A Multimethod Investigation of Beliefs about Losing Control in Anxiety-Related Disorders

Kenneth Kelly-Turner

A Thesis
In the Department
Of
Psychology

Presented in Partial Fulfillment of the Requirements
For the Degree of
Doctor of Philosophy (Psychology) at
Concordia University
Montréal, Québec, Canada

May 2024

CONCORDIA UNIVERSITY SCHOOL
OF GRADUATE STUDIES

This is to certify that the thesis

prepared By: Kenneth Kelly-Turner

Entitled: A Multimethod Investigation of Beliefs about Losing Control in Anxiety-Related Disorders

and submitted in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY (PSYCHOLOGY)

complies with the regulations of the University and meets the accepted standards with respect to originality and quality.

Signed by the final examining committee:

_____Chair
Dr. Dayana Vuckovic

_____External Examiner
Dr. David Moscovitch

_____Arm's Length Examiner
Dr. Joyce Lui

_____Examiner
Dr. Roisin O'Connor

_____Examiner
Dr. Andrew Ryder

_____Thesis Supervisor
Dr. Adam Radomsky

Approved by _____
Dr. Andrew Chapman, Graduate Program Director

_____
Dr. Pascale Sicotte, Dean of Faculty of Arts & Science

Defence date: July 11, 2024

ABSTRACT

A Multimethod Investigation of Beliefs about Losing Control in Anxiety-Related Disorders

Kenneth Kelly-Turner, Ph.D.

Concordia University, 2024

Maladaptive beliefs are proposed to be critical in the development and maintenance of anxiety-related disorders. One commonly reported maladaptive belief domain concerns negative beliefs people hold about losing control. These concerns about the likelihood and consequences of losing control over one's behaviour, thoughts, emotions and/or physical reactions appear to be prevalent in clinical and non-clinical samples. This program of research aimed to better assess, define and delineate the nature of these beliefs using a multi-method approach. In Study 1, undergraduate psychology students ($N = 126$) were given false feedback that they were either at high or low risk of losing control, and then completed a social interaction task with an actor. The belief that one was at high risk of losing control led to greater anticipatory anxiety leading up to the social interaction task, significant doubt about one's social performance and significantly more negative post-event processing. In Study 2, an unselected sample of undergraduate participants ($N = 21$), half of whom met criteria for one or more anxiety-related disorders, was interviewed about their beliefs about losing control. Losses were defined as negative, multifaceted cognitive-behavioural phenomena which included thoughts, behaviours and emotions. Common consequences were perceived harm to oneself or others, powerlessness, and unpleasant emotions during (e.g., sadness, frustration, anxiety) and following (e.g., regret, shame, humiliation) a reported loss of control. In Study 3, undergraduate students ($N = 440$) completed an expanded set of items designed to better measure maladaptive beliefs about losing control, leading to the assessment of the Beliefs About Losing Control Inventory, Second Edition (BALCI-II). An exploratory factor analysis indicated the BALCI-II captured several domains of feared consequences of losing control: 1) overwhelming emotions 2) dangerous behaviour and 3) madness and 4) inflated beliefs about probability/severity of those losses. The BALCI-II was found to be psychometrically sound and predictive of symptoms of OCD and SAD, above and beyond existing disorder-specific maladaptive beliefs. Implications for cognitive theory and therapy are discussed.

Acknowledgements

The research reported in this document was made possible through funding support provided by the Social Sciences and Humanities Research Council of Canada (SSHRC). It was also facilitated by a SSHRC Insight Grant that my supervisor, Dr. Adam Radomsky received to study fears and beliefs about losing control (Grant Number 435-2017-0922).

First and foremost, I'd like to thank Adam. Without his guidance and encouragement, this thesis would not have been possible. Not only was his insight and feedback invaluable in improving and honing the quality of my work, but his support and encouragement was hugely helpful in keeping my spirits up and my confidence in my work through all the data doubts, quality crises and the general air of imposter syndrome that hangs in the air. Working with Adam has not only helped me become a more thoughtful researcher, but a better clinician as well. He has instilled in me a client-first approach to my work above all else. Not just from discussions about the research, but from modelling that attitude in every aspect of the work we did – it is the kind of clinician I hope to be in my career going forward. His sense of humor and love of silliness has filled my time in the lab with smiles, laughs and good humour (and sometimes groans over a particularly heinous pun).

I would also like to thank my committee members Dr. Roisin O'Connor and Dr. Andrew Ryder. Your insightful suggestions and feedback helped strengthen this program of research.

To the members of the lab, thank you so much for your support, friendship, and humour throughout the years. To Sandra, Andrea, Cat, and Cailyn, thank you all for being there to answer questions and soothe anxieties about this whole process. To Kelvin and Martha, thank you for regularly reminding me that there is a light at the end of the tunnel and that if I keep at it, I will surely get through to the other side. Thank you all for being my family away from home.

To my wonderful wife – Brittany – thank you for being there to support me through this sometimes-arduous process and for listening to much, much more psychology talk than any non-psychologist should ever have to. Thank you to my parents who've been through the graduate school gauntlet themselves and helped talk me through it with stories of their own trials and tribulations. Thanks to my sisters, who always asked good questions about my research and helped me think about it in new ways.

CONTRIBUTIONS OF AUTHORS

The following thesis is comprised of three manuscripts:

Study 1 (Chapter 2)

Kelly-Turner, K., & Radomsky, A. S. (2022). Always Saying the Wrong Thing: Negative Beliefs About Losing Control Cause Symptoms of Social Anxiety. *Cognitive Therapy and Research, 46*, 1137–1149. https://doi.org/10.1007/s10608-022-10325-w

Study 2 (Chapter 4)

Kelly-Turner, K., & Radomsky, A. S. (2023). At the Mercy of Myself: A Thematic Analysis of Beliefs about Losing Control. *Psychology and Psychotherapy: Theory, Research and Practice,* 00, 1-17. https://doi.org/10.1111/papt.12515

Study 3 (Chapter 6)

Kelly-Turner, K., & Radomsky, A. S. (under review). Update and Validation of the Beliefs about Losing Control Inventory (BALCI-II). *Cognitive Behaviour Therapy*

I was responsible for selecting the content of this body of work and conceptualizing the program of research presented herein. I was responsible for designing and conducting the statistical and qualitative analyses for each of the studies. I primarily recruited, scheduled, and tested participants for all studies in conjunction with undergraduate students (please see below). I transcribed all interview data for Study 2. The initial measure used in Study 3 was developed prior to my arrival at the lab (see also below), but I was responsible for generation of additional items as well as all aspects of study design and data collection. I met regularly with my Supervisor, Dr. Adam Radomsky, to consult with regards to the development, implementation, analysis, and preparation of all aspects of the publications. My committee members, Drs. Roisin O'Connor and Andrew Ryder, provided insightful feedback and approved the design and analyses for all three studies at my proposal meeting on June 25, 2020.

I conceptualized, designed and was responsible for running Study 1, in collaboration with Dr. Radomsky. I authored the protocol and script and designed the bogus cognitive task used in the procedure. I adapted the protocol for online delivery following the ending of in-person testing due to the COVID-19 pandemic. I scheduled and conducted testing sessions for all

undergraduate participants in this experiment. I trained an undergraduate research assistant (Billie Mendel) to act as the conversation partner in all testing sessions. I was responsible for all aspects of data cleaning and analysis. I authored all components of the manuscript and prepared it for publication in consultation with Dr. Radomsky throughout. I incorporated reviewers' feedback under the guidance of Dr. Radomsky. Dr. Radomsky has been responsible for overseeing all aspects of the project from its inception.

I conceptualized, designed and was responsible for conducting Study 2, under the supervision of Dr. Radomsky, who provided guidance and support throughout. I conducted all diagnostic and qualitative interviews for the study. I transcribed, prepared and analysed the qualitative interviews for all participants. I coded and analysed interview data under the guidance and supervision of Dr. Radomsky, who provided invaluable feedback throughout the development and narrowing of themes. I wrote and prepared the manuscript before its submission for publication by Dr. Radomsky and was responsible for incorporating reviewers' feedback. Dr. Radomsky oversaw and guided all stages of this study as well.

I was responsible for the conceptualization, design, and execution of Study 3. The initial measure was developed prior to my arrival in the laboratory. However, I was responsible for item generation of all new questionnaire items for Study 3. I consulted with Dr. Radomsky and sought feedback from lab members Sandra Krause, Andrea Sandstrom and Catherine Ouellet-Courtois for additional items and item clarity. I prepared and implemented the online questionnaire battery. I was responsible for all data cleaning and analysis for this study. I drafted and prepared all aspects of the manuscript for publication. I was responsible for responding to and incorporating reviewers' feedback. Dr. Radomsky provided feedback and guidance at every stage of this study as well.

I authored all remaining elements of this dissertation. Dr. Radomsky reviewed all written elements of this dissertation. All studies underwent blind review and responses from reviewers were incorporated into the versions of the manuscripts included herein.

Table of Contents

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

General Introduction

Anxiety-related disorders are characterized by persistent and excessive fear and avoidance which cause significant distress and interfere with daily living (American Psychiatric Association, 2013). These problems are among the most common mental disorders, affecting roughly one in four people in their lifetime and with a 12-month prevalence of 17.2% (Kessler et al., 1994, 2005). There has been a trend towards diagnostic categories becoming increasingly specific and subtypes becoming ever-more narrowly defined based on characteristics which are unique to the disorder while deemphasizing common features. In contrast to this strict categorical model, alternative nosological approaches propose a more integrative understanding of the commonalities between and across anxiety-related disorders (Barlow, 2000; Harvey et al., 2004; Norton, 2006). These nosologies emphasize understanding the common mechanisms which lead to a vulnerability for developing anxiety disorders (Sexton et al., 2003). By considering these common factors (e.g., shared maladaptive beliefs) treatment models can be developed which maximise our ability to intervene by targeting mechanisms rather than syndromes.

This more integrative approach is compatible with existing cognitive models of anxiety which posit that maladaptive beliefs (e.g., negative self-perceptions, perceived threat and underestimating one's ability to cope) maintain and reinforce the behaviours and negative affect one experiences (Freeston et al., 1996; Hofmann et al., 2013; Salkovskis, 1985). These beliefs represent powerful and persistent views that are proposed to drive our behaviour and underlie our self-concept (Beck, 1967; Clark, 1986; Clark & Wells, 1995; Hofmann et al., 2013; Salkovskis, 1985). For example, catastrophic misinterpretations of intrusive thoughts, based on strongly held views or concerns that one is 'mad, bad or dangerous' in obsessive-compulsive disorder (OCD; Rachman, 1997, 1998), or negative beliefs about one's ability to make a positive impression in social anxiety disorder (SAD; Clark & Wells, 1995) are identified as critical targets for intervention. Though these beliefs are proposed to uniquely align with the disorders above, other maladaptive beliefs have been observed across anxiety disorders. One such belief domain which is commonly observed in anxiety disorders is negative beliefs about losing control.

The importance of control, perceived or otherwise, is highly relevant in health and wellbeing (e.g., Rotter, 1966; Shapiro et al., 1996). Perceived controllability of negative

outcomes has been proposed to mediate anxiety in a stressful situation (Mandler & Watson, 1966). Therefore, catastrophic beliefs about one's ability to maintain control over one's behaviour, thoughts, emotions or physical reactions may be expected to produce anxiety. The specific nature of the misinterpretations driven by maladaptive beliefs about losing control would be expected to be idiosyncratic across disorders and individuals but may share a common theme: that the failure to maintain control could be perceived to have extremely negative, even catastrophic consequences (Radomsky, 2022). For example, in Clark's (2004) cognitive control theory of obsessions in OCD, failing to control one's obsessions is taken as evidence that they may subsequently lose control over their behaviour (e.g., "If I can't control unwanted sexual intrusions, then I might lose control over my sexual behavior;" Clark, 2004, p. 145). In panic disorder (PD), cognitive symptoms of a panic attack (e.g., one's mind going blank) may be taken as evidence that they are about to lose control and never get it back (i.e., evidence one is going crazy; Barlow, 2002; Clark, 1986). In SAD, beliefs about losing control are thought to be linked to processing oneself as a social object (e.g., feeling out of control is equated to being out of control, and ultimately humiliating as a result; Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997). Each of these cognitive theories shares a common catastrophic misinterpretation of an internal state (i.e., thoughts in OCD, sensations in panic and feeling embarrassment in SAD) as possible evidence that one is about to be 'out of control' (i.e., engage in inappropriate sexual behaviour, go crazy, or act in humiliating ways). This perceived loss of control is then linked to a specific feared outcome, which is tied to a disorder-specific core belief about oneself (e.g., as dangerous, insane or foolish).

