



An Investigation of the Relations of Possible Selves and Self-Concept Clarity to Generalized Anxiety Disorder

Sally Zheng¹ · Justice Cupid¹ · Jason C. Deska¹ · Naomi Koerner¹ 

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Abstract

Cognitive-behavioral therapy (CBT) for generalized anxiety disorder (GAD) targets maladaptive beliefs about worry, uncertainty, problems, and emotions. Only half of individuals report clinically significant change after CBT, suggesting that not all relevant processes are addressed in treatment. Early writings advanced the *self* as a potential contributing mechanism to worry, but this has been underexplored. The present study investigated, in individuals high in GAD symptoms ($N = 144$), whether possible selves and self-concept clarity (SCC) uniquely predicted worry after controlling for established correlates. Thematic analysis was also applied to the content of the possible selves. Low SCC emerged as the second strongest correlate of worry, following negative beliefs about worry. Thematic analyses revealed that participant-generated self-descriptors tended to reflect intellectual enlightenment and exceptional achievement (ideal self), moral excellence (ought self), and a “flawed” self (feared self). Findings offer promising evidence for the role of self-constructs in the maintenance of chronic worry.

Keywords Worry · Anxiety · Self-schema · Self-discrepancy · Possible selves · Self-concept clarity

Generalized anxiety disorder (GAD) is a chronic psychological disorder typified by excessive and persistent worry (American Psychiatric Association, 2022). Informed

✉ Naomi Koerner
naomi.koerner@torontomu.ca

Sally Zheng
sally.zheng@torontomu.ca

Justice Cupid
jmcupid@torontomu.ca

Jason C. Deska
jason.deska@torontomu.ca

¹ Department of Psychology, Toronto Metropolitan University, 350 Victoria Street, Toronto, ON M5B 2K3, Canada

by leading theoretical frameworks (see Behar et al., 2009; Koerner et al., 2020 for reviews), cognitive behavioral therapy (CBT) for GAD targets several cognitive mechanisms underpinning worry. These include dysfunctional beliefs regarding the usefulness and harmfulness of worrying (Borkovec, 1994; Dugas et al., 1998; Wells, 1999), uncertainty (Dugas et al., 1998), problems and the problem-solving process (Dugas et al., 1998), and emotions, including one's capacity to cope effectively with them (Mennin et al., 2005; Roemer & Orsillo, 2005). Although CBT is considered the most efficacious psychological intervention for GAD (Lorenzo-Luaces et al., 2021; Newman et al., 2020), only half of individuals experience clinically significant relief posttreatment (Cuijpers et al., 2014; Olatunji et al., 2010). One potential explanation is that current CBT protocols do not address all relevant cognitive mechanisms (Newman et al., 2008). To maximize the utility of CBT for GAD, additional vulnerability factors should be elucidated.

A promising candidate variable is the *self-schema*, a cognitive structure that houses information regarding one's understanding of oneself (e.g., thoughts, beliefs, past experiences, and behaviors; Beck, 1964; Markus, 1977). The modification of *dysfunctional* self-schemas (i.e., schemas that contain rigid, pervasive, self-defeating beliefs) leads to efficient symptom alleviation and relapse prevention in CBT for depression (e.g., Evans et al., 1992; see Garratt et al., 2007 for a review). Although researchers recognize the importance of addressing self-schemas in GAD, this component remains peripheral to the restructuring of maladaptive schemas about worry, uncertainty, problems and the problem-solving process, and emotions and their regulation (see Hazlett-Stevens, 2008). However, these beliefs (e.g., "Worry helps me cope;" "Uncertainty is unacceptable;" "I cannot let my emotions overtake me") are likely underpinned by broader negative self-schemas (e.g., "I am fundamentally incompetent") that, if not explicitly targeted, may render individuals with GAD vulnerable to pathological worry after a seemingly successful intervention (Hazlett-Stevens, 2008).

Whereas self-schemas are not a direct focus of current cognitive theories of GAD, seminal writings on worry identified the *self* as a key contributing variable. The self is defined as a dynamic, multi-faceted structure consisting of a network of schemas that contain distinct and important information regarding one's identity (e.g., social roles, values, aspirations) that are situationally triggered (Markus & Sentis, 1982). Nonetheless, the content within each structure is harmonious and complementary to other self-schemas (Markus & Sentis, 1982). In their paper, Borkovec et al. (1986) emphasized the importance of consistency within the self to adaptive psychological functioning, with threats to internal consistency being threats to psychological well-being (Guidano and Liotti, 1983; Markus & Sentis, 1982 as cited in Borkovec et al., 1986).

The content within our self-schemas is not only informed by the past, but also by the future. Our self-schemas contain information relating to future goals, such as the achievement of desired, self-definitions (Markus & Nurius, 1986). Borkovec et al. (1986) argued that individuals are highly motivated to pursue desired self-definitions to attain consistency among self-schemas. As part of this pursuit, individuals must achieve smaller, present-focused goals (e.g., completing graduate studies) to move toward their desired self (e.g., an academic psychologist).

Naturally, individuals will encounter disruptions during goal pursuit (e.g., receiving a poor test grade). Borkovec et al. (1986) theorized that these obstacles engender

a self-evaluative state where individuals become aware of the discrepancy between their current self and their desired self-definition. Because a positive view of self is threatened, individuals will experience anxiety and worry. These experiences may be initially adaptive, as they alert individuals to the discrepancy between their current and goal selves (Melges, 1982, as cited in Borkovec et al., 1986). However, individuals with GAD are unlikely to terminate the self-evaluative state and mitigate feelings of worry and anxiety; this process requires individuals to rely on the content of their dominant self-schemas to access internal problem-solving protocols and identify solutions. Given that their self-schemas are predominantly negative, individuals with GAD are unlikely to identify a strategy, thereby remaining “stuck” in the self-evaluative state. As such, Borkovec et al. (1986) proposed chronic worry to be a product of deviations in the pursuit of important, desired self-definitions.

Therefore, exploration of the role of the self-schema in GAD, particularly the processes by which it feeds into the onset and maintenance of worry, may be fruitful for informing cognitive interventions. The present study investigated *possible selves* and *self-concept clarity*, two key components of the self-schema identified by Borkovec et al. (1986), to gain a foundational, empirically informed understanding of self-schemas in the context of GAD.

Possible Selves

As mentioned previously, self-schemas house future self-definitions known as *possible selves* (Markus, 1983). Possible selves represent the selves that one strives to become or fears becoming; they are cognitive representations of individual goals, aspirations, fears, motives, and threats (Markus, 1983). With regards to *desirable* possible selves, individuals may possess cognitive representations of individual hopes and aspirations (the *ideal* self), as well as individual obligations and responsibilities (the *ought* self). As representations of desired (or undesired) self-definitions, possible selves are considered “self-guides”—they influence individual decisions to consider or avoid specific actions and behaviors in accordance with whether these efforts assist with the achievement of desired self-definitions (Markus & Nurius, 1986). Moreover, possible selves provide individuals with an evaluative and interpretive context for their current view of self: through comparison of present to possible selves, individuals can assign meaning to current circumstances (Markus & Nurius, 1986).

