5). Consequently, Spearman’s rho analyses were computed that found significant correlations between anxiety and gender identity, worry (PSWQ), and all five factors of the MCQ-30 (see Table 1). Significant associations were also found between worry and gender identity, and all MCQ-30 factors. However, only negative beliefs about thoughts concerning uncontrollability and danger (MCQ-2) and cognitive confidence (MCQ-3) were significantly associated with gender identity. The use of HRT was not significantly associated with anxiety.

To assess the mediating roles of worry and metacognitions on the relationship between gender identity and anxiety, we employed the PROCESS module (Preacher & Hayes, 2004) on SPSS (IBM, 2011). In this model, three potential mediators were entered: PSWQ, MCQ-2, and MCQ-3. These variables were chosen because they were significantly associated with both gender identity and anxiety. This revealed a significant indirect effect of gender identity on anxiety through the proposed mediators ( $b=2.00$ , BCa CI [0.68, 3.49]) and a non-significant direct effect, suggesting full mediation. However, only the mediating pathway between MCQ-2 and anxiety was significant whilst those between both MCQ-3 and worry to anxiety were not.

#### **4.0 Discussion**

Our findings provide further evidence of the importance of metacognitions in distress, with all five MCQ-30 factors having a significant relationship with anxiety. In terms of our experimental hypothesis, we found that the total effect of worry, negative beliefs about thoughts concerning uncontrollability and danger, and cognitive confidence fully mediated the relationship between gender identity and anxiety. Furthermore the only parallel mediator that remained significant through both its pathways was negative beliefs about thoughts concerning uncontrollability and danger. Together, these findings generate the question: why might metacognitions be important in determining psychological distress in the transgender population?

A possible interpretation is two-fold, concerning the acquisition of metacognitions and their impact on day-to-day functioning. Firstly, internal problem solving strategies, such as worry (fuelled by metacognitions), might develop in transgender individuals as a consequence of the expected stigma and subsequent isolation they endure (in terms of the MSM, an example of the second process). This

may limit their opportunities to resolve issues through social interactions and other forms of external problem solving, resulting in the use of worry. Secondly, beliefs about thoughts concerning uncontrollability and danger may lead to psychological distress as a result of both negative appraisals of cognitions and consequent attempts to suppress thoughts (note that beliefs about the need to control thoughts, MCQ-4, was highly correlated with anxiety). Attempts to control and suppress thoughts have often been shown in experimental literature to be futile, resulting in a rebound effect (Clark, Ball, & Pape, 1991; Salkovskis & Campbell, 1994) that is associated with psychological distress (Borton, Markowitz, & Dieterich, 2005).

Furthermore these results provide further support for the metacognitive model of psychological distress (Wells & Matthews, 1994, 1996), which suggests that (1) the activation of a preservative cognitive process (e.g., worry) in response to an external or external trigger determines psychological distress, and (2) these cognitive processes are partially governed by explicit metacognitions. As such, the findings from this study suggest that interventions from Metacognitive Therapy (Wells, 2011) aimed at modifying maladaptive metacognitions held by transgender individuals who experience psychological distress may be worthy evaluation in future research.

This study has several limitations that will have to be addressed by future studies. Firstly social desirability, self-report biases, context effects, and poor recall may have contributed to errors in self-report measurements. Secondly a cross-sectional design was adopted and this does not allow causal inference. Thirdly, this study utilizes self-report measures to assess subjective experience and meta-awareness and as such, like much cognitive research, there is always doubt whether we are measuring the constructs we intend. Fourthly, this study relied upon participants self-reporting their gender-identity on an online survey, thus this variable

could not be independently verified. Fifthly, the self-reports of anxiety may have been a consequence of the presence of psychological disorders that are independent of participants' gender identity. However, it has been argued that the role of metacognitions in psychological distress is transdiagnostic (Wells, 2013), thus the diagnosis of specific disorders is less important than the cognitive processes that are argued to maintain distress. Finally, the study utilized the MCQ-30 that measures only explicit and not implicit metacognitions. Future studies could address this by testing whether such explicit metacognitions predict real-time psychological distress and worry using an Ecological Movement Assessment design (Myin-Germeys et al., 2009).