There is good evidence that these beliefs and misinterpretations are relevant across anxiety-related disorders. Individuals with OCD attempt to control their intrusive thoughts using a variety of strategies including compulsions and thought stopping (Freeston & Ladouceur, 1997), which, paradoxically, may increase the salience of those thoughts (e.g., Tolin et al., 2002). Further, clinical observations suggest individuals with OCD engage in avoidance of feared stimuli (e.g., sharp knives, scissors) out of a fear that they will eventually act on unwanted violent impulses, despite no desire to do so (e.g., Rachman & Hodgson, 1980; Thyer, 1985). Among individuals with panic disorder, fewer panic symptoms are reported during panic-induction tasks (i.e., carbon dioxide inhalation) when they believe they have control over the stimulus (Rapee et al., 1986; Sanderson et al., 1989) or when symptoms are appraised as normal

rather than out-of-control (Salkovskis & Clark, 1990). Perceived control over one's emotions has been shown to mediate the relationship between anxiety sensitivity and agoraphobia, above and beyond the perceived controllability of the situation (White et al., 2006). Among individuals with SAD, reports of intense intrusive imagery in which they humiliate themselves by failing to control outbursts or blunders suggest an assumption that loss of control will be socially catastrophic (Hackmann et al., 1998). Clearly negative beliefs about losing control are common among individuals with anxiety-related disorders. However, it remains unclear how individuals understand and conceptualize the possibility, process and nature of losing control.

There is evidence to suggest these concerns about control are common and that they may predict symptoms of psychopathology among community samples (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020). Qualitative research has shown that fears of losing control may commonly occur in non-clinical samples. In one study, doctors expressed fear that they would lose control over everything from their emotions to their patients' trust when giving bad news to terminal patients, resulting in damage to their credibility and the doctor-patient relationship (Friedrichsen & Milberg, 2006). Further, uncontrollable behaviour during pregnancy and childbirth resulting in harm to themselves or their baby are common concerns reported by expecting mothers, especially following adverse experiences (e.g., miscarriage; Fernández-Basanta et al., 2023; Sjögren, 1997; Wigert et al., 2020). These findings offer initial insight into potentially normative negative beliefs about losing control (i.e., concerns are consequence focused), but these investigations did not examine the nature of these perceived losses of control in detail (e.g., is it lost forever?, how and when is it regained?), nor do they consider issues associated with the awareness of potentially losing control (e.g., how does one know they have lost control?). Further, this research has focused on specific, high stakes contexts (i.e., delivering bad news, childbirth) rather than 'everyday' losses of control (e.g., failure to control/suppress intrusive thoughts, accidentally saying/doing something foolish, automatic stress/physiological responses). Understanding some of the nuance in these beliefs about losing control will help to operationalize negative beliefs about losing control more clearly in subsequent psychometric and experimental research. Given that these questions are exploratory and require a detailed account of the phenomenon, they are ideally suited for thematic analysis (Braun & Clarke, 2006). Thus far, to the best of this author's knowledge, there have been no qualitative studies examining these beliefs in and of themselves.

Qualitative research is ideally suited for providing insight into the phenomenology of cognitive domains such as beliefs of losing control. It is also suited to aid in the development of follow-up questions or self-report measures (Lasch et al., 2010). Though several measures exist to assess cognitions related to beliefs about losing control, they do not adequately capture these beliefs. For example, anxiety sensitivity, as measured by the Anxiety Sensitivity Index (ASI-3; Taylor et al., 2007), is the belief that anxiety may lead to illness, embarrassment or further anxiety (Reiss & McNally, 1985). Though related to negative beliefs about losing control, anxiety sensitivity is more focussed on negative expectancies associated with experiencing symptoms of anxiety without emphasis on the perceived controllability of those anxious states (e.g., "When my chest feels tight, I get scared that I won't be able to breathe properly;" Taylor et al., 2007). Further, it does not account for concerns related to controlling emotions other than anxiety (e.g., sadness, anger; Radomsky et al., 2007; Taylor & Rachman, 1991, 1992; Whiteside & Abramowitz, 2004, 2005)

The Beliefs About Losing Control Inventory (BALCI) is a 21-item measure, recently developed and validated by Radomsky and Gagné (2020), assessing the degree to which individuals report negative beliefs about losing control. It consists of three subscales: (1) concerns about losing control over thoughts, behaviour, and emotions (TBE subscale); (2) concerns about losing control over one's body and bodily functions (BBF subscale); and (3) the importance of staying in control (ISC subscale). In its current form, the BALCI demonstrated good psychometric properties, with strong convergent and divergent validity. It also demonstrated excellent internal consistency ($\alpha = .93$) and adequate retest reliability ($r = .67$). However, the psychometric properties of the BALCI subscales are somewhat weaker, especially the BBF subscale, which had adequate internal consistency ($\alpha = .67$). This may be due in part to the current version of the test inadequately capturing nuance across losses of control over multiple different domains (i.e., behaviour, thoughts, emotions and physical reactions). In particular, the original items were developed with an OCD population in mind, which is clearly evidenced in some items (e.g., "If I don't manage the thoughts, images or impulses in my mind, I will lose control") but may not capture the concerns surrounding loss of control related to embarrassing oneself (as seen in SAD) or related to a fear of dying (as seen in PD). This may explain why concerns about losing control over thoughts, behaviour and emotions clustered onto a single factor as cognitive theories suggest people with OCD may associate past/present failures

to control thoughts with future failure to control behaviour (e.g., "Losing control over one's thoughts will eventually lead to loss of control over my behaviour;" Clark & Purdon, 1993, p. 165). The BALCI would therefore benefit from the addition of items tailored specifically for cognitive domains related to other anxiety disorders to better capture the transdiagnostic nature of these concerns (Radomsky, 2022), which may disambiguate losses of control over the different domains. Further, although the BALCI was shown to have good predictive validity for OCD symptoms, its predictive power for other related disorders was not considered, leaving its clinical utility for disorders other than OCD unknown.

Experimental evidence for the role of beliefs about losing control in the development and maintenance of OCD-like behaviours has been demonstrated. For example, it has been shown that experimentally manipulating these beliefs in non-clinical populations leads to increased anxiety-related symptoms such as OCD-like checking (Gagné & Radomsky, 2017), and greater fears of acting on intrusive thoughts (e.g., violent impulses and fear of knives; Gagné & Radomsky, 2020). Further, Tolin and colleagues (2002) found that, compared to anxious and non-anxious controls, failed thought suppression was attributed to negative internal characteristics only among individuals with OCD, suggesting that it may be specific beliefs about loss of control which drive the catastrophic misinterpretation of intrusive thoughts. However, these beliefs (at least about controlling thoughts) are not unique to OCD, with elevated levels observed across anxiety disorders (Obsessive Compulsive Cognitions Working Group, [OCCWG] 2005).

Correlational evidence suggests cognitions related to losing control may be important in anxiety related disorders beyond OCD (Hedley et al., 2001; Spokas et al., 2009; White et al., 2006). However, the role of beliefs about losing control has been examined very little outside the domain of OCD. To the best of this author's knowledge, only two experiments have examined negative beliefs about losing control in social anxiety (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020). Using false feedback, Kelly-Turner and Radomsky (2020) manipulated beliefs about losing control over verbal behaviour just before a social interaction task. Participants who were led to believe that they were at high risk of losing control over their behaviour were significantly more anxious leading up to and perceived themselves to have lost significantly more control in a subsequent social interaction compared to those who were led to

believe they were at low risk. However, there were several methodological issues with this experiment that limit this study's generalizability. The actor in the social situation was instructed to behave in a cool, disinterested fashion to create an ambiguous social situation which the participant could believe they had triggered. This behaviour was intended to generate ambiguity but appears to have created an interaction which was experienced as uncomfortable, regardless of condition. Therefore, though individuals reported more anticipatory anxiety, they did not appear to differ in their anxiety during the social interaction. A follow-up study is warranted to clarify the precise role of beliefs (rather than of an actor's behaviour) on anxiety and distress in a social context.

When considering novel lines of research, combining qualitative and quantitative approaches can provide a deeper understanding of the underlying construct than any single approach alone (Creswell & Plano Clark, 2017; Johnson et al., 2007). Using a mixed methods approach is especially useful in assessing novel belief domains, or in considering these beliefs in new contexts (Greene, 2007). The use of mixed methods allows for the strengths of each approach to supplement and inform one another, with results of qualitative research identifying possible gaps in the theoretical construct of interest and informing scale development. The program of study described herein aimed first to replicate and extend an experimental investigation of beliefs about losing control. Next, we investigated how and why clinical and non-clinical individuals endorse beliefs about losing control qualitatively to identify aspects of these beliefs which may not have been explored or considered previously. The results of that research were used to complement clinical experiences and theoretical underpinnings in order to refine and extend the BALCI (Radomsky & Gagné, 2020).

Study 1 replicated and extended the results from Kelly-Turner and Radomsky (2020), which experimentally manipulated beliefs about losing control to induce social anxiety. The original study examined the effect of negative beliefs about losing control on subjective anxiety leading up to and following a stressful social interaction. Manipulating these beliefs led to greater anxiety leading up to, but not during the social interaction task. This was likely due to the interaction itself, which may have been too challenging or uncomfortable, and may have masked some of the effects of the feedback. Further, the effect of baseline social anxiety was not considered comparing the differential effects of negative (versus positive) feedback about one's

ability to maintain control. Finally, a common symptom of SAD is considerable rumination following a feared social interaction (i.e., post-event processing; Brozovich & Heimberg, 2008; Rachman et al., 2000), which was not assessed in the original study. Therefore, this follow-up study was warranted. The task was modified to better reflect a naturalistic social interaction and to reduce the anxiety generated by the awkwardness of the task. Undergraduate participants completed a bogus oral reading task (see Chapter 2) and were randomly assigned to receive false feedback on their performance (i.e., indicating good or poor control over speech). Next, they completed a structured social interaction with an undergraduate confederate (i.e., a 'getting to know you' task). Participants were asked to rate their anxiety at three time points (at the study outset, following the false feedback and following the social interaction task), their perceived degree of loss of control and their concerns about losing control during the task. Participants and actors rated participant performance during the social interaction. Finally, participants completed a measure of post-event processing 24-hours later. It was hypothesized that 1) participants in the high beliefs about losing control (HLC) condition would be more anxious leading up to and following the social interaction compared to the low beliefs about losing control (LLC) condition; 2) participants in the high beliefs HLC condition would have lower ratings of performance than the LLC condition; 3) participants in the HLC condition would report more concerns about losing control and greater loss of control than in the LLC condition; 4) participants in the HLC condition would report engaging in more post-event processing than in the LLC condition 24-hours following the social interaction task.

Study 2 was a qualitative investigation of people's beliefs about losing control in an unselected sample of undergraduate students. The aim of this study was to explore the commonalities about beliefs about losing control among individuals with and without mental health diagnoses, as it was expected that the fear of losing control, as well as both positive and negative beliefs about losing control exist on a continuum. The study consisted of a semi-structured interview focusing on four broad domains thought to be relevant to beliefs about losing control. The first area under consideration was participants' views about the meaning of 'losing control' and the emotional valence they attached to losses of control (i.e., is it good or bad?). The second domain of interest related to the areas over which they felt they could lose control (i.e., emotions, behaviours, thoughts). Third, participants were asked about the consequences they associate with losses of control (e.g., people would notice, they might not

regain control, etc.). Finally, participants were asked to describe instances of losing control, to explain how they knew they lost control and when and how they regained it. If no such instances were reported, participants were asked to explain how they knew that they have never lost control. Given this was an exploratory investigation into these beliefs, general hypotheses were most appropriate (Braun & Clarke, 2006). It was expected that 1) individuals would report losses of control which could be clustered into domains based on what they felt they could lose control over (e.g., thoughts, emotions, or speech/behaviour), and 2) negative beliefs about losing control would relate to perceived negative consequences (e.g., looking foolish).

Study 3 consisted of a revision and validation of the BALCI (Radomsky & Gagné, 2020). Given that the original development and validation of the BALCI focused primarily on OCD, items may inadequately capture beliefs about losing control in association with other anxiety related disorders (i.e., panic disorder, agoraphobia, and social anxiety disorder). This study aimed to address these limitations by extending the current BALCI item content to better reflect the transdiagnostic nature of beliefs about losing control. This consisted of item development, which focused on generating a pool of items, based on cognitive theories of anxiety, clinical experience, and insights while analyzing interview data from Study 2 to expand the current item pool to include beliefs about losing control more relevant to the concerns of individuals with a broader range of problems (i.e., panic disorder, agoraphobia, and/or SAD). Following item generation, this revised item pool was administered to a sample of undergraduate students to generate an updated and revised scale (i.e., the BALCI-II). It was hypothesized that following item generation, four to five factors would emerge, mapping onto four domains over which people report concerns about losing control (i.e., behaviour, thoughts/mind, emotions and physiology/physical reactions) with a potential fifth more general domain (i.e., ISC domain in original BALCI).