Considering the importance of possible selves to individuals’ sense of self, researchers theorize that perceived discrepancies from one’s present and desired self-definitions will engender negative affect (Borkovec et al., 1986; Markus & Nurius, 1986). Specifically, self-discrepancy theory (Higgins, 1987) posits that perceived self-discrepancies lead to different emotional states depending on the particular possible self that one perceives being inconsistent with. Higgins (1987) distinguishes possible selves from the *actual* self, which he defines as the internal representation of attributes that one believes they presently possess.

According to self-discrepancy theory, individuals who view themselves as discrepant from their ideal selves (actual-ideal discrepancies) will experience dejection-related emotions (e.g., sadness, disappointment; Higgins, 1987). Conversely,

those who appraise themselves as disparate from their ought selves (actual-ought discrepancies) will experience agitation-related emotions (e.g., guilt, anxiety) because they are anticipating negative outcomes (e.g., punishment) after a perceived failure to meet moral standards or responsibilities.

Substantial research supports the association of self-discrepancies to depression and anxiety (see Mason et al., 2019 for a review; Schlechter et al., 2022). However, existent findings suggest that actual-ideal discrepancies may be more strongly associated with depression and anxiety than actual-ought self-discrepancies (Mason et al., 2019; Schlechter et al., 2022). It is important to note, however, that most research on self-discrepancies and psychopathology has focused *only* on the ideal and ought selves. Therefore, it is possible that other possible selves may be specifically relevant to the understanding of anxiety: a potential candidate is the *feared* self.

In contrast to the other possible selves, the *feared* self is a representation of attributes that an individual does *not* want to possess or embody; researchers theorize that the traits within desired possible selves (i.e., the ideal and ought self) directly inform the content of the feared possible self, such that content in the latter is antithetical to that in the desired possible selves (Carver et al., 1999). Here, individuals are motivated to increase rather than decrease the distance with this possible self—it is a perceived *similarity* with the feared self that may engender anxiety rather than a perceived discrepancy (Markus, 1983; Markus & Nurius, 1986).

Albeit limited, extant research supports an independent association between feared selves and anxiety. In their study, Carver et al. (1999) reported significant correlations between anxiety and both actual-ought and actual-feared self-discrepancies. However, actual-ought self-discrepancies were no longer a significant predictor of anxiety after controlling for actual-feared self-discrepancies, whereas the latter remained a unique correlate of anxiety when controlling for actual-ought self-discrepancies. Such findings suggest that feared self-discrepancies may be a more robust predictor of anxiety compared to ought self-discrepancies. Moreover, these results are consistent with existing literature demonstrating the role of the feared self in maintaining distress in the context of other psychological disorders. For instance, greater perceived similarities to the feared self are associated with greater symptom severity among individuals with obsessive-compulsive disorder (OCD; see Aardema & Wong, 2020 and Godwin et al., 2020 for reviews), depression (e.g., Vergara-Lopez and Roberts, 2012), and eating disorders (e.g., Purcell Lalonde et al., 2015; Wilson, 2020). Considering the association between perceived proximity and greater distress in other psychopathology, further examination of the role of the feared self in GAD is warranted.

Despite substantial research demonstrating an association between self-discrepancies and maladaptive well-being, there is a dearth of literature on the themes present within possible selves. Identifying the content within the possible selves of individuals with GAD may allow CBT protocols to better address dysfunctional beliefs, thereby enhancing the efficiency and effectiveness of cognitive treatments for worry.

We are aware of only one study that has explicitly investigated the content of possible selves in the context of anxiety. Ferrier and Brewin (2005) assessed themes present within the feared self of a mixed sample of individuals with

various anxiety disorders (e.g., GAD, OCD, social anxiety disorder). Their content analysis revealed four central themes within the feared self: (1) a “dangerous” self theme that encompassed traits such as bad, evil, dangerous, immoral; (2) a “depressed/anxious” self theme that contained symptom-related traits such as fearful, hopeless, anxious; (3) a “rejected” self theme which comprised traits such as lonely or unlovable; and (4) a “flawed” self theme which included traits that are perceived as undesirable but not inherently harmful to oneself or others (e.g., selfish, greedy). There was also an “uncodeable” category (e.g., ambiguous or unclear words). Whereas individuals with OCD were more likely to report attributes consistent with a “dangerous” feared self, those with other anxiety disorders, including GAD, were more likely to generate attributes consistent with a “depressed/anxious” feared self.

Although the study did not directly focus on possible selves, findings from Fracalanza’s (2015) investigation of individual attitudes toward uncertainty may reflect content in the possible selves of individuals with GAD. Fracalanza (2015) interviewed individuals with and without GAD about their cognitive, emotional, and behavioral reactions to uncertainty. When asked whether being uncertain means anything on a personal level, only individuals with GAD reported personal meanings and these fell under three themes: incapable/incompetent, abnormal, and unprepared. These responses may reflect content within the possible selves, namely the feared self (e.g., “I am incompetent”).

Results from the aforementioned studies provide some insight into the content within the feared selves of individuals with GAD. However, to our knowledge, there has been no explicit investigation into the ideal or ought selves of individuals with GAD. The present study addressed knowledge gaps through an explicit analysis of themes within each of the three selves.

Self-Concept Clarity

Possible selves exist within a network of other self-schematic constructs, such as core beliefs and other internal representations of the current self (Markus & Sentis, 1982). Together, these self-constructs comprise one’s total self-concept. Borkovec et al. (1986) argued for the importance of consistency within the self to adaptive psychological functioning; the discrepancy between *positive* desired self-representations and the *negative* self-schemas of individuals with GAD is theorized to hinder their ability to terminate the self-evaluative state, thereby maintaining worry and anxiety.

Borkovec et al. (1986)’s concept of consistency among self-related variables reflects the construct of *self-concept clarity* (SCC), defined as “the extent to which the contents of an individual’s self-concept are clearly and confidently defined, internally consistent, and temporally stable” (Campbell et al., 1996, p. 141). Individuals with high SCC are more likely to possess consistent self-beliefs and are less likely to endorse mutually exclusive self-descriptive attributes such as “careless” and “careful” (Campbell, 1990). Moreover, individuals with high SCC are more confident in their decisions and tend to more efficiently identify information related to achieving their goals (e.g., Bechtoldt et al., 2010; Uğurlar & Wulff, 2022).