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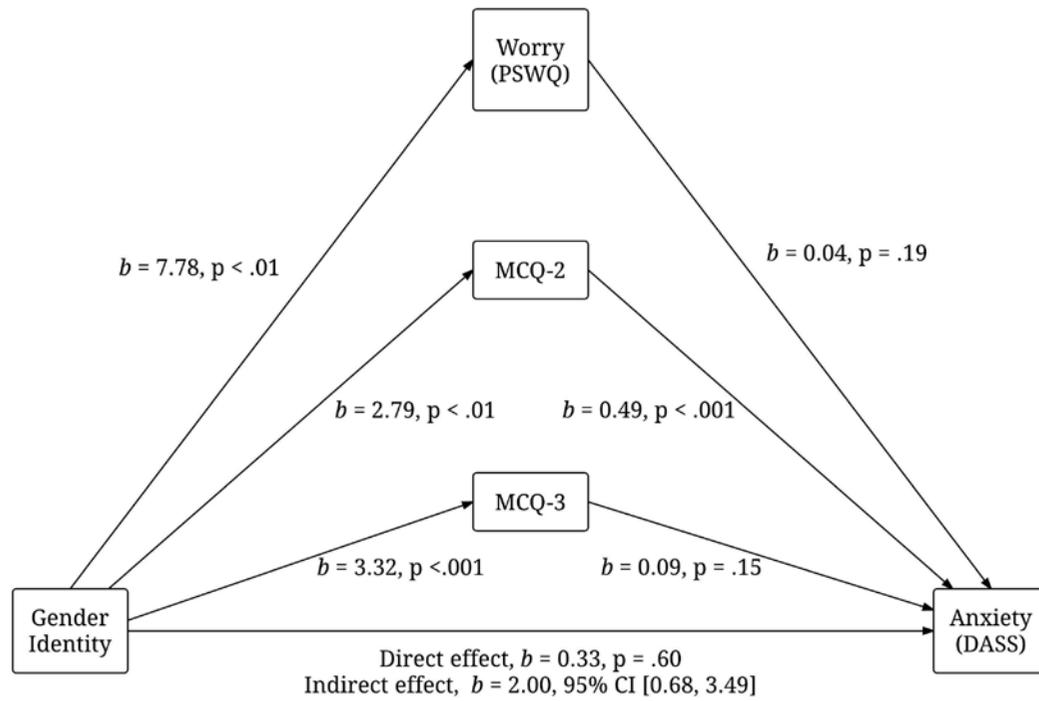
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Table 1: Means, standard deviations (SD), ranges, and correlation analyses of study variables

Measure	Mean (SD)	Range	1	2	3	4	5	6	7	8	9
1. Gender identity	N/A	0 - 1		.64**	.25**	.22*	.07	.23**	.31**	.07	.14
2. HRT	N/A	0 - 1			-.03	.05	.10	.03	.22*	-.12	-.01
3. Anxiety (DASS)	13.19 (4.79)	7 - 28				.66**	.38**	.74**	.44**	.66**	.54**
4. Worry (PSWQ)	52.46 (16.15)	18 - 80					.49**	.83**	.37**	.65**	.63**
5. MCQ-1	10.50 (4.37)	6 - 24						.41**	.26**	.52**	.56**
6. MCQ-2	13.94 (5.62)	6 - 24							.45**	.68**	.60**
7. MCQ-3	12.30 (5.05)	6 - 24								.32**	.36**
8. MCQ-4	12.18 (4.45)	6 - 24									.62**
9. MCQ-5	15.49 (3.97)	7 - 24									

*Note.* HRT = Hormone Replacement Therapy; DASS = Depression Anxiety and Stress Scale; PSWQ = Penn State Worry Questionnaire; MCQ = Metacognitions Questionnaire 30 (-1 = positive beliefs about worry; -2 = negative beliefs about thoughts concerning uncontrollability and danger; -3 = cognitive confidence; -4 = beliefs about the need to control thoughts; -5 = cognitive self-consciousness); n=125; \* p < .05; \*\* p < .01.

Figure 1: Statistical model of metacognitions and worry mediating gender identity and anxiety



*Note.* MCQ = Metacognitions Questionnaire 30 (-2 = negative beliefs about thoughts concerning uncontrollability and danger; -3 = cognitive confidence); PSWQ = Penn State Worry Questionnaire; DASS = Depression Anxiety and Stress Scale;  $n=125$ .