Collectively, these studies are anticipated to inform our definition of beliefs about losing control, the perceived effects of these beliefs and possible consequences of holding negative beliefs about losing control. Given these beliefs have been linked to symptoms in multiple anxiety-related disorders, even among non-clinical individuals (e.g., Gagné & Radomsky, 2020; Gelfand & Radomsky, 2013; Radomsky & Gagné, 2020), extending our knowledge of the phenomenology, measurement, and causal effects of beliefs about losing control promises to

inform how these beliefs fit into existing cognitive models. Ultimately, this program of research is anticipated to help identify possible novel targets of treatment in cognitive behavioural therapies.

CHAPTER 2

Always saying the wrong thing: Negative beliefs about losing control cause symptoms of social anxiety

Social anxiety disorder (SAD) is characterized by significant fear and anxiety across social situations or in contexts where being scrutinized is possible (American Psychiatric Association, 2013). Cognitive theories propose excessively negative appraisals of one's performance in social situations are a key factor underlying the etiology and maintenance of SAD (Clark & Wells, 1995; Rapee & Heimberg, 1997). Identifying and examining cognitive phenomena which appear exaggerated among individuals with SAD is critical to the ongoing development and refinement of clinical interventions (Ouimet et al., 2021; Zvolensky et al., 2001). One common concern among individuals with SAD which has not been studied extensively is the belief that they may lose control over their behaviour, emotions or physiological reactions, and that this failure will lead to judgment and humiliation. This study aims to replicate and extend previous work examining the causative role of these negative beliefs about losing control in the development and maintenance of symptoms of social anxiety in an analogue sample.

Maladaptive beliefs are core to cognitive models of SAD (Clark & Wells, 1995; Rapee & Heimberg, 1997). These cognitive distortions are thought to cluster into different domains such as negative self-perception, high social cost, low perceived emotional control and perceived poor social skills (Hofmann, 2007). During feared social interactions, individuals with SAD selectively attend to internal cues of anxiety and performance (i.e., heightened self-focused attention) which increase and maintain their anxiety over time (Mor & Winquist, 2002; Mulkens et al., 1999; Spurr & Stopa, 2002; Wild et al., 2008). This selective attention for internal cues of negative performance can lead to failures to attend to their conversation partner in social interactions or other deficits in social performance (Alden & Wallace, 1995; Moscovitch & Hofmann, 2007; Rowa et al., 2015; Stopa & Clark, 1993). Despite observed social skills deficits, individuals with SAD regularly overestimate the severity of their social incompetence and underestimate their performance (Ashbaugh et al., 2005; Johns & Peters, 2012; Thompson & Rapee, 2002; Voncken & Bögels, 2008). Once they leave a social situation, they selectively attend to, engage with and recall events and behaviours which reinforce these beliefs and maintain their anxiety (Brozovich & Heimberg, 2008; Rachman et al., 2000). This negative

rumination, termed post-event processing, is considered a hallmark symptom of SAD and has been shown to maintain negative beliefs about oneself, negative memory biases and predict anticipatory anxiety in subsequent social interactions (Brozovich & Heimberg, 2008; Rachman et al., 2000). Understanding how maladaptive beliefs about losing control impact symptoms of losing control such as anticipatory anxiety, self-focused attention and negative post-event processing is critical in establishing their role in causing and maintaining SAD.

Individuals who endorse negative beliefs about control express excessive concerns about the likelihood, meaning, consequences and severity of failure to control their behaviour, emotions and/or physiological responses (Clark & Purdon, 1993; Moulding & Kyrios, 2006; Radomsky & Gagné, 2020). This overestimation of the likelihood and catastrophic consequences of losing control have been identified across cognitive theories of many disorders, including panic (Clark, 1986; Cloitre et al., 1992), obsessive-compulsive disorder (Clark, 2004; Radomsky & Gagné, 2020; Reuven-Magril et al., 2008; Sanavio, 1988), and eating disorders (Fairburn et al., 1986, 2003). In SAD, concerns about losing control over one's emotions have been proposed as a core maintaining factor for anticipatory anxiety leading up to social situations (Hofmann, 2007). However, individuals with social anxiety describe concerns about controlling a host of behaviours and physiological reactions beyond simply their emotions. For example, Hackmann, Surawy and Clark (1998) found that people with SAD report intense intrusive imagery of themselves failing to control their behaviour or reactions, such as dropping a tray of food or trembling uncontrollably in feared social situations.

Few studies have looked at the specific role of beliefs about losing control in SAD (De Castella et al., 2014; Gagné et al., 2020; Hofmann, 2005; Kelly-Turner & Radomsky, 2020; Spokas et al., 2009). Compared to healthy controls, individuals with social anxiety have reported less personal control over social situations and ascribe more control to other people in those situations (Cloitre et al., 1992). These low beliefs about personal control in social situations have been linked to more severe symptoms of social anxiety and worse outcomes following treatment for SAD (Leung & Heimberg, 1996; Rapee, 1997). Clearly, beliefs related to control are important to the experience of fear and anxiety among individuals with SAD. However, the perceived controllability of feared situations, while likely related to beliefs about *losing* control, does not capture the fear that one might not be able to control their own behaviours, emotions or physiology nor does it address perceived consequences of this perceived poor control.

The fear of losing control over emotions in SAD has received more research attention than other domains of control (i.e., behaviour, physiological responses). For example, Spokas, Luterek and Heimberg (2009) found that relative to individuals low in social anxiety, individuals high in social anxiety held more negative beliefs about the consequences of losing control over their emotions, place greater importance on maintaining control and attempt to do so through suppression of their emotions. In turn, poor perceived control over negative emotions predicted higher perceived stress and trait anxiety and lower self-esteem among individuals with SAD after accounting for symptom severity (De Castella et al., 2014) and has been shown to underlie the perceived danger of social situations (Hofmann, 2005). Together, these studies highlight importance of negative beliefs about losing control over emotions in SAD. However, individuals with SAD have reported fears of uncontrollable behaviours and/or physiological reactions in frightening social situations (Hackmann et al., 1998).

To our knowledge, only two experiments have examined the role of beliefs about losing control on social anxiety (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020). Gagné, Radomsky and O'Connor (2020) manipulated beliefs about losing control by providing bogus information about the risks and consequences of losing control over behaviour after consuming alcohol then had participants consume either alcohol, placebo or orange juice (control) before taking part in a social interaction task with an actor. Participants in the alcohol and placebo conditions reported significantly more anticipatory anxiety before the interaction and significantly more post-event processing 24-hours later than in controls. This suggests that beliefs about losing control over behaviours when control is inhibited (or believed to be inhibited) produce symptoms of social anxiety. However, this study focused on alcohol expectancies; while this provides important insight into the impact of negative beliefs about control, individuals with SAD also report feeling out of control of their behaviours and/or physiological reactions in the absence of alcohol.

Kelly-Turner and Radomsky (2020) attempted to assess the effect of negative beliefs about losing control on symptoms of social anxiety more broadly. Using false feedback, they manipulated beliefs about losing control over behaviour and physiological responses prior to a social interaction task. Undergraduate participants completed a bogus cognitive task and received feedback that they were at either high or low risk of losing control. They then took part in a 3-minute, unstructured social interaction task with an actor trained to feign disinterest. Participants

who believed they were at risk of losing control were more anxious before, but not during, the social interaction. They also reported less perceived control over their emotions, behaviours and physiological reactions during the task. These results provided preliminary support for the notion that negative beliefs about control are relevant in anticipatory anxiety and self-focused attention. However, this experiment did not consider how beliefs about losing control would impact post-event processing following a social interaction. Further, the disinterested behaviour of the actor, which was intended to generate anxiety, involved explicitly shifting their affect a few seconds into the interaction from interested to disinterested, regardless of the content of the conversation. This behaviour as described by Kelly-Turner and Radomsky (2020) is an atypical (or unexpected) response for the situation and the authors noted it may have been perceived as rude or artificial, leading to an uncomfortable social interaction unrelated to the manipulation of beliefs about losing control. This may have introduced more confusion and irritation among participants rather than anxiety. A more naturalistic social interaction task would be better suited to assess the impact of beliefs about losing control on anxiety.

The present study is a replication and extension of Kelly-Turner and Radomsky (2020) with more naturalistic behaviour and to assess post-event processing. An analogue sample completed a bogus cognitive task and then received false feedback that they were either at high or low risk of losing control. Experimental manipulation of beliefs related to psychopathology in analogue samples can provide valuable insight into how these phenomena may function among clinical populations (e.g., Abramowitz et al., 2014; Gagné et al., 2018). This research was conducted in the context of the COVID-19 pandemic; therefore, all data collection and interactions were conducted online. Though we did not have any hypotheses related to the format, it did allow us to test the effects of beliefs about losing control in a new (online) social context.

Hypotheses

Manipulation Check. Participants led to believe they were at high risk of losing control (HLC condition) would report a greater belief that they would lose control over their actions than would participants led to believe they were at low risk of losing control (LLC condition).

1. (a) Participants in the HLC condition would report greater anticipatory anxiety leading up to the social interaction task than those in the LLC condition.

(b) Participants in the HLC condition would report greater anxiety during the social interaction task than those in the LLC condition.

2. (a) Participants in the HLC condition would report worse performance after the social interaction task relative to those in the LLC condition.

(b) Participants would rate their performance as significantly worse than actor ratings of performance

3. Participants in the HLC condition would report greater concerns about losing control over their behaviour, emotions, and physiology (e.g., visible blush response) in the social interaction task than those in the LLC condition.

4. Participants in the HLC condition would report greater perceived losses of control over their behaviour, emotions and physiological reactions than those in the LLC condition.

5. Participants in the HLC condition would report more post-event processing than those in the LLC condition.

Method

Participants

Participants (N = 147) were undergraduate students recruited from Concordia University's Psychology Department Participant Pool. Participants received either course credit for their participation or an entry into a cash draw for $250. Twenty-one participants were excluded for having previously met and interacted with the actor, for interruptions in their home during the experiment (e.g., family member entering the room during the tasks), for failing to complete the follow-up questionnaire within 24-hours of receiving the link or for reporting they found the study completely non-credible (i.e., rating of zero on a credibility check, see below). The demographic characteristics of the sample is described in Table 1. The final sample consisted predominantly of women (84.1%). The mean age of participants was 24.7 (SD = 6.8) years. There were no significant differences in age ($t(124) = 1.08$, $p = 0.28$) or gender ($\chi^2(1, 126) = 2.96$, $p = 0.09$) between conditions.

Measures

Demographics. Participants were asked to report basic demographic information (i.e., age, gender, ethnicity, education level).

Manipulation check (Kelly-Turner & Radomsky, 2020). This single-item measure presented immediately following the manipulation asked participants to rate how likely they believe it was that they would behave or react in a way that they could not control when meeting the actor (0 to 100 scale; 0 = *not at likely all*; 100 = *extremely likely*). To mask the purpose of this question, it was included in an 'experiment feedback' questionnaire which purported to evaluate the clarity and quality of the feedback they received following the bogus cognitive task.

Credibility check (Kelly-Turner & Radomsky, 2020). To assess the believability of the deception; participants were asked to rate the degree to which they believed the feedback they received was accurate measure of their self-control on a 0 to 100 scale (0 = *I did not believe at all*; 100 = *I completely believed*).

Ratings of anxiety. Ratings of anxiety were collected at three time points throughout the study: at baseline, just before the social interaction task and immediately following the social interaction task. Prior to the task, participants were asked to rate their anticipatory anxiety. Following the task, they were asked to rate how anxious they felt while interacting with the actor. To mask the purpose of these measures, participants were asked to rate other positively and negatively valanced mood items (e.g., excited, bored).

Ratings about performance during social interaction. The participant and actor rated the participant's performance during the social interaction using an adapted version of Stopa and Clark's (1993) measure of social performance. The measure was adapted to assess concordance between self- and observer-reported performance in the social interaction. Items consist of 16 positive (e.g., confident, relaxed) and six negative (e.g., nervous, uncomfortable) attributes (hands-shaking was removed in the current study as the actor could not see participants' hands over video conference). Ratings were provided on a 0 to 8 scale (*not at all characteristic* to *extremely characteristic*). Internal consistency was excellent for actor ratings ($\alpha = .96$) and participant ratings of performance ($\alpha = .95$).

Ratings of concern over losing control (Kelly-Turner & Radomsky, 2020). Participants were asked to rate the degree to which they felt concerned that they would lose control over their behaviour, emotions and physical reactions (e.g., sweating, heart rate) during the social interaction from 0 (*Not at all concerned*) to 100 (*Very concerned*).