Consistent with Borkovec et al. (1986)'s argument, a wealth of literature supports the association between high SCC and adaptive psychological well-being. Individuals with high SCC report higher levels of self-esteem (e.g., Bigler et al., 2001; Campbell, 1990; Suszek et al., 2018; Tokunaga & Horiuchi, 2012) and lower levels of negative affect such as depression and anxiety (e.g., Bigler et al., 2001; Campbell et al., 1996; Schwartz et al., 2011). Conversely, those with more inconsistent, unstable self-beliefs (i.e., low SCC) tend to report negative outcomes such as low self-esteem and high neuroticism (e.g., Campbell et al., 1996; Tokunaga & Horiuchi, 2012), and negative affect (e.g., Bigler et al., 2001; Schwartz et al., 2011; Tokunaga & Horiuchi, 2012).

To our knowledge, only one study has examined the role of SCC as a vulnerability factor in GAD, and its findings are promising for future investigation. Kusec et al. (2016) investigated the capacity of SCC and other constructs (i.e., intolerance of uncertainty [IU], causal uncertainty, causal importance) to distinguish between individuals high and low in GAD symptoms. Results from logistic regressions identified SCC as the second strongest predictor of GAD membership following IU, a well-established correlate of GAD. Together with past research, these findings highlight the potential importance of SCC in the maintenance of GAD symptoms. In order to conceptualize the contributions of SCC to chronic worry and anxiety, examination of SCC and its relationships to other self-schematic constructs such as possible selves in a high GAD symptom sample are needed.

Study Objective

The present study consisted of an examination of the associations of actual-ideal, actual-ought, and actual-feared self-discrepancies and SCC to pathological worry. Extending previous research, the current report examines the association between these variables in a sample of individuals high in GAD symptoms. First, we examined the associations between actual-ideal, actual-ought, and actual-feared self-discrepancies to SCC. Consistent with past research, we hypothesized that greater perceived distances from desired self-definitions (ideal and ought selves) and greater perceived similarities with undesired self-definitions (feared self) would be correlated with lower SCC (Borkovec et al., 1986).

Second, we assessed whether the self-discrepancy variables and SCC correlate with the severity of pathological worry over and above established correlates of GAD such as negative beliefs about worry (positive and negative metacognitive beliefs), uncertainty (IU), problems (NPO), and emotions. We theorized that the self-related constructs would correlate with greater levels of worry even after controlling for other worry-related beliefs (Kusec et al., 2016; Mason et al., 2019; Schlechter et al., 2022). We also predicted that actual-feared discrepancies would be a more substantial correlate of worry relative to other self-schematic constructs (Carver et al., 1999).

Lastly, we investigated the overarching themes present in the ideal, ought, and feared selves of individuals. We hypothesized that the feared selves of individuals may contain content relating to a “depressed/anxious” theme (e.g., fearfulness,

hopelessness, anxious; Ferrier & Brewin, 2005), as well as content relating to feeling incapable/incompetent, abnormal, and unprepared (Fracalanza, 2015). We also predicted that the feared self would contain attributes opposite to those in the desired possible selves (the ideal and ought self), and that the ideal self would likely reflect idiosyncratic aspirations and desires (Carver et al., 1999). However, given the dearth of literature on the content within each of the possible selves, our analyses were partially exploratory to allow for the identification of themes within the possible selves that were not previously reported in research. Additionally, as an exploratory analysis, we sought to identify the frequency of words in the ideal, ought, and feared selves that corresponded to each theme, as well as the predominant possible self-themes of participants in the current study.

Method

Participants

We recruited participants using Prolific, an online recruitment database and survey platform. Prospective participants completed a screening survey and were deemed eligible if they produced a score of 7.67 or greater on the Generalized Anxiety Disorder Questionnaire for the Diagnostic and Statistical Manual of Mental Disorders 4th Edition (GAD-Q-IV; Moore et al., 2014; Newman et al., 2002), suggestive of a probable GAD diagnosis. Additional eligibility criteria included age between 18 and 65 years, current residence in North America, and fluency in English.

$N = 305$ individuals completed the screening. Of those, we excluded 132 (43.28%) individuals who did not meet the GAD-Q-IV cut score and 8 (0.03%) individuals who reported not being fluent in English. In total, we invited 165 (53.95%) people to participate in the study. Of the eligible participants, 9 (0.05%) individuals began the study and then withdrew their responses and 12 (7.27%) individuals elected to not participate. The final sample comprised 144 individuals (see Table 1 for demographic characteristics).

Measures

Generalized Anxiety Disorder Questionnaire for the Diagnostic and Statistical Manual of Mental Disorders 4.th Edition (GAD-Q-IV; Newman et al., 2002)

The GAD-Q-IV is a self-report measure that provides a dimensional and categorical assessment of DSM-IV-defined GAD (American Psychiatric Association, 1994). Given that the core criteria have not changed in recent editions of the DSM (American Psychiatric Association, 2013, 2022), we considered this instrument a suitable screening measure. The GAD-Q-IV demonstrates good stability, excellent inter-rater reliability against semi-structured diagnostic interviews (Cohen's $\kappa = 0.67$), and good convergent and discriminant validity with anxiety and depression measures, respectively (Newman et al., 2002).

Table 1 Demographic characteristics of the sample

Variable	M (SD)
Age	31.51 (9.75)
Sex <i>n</i> (%)	
Male	70 (48.6%)
Female	72 (50%)
Prefer to not respond	2 (1.4%)
Gender <i>n</i> (%)	
Man	69 (47.9%)
Woman	68 (47.2%)
Nonbinary	2 (1.4%)
Prefer to not respond	5 (3.5%)
Ethnicity <i>n</i> (%)	
White	89 (61.8%)
Black	12 (8.3%)
South Asian	8 (5.6%)
East Asian	17 (11.8%)
Southeast Asian	4 (2.8%)
Arab/West Asian	2 (1.4%)
Indigenous	3 (2.1%)
Latinx	2 (1.4%)
Mixed ethnicity	6 (4.2%)
Prefer to not respond	1 (0.7%)
School status <i>n</i> (%)	
Enrolled	35 (24.3%)
Not enrolled	107 (74.3%)
Education level <i>n</i> (%)	
Some high school	1 (0.9%)
High school diploma	22 (20.2%)
College diploma	20 (18.3%)
Undergraduate degree	42 (38.5%)
Master's degree	22 (20.2%)
Doctoral degree	1 (0.9%)
Employment status <i>n</i> (%)	
Not employed	38 (26.4%)
Working part-time	31 (21.5%)
Working full-time	74 (51.4%)
Prefer to not respond	1 (0.7%)

Intolerance of Uncertainty Scale (IUS; Buhr & Dugas, 2002; Freeston et al., 1994)

The IUS comprises 27 items that assess negative beliefs about uncertainty. Items are rated on a 5-point scale (1 = *Not at all characteristic of me* to 5 = *Entirely characteristic of me*). Higher scores indicate greater difficulty withstanding uncertainty. The

IUS exhibits superior internal consistency ($\alpha=0.91$), good test–retest reliability over 5 weeks ($r=0.78$), as well as strong construct and discriminant validity when compared to measures of worry, depression, and anxiety (Buhr & Dugas, 2002). Internal consistency of the IUS in the present study was excellent ($\alpha=0.95$).

Negative Problem Orientation Questionnaire (NPOQ; Robichaud & Dugas, 2005)

The NPOQ is a 12-item measure of negative beliefs toward problems and problem-solving. Respondents rate statements on a Likert scale ranging from 1 (*Not at all true of me*) to 5 (*Extremely true for me*). Higher scores suggest greater negative attitudes toward problems and one's own problem-solving abilities. The NPOQ exhibits strong internal consistency ($\alpha=0.92$), high test–retest reliability ($r=0.80$), as well as convergent and discriminant validity when compared against measures of self-reported pessimism, depression, anxiety, and problem-solving ability (Robichaud & Dugas, 2005). The NPOQ demonstrated excellent internal consistency in the present study ($\alpha=0.91$).

Metacognitions Questionnaire (MCQ-30; Wells & Cartwright-Hatton, 2004)

The MCQ-30 comprises 30 items that assess positive beliefs about worry, negative beliefs about worry regarding uncontrollability and danger, cognitive confidence, beliefs about the need to control thoughts, and cognitive self-consciousness. Items were rated on a 4-point scale (1=*Do not agree* to 4=*Agree very much*). Higher scores are indicative of greater severity in the maladaptive metacognitions experienced by the individual. The MCQ-30 demonstrates good internal consistency ($\alpha=0.72$ to $\alpha=0.93$) as well as good test–retest reliability ($r=0.59$ to $r=0.87$) across the different subscales (Wells & Cartwright-Hatton, 2004). In the current report, we only examined the positive and negative beliefs about worry subscales. Internal consistency was good for the positive ($\alpha=0.89$) and negative ($\alpha=0.87$) metacognitive belief subscales.

Affective Control Scale (ACS; Williams et al., 1997)

We measured dysfunctional beliefs regarding emotional experiences using the ACS, a 42-item self-report that assesses fear of emotions and attempts to control emotional experience. The ACS comprises four subscales: fear of anxiety, fear of depression, fear of anger, and fear of positive emotions. Items are rated on a scale from 1 (*Very strongly disagree*) to 7 (*Very strongly agree*). Higher scores indicate greater aversion toward emotional experiences. The four subscales of the ACS demonstrate good internal consistency ($\alpha=0.70$ to $\alpha=0.77$), test–retest reliability ($r=0.66$ to $r=0.77$), and convergent validity with other measures of emotional control (Williams et al., 1997). Within the current report, internal consistency ranged from acceptable to excellent for the fear of anxiety ($\alpha=0.88$), depression ($\alpha=0.90$), anger ($\alpha=0.75$), and positive affect ($\alpha=0.83$) subscales.

Integrated Self-Discrepancy Index (ISDI; Hardin & Lakin, 2009)

We measured the content of the ideal, ought, and feared selves, as well as the degree of perceived discrepancy from each of these selves, using the ISDI, a self-report

measure comprising both idiographic and nomothetic components. In the idiographic section, participants generated five adjectives for their ideal, ought, and feared selves after reading a definition of each self. Afterwards, individuals were provided with adjectives from Anderson's (1968) list of trait words to modify their existing attribute list, if desired. In the nomothetic portion, participants were presented with their generated traits and asked to rate each one on a 5-point scale (1 = *completely applies to me* to 5 = *doesn't apply to me at all*) in accordance with how much they perceive that each trait describes them at the present time. By allowing participants to generate their own attributes, the ISDI adheres to the principles of self-discrepancy theory (Higgins, 1987, 1999), which emphasizes the importance of free recall in identifying the attributes most relevant to the possible selves. The incorporation of an attribute list to supplement participants' generated self-descriptors additionally safeguards against individual verbal ability as a potential confound. As such, the ISDI is the most psychometrically sound measure of possible selves (Hardin & Lakin, 2009).

Self-discrepancy scores for each self were calculated by averaging the ratings of the five attributes for each self. Potential scores range from 1 (*perfect congruence*) to 5 (*extreme discrepancy*). We administered validity checks at the start and end of the ISDI to assess understanding of the task, and flagged participants who failed both validity checks for potential exclusion from analyses.

Self-Concept Clarity Scale (SCCS; Campbell et al., 1996)

The SCCS is a 12-item self-report measure that assesses the degree to which one's self-concept is temporally stable and internally consistent. Respondents rate items on a 5-point scale (1 = *Strongly disagree* to 5 = *Strongly agree*). Higher scores indicate greater SCC. The SCCS demonstrates high internal consistency (ranging from $\alpha=0.86$ to $=0.90$) in addition to strong test–retest reliability and convergent validity with other assessments of self-concept (Campbell et al., 1996; Kusec et al., 2016). Internal consistency of the SCCS in the present study was excellent ($\alpha=0.91$).

Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990)

The PSWQ is a 16-item self-report measure that evaluates the tendency to worry. Respondents rate statements from 1 (*Not at all typical*) to 5 (*Very typical*). Higher scores indicate greater severity of worry. The PSWQ demonstrates high internal consistency (ranging from $\alpha=0.88$ to $=0.95$) and good test–retest reliability ($r=0.74$ to $r=0.92$) over intervals of 2 to 10 weeks (Meyer et al., 1990; Startup & Erickson, 2006). The PSWQ demonstrated good internal consistency ($\alpha=0.87$) in the present study.

Procedure

Prior to data collection, the study, including all study hypotheses and corresponding analyses (with the exception of exploratory analyses), was pre-registered on *As Predicted* (#58,613). After providing informed consent, individuals completed a

Table 2 Means and standard deviations for study variables

Measure	M (SD)
GAD-Q-IV	10.49 (1.21)
PSWQ	65.15 (9.15)
IUS	88.29 (21.28)
NPOQ	37.75 (11.48)
MCQ-30	75.13 (13.05)
ACS	174.94 (32.90)
SCCS	32.50 (10.42)
Actual-ideal discrepancy	3.14 (0.85)
Actual-ought discrepancy	2.50 (0.74)
Actual-feared discrepancy	3.78 (0.92)

GAD-Q-IV Generalized Anxiety Disorder Questionnaire for DSM-IV, *PSWQ* Penn State Worry Questionnaire, *IUS* Intolerance of Uncertainty Scale, *NPOQ* Negative Problem Orientation Questionnaire, *MCQ-30* Metacognitions Questionnaire–30 items, *ACS* Affective Control Scale, *SCCS* = Self-Concept Clarity Scale

screening survey to assess eligibility. Individuals were debriefed and compensated \$1.09 USD (in line with the ethical pay standards delineated by Prolific). We then invited eligible participants to complete the full study battery containing the aforementioned measures, with the exception of the GAD-Q-IV (see Table 2 for means and standard deviations).