Ratings of perceived loss of control (Kelly-Turner & Radomsky, 2020). Participants were asked to rate the degree to which they felt they lost control over their behaviour, emotions and physical reactions during the social interaction on a series of visual analogue scales with anchors at 0 (*I did not lose control at all*) and 100 (*I completely lost control*).

Social Phobia Inventory (SPIN; Connor et al., 2000). This 17-item measure assesses fear of social situations and has been shown to have strong psychometric properties. It has good internal consistency in clinical (αs = .87 - .94) and non-clinical samples (αs =.82 - .90; Connor et al., 2000). In the present study it showed excellent internal consistency (α = .92)

Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a 21-item self-report measure assessing negative emotional states. The DASS-21 showed excellent internal consistency in the present study (α = .91; Antony et al., 1998; Lovibond & Lovibond, 1995).

Beliefs about Losing Control Inventory (BALCI; Radomsky & Gagné, 2020). The BALCI is a 21-item transdiagnostic measure which assesses the degree to which people hold beliefs about losing control of their thoughts, behaviours, emotions and physiological responses. It has been shown to have good convergent and divergent validity (Radomsky & Gagné, 2020). In the present study, it was found to have excellent internal consistency (α = .94).

Post Event Processing Questionnaire – Revised (PEPQ-R; McEvoy & Kingsep, 2006; adapted from Rachman et al., 2000) The PEPQ-R is a 14-item measure assessing the degree to which participants ruminated about their performance in the social interaction task. The PEPQ-R was administered 24 hours following the completion of the initial study. The PEPQ-R showed good internal consistency in the present study (α = .87).

Procedure

This study was conducted fully online in one live session and one follow-up questionnaire over two days for each participant via video conference. On day one, participants were given the false purpose that this study was assessing self-control and impression management. They were told they would be asked to complete a cognitive task and a "getting to know you" social interaction wherein their conversation partner would be judging their social performance. This study used the same false purpose and experimental manipulation as in Kelly-Turner and Radomsky (2020). All questionnaires were completed via online survey software (i.e., Checkbox) in their browser.

Participants first completed demographics, the DASS-21, the SPIN and provided their baseline rating of anxiety. Next, participants were asked to complete the bogus cognitive self-control task requiring them to read aloud from two texts, alternating between them after every word. They were told that people tend to be poor judges of their own self-control and that this task was an objective measure of control over verbal behaviour. They were instructed to complete this task as quickly and accurately as possible. The experimenter appeared to be keeping track of errors and timing their efforts. The task is sufficiently difficult to produce errors in all participants (see Kelly-Turner & Radomsky (2020) for a detailed description of the task and feedback). Participants were then randomly assigned to either the LLC or the HLC condition. The experimenter only knew which condition participants would be in just prior to giving the feedback. Briefly, false feedback was given that participants had performed *better* than average, indicating *good* control over verbal behaviour and physiological stress responses and they were primed to think of a time they had maintained control over their emotions and subsequent behaviour (i.e., "Think about times you've been nervous either presenting to a group or meeting someone new, you may have noticed you thought something and decided not to say it or you've avoided saying the wrong thing." LLC condition) or *worse* than average performance, indicating *poor* control over verbal behaviour over verbal behaviour and physiological stress responses (i.e., "Think about times you've been nervous either presenting to a group or meeting someone new, you may have noticed you thought something and then blurted it out by accident or accidentally said the wrong thing, or wanted to say something but only realised afterwards that you forgot to say it." HLC condition). Participants then completed the manipulation check and rated anticipatory anxiety.

Next, participants completed a three-minute social interaction over Zoom with a female undergraduate research assistant actor who was unaware of the participants' feedback condition. Participants were told to "get to know the other person, as if you were meeting for the first time for coffee or at a social event." Sessions were video recorded to enhance the anxiogenic nature of the task itself.

After three minutes, the experimenter re-entered the video session, and the actor disconnected to complete their ratings. Participants then completed a final rating of anxiety, and the remaining questionnaires. Finally, participants completed the credibility check.

After 24-hours, participants received a link to complete the PEPQ-R; participants were asked to complete this within the following 24-hour period. Upon completing the PEPQ-R participants were fully debriefed regarding the true purpose of the study and asked to provide informed consent now that they were fully aware of the true study purpose and of the nature of the deception employed; this was in addition to the initial consent provided at the outset of the study.

Actor Behaviour

The research assistant actor was trained to be neutral, limiting both positive and negative feedback and minimizing their non-verbal feedback (e.g., avoiding nodding). She was trained to provide a natural conversational style to maximize external validity and believability of the interaction. She allowed participants to lead the conversation and did not break silences lasting less than 5 seconds. Longer silences were broken by asking a question from a pre-set list (e.g., "What do you do for fun?"). This training was carried out over two one-hour sessions followed by five pilot cases with volunteers from the research lab. After each pilot case, the actor received feedback on her performance and her perceived warmth to verify that the interaction felt natural, and the actor came off as neither too warm nor too cold. This approach was used to maximize the external validity of the interaction rather than a rote script which may have artificially raised the awkwardness of the interaction.

Results

Data screening

Prior to analyses, all outcome variables were assessed for outliers, non-normality and heteroscedasticity. Several univariate outliers were observed on ratings of control variables (i.e., behaviour, emotions, physical reactions) for LLC condition, such that outliers positively skewed the mean. Upon inspection, there was no evidence that these outliers represented invalid data given transformation or removal of outliers can distort the dataset, they were retained untransformed (Osborne & Overbay, 2004). Based on absolute skewness less than three and absolute kurtosis less than ten, there was no evidence of non-normality in any outcome variables (Kline, 2020). Further, variance was acceptably homoscedastic for all outcome variables (variance ratio between conditions < 2; Kline, 2009). All data points were within acceptable limits of normality and homoscedasticity.

General Psychopathology

To assess whether the conditions differed on general psychopathology, independent samples *t*-tests were conducted on SPIN, BALCI and DASS-21 scores. As expected from random assignment, conditions did not differ on measures of social anxiety, as measured by the SPIN ($t(124) = 0.12$ $p = .91$), pre-existing beliefs about losing control, as measured by the BALCI ($t(124) = 1.32$, $p = .19$), nor on a general measure of depressive and anxious symptoms, as indicated by the DASS-21 ($t(124) = 0.94$, $p = .35$).

Manipulation check

To assess whether the manipulation was successful, an independent samples *t*-test was conducted on the manipulation check question. As expected, following the 'self-control' task, individuals in the HLC condition ($M = 51.78$, $SD = 25.89$) reported significantly greater beliefs that they may lose control over their emotions, behaviour or physiological reactions than those in the LLC condition ($M = 21.20$, $SD = 21.63$; $t(124) = 7.22$, $p < .001$, $d = 1.28$).

Credibility check

An independent samples *t*-test confirmed there were no differences between the conditions on the credibility of the manipulation ($t(124) = .30$, $p = .77$). Overall, mean credibility was moderately high for the believability of the feedback ($M = 64.53$, $SD = 26.17$).

Self-reported anxiety

To assess anxiety in anticipation of and during the social interaction task, a series of independent samples *t*-tests were conducted (see Figure 1; see Table 2 for means and standard

deviations). At baseline, the LLC and HLC groups did not differ significantly in anxiety ($t(124) = 0.35$, $p = .73$). As predicted in hypothesis 1a, after receiving feedback about their risk of losing control, but just before the social interaction task, individuals in the HLC condition reported significantly more subjective anxiety than those in the LLC condition ($t(124) = 4.51$, $p < .001$, $d = 0.80$). However, contrary to hypothesis 1b, following the social interaction task, ratings of anxiety did not differ between conditions ($t(124) = 0.99$, $p = .33$, $d = 0.18$).

Ratings of performance

To assess differences in perceived and observed social performance, a 2×2 (rating source × condition) repeated measures ANOVA was conducted on mean performance ratings. As predicted in hypothesis 2b, a significant main effect of rating source was found such that observed performance ratings were significantly more positive than self-reported performance ($F(1, 124) = 100.67$, $p < .001$, partial $\eta^2 = .45$). Contrary to hypothesis 2a, there was no main effect of condition on performance. Though individuals in the HLC condition were rated as having worse performance in the social interaction task regardless of rating source, This effect was not significant ($F(1, 124) = 3.13$, $p = .08$, partial $\eta^2 = .025$). There was a significant rating source × condition interaction ($F(1, 124) = 6.75$, $p = .01$, partial $\eta^2 = .052$). Follow-up analysis revealed that the simple effect of condition was significant for self-reported ratings of performance such that participants in the HLC condition reported significantly worse performance than those in the LLC condition ($t(124) = 2.71$, $p = .008$, $d = 0.48$). There were no differences in actor rated performance ($t(124) = 0.67$, $p = .95$, $d = 0.01$; see Table 3 for the mean performance ratings).

Ratings of concern over losing control

To assess whether participants differed in their concerns about losing control over their behaviour, emotions and physiology in the social interaction task, a one-way multivariate ANOVA (MANOVA) was conducted to check for an overall effect of condition on concerns about losing control. There was a trend towards individuals in the HLC condition reporting greater concerns about losing control overall than those in the LLC condition ($F(3, 122) = 2.34$, $p = .077$, partial $\eta^2 = .054$). Though these results were non-significant, a series of exploratory independent samples *t*-tests was conducted on participants' concerns about losing control over behaviour, emotions and physiological reactions during the social interaction task (see Figure 2).

These results revealed moderate effect sizes such that individuals in the HLC condition reported greater concerns about losing control over their behaviour ($t(124) = 2.37$, $p = .019$, $d = 0.42$), their emotions ($t(124) = 2.32$, $p = .022$, $d = 0.41$) and their physiological reactions ($t(126) = 2.30$, $p = .023$, $d = 0.41$), suggesting changes in beliefs about losing control may have increased these concerns in the HLC condition. However, given the non-significant omnibus test, these results should be interpreted with caution.

Ratings of control

A one-way MANOVA was conducted to assess whether participants differed in the degree to which they perceived they lost control. The overall effect of condition was significant such that individuals in the HLC condition reported greater perceived losses of control in general than LLC condition participants ($F(3, 122) = 2.92$, $p = .037$, partial $\eta^2 = .067$). A series of follow-up independent samples *t*-tests were conducted on participants' perceived losses of control over their behaviour, emotions and physiological reactions during the social interaction task (see Figure 2). Individuals in the HLC condition reported significantly greater perceived losses of control over their behaviour ($t(124) = 2.26$, $p = .026$, $d = 0.40$) and their physiological reactions ($t(124) = 2.69$, $p = .008$, $d = 0.48$) compared to those in the LLC condition. However, pairwise comparisons revealed no significant difference between conditions on perceived losses of control over their emotions ($t(124) = 1.53$, $p = .13$, $d = 0.27$).

Post-event Processing

To assess the degree of post-event processing following the social interaction task, an independent samples *t*-tests was conducted (see Table 2). Not all participants completed the post-event processing questionnaire and any participants who did not complete the questionnaire within 24 hours of receiving the follow-up link were excluded from this analysis. As such only 98 participants were included in this analysis. As predicted in hypothesis 5, individuals in the HLC condition ($M = 41.64$, $SD = 18.79$) reported significantly more post-event processing 24 hours following the social interaction task than did those in the LLC condition ($M = 24.85$, $SD = 12.48$; $t(96) = 5.21$, $p < .001$, $d = 1.05$).

Discussion

As predicted, the results of this experiment show that holding negative beliefs about losing control led to increased social anxiety. When led to believe they were at high (versus low)

risk of losing control, participants experienced more anticipatory anxiety, greater perceived losses of control, rated their performance as worse despite no differences in actor-rated performance and engaged in more post-event processing the following day. These results are consistent with cognitive models of SAD (Clark & Wells, 1995; Rapee & Heimberg, 1997) and previous research on negative beliefs about losing control in SAD (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020). Together these results provide compelling evidence that beliefs about losing control are relevant in the aetiology and maintenance of symptoms of SAD.

Kelly-Turner and Radomsky (2020) found that individuals in the HLC and LLC conditions did not differ in level of anxiety during the social interaction task, with anxiety levels of the LLC condition rising to the same level as the HLC condition. The authors attributed this to the anxiogenic nature of the actor's behaviour, suggesting it may have overpowered the effect of the manipulation. The present study addressed this by using a naturalistic interaction with a neutral to warm actor, which has been shown to be sufficient to induce anxiety both in person and online (Huneke et al., 2021; Mellings & Alden, 2000; Shalom et al., 2015). Still, we observed no differences in anxiety during the task, with anxiety falling in the HLC condition in the present study despite a more naturalistic interaction. Given that both studies found that anxiety appeared to align with actor behaviour (i.e., a warmer, natural actor produced less anxiety than a colder, disinterested actor regardless of condition), we suspect that degree of anxiety experienced in the interaction itself was more influenced by the behaviour of their partner than by participants' self-perceived internal states. There is some evidence in the attention literature to support this, with low-socially anxious individuals being less sensitive to internal cues even after primes to shift their attention internally relative to highly socially anxious samples (Mellings & Alden, 2000; Papageorgiou & Wells, 2002). However, since participants did not provide feedback on the actor's behaviour in the present study, it is difficult to say how much they were attending to their partner's social cues versus their internal states. It would be interesting to examine the effect of this type of false feedback on perceptions of the partner among both socially anxious and healthy controls both in terms of degree of anxiety and perception of the partner as friendly/unfriendly. Despite this, the manipulation appears to have impacted other cognitive processes relevant to SAD.

Perhaps the most novel finding in the present study was that negative post-event processing was significantly higher in the HLC condition than the LLC condition despite conditions reporting similar anxiety levels during the social interaction itself. This suggests that although participants in both conditions experienced little anxiety while talking with the actor and reported similar levels of performance, the way those in the HLC encoded and processed the interaction led to increased post-event processing. The mean level of post-event processing in the HLC condition is consistent with scores observed in highly socially anxious samples (Fehm et al., 2008; Perera et al., 2016; Rachman et al., 2000) While post-event processing is not unique to SAD (Perera et al., 2016), this does suggest that we produced symptoms like those we would expect among individuals high in social anxiety. Given the similar PEPQ-R scores and the well-established link between SAD and post-event processing (Brozovich & Heimberg, 2008; Rachman et al., 2000), this result provides compelling evidence that negative beliefs about losing control are relevant to the etiology and maintenance of social anxiety.

There are at least two possible explanations for this relationship. Previous research has shown that ambiguous social situations, such as conversations with an unknown social partner, are more difficult than structured interactions for individuals high in social anxiety (Voncken & Bögels, 2008). It seems likely that inducing negative beliefs about losing control created a more ambiguous social situation wherein participants could interpret normal or neutral behaviours, such as stumbling over words or interrupting their conversation partner, as losses of control. That ambiguity would then provide fertile soil for selective attention for perceived (or imagined) failures to maintain control and negative memory biases, which we would then expect to further increase anticipatory anxiety for future interactions.

Alternatively, believing they were partially out of control may have presented a source of uncertainty about how they acted or recalled their behaviour. Intolerance of uncertainty is experienced in clinical and non-clinical populations and has been linked to negative post-event processing in SAD (McEvoy et al., 2010; McEvoy & Mahoney, 2013) and memory distrust has been linked with a desire to mentally check (Alcolado & Radomsky, 2011). Manipulating beliefs about losing control may have made participants distrust their own ability to maintain control. This may have driven them to mentally check and review their behaviour following the social interaction which has been linked to both negative post-event processing and less certainty in

recall, ultimately undermining their confidence in their memory of their behaviour (Radomsky et al., 2006; van den Hout & Kindt, 2004). The present study did not measure memory confidence or perceived ambiguity of the situation, so how beliefs about losing control lead to post-event processing remains a question for future studies.

Our results are consistent with research on self-focused attention in SAD. When individuals are led to believe they are experiencing increases in arousal they underestimate their social performance, experience greater anxiety and overestimate their *observable* arousal irrespective of differential changes in arousal (Mulkens et al., 1999; Wild et al., 2008). Though our study did not measure self-focused attention directly, greater concerns about losing control over behaviour and physiological arousal and significantly greater subjective losses of control in the HLC condition despite no observable performance differences suggest greater self-focused attention and a bias for overestimating the visibility of their losses of control relative to the LLC condition. Therefore, believing one is at risk of losing control may lead to the some of increases in self-focused attention observed in social anxiety disorder.

The present study has implications for cognitive theories of SAD. Cognitive theories propose those with SAD assume they will fail to control their anxiety and experience abject humiliation as a consequence (i.e., concern about losing control over their emotions, Clark & Wells, 1995; Hofmann, 2007). Despite the non-significant MANOVA for overall concerns about losing control, the moderate effect sizes in the post hoc tests of individual domains suggest that the fear of losing control in SAD is not limited to concerns about controlling anxiety. The manipulation made no mention of emotional control, focusing instead on 'failures' to control behaviour (e.g., blurting something out) and physiology (e.g., trembling, sweating) when nervous meeting someone new. Despite this, individuals in the HLC condition reported greater concerns about losing control over their behaviour, emotions, and physiological reactions respectively during the social interaction task. This suggests negative beliefs about losing control over emotions proposed by cognitive theories of SAD may extend to concerns over losses of control of behaviour and physiological reactions. This is consistent with self-presentation theories of social anxiety which emphasize one's perceived inability to make a positive impression as a core factor in the experience of anxiety (e.g., Schlenker & Leary, 1982).

The significant interaction between rating source and condition such that performance deficits were only identified by self-report suggests that manipulating beliefs about losing control may have undermined participants' self-perceived ability to control their physiological responses and behaviour, which may have led to doubts in their self-perceived social competence relative to what would be seen as typical or normal. This is consistent with research on social interaction tasks among socially anxious individuals, who even in the presence of observed performance deficits, still underestimate their social competence when led to believe they will not measure up to the average level of performance (Moscovitch & Hofmann, 2007). However, it is hard to know whether these concerns were prospective, or retrospective given we only assessed perceived performance following the interaction. Further, we cannot comment about the persistence of this perceived skill deficit. It would be interesting in a future study which manipulates beliefs about losing control to measure participants' anticipated performance prior to the social interaction task and again 24-hours later to better assess the relationship between perceived social competence, social anxiety, and post-event processing in greater detail.

Despite these interesting findings, the present study had some important limitations to be highlighted. First, though participants in the HLC condition reported greater concern about losing control over their emotions, physiology, and behaviours, they only perceived losses of control over their behaviour and physiology. This may be because the false feedback described what a behavioural and physiological loss would look like (i.e., blurting something out, sweating, blushing), but did not provide a specific example of an emotional loss of control. The present study was not designed to assess these nuances between domains of control (e.g., emotions, behaviour, physiology) as it aimed to support their importance in SAD more generally. A future study which either manipulates different domains individually or operationalizes loss of emotional control to participants in a way that is both visible and distinct from behaviour/physiology would be ideal, perhaps by describing becoming anxious and being unable to calm down and might better elucidate the nuances of these different domains.

Further, it did not include a neutral condition, making it difficult to state whether positive feedback about control reduced symptoms of social anxiety or negative feedback increased them. However, fears of losing control are commonly held, even among the non-clinical population (Chrisler, 2008; Friedrichsen & Milberg, 2006), so even assuming the differences observed are

due to a reduction in beliefs about losing control, it supports their relevance in the experience of social anxiety. If reducing negative beliefs about losing control reduces anxiety and post-event processing, it would imply that targeting these beliefs in treatment could reduce in anticipatory anxiety in future social interactions. Still, a future study including a neutral condition would more clearly delineate the direction of effect of the manipulation.

Another limitation is that the manipulation focuses primarily on the likelihood of losing control. This study manipulated likelihood, but not perceived consequences of losing control (e.g., do something horrible, never get control back). A future study which emphasizes perceived consequences of losing control could provide a more nuanced understanding of how these beliefs cause and maintain anxiety.

Finally, although experimental work with analogue samples provides valuable insight into the cognitive mechanisms which underlie symptoms observed in disorders such as SAD (e.g., Abramowitz et al., 2014; Gagné et al., 2018), they are not a replacement for work with clinical samples. Further, given that beliefs about losing control and post-event processing are thought to be relevant in anxiety-related disorders more transdiagnostically (e.g., Perera et al., 2016), an important future direction for this research would be to examine the specificity of these beliefs in social anxiety, perhaps by comparing nature of these beliefs and their impact on symptoms across anxiety related disorders.

Despite these limitations, the present study provides insight into the role of this novel belief domain in SAD. Understanding how maladaptive beliefs impact symptoms of anxiety disorders can help inform targets for treatment and is essential in improving existing interventions. Existing treatments for SAD encourage attentional retraining to teach people with SAD to focus on external cues over their internal states. Attentional retraining could be extended to include shifting attention between internal cues of loss of control and others' reactions to test the frequency or visibility of imagined losses of control. Conversely, if we assume that the LLC condition increased perceived control, then interventions which increase perceived control such as fostering confidence in social skills or grounding exercises may be indicated to increase mastery in highly distressing social situations. In either case, investigating how these beliefs function among individuals with SAD is an important next step to developing interventions which target beliefs about losing control in social anxiety disorder.

Table 1
Demographics by condition

Demographics	LLC	HLC
Age [*M* (*SD*)]	25.4 (7.5)	24.0 (6.0)
Gender (% women)	78.8	90.0
Ethnicity (%)		
Caucasian	62.1	60.0
Asian	15.1	10.0
Latinx	7.6	6.7
Middle Eastern	6.1	10.0
African/Caribbean	1.5	8.3
Other	7.6	5.0
Marital Status (%)		
Single	80.3	85.0
Married/Common Law	16.7	13.3
Divorced/Separated	3.0	1.7
Education (%)		
Secondary school	19.7	10.0
College degree	30.3	41.7
Undergraduate degree	45.5	45.0
Graduate degree	4.5	3.3
General Psychopathology [*M* (*SD*)]		
DASS-21	27.52 (18.55)	30.77 (20.27)
SPIN	21.35 (13.35)	21.62 (12.63)
BALCI	21.76 (14.98)	25.41 (16.10)

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control.

Table 2

Means and standard deviations of subjective ratings of anxiety, post-event processing and control measures

	LLC		HLC			
	M	*SD*	*M*	*SD*	*t*	*d*
Anxiety						
Baseline	43.80	28.00	45.55	27.48	0.35	0.06
Preceding social interaction task	31.35	24.48	51.58	25.85	4.51**	0.80
During social interaction task	36.58	29.24	41.70	28.93	0.99	0.17
PEPQ-R ratings (24-hours post task)	24.85	12.48	41.64	18.79	5.21**	1.05
Ratings of concern over losing control						
Behaviour	24.85	24.43	36.18	29.19	2.37*	0.42
Emotions	11.83	19.08	21.17	25.83	2.32*	0.41
Physiological responses	22.35	26.08	33.47	28.22	2.30*	0.41
Ratings of loss of control						
Behaviour	14.11	18.95	22.00	20.24	2.26*	0.40
Emotions	11.61	20.38	17.23	20.76	1.53	0.27
Physiological responses	20.17	24.55	32.72	27.86	2.69*	0.48

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control. PEPQ = Post Event Processing Questionnaire – Revised. For PEPQ-R, $N = 98$ (49 per condition) due to participants failing to complete the follow-up questionnaire. $^{*}p < .05$ $^{**}p < .01$

Table 3

Ratings of social performance during social interaction task by rating source

	LLC		HLC			
	M	*SD*	*M*	*SD*	*t*	*d*
Actor ratings	136.77	24.60	136.48	23.99	0.07	0.01
Self-report ratings	117.74	26.43	104.15	29.81	2.71**	0.48

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control. $^{*}p < .05$ $^{**}p < .01$

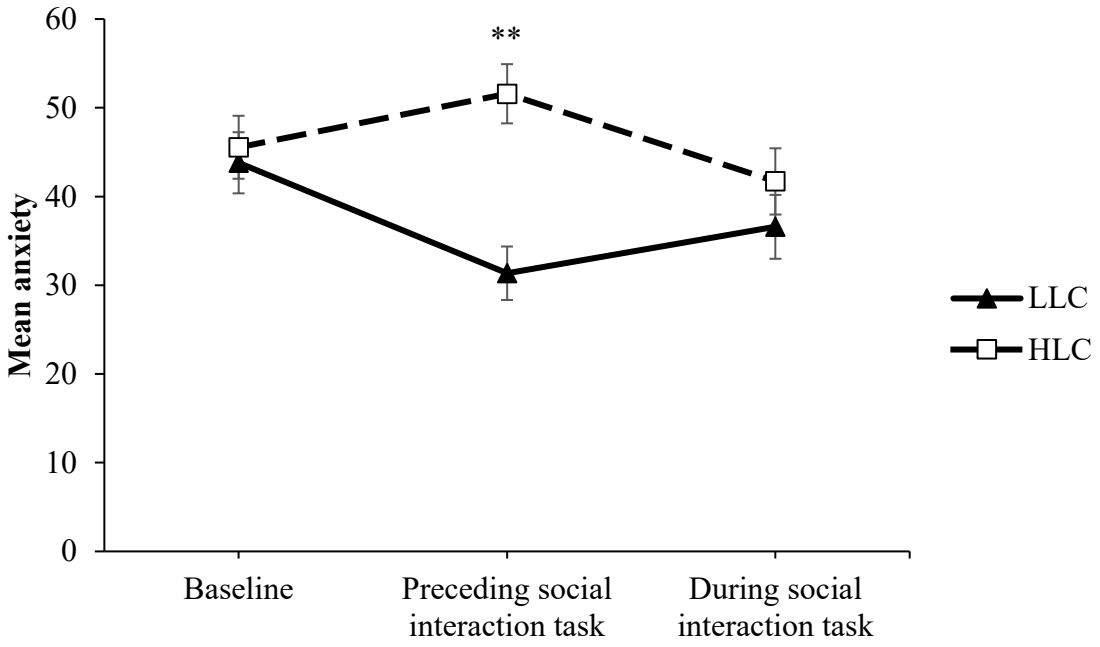

Figure 1 Mean ratings of anxiety by condition.