All study measures were administered online through Prolific using Qualtrics, a US-based online survey tool. The order of the measures was counterbalanced for each participant with the exception of the ISDI, which was administered first to avoid order effects. Participants were then debriefed and compensated \$6.50 USD for their participation.

Data Analyses

To test the first hypothesis, zero-order correlation analyses were conducted between actual-ideal, actual-ought, and actual-feared self-discrepancy scores and scores on the SCCS. Correlations were conducted using SPSS statistical software version 27.0 (IBM Corp Released, 2021).

The second hypothesis was evaluated using a hierarchical linear regression. In step 1, scores from the IUS (IU), NPOQ (NPO), MCQ-POS (positive metacognitive beliefs), MCQ-NEG (negative metacognitive beliefs), and ACS (negative beliefs toward emotions) were entered. Actual-ideal, actual-ought, actual-feared discrepancies, and SCC (SCCS) were added in model 2. The dependent variable was the severity of worry, as operationalized by scores on the PSWQ. Regression analyses were performed using R (R Core Team, 2021).

The third hypothesis was tested using thematic analysis to identify the themes present within the ideal, ought, and feared selves of individuals with GAD. Following Braun and Clarke's (2006) framework for thematic analysis, two of the authors (S.Z.

and J. C.) developed a preliminary list of themes by independently reviewing the list of attributes generated for the ideal, ought, and feared selves. Based on existing literature (e.g., Carver et al., 1999; Ferrier & Brewin, 2005; Fracalanza, 2015), some a priori predictions were made regarding content in the possible selves. However, the paucity of literature on content within the possible selves also warranted the implementation of an unconstrained, bottom-up approach to allow for the identification of themes not represented within these findings. As such, a flexible approach was used to derive themes based on a priori predictions as well as from the data. Once the authors independently identified themes as well as corresponding codes (i.e., attributes), they participated in weekly meetings until consensus was reached regarding the themes, their definitions, and the codes comprised within each theme (Braun & Clarke, 2006).

As an exploratory analysis, we also wanted to identify (1) the frequency of reported attributes that fell into each theme for the ideal, ought, and feared selves; and (2) the predominant ideal, ought, and feared self-themes reported by each participant. Therefore, the two authors generated a codebook of finalized themes for each possible self, as well as the attributes subsumed within each theme, to guide their coding at the word and individual level. Quantitative content analysis was used to determine (1) the number of attributes reported that correspond to each theme within the ideal, ought, and feared self; and (2) the main themes reported by individuals as their ideal, ought, and feared self. With regards to the latter, participants were coded according to the majority of their attributes (e.g., if participants listed three of five attributes in their ideal self that correspond to a particular theme, the individual was coded as endorsing that theme as their dominant ideal self).

Results

Data Screening

Eight participants were excluded through validity checks (e.g., failing both validity checks on the ISDI, missing reverse-scored items on measures, missing or unusual generation of attributes on the ISDI) and examination of leverage, discrepancy, and influence characteristics, leaving a final sample of 136 for analysis (Table 3).

Quantitative Analyses

Correlational Analyses

Zero-order correlations were performed among the study variables (see Table 4). Maladaptive worry-relevant beliefs (IU, NPO, positive and negative beliefs about worry, fear of emotions) demonstrated significant associations with worry and anxiety. Actual-ought and actual-feared self-discrepancies and SCC were associated with severity of worry and GAD symptoms, whereas actual-ideal self-discrepancies were only correlated with the severity of worry. The three self-discrepancy variables and SCC also yielded some significant associations with maladaptive worry-related beliefs.

Additionally, the self-schematic constructs were also significantly interrelated. Actual-ideal, actual-ought, and actual-feared self-discrepancies were significantly correlated with each other, as well as SCC. In line with hypotheses, greater perceived discrepancies from the ideal and ought selves were related to lower levels of SCC, whereas greater perceived discrepancies from the feared self were associated with higher levels of SCC, suggesting that the more similar one perceives themselves to be to their feared selves, the lower their SCC.

Given the large number of comparisons, alpha-adjusted correlations were calculated using the Holm-Bonferroni method. Following corrections, all correlations between worry, GAD symptom severity, and maladaptive worry-relevant beliefs remained significant. Relations between actual-ideal, actual-ought, and actual-feared self-discrepancies were also still significant; however, their associations to SCC were no longer significant after alpha corrections. Actual-ideal self-discrepancies were no longer significantly correlated with worry severity; similarly, actual-ought and actual-feared self-discrepancies were also no longer significantly related to worry and GAD symptom severity. SCCS, however, remained significant with worry, GAD, and the various maladaptive worry-relevant beliefs.

Regression Analyses

Regression diagnostics (i.e., normality, linearity, homoscedasticity, and multicollinearity) were conducted first and indicated no violation of assumptions. Results from the hierarchical regression are displayed in Table 4. Model 1 was statistically significant, $R^2=0.58$, adjusted $R^2=0.56$, $F(5, 130)=35.69$, $p<0.001$. The predictors accounted for approximately 56% of the variance in worry. Negative beliefs about worry emerged as the sole unique predictor of worry, $b=1.22$, $t(130)=7.33$, $p<0.001$, 95% CI [0.89, 1.55], $\beta=0.58$.

Model 2 accounted for a significant proportion of variance in worry, $R^2=0.61$, adjusted $R^2=0.58$, $F(9, 126)=22.14$, $p<0.001$. A small, but significant, increase was observed from model 1 to model 2, $\Delta R^2=0.03$, $F(4, 126)=2.77$, $p=0.03$. SCC was the only self-construct to emerge as a unique predictor of worry,¹ $b=-0.18$, $t(126)=-2.78$, $p=0.006$, 95% CI [-0.30, -0.05]. SCC was also the second strongest predictor of worry ($\beta=-0.20$), following negative beliefs about worry ($\beta=0.58$).

Qualitative Analyses

The overarching themes identified within the ideal, ought, and feared selves are displayed in Table 5. For each of the three selves, there is also an “excluded” category that comprises attributes that did not fit into any of the existent themes. Overall, 16 attributes were classified in the excluded category (5 for the ideal self, 7 for the

¹ In line with recommendations from an anonymous reviewer, regression analyses with only the self-schematic constructs predicting worry were also conducted. SCC was the only unique predictor of worry; none of the self-discrepancy variables emerged as unique correlates. Results are available upon request.

Table 3 Zero-order correlations between study variables

Variable	1	2	3	4	5	6	7	8	9	10	11
1. PSWQ	–	.47***	.58***	.55***	.07	.72***	.48***	.22*	.18*	–.19*	–.54***
2. GAD-Q-IV	.47***	–	.39***	.41***	–.01	.48***	.38***	.11	.21*	–.22**	–.37***
3. IUS	.58***	.39***	–	.68***	–.03	.60***	.57***	.34***	.23**	–.25**	–.53***
4. NPOQ	.55***	.41***	.68***	–	–.04	.56***	.57***	.23**	.14	–.15	–.53***
5. MCQ-Positive	.07	–.01	–.03	–.04	–	–.05	.03	–.29***	–.28***	.02	.04
6. MCQ-Negative	.72***	.48***	.60***	.56***	–.05	–	.61***	.19*	.20*	–.31***	–.48***
7. ACS	.48***	.38***	.57***	.57***	.03	.61***	–	.17*	.23**	–.25**	–.54***
8. Actual-ideal	.22*	.11	.34***	.23**	–.29***	.19*	.17*	–	.34***	–.33***	–.23**
9. Actual-ought	.18*	.21*	.23**	.14	–.28***	.20*	.23**	.38***	–	–.37***	–.20*
10. Actual-feared	–.19*	–.22**	–.25**	–.15	.02	–.31***	–.25**	–.33***	–.37***	–	.20*
11. SCCS	–.54***	–.37***	–.53***	–.53***	.04	–.48***	–.54***	–.23**	–.20*	.20*	–

PSWQ Penn State Worry Questionnaire, *GAD-Q-IV* Generalized Anxiety Disorder Questionnaire for DSM-IV, *IUS* Intolerance of Uncertainty Scale, *NPOQ* Negative Problem Orientation Questionnaire, *MCQ-Positive* Positive Beliefs about Worry Subscale from the MCQ-30, *MCQ-Negative* Negative Beliefs about Worry Subscale from the MCQ-30, *ACS* Affective Control Scale, *SCCS* Self-Concept Clarity Scale

*Discrepancies were assessed using the Integrated Self-Discrepancy Index (ISDI)

* $p < .05$; ** $p < .01$; *** $p < .001$

Table 4 Results from hierarchical regression analyses predicting severity of worry from worry-related and self-schemas

Variable	b	se	β	95% CI
Model 1				
IUS	.07	.04	.17	[-.00, .14]
NPOQ	.12	.06	.15	[-.01, .25]
MCQ-Positive	.22	.12	.11	[-.02, .45]
MCQ-Negative	1.22	.17	.58***	[.89, 1.55]
ACS	-.02	.02	-.06	[-.06, .03]
Model 2				
IUS	.05	.04	.11	[-.02, .12]
NPOQ	.08	.06	.10	[-.05, .21]
MCQ-Positive	.30	.13	.15*	[.05, .55]
MCQ-Negative	1.22	.17	.58***	[.89, 1.55]
ACS	-.03	.02	-.11	[-.08, .01]
Actual-ideal ^a	.73	.72	.07	[-.70, 2.17]
Actual-ought ^a	.73	.83	.06	[-.92, 2.38]
Actual-feared ^a	.97	.71	.08	[-.44, 2.38]
SCCS	-.18	.06	-.20**	[-.30, -.05]

IUS Intolerance of Uncertainty Scale, *NPOQ* Negative Problem Orientation Questionnaire, *MCQ-Positive* Positive Beliefs about Worry Subscale from the MCQ-30, *MCQ-Negative* Negative Beliefs about Worry Subscale from the MCQ-30; *SCCS* Self-Concept Clarity Scale ^aDiscrepancies were assessed using the Integrated Self-Discrepancy Index (ISDI)

* $p < .05$; ** $p < .01$; *** $p < .001$

ought self, and 4 for the feared self). The excluded attributes are not included in the following table.

Within the ideal self, a total of 679 attributes were reported across participants. Among the traits reported, 287 words (42.7%) fell under the intellectual enlightenment and exceptional achievement theme (e.g., hard-working, distinguished), 165 words (24.3%) fell under the moral excellence theme (e.g., altruistic, role model), 132 words (19.3%) fell under the interpersonal desirability theme (e.g., charismatic, sociable), and 90 words (13%) fell under the optimal health and well-being theme (e.g., resilient, relaxed).

Within the ought self, a total of 677 attributes were reported across participants. Among the traits reported, 355 words (50.7%) fell under the moral excellence theme and 154 words (23.3%) fell under the intellectual enlightenment and exceptional achievement theme, which also appeared as predominant themes in the ideal self. Ninety-three words (14.9%) fell under the interpersonal desirability theme (also emerged as a theme in the ideal self), 52 words (7.7%) fell under the positive mental health theme (e.g., peaceful, cool-headed), and 16 words (2.4%) fell under the family and society-related obligations theme (e.g., protector of family, good citizen).

Within the feared self, a total of 678 attributes were reported across participants. Among the traits reported, 254 words (37.6%) fell under the flawed and contemptible self theme (e.g., lazy, close-minded), 147 words (21.5%) fell under the immoral/unethical self theme (e.g., evil, scheming), 120 words (17.7%) fell under the flawed

Table 5 Thematic analysis of participant responses to the ISDI

Possible self	Sample attributes
Ideal self themes	
Optimal health and well-being	Worry-free, stress-free, serene
Interpersonal desirability	Respected, charismatic, sociable
Intellectual enlightenment and exceptional achievement	Successful, intelligent, cultured
Moral excellence	Virtuous, patient, kind
Ought self themes	
Positive mental health	Happy, healthy, positive
Intellectual enlightenment and exceptional achievement	Hard-working, responsible, ingenious
Moral excellence	Virtuous, moral, forgiving
Interpersonal desirability	Considerate, nice, tolerant
Family and society-related obligations	Protector of family, maternal, good citizen
Feared self themes	
Undercontrolled self	Angry, bad-tempered, reckless
Depressed/anxious self	Worried, anxious, depressed
Incapability and incompetence	Unreliable, dependent, incompetent
Vulnerability to harm	Weak, fragile, helpless
Flawed and contemptible self	Selfish, close-minded, lazy
Immoral/unethical self	Cold-hearted, cruel, untrustworthy
Flawed social self	Inconsiderate, rude, awkward

social self theme (e.g., unconfident, obnoxious), 65 words (9.6%) fell under the depressed/anxious self theme (e.g., pessimistic, overthinker), 45 words (6.8%) fell under the incapability and incompetence theme (e.g., unskilled, useless), 29 words (4.3%) fell under the undercontrolled self theme (e.g., unstable, easily angry), and 13 words (1.9%) fell under the vulnerability to harm theme (e.g., weak, fragile).

Participant responses were also coded at the within person-level to assess the predominant themes in each of the possible selves, within each participant. Participants were coded according to the majority of their attributes. If individuals did not endorse a majority of attributes from one theme (e.g., reported traits from multiple themes), they were coded as “uncodeable.” Following these criteria, 43 (29.9%), 32 (22.2%), and 45 (31.3%) participants were classified as “uncodeable” in their ideal, ought, and feared selves respectively.

The predominant theme within the ideal self of the present sample was the intellectually enlightened self with exceptional achievements, which was reported by 61 (42.4%) participants. This is followed by the morally excellent self ($n=26$, 18.1%), the interpersonally desirable self ($n=9$, 6.3%), and the optimally healthy and well self ($n=5$, 3.5%).