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control.

$^{**}p < .01$

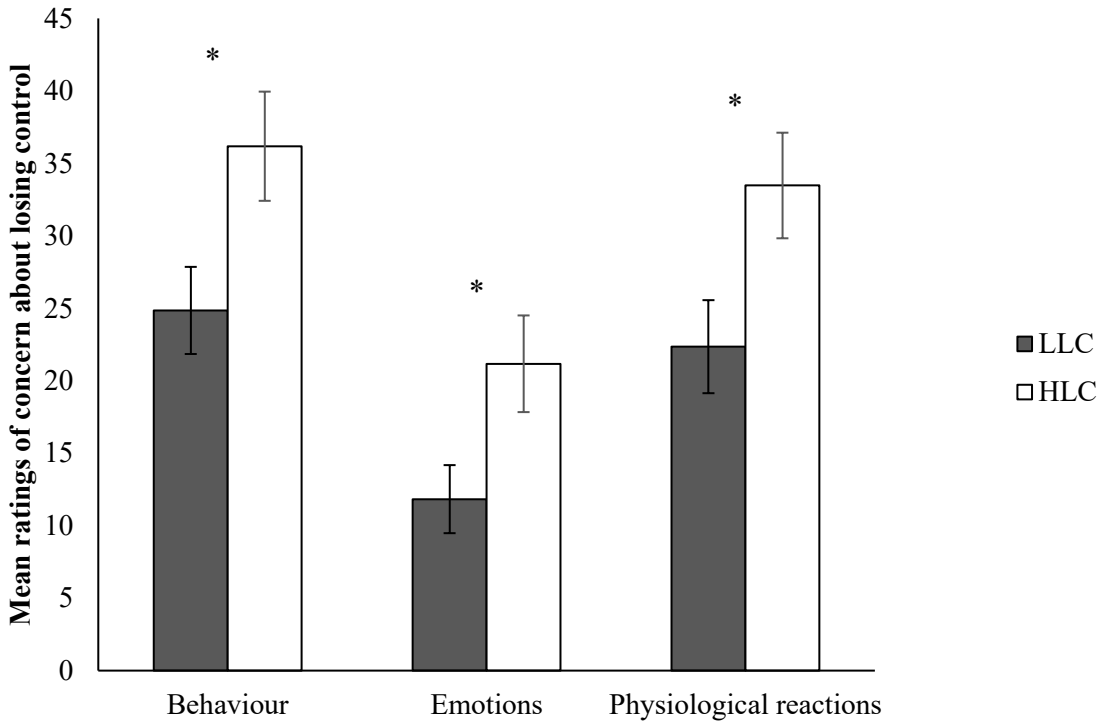

Figure 2 Mean ratings of the amount of concern about losing control over different domains during the social interaction task by condition.

Note. HLC = high beliefs about losing control. LLC = low beliefs about losing control. *$p < .05$

CHAPTER 3

Bridge

Though beliefs about losing control were initially thought to be relevant primarily in OCD (Clark & Purdon, 1993; Gagné & Radomsky, 2017; Moulding & Kyrios, 2006), recent theoretical work has suggested they may be relevant much more broadly (Radomsky, 2022). Initial experimental (see Chapter 2; Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022) and correlational (De Castella et al., 2014; Hofmann, 2005; Spokas et al., 2009) work has supported the relevance of negative beliefs about losing control in social anxiety, especially in social situations perceived as risky or hostile (Rapee, 1997). However, individuals with social anxiety disorder experience distress and fear related to perceived poor control over their anxiety and social behaviour in relatively benign social situations (Mobini et al., 2013; Stopa & Clark, 2000; Taylor & Alden, 2005). To the best of this author's knowledge, no experimental work has examined how fears of losing control over behaviour, emotions, and physiology impact symptoms of social anxiety in benign social interactions, nor whether those beliefs impact post-event processing.

Study 1 was developed with the intention of extending and replicating experimental work showing that manipulating negative beliefs about the likelihood and visibility of losses of control impact symptoms of social anxiety. The study aimed to replicate the anxiogenic effects of fears of losing control prior to a social interaction task and to extend findings to assess the impact of negative beliefs on rumination 24-hours later. Results from an undergraduate sample showed that greater fear of losing control leads to greater anxiety prior to a novel social interaction, more doubt about one's performance when meeting someone new and greater rumination 24-hours later.

Study 1 supports the hypothesis that beliefs about losing control are relevant in the experience of symptoms of SAD, and that concerns about losing control over behaviour, in addition to concerns about emotional losses, are implicated in the maintenance of SAD. An additional novel, albeit anecdotal, finding which emerged from Study 1 was that the belief that losing control is not only possible, but relatively likely is prevalent among undergraduate students in an unselected sample. The false feedback provided to participants in Study 1 asked them to reflect on times when they had lost control and suggested that these losses were either

likely (HLC condition), or unlikely (LLC condition) to recur. Although the feedback was structured to be sufficiently vague that participants would be able to relate, I was struck by the readiness with which participants accepted that they had lost control and would again. Understanding how people experience common cognitive phenomena can be invaluable in understanding their pathological counterparts and therefore investigation into laypeople's experiences is an important next step in understanding beliefs about losing control and designing interventions (Chiang & Purdon, 2023).

Recent theoretical work has proposed that beliefs about losing control are common not only among individuals with psychopathology, but far more broadly as well (Radomsky, 2022). Understanding how beliefs overlap between and within clinical and non-clinical samples can provide valuable insight and help to foster novel research questions and improve clinical interventions (Egan et al., 2011; Freeston et al., 1991, 1992; Radomsky et al., 2014).

Recent experimental research conducted with undergraduate students found that increases in negative beliefs about losing control over thoughts increased checking behaviour and caution in the presence of objects perceived as dangerous (e.g., kitchen knives; Gagné & Radomsky, 2020). However, the manipulations in these experiments were predicated on participants already experiencing their intrusive thoughts as out of control, allowing the experimenter to provide false feedback that participants' intrusions would be predictive of future losses. While we know from other research that intrusive thoughts are common, benign phenomena (e.g., Rachman & de Silva, 1978), research is needed to assess the degree to which the same claims about appraisals related to perceived losses of control are warranted.

Evidence supporting this assertion would reinforce the notion that the misappraisal of behaviour, thoughts or emotions as catastrophically out of control play a role in the maintenance and etiology of anxiety-related disorders (e.g., Clark, 1986; Hofmann, 2007; OCCWG, 2005; Rachman, 1997, 1998). Further, understanding commonalities among clinical and non-clinical accounts of losing control could inform cognitive interventions. Current best practice in the treatment of OCD includes reappraising intrusive thoughts as normal, uncontrollable cognitive phenomena which everyone experiences (e.g., Bream et al., 2017; Rachman, 2003; Salkovskis, 2007). If the experience of losing control is similarly ubiquitous, it would suggest that a similar approach could be effective. Though there is evidence that beliefs about losing control are highly

relevant within anxiety-related disorders, given the relative novelty of the belief domain and it's apparent prevalence within unselected samples such as undergraduate students (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020), further investigation into the nature of these common beliefs about losing control are warranted. Therefore, qualitative research exploring commonalities among personal accounts of losing control would help expand our understanding of beliefs about losing control and inform assessment and intervention.

CHAPTER 4

At the Mercy of Myself: A Thematic Analysis of Beliefs about Losing Control

Understanding how constructs related to control impact our mental health has long been discussed in psychology (Rotter, 1954, 1966); and how we perceive our ability to control ourselves and our world has had significant influence across domains of clinical psychology (Shapiro et al., 1996). There is good reason for this, as control has been linked with self-efficacy, optimism, and coping with stress (Everly & Lating, 2019). However, one relatively neglected consideration of control is that the *loss* of control is a negative, undesirable state. This idea, that one might lose control over oneself with catastrophic consequences, is the focus of the present thematic analysis.

The fear or belief that losing control is probable and leads to negative outcomes is a common and often discussed concern in the clinic (Radomsky, 2022). Broadly, negative beliefs about losing control refer to the catastrophic misinterpretation of the likelihood, consequences and meaning individuals ascribe to a perceived lapse in control (Clark & Purdon, 1993; Moulding & Kyrios, 2006). These negative beliefs about losing control are common features in cognitive theories of several disorders including Panic Disorder (Clark, 1986; Cloitre et al., 1992), Obsessive-Compulsive Disorder (OCD; Clark, 2004; Radomsky & Gagné, 2019; Reuven-Magril et al., 2008), and Social Anxiety Disorder (SAD; Clark & Wells, 1995; Hofmann, 2007; Kelly-Turner & Radomsky, 2022). Despite its apparent prevalence across disorders, relatively little research has examined the fear of losing control.

There is good evidence that beliefs about losing control are a driving force in behavioural symptoms of several disorders. For example, individuals with OCD attempt to control their intrusive thoughts using a variety of strategies including compulsions and thought stopping (Freeston & Ladouceur, 1997). Further, clinical observations suggest individuals with OCD avoid feared stimuli (e.g., sharp knives, scissors) because they fear they will eventually act on unwanted violent impulses, despite having no desire to do so (e.g., Rachman & Hodgson, 1980). Among individuals with panic disorder, fewer symptoms are reported during panic-induction tasks (i.e., carbon dioxide inhalation) when they believe they have control over the stimulus (e.g., Rapee et al., 1986). Perceived control over one's emotions has been shown to mediate the relationship between anxiety sensitivity and agoraphobia, above and beyond the perceived

controllability of the situation (White et al., 2006). Finally, individuals with SAD frequently report intrusive imagery in which they feel humiliated by failing to control outbursts or blunders; suggesting an assumption that a loss of control will be socially catastrophic (Hackmann et al., 1998). It is unclear from this research whether the belief that losing control is possible, likely, or catastrophic represents the problematic misappraisal as little has been done to consider how losing control is understood in the general population.

Several experimental studies have found that manipulating beliefs about losing control can induce behaviour similar to symptoms of OCD and SAD in non-clinical samples, suggesting these beliefs may be common (Gagné & Radomsky, 2017, 2020; Kelly-Turner & Radomsky, 2020, 2022). Undergraduates who were led to believe they were at increased risk of losing control over their intrusive thoughts demonstrated increased checking behaviour and self-rated dangerousness relative to those who believed they had control (Gagné & Radomsky, 2017, 2020). Similarly, undergraduates who were led to believe they were at greater risk of losing control over their behaviours and emotions in social situations reported more anxiety preceding a novel social interaction & reported more rumination 24-hours later (Kelly-Turner & Radomsky, 2020, 2022). These studies pre-suppose that non-clinical samples would have had experiences with losing control and that they might be susceptible to perceiving those experiences negatively. This assumption raises several interesting questions. Namely, what beliefs about losing control are present in the general population and how can they help us understand clinical concepts of losing control?

Analogue samples can offer considerable insight into the etiology and maintenance of clinical phenomenology (e.g., Abramowitz et al., 2014). Clinical phenomena exist on a continuum and cognitive behavioural theory is inherently dimensional, making interviews with unselected samples ideally suited for exploring novel belief domains. Normative beliefs have informed our understanding of their maladaptive equivalents (e.g., Dudley & Over, 2003; Purdon & Clark, 1993; Shafran et al., 2002). For example, normative worry is delineated from clinical presentations due to its duration, intensity, and perceived distress (Hazlett-Stevens & Craske, 2003). This supports the importance of metacognitive beliefs about worry (i.e., positive and negative beliefs about worry) as critical in Generalized Anxiety Disorder (GAD) rather than the worry itself (Wells, 1999). Similarly, understanding the nature of normative obsessions (e.g.,

Rachman & de Silva, 1978; Radomsky et al., 2014) has been invaluable in supporting the notion that the appraisals that individuals with OCD make about the presence, frequency and intensity of these thoughts lead them to transform from relatively benign intrusions into persistent and pervasive obsessions (Rachman, 1997, 1998). Given the emphasis placed on control by psychologists and the public alike, it seems likely that the fear of losing control reported in many anxiety-related disorders represents a similar misappraisal of common experiences (e.g., an errant thought, an angry outburst). Therefore, an investigation into the role of beliefs about losing control, independent of clinical diagnosis is warranted.