Within the ought self, the most reported theme was the morally excellent self ($n=83$, 57.6%). This is followed by the intellectually enlightened self with exceptional achievements ($n=20$, 13.9%), the interpersonally desirable self ($n=6$, 4.2%), the self with family and society-related obligations ($n=2$, 1.4%), and the self with positive mental health ($n=1$, 0.7%).

Lastly, the most dominant theme among individuals for the feared self was the flawed and contemptible self ($n=53$, 36.8%). This was followed by the immoral/unethical self ($n=23$, 15.9%), the flawed social self ($n=10$, 6.9%), the depressed/anxious self ($n=8$, 5.6%), the under-controlled self ($n=3$, 2.1%), and the incapable/incompetent self ($n=2$, 1.4%). No participant in the current sample endorsed vulnerability to harm as their dominant feared self.

Discussion

The self has seldom been the direct and intentional focus of theory and research in chronic worry and GAD. The present study was a novel examination of the relations of self-constructs, particularly possible selves and SCC, to chronic worry in the context of GAD. To our knowledge, our study is also the first to examine the specific themes present within the possible selves of individuals high in GAD symptoms. Results from the current report suggest that self-related constructs add to our understanding of pathological worry and anxiety and merit further investigation.

Consistent with hypotheses, self-constructs (actual-ideal, actual-ought, actual-feared self-discrepancies, SCC) were significantly correlated with each other and accounted for additional variance in worry, even after controlling for established correlates such as positive and negative beliefs about worry, IU, NPO, and fear of emotions. SCC was the second strongest correlate of worry, following negative beliefs about the harmfulness of worry. Together with previous research (Kusec et al., 2016), these findings provide convincing evidence for the potential role of SCC in conferring vulnerability to chronic worry and support a broader literature demonstrating the association between low SCC and negative psychological well-being (e.g., Bigler et al., 2001; Campbell et al., 1996; Schwartz et al., 2011; Tokunaga & Horiuchi, 2012).

As mentioned previously, individuals are motivated to maintain consistency within their self-concept; one such way to do so is through achieving desired, future self-representations (Borkovec et al., 1986). During goal pursuit, individuals may encounter challenges that prompt them to become aware of the discrepancy between their current and desired selves. Consistent with Borkovec et al.'s (1986) original postulations, low SCC was a significant predictor of greater severity of worry in the current study. This finding suggests that individuals high in anxiety are prone to becoming "stuck" in their experiences of worry as a result of the inconsistency between their negative self-schemas and positive desired self-representations, thereby preventing effective problem-solving.

Conversely, actual-ideal, actual-ought, and actual-feared self-discrepancies did not emerge as unique correlates of worry, despite significant zero-order correlations to worry and GAD symptom severity. A potential explanation for such findings may be that the *particular* discrepancies (i.e., discrepancies from the ideal, ought, or feared self) are not as important as the experience of *general* discrepancies among various self-constructs (e.g., core beliefs, possible selves, and current self-representations) that characterize SCC. In support of this perspective, discrepancies from the ideal, ought, and feared selves are only moderately correlated with SCC in the

current report, suggesting that discrepancies from other self-constructs are important to the experience of SCC.

However, specific self-discrepancies may still be important to the experience of worry and anxiety and require further empirical investigation. According to the self-discrepancy theory (Higgins, 1987), perceived discrepancies from possible selves that are more accessible within individual memory carry the greatest impact on psychological well-being. Schemas that are highly accessible comprise attributes and information that are tightly interconnected and well-consolidated (Baldwin, 1992). Therefore, the *structure* of possible selves may impact their accessibility and in turn, the impact of perceived self-discrepancies on experiences of worry and anxiety. Subsequent research should aim to investigate the structure of possible selves alongside the content of possible selves to better conceptualize the role of these constructs in the context of pathological worry.

With regards to the content of possible selves, the self as intellectually enlightened with exceptional achievements and the self as morally excellent emerged as the dominant themes for both the ideal and ought selves of individuals with probable GAD. This finding may suggest overlap between these possible selves—indeed, some previous research has questioned whether there are bonafide differences between the ideal and ought selves (e.g., Ozgul et al., 2003; Phillips & Silvia, 2005; Tangney et al., 1998). However, most of the present sample ($n = 100$, 69.4%) did *not* report the same themes for the ideal and ought selves, indicating that these possible selves may represent different self-constructs for individuals. Not only does this lend support for Higgins' (1987) original theory, but these results also support the use of the ISDI to reliably distinguish between the ideal and ought selves.

There was still a substantial proportion of the present sample ($n = 44$, 30.6%) that did report the same themes for both their ideal and ought selves. Conflation between the ideal (representing one's hopes, aspirations, dreams) and ought (representing one's duties, obligations) selves in this context may be particularly conceivable as individuals with GAD often perceive high standards of performance as obligations or standards that they "ought" to meet rather than those that they would ideally like to achieve (e.g., Covin et al., 2011; Thompson et al., 2020). Stated differently, for individuals with GAD, what is a "strong desire to be" versus a "must be" may be difficult to disentangle, causing the ideal self and the ought self to be very similar. This potential explanation is supported by the frequent use of "should" statements (i.e., thinking that things must or ought to be a certain way) among individuals with GAD (e.g., Beck, 1995; Covin et al., 2011).

The content captured within the intellectual enlightenment and exceptional achievement theme (e.g., successful, competent, hardworking) appears to reflect general, high standards toward achievement. Indeed, achievement-oriented perfectionism is associated with a greater severity of worry in both community (see Xie et al., 2019 for a meta-analysis) and clinical samples (e.g., Handley et al., 2014; Thompson et al., 2020). Thus, subsequent research should explicitly investigate the contributions of self-discrepancies, SCC, and perfectionism to worry in the context of GAD to elucidate existing associations between these constructs.

Relatedly, the content within the moral excellence theme (e.g., disciplined, selfless, altruistic) may be interpreted as capturing perfectionistic standards specific to

morality. Thus, the ideal and ought self of individuals with GAD may be one that is capable of upholding idealistic moral principles. Such findings coincide with extant research suggesting that individuals may engage in worry due to beliefs that worry minimizes the likelihood of future negative events occurring, and reflects positive characteristics (e.g., caring, compassionate; Borkovec & Roemer, 1995; Freeston et al., 1994). Consequently, worry is theorized to serve as an avoidance strategy from “moral” emotions such as shame, which individuals with GAD appear to evidence a particular intolerance toward (e.g., Fergus et al., 2010; Schoenleber et al., 2014; Shahar et al., 2015).

Congruent with past research (Ferrier & Brewin, 2005), the predominant theme in the feared self was the flawed and contemptible self, comprising traits that may be perceived as undesirable but not inherently dangerous to others or self (e.g., selfish, poor, lazy). These attributes may be interpreted as antithetical to those within the desired selves (ideal and ought self) of individuals in the present sample which embody attributes such as “generous,” “rich,” and “hard-working.” Therefore, the feared self of individuals with GAD may be the self that “falls short” and is unable to fulfill individual desired ideals and standards. This feared self-representation differs from those identified in other anxiety populations (e.g., OCD), where the feared self is perhaps much more specific (e.g., a “dangerous, unethical” self in the case of individuals with harm intrusions; see Jaeger et al., 2021 for a review).

Interestingly, very few individuals reported the other feared self themes as their dominant self. One potential explanation is that individuals with GAD may not necessarily see these self-representations as a “feared,” hypothetical self, but rather as representative of their current, actual self. That is, individuals may already believe themselves to be immoral, flawed socially, undercontrolled, incapable/incompetent, and/or depressed and anxious rather than seeing these attributes as a future possibility. Preliminary research suggests that individuals with GAD may hold inaccurate self-perceptions (e.g., Shin & Newman, 2019). Thus, subsequent investigation on the self of individuals with GAD should consider establishing a “baseline” (i.e., having individuals define their actual self) to prevent conflation between their current and hypothetical self-definitions.

It is also important to note that some participants’ dominant ideal ($n=43$, 29.9%), ought ($n=32$, 22.2%), and feared selves ($n=45$, 31.3%) were categorized as uncodeable in the present study. Individuals’ possible selves were classified as uncodeable if individuals: (1) reported less than three attributes belonging to a particular theme; or (2) reported a mixture of attributes belonging to different themes. The presence of an uncodeable category for possible selves is not uncommon (see Ferrier & Brewin, 2005) and there are potential explanations for this pattern of findings. First, given the dearth of existing literature on the content of possible selves, it is possible that individuals may possess possible selves that do not coincide with the themes identified in the present study. Thus, subsequent examination into the possible selves of individuals with GAD should focus on replicating the themes within the current report, as well as implementing a flexible, data-driven approach to elucidate other potential patterns in the ideal, ought, and feared selves of individuals.

An individual’s self-concept is comprised of a network of interconnected schemas, all containing distinct and important information relating to one’s identity

(Markus & Sentic, 1982). Consistent with this notion, Linville's (1985, 1987) construct of self-complexity reflects that individuals may possess numerous self-schemas that correspond to their various social roles (e.g., student, partner, friend, researcher). Thus, individuals may possess a myriad of ideal, ought, and feared selves as they relate to their various self-schemas. In the context of the current study, our category of "uncodeable" may have captured individuals that have numerous possible selves and as a result, reported attributes that span across several themes rather than corresponding to a single theme.

Strengths and Limitations

The current study was a novel investigation of the relation of self-schematic constructs to worry and anxiety. Our findings enrich our current understanding of the cognitive processes that underpin worry and can stimulate new research examining more intentionally and systematically the role of the self-concept in anxiety. Preliminary research suggests that addressing self-discrepancies within psychotherapy is associated with subsequent reductions in depression and anxiety symptoms (Watson et al., 2014). Thus, the identification of specific themes within the possible selves of individuals high in anxiety offers promising avenues for exploration in cognitive interventions. The current report also expands upon previous research (e.g., Mason et al., 2019; Schlechter et al., 2022) by using an analogue clinical sample to examine the association of self-discrepancies to worry and anxiety. Additionally, a major strength of the study was that it drew on a well-established social cognition literature to inform the research questions and methodology.

There are also limitations to consider. The cross-sectional design may be seen as a limitation as it precluded definitive conclusions regarding the temporal sequencing between study variables. However, such designs are essential to theory-building and are a pre-condition to the study of causal relations. The use of an online platform for recruitment and data collection may also be seen as a pitfall, as such platforms may yield a higher likelihood of invalid data (e.g., Al-Salom & Miller, 2019). In the present study, only three participants (2% of the total sample) were classified as having "invalid" data through validity checks. Prolific also implements several safeguards to ensure high-quality data (e.g., preventing suspicious or repeating IP addresses from completing surveys). Moreover, a self-report measure, rather than a diagnostic interview, was used to identify individuals with probable GAD. However, the most stringent cut-off score on the GAD-Q-IV was used, decreasing the likelihood of false positives (Moore et al., 2014).

Given that participants in the present study were from North America, it is possible that our findings may not extend to individuals from other regions. For instance, preliminary research suggests potential differences in the possible selves of individuals from Western and Eastern cultural contexts (e.g., Cheung et al., 2016; Waid & Frazier, 2003), such that those in the former endorse desired selves that reflect personal goal pursuit, whereas the latter focus their possible selves around interpersonal and kinship roles. Moreover, the association between self-concept inconsistencies

and well-being appears to be circumscribed to individualistic cultures (e.g., English & Chen, 2011). As such, it is important for subsequent research to further examine the role of cultural context in the development of possible selves and SCC, in addition to the association between these self-schematic constructs and well-being.

Research Implications

The present findings offer novel empirical support for the contribution of self-schematic constructs to current understandings of worry and anxiety. However, there are several questions that warrant further empirical investigation before the incorporation of these constructs into theoretical frameworks of GAD. Importantly, subsequent research should examine the interactions between self-schematic constructs and worry-related processes more explicitly. For instance, the current report noted significant associations between SCC and well-established correlates of worry such as IU, NPO, meta-cognitive beliefs about worry, and fear of emotions. It may be of interest to examine the role of SCC in conferring vulnerability to these processes and whether SCC mediates the association between these mechanisms and worry, considering the role of SCC in maintaining GAD symptom severity (e.g., Kusec et al., 2016). Further, positive beliefs about the usefulness of worry were correlated with smaller perceived distances from the ideal and ought selves. In line with the aforementioned explanations, this may suggest that individuals with GAD view worry as a desirable function and warrants further investigation to elucidate the function of worry for individuals with GAD.

Lastly, future research with the ISDI should consider prompting individuals to generate attributes for their current self as well as their possible selves. This may provide individuals with a better metric of assessing differences between their actual and possible selves, which may increase the accuracy of self-discrepancy scores and prevent individuals from confounding their actual and possible selves.

Conclusion

The current study examined possible selves and SCC in the context of GAD. Our findings identified SCC as a unique correlate of worry, and also highlighted significant associations between self-discrepancies and SCC to the severity of GAD symptoms, worry, and worry-related processes. Altogether, these results provide promising preliminary evidence for the role of the self-schema in generating vulnerability to worry and provide a foundation for future research to bolster the efficacy of cognitive-behavioral interventions for GAD.

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Declarations

Ethics Approval Ethics approval was obtained from the Research Ethics Board of Toronto Metropolitan University (#2020–504). The study was performed in accordance with the ethical standards as laid down in the 1965 Declaration of Helsinki and its later amendments.

Consent to Participate Informed consent to participate was obtained from all individual participants included in the study.

Conflict of Interest The authors declare no conflict of interest.

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