Although beliefs about losing control have been linked with psychopathology both experimentally and psychometrically in unselected samples (Gagné et al., 2020; Gagné & Radomsky, 2017, 2020; Kelly-Turner & Radomsky, 2020, 2022; Radomsky & Gagné, 2019), that research presupposes that beliefs about losing control are harmful. Therefore, a study examining the content and characteristics which are common among the general population is justified. Investigating people's personal definitions of their own and others' losses of control is ideally suited to a qualitative approach. Reflexive thematic analysis as described by Braun and Clarke (2006, 2019, 2023) is well suited for this purpose. The present study aimed to examine how individuals from an unselected sample would define losing control and its consequences. A thematic analysis of semi-structured interviews was conducted to answer two broad research questions: 1) How is losing control defined by laypeople? And 2) What consequences or outcomes do people most commonly associate with losing control? As this investigation was largely exploratory, themes were initially developed inductively, but were ultimately contextualized using a cognitive-behavioural framework. We highlight losses of control over thoughts, behaviours, and emotions, and how these losses translated into real and imagined consequences for participants.

Methods

Participants.

Twenty-one undergraduate students were recruited online from the participant pool of a University in Montreal, Canada. Participants received either course credit or 15$/hour for their participation. Approximately half of participants identified as women (11/21). The mean age of participants was 25 (range 19-56) years. Participants were Caucasian (43%), Asian (38%) and

Middle Eastern (19%). Participants were assessed for psychopathology by the first author using the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1997). Nine participants met criteria for one or more diagnosis/es, see Table 4. After collecting data from the first 15 participants, initial coding and analysis suggested that sufficient detail was collected to consider saturation. Given the richness of the data collected in these interviews, the narrow scope of the research question, and the relative prevalence of anxiety-related disorders in this sample, 21 participants was sufficient to achieve a deep analysis of their fears of losing control (Boddy, 2016; Braun & Clarke, 2021; Clarke et al., 2015; Ness & Fusch, 2015).

Measures.

Semi-Structured Interview on Losing Control (SSILC)

The SSILC focused on four broad content domains: the first was participants' views about the meaning of control and losing control (e.g., "What does it mean to lose control?"; "How would you describe a person with perfect control?") and their assessment of whether losses of control were positive, negative, or neutral. Next, participants were asked to describe the types of things they believed they might lose control over. Third, they were asked about what they believed would be the consequences of losing control (e.g., "What happens when you lose control?"). Finally, they were asked to describe a time when they felt they had lost control (e.g., "Can you think of a time when you lost control? What happened?"). The SSILC was structured to maximize consistency across participants while still allowing for individual narratives to emerge (Gillham, 2005). It consisted of a combination of open-ended questions, prompts and follow-ups as appropriate (e.g., for overly simple or vague responses, interviewees were asked to elaborate further, "What do you mean by that?"). The interview was structured such that if at any point, participants stated that they had never lost control, or that they did not believe they could lose control, it focused instead on how they had arrived at this belief. A copy of the SSILC is available from the second author upon request.

Mini International Neuropsychiatric Interview, 7th edition (MINI; Sheehan, 2015)

The MINI is a structured diagnostic assessment tool designed to assess for the presence of mental disorders based on the DSM-5 criteria. Consisting predominantly of a series of forced choice questions, it is designed to be rapidly deployed by clinicians and non-clinicians. For

current anxiety-related disorders, the MINI has been shown to have good to excellent concordance with the SCID (Cohen's $\kappa > 0.50$), good to excellent inter rater reliability (κ's = 0.88 - 1.00) and good reliability (κ's = 0.63 - 0.85) despite the brief administration time (Sheehan et al., 1997).

Procedure

All data were collected with the approval of our institution's Human Research Ethics Committee and participants provided informed consent prior to their participation. Participants were recruited to take part in a study titled "A Qualitative Investigation of Beliefs about Losing Control." They were interviewed by the first author via an online video conference link. Participants were told that the interview's purpose was to better understand their perspective on losing control and that there were no right or wrong answers. They were informed that both MINI and SSILC were video recorded and that selected, anonymized quotes from the SSILC would be included to contextualize themes in the final publication.

Upon joining the session, participants provided informed consent and were administered the MINI. Next, they completed the SSILC. Interviews ranged from 48 to 95 (M = 68; SD = 10.8) minutes in length. The SSILC was initially transcribed using the automated transcription software package, nVivo transcribe. Transcripts were verified against the original audio to correct errors and clarify sections of the interview where the software was inaccurate.

Analysis

Data-analytic strategies

Given the narrow, phenomenological focus of the research question, analysis was based in reflexive thematic analysis as described by Braun and Clarke (2006, 2019, 2023). Our approach was grounded in a cognitive-behavioural understanding of the experience of unwanted and unexplained sensations, behaviours and emotions (i.e., that it is one's catastrophic misappraisal those experiences which informs psychopathology). To that end, theme development was focused on the semantic content of participants' constructed meaning of losing control. This approach was aligned with our research aim of better describing the underlying phenomena (i.e., Smith & Osborn, 2015) and was informed by the understanding that we were applying our framework upon those descriptions to construct themes which situated those

experiences within cognitive theory. This approach relied on a reflexive exploration and analysis of the transcripts to identify what aspects of behaviour, thoughts and emotions were attributed to losing control and what links we identified between those attributions and a cognitive-behavioural understanding of those appraisals.

Our analysis was initially focused on participants' direct responses to interview questions. Codes were first developed *in vivo* (i.e., codes were generated based on participants' own words) on a line-by-line basis by the first author, a doctoral candidate in clinical psychology, under the guidance and supervision of the second author, a clinical psychologist with expertise in anxiety-related disorders. A single coder was used given that reflexive thematic analysis relies on constructing meaning and structure onto the dataset based on coder preconceptions and expectations (Braun & Clarke, 2023). Coding was initially structured based on the relevant interview question addressed as a means of organizing the data. For example, an early in vivo structural code was developed (*lashing out*) in answer to the question, "How can you tell someone is out of control?". This code described how others' behaviour might be interpreted as a loss of control if they express hostility or aggression towards others. As we began to observe patterns and overlap in our analysis of the response content, we combined codes into larger categories to summarize what we felt was most important within those categories (e.g., participants' descriptions of their own losses of control over *speech content and tone* described examples of lashing out at others verbally, and lashing out was merged with other similar codes into the theme *Hurting or mistreating others*; see Saldaña, 2016). This approach was undertaken to produce a set of themes which aligned with our cognitive-behavioural perspective to identify what (if any) thoughts, behaviours and/or emotions participants commonly attributed as losses of control. Notably, this thought-behaviour-emotion split did not fit well with the ways in which participants discussed the consequences of losing control. As such, we focused on the nature of the consequences described by participants when constructing those themes.

The resultant thematic maps were assessed according to Patton's (2015) dual criteria for classifying themes. Themes were assessed for internal homogeneity and external heterogeneity. That is, the extent to which codes within a theme hang together and the extent to which demarcations between themes are clear and distinct. Based on these criteria, each coded extract from transcripts was re-examined for the degree to which it aligns with the relevant theme to

create a cohesive structure. These codes were considered in the context of their fit with the cognitive-behavioural theory of anxiety related disorders. Problematic codes and themes were discussed with the second author until a clear definition was reached by consensus. These discussions consisted of presentation of problematic themes, along with example quotes, with the second author highlighting issues to the narrative clarity of the resultant themes or suggesting common threads he observed within and between the excerpts presented. That definition was then tested by the first author against the transcripts in a second cycle of coding to ensure it accurately captured participants' descriptions of losing control and that no new themes were missed.

The final phase of analysis was to define and name the principal themes identified. This consisted of re-examining the content, collating the data, and identifying specific extracts which informed each theme. The resultant thematic structure was adjusted to contextualize our interpretation of participants' beliefs about losing control within existing cognitive-behavioural theory.

Results

What is Losing Control?

Because there was considerable consistency among participants' definitions of losing control, we focused our analysis on the commonalities in how they discussed losing control. All 21 participants described their and other's losses of control as including uncontrollable thoughts, emotions and/or behaviours in some capacity. They agreed losing control was a subjective experience wherein ones' thoughts, behaviour, and/or emotions were at odds with how one wanted to think, act, or feel. Losses were described unanimously as negative lapses of finite duration. As discussed in the methods, our analysis considered these losses within a cognitive-behavioural framework. This split is for the sake of clarity rather than implying the subjective experience of losing control be siloed into cognitive/behavioural/emotional categories. Fourteen participants discussed situational losses (e.g., job loss due to the COVID-19 pandemic). However, given our interest was in the internal experience of losing control, those losses were deemed to be less relevant to this enquiry.

Behaving Badly

Participants described behavioural losses of control as actions that were personally or socially unacceptable. Within these behavioural losses we identified four subthemes: 1) Hurting & Mistreating Others; 2) Impulsivity & Reactivity; 3) Substance Use, Excess, & Sensation Seeking; and 4) Unwanted, Weird or Inappropriate Behaviour.

Fifteen participants reported concerns about *Hurting & Mistreating Others*. These included minor outbursts, such as Participant 8's argument with her mother. It included personally alarming concerns, such as Participant 16's fear that, given the right stressors, he might "lose it" and attack or kill others. Losing control leading to actual violence was described by only a single participant, Participant 15, who reported getting in a fistfight after losing his temper (see Table 5). All other examples were hypothetical or verbal aggression. Notably, these behaviours were described as things one shouldn't or wouldn't normally do, and were defined, retrospectively or hypothetically, as losses of control.

Twenty participants described impulsive or reactive behaviours as losses of control. This theme, *Impulsivity & Reactivity*, refers to any behaviours in which one engages without consideration of the consequences. Importantly, the behaviour itself was described as a response to a pressure or urge. This highlights the link between behavioural losses and emotional and/or cognitive processes: state of mind, regardless of whether it is seen as out of control, is a precursor for the behavioural loss. For example, Participant 1 linked Impulsivity & Reactivity with poor emotion regulation, describing her prototypical idea of a person with low control as someone who reacts impulsively to their anger (see Table 5). Again, this behaviour was contextualized by the situation. The loss of control was defined as such by its deviation from what one would 'normally' do.

Substance Use, Excess, & Sensation Seeking were discussed by 14 participants. This theme refers to behaviours described as excessive. It includes idiosyncratic definitions of excessive engagement with any pleasurable activities (e.g., dessert, games). For example, Participant 14 compared substance use and escapism (see Table 5). As with Impulsivity & Reactivity, the inability to resist some urge or force is seen as a negative character trait which violates norms and fosters a loss of control.

Nineteen participants described *Unwanted, Weird or Inappropriate Behaviour* which ran counter to social or personal expectations, without harm to others. Examples included acting

oddly in public and behaving in a way that clearly violates established social norms. Some participants extended these losses to include behaviour which was atypical for the person losing control but not necessarily a violation of norms (see Table 5). Again, participants described these behaviours as negative lapses from one's desired state of being.

Although there was heterogeneity in the behaviours described, the common thread throughout was that these losses were behaviours which ran counter to how participants believed they or others ought to act. Behavioural losses were equated to badness and/or wrongness.

Overwhelming Emotions

When participants reported losing control over their emotions, they were described as overwhelming some normal internal system or state. We identified three subthemes: 1) Intense or Unwanted Emotions; 2) Emotions being Visible to Others; 3) Emotions Controlling Me.

All 21 participants reported that *Intense or Unwanted Emotions* were a sign of losing control. That is, any emotions which were difficult to bear or that they or an (imagined) observer defined as excessive. For example, Participant 17 knows he has lost control if his emotions are out-of-proportion with what he deems appropriate (see Table 6). The value judgment that the emotion was excessive or inappropriate to how one ought to feel is fundamental to experiencing it as a loss, it overwhelmed what they believe was appropriate or normative. This may be especially true if the emotional loss is visible to others.

Nineteen participants reported that overwhelming emotions represent a loss of control when those *Emotions are Visible to Others*. For example, Participant 8 explained learning how to express negative emotions by masking her pain from childhood bullies (see Table 6). It was not that the emotion is necessarily too intense or uncomfortable, but that it betrays the way which one ought to appear to others that indicated the loss occurred. The behaviour of crying, although the consequence of the emotion, is only a loss in that it happened in an inappropriate social context.

Nineteen participants explicitly anthropomorphized emotions as taking over their behaviour (i.e., *Emotions Controlling Me*). Some participants catastrophized normative processes triggered by anxiety (e.g., narrowing of attention; reduced problem-solving skills) as the emotion itself controlling their mind and physiology. Others described it as if their sadness and frustration

made them say or do something they regretted. This appears to be a part of how some individuals explain their persistent depressive symptoms (see Table 6). Again, a mismatch presents between individuals' expectations and their experiences: how they believe they should act is at odds with how their emotions 'make' them act.

Abnormal Thinking

Finally, participants discussed thinking in ways that deviated from their normal cognitive processes. That is, it included cognitive experiences the participant felt was abnormal. We identified four subthemes within these cognitive losses: 1) At the Mercy of Thoughts; 2) Absence or Excess of Thoughts; 3) Uncertainty and Indecisiveness; 4) Having Strange or Irrational Thoughts.

All participants reported unwanted thoughts coming to their mind and driving their decision making and behaviour. We labelled this theme being *At the Mercy of Thoughts*. Like Emotions Controlling Me, participants described thoughts as an internal force driving or limiting their behaviour. The specific content of the thought was less important in this case than the fact that it was experienced as a driving force behind behaviour. For example, Participant 9 reported skipping classes because he lost control over his perspective on what mattered (see Table 7). Participants explained their choices or impulsive actions as caused by thoughts they were having at the time forcing them in a direction they later found frustrating or regrettable.

Sixteen participants reported racing thoughts or a complete absence of thoughts. This theme, *Absence or Excess of Thoughts*, describes these unpleasant extremes. At one end, there was the experience of 'blanking' (e.g., on a test, before a presentation); struggling to remember an important event; and dissociating. Others reported experiencing the opposite extreme, racing thoughts that won't slow or stop (see Table 7). Again, it was the persistence of these unwanted cognitive states which marked them as losses.

Thirteen participants reported that not knowing what to do or how to solve a problem, that is *Uncertainty and Indecisiveness*, represented a loss of control. Certainty was described as the normal state, and its absence framed as losing control (see Table 7). Again, losing control is equated to a deviation from perceived normalcy.

Eleven participants reported experiencing losses of control as *Having Strange or Irrational Thoughts*. The presence of alarming intrusive thought to scream in public was labeled as a loss of control by Participant 11 (see Table 7). Others talked about recognizing in the moment or after the fact that they'd stopped thinking logically. These thoughts were sometimes explained as crazy or equated to paranoid beliefs, suggesting stigma may be part of the appraisal made when one experiences an intrusion. For example, Participant 14 reported fringe conspiracy theories, such as "believing in reptilians, which is, one of my sisters does, you know," could be a loss of control. Here again are thoughts which were interpreted as wrong or as a deviation from how one usually is or ought to be.

Together, these results suggest that losing control is a common, unpleasant state characterized by a mismatch between what is experienced and what is believed to be appropriate according to one's beliefs about oneself or perceived societal norms.

What are the Consequences of Losing Control?

Powerlessness

Twenty participants reported *Powerlessness* as a negative consequence of losing control. For example, an episode of intense anxiety and worry might lead to powerlessness to act. Conversely, one might feel powerless over the emotion itself, be it anxiety, anger, or sadness. Finally, feeling powerless to stop unpleasant negative thinking was a perceived consequence of losing control (see Table 8). The common feature is this sense of utter powerlessness in the face of these internal forces and their consequent behaviours.

Harm to Self or Others

Twenty participants feared losing control could lead to *Harm to oneself or others*. Often, this was imagined or perceived harm and there was considerable range in those imagined consequences. Death, brain damage, madness, chronic illness and/or shortened lifespan were identified as negative outcomes of losing control too often or at the wrong time (see Table 8).

Some participants reported actual or perceived harm due to experiencing a loss of control. Frequently, this was saying something hurtful or in a hurtful fashion (see Table 8). Two participants reported self-harming behaviour (head banging, pinching), but they framed this as an

effort to regain control, rather than a consequence of the loss. Finally, one participant reported smashing their phone after they lost control.

Painful Emotions during the Loss

Sixteen participants were concerned about experiencing *Painful emotions during the loss*. Losing control was most often described as frightening (11/21). Six participants reported the intense anger and six reported the sadness associated with losing control as bad and/or awful in and of itself. Others described losing control as an unpleasant state, without mention of a specific emotion. For example, Participant 6 described unpleasant, uncontrollable doubt that she was hearing voices, despite knowing she was not (see Table 8). In this way, losing control is something to avoid in and of itself, without any external consequence.

Painful Emotions after the Loss

Twenty participants reported their emotional state after regaining control was an unpleasant consequence. For most participants (19 of 21), losses of control were followed by shame, guilt and/or regret. One participant recognized his regret as unreliable evidence of a loss of control, despite how it felt (see Table 8). Perhaps framing these thoughts, feelings and behaviours as losses may serve to absolve oneself of some guilt or responsibility afterwards.

Roughly half (11/21) of participants reported feeling embarrassment and humiliation after losing control. These emotions related to how they believed that they appeared to others. For example, appearing inept, crazy, or weak were all seen as the consequences of their failure to control thoughts, emotions, or behaviour (see Table 8). This speaks to an appraisal after the fact, that a loss of control impacts how you are perceived by others or yourself and that this may be at odds with how you want to be seen.

Discussion

This study aimed to identify and describe a range of beliefs about losing control in an unselected sample. In conducting this analysis, we believe we have developed a richer understanding of perceived losses of control and have begun to identify common characteristics across a range of individuals and psychopathologies. Results indicate that losing control is a multifaceted process which includes interconnected cognitive, behavioural, and emotional losses. Participants defined losing control as an indication that one has failed to live up to personal or

social standards in a meaningful way. Findings suggest that negative beliefs about losing control maintain psychopathology if taken as catastrophic evidence of a feared outcome (e.g., death, humiliation, madness). These results are consistent with the cognitive appraisal model of psychopathology (e.g., Clark, 1986; Clark & Wells, 1995; Rachman, 1997, 1998) and suggest we may be able to adapt existing therapeutic approaches to address these beliefs (Radomsky, 2022).

Every participant, regardless of how or when they described losing control, discussed it in terms of how it felt, what they were (or weren't) thinking and what they did. This aligns well with existing cognitive theories highlighting how losses of control over thoughts and/or emotions may be frightening due to the belief that they may lead to harmful or humiliating outcomes (Clark & Purdon, 1993; Clark, 1986; Clark & Wells, 1995). This is especially relevant in OCD, where individuals often perceive uncontrollable intrusions as predictive of future behavioural losses (Clark & Purdon, 1993). Participants reported that it was not only possible, but common to lose control over thoughts and/or emotions, and that these losses, under the right set of circumstances, cascaded into behavioural losses. The belief that failing to control intrusive thoughts leads to behavioural losses may represent an abstraction of a normative experience: getting upset or angry and behaving in a fashion one regrets. This implies that negative beliefs about losing control alone are not necessarily indicative of psychopathology. Identifying the necessary circumstances where such perceived losses are taken as evidence in support of catastrophic misappraisals is an interesting question for future research.

Participants' tendencies to define their losses of control retrospectively based on perceived violations of personal or social standards has fascinating implications. For example, the behaviours that were labelled losses of control represented acts that could be judged as reflecting negatively on the character of the one who 'lost it' (i.e., hurting oneself/others; substance use; acting "crazy"; impulsive actions). Similarly, cognitive and emotional losses were characterized by intense, shameful, or unhelpful internal states that participants felt powerless to stop or resist. Perhaps being in control is perceived as the 'default' state and losses represent an aberration (indeed, Participant 21 said "It's just like, it's a thing, you know, it's- it's a state of being. You're always in control until you're not."). This suggests losing control is *implicitly* negative because maintaining control is socially constructed as the default operating mode. This implies then negative beliefs about losing control, within reason, are normative. This aligns with

research showing that perceived control is associated with positive outcomes and improved mental health (e.g., Bandura et al., 2001; Shapiro et al., 1996). Similar to other transdiagnostic processes, the target and intensity of negative beliefs about losing control may be more relevant to psychopathology (Dudley & Over, 2003; Purdon & Clark, 1993, 1994). A clear next step is to delineate how negative beliefs about losing control may differ as a function of type and severity of psychopathology.

One possibility, which has been proposed to explain how transdiagnostic processes, such as selective attention, intrusive thoughts, rumination and worry present differently across psychopathologies, relates to content (e.g., Harvey et al., 2004). Klinger's (1975) goal theory of current concern suggests that our implicit and explicit cognitions are driven by personally relevant goals. Radomsky (2022) proposed that individuals' diagnoses, current goals, and values would inform the ways in which they were concerned about losing control. An analysis of the relationship between disorder and feared consequences is beyond the scope of the present study. However, we obtained preliminary evidence to support this within cognitive losses. Two participants reported currently experiencing panic attacks. Both expressed concerns about their thoughts running out of control *leading to* being or acting crazy. Similarly, two participants who reported trauma histories described dissociating – the absence of thoughts – as losses of control. Finally, one participant who reported a history of OCD despite no longer engaging in his compulsions, described his intrusive thoughts as out of his control and his compulsions as feeling necessary to prevent those thoughts. All had concerns that they would fail to control their thoughts, but the way that manifested was related to what aspect of thought felt personally significant (Rachman, 1997, 1998). It may be that the common treatment target is the misappraisal that one ought to be able to control these cognitive experiences, and that failure to do so is evidence of a problem. Future research testing the efficacy of challenging this appraisal transdiagnostically would help to answer this question.

Perceived severity of harm may be what delineates clinical and non-clinical beliefs about losing control. Participants reported cruel or hurtful statements that could damage, or even end, relationships as losses of control. However, some endorsed more severe concerns: permanent harm to themselves due to their behaviour or from the stress of the loss, or that under the wrong circumstances they might attack others. This is analogous to research into catastrophizing in

GAD, which suggests that pathological worry (which is often reported as being out of control) differs from it's non-pathological counterpart in the severity of the perceived worst case scenario (Hazlett-Stevens & Craske, 2003).

Alternatively, most participants reported feeling powerless and that losses were often described as frustrating, upsetting and frightening, it may be that sensitivity to internal states (such as emotions, thoughts) places some people at elevated risk. Anxiety sensitivity is common across anxiety disorders and could explain in part how beliefs about losing control become misappraised (e.g., Naragon-Gainey, 2010). Increased awareness of the unpleasant sensations experienced during perceived losses might increase misappraisals of those losses as dangerous, in turn increasing the likelihood of engaging in neutralizing behaviours, ultimately reinforcing concerns about future losses of control. Situating beliefs about losing control within the larger constellation of transdiagnostic processes is an interesting future direction.

Many participants defined losing control according to the negative emotions they felt upon reflection (e.g., shame, guilt, regret, embarrassment). This supports the hypothesis put forth by Radomsky (2022), that in the absence of other risk factors, seeing oneself as generally in control and defining egodystonic thoughts, behaviours or emotions as losses of control (e.g., lashing out in anger, embarrassing behaviour while under the influence of alcohol) may be protective. A loss of control could be viewed as a one-off event to be avoided only due to the immediate consequences (e.g., regretting hurting someone's feelings, saying something foolish and feeling embarrassment). However, if an individual has other pre-existing misappraisals that place them at risk of misinterpreting the loss (e.g., anxiety sensitivity, emotional reasoning or thought action fusion) they might take those events as evidence in support of their negative core beliefs. Uncontrolled intrusive thoughts in OCD might be appraised as meaningful and evidence of one's dangerousness; chronic low affect might be taken as evidence that an individual with depression is failing to control their sadness and 'snap out of it;' and mounting anxiety before a presentation might be taken as evidence that things are about to spiral from bad to worse for someone with SAD. Conversely, holding more positive beliefs about oneself might allow losses of control to hold less personal significance. A future study, perhaps manipulating the degree to which losses of control are framed as normal, common experiences, is warranted to assess the relationship between personal significance and beliefs about losing control.

Limitations

Despite the interesting implications of these results, there are some limitations of the present study which must be considered. First was the choice to focus solely on the commonalities within an unselected sample that contained clinical and non-clinical reports and experiences. Though we believe this provided considerable insight into the nature of these beliefs and helped highlight the dimensional nature of these beliefs, it raises questions about potential differences in how beliefs about losing control interact with disorder specific processes (e.g., inflated responsibility in OCD, positive beliefs about worry in GAD; Freeston et al., 1994; Salkovskis, 1985). A future direction is an examination of the interrelationships between beliefs about losing control and other disorder-specific belief domains.

Similarly, the beliefs presented herein may represent a subsample of the wider array of existing beliefs about losing control. For example, older adults may hold different concerns, or may differentially focus on concerns about losing control related to losses of autonomy or cognitive ability associated with normal aging, development of chronic illness or other neurocognitive disorders which may emerge later in life. The participants in the present study were, aside from a single participant, in early adulthood. It is impossible to know how these beliefs might differ as a function of age, but given concerns around control observed in chronic and recurrent illnesses such as cancer (e.g., Lee-Jones et al., 1997; Simard et al., 2013), future research examining beliefs about losing control across the lifespan represents an interesting future direction.

The present study assumes that beliefs about losing control are common in western culture and indeed all participants endorsed these beliefs. However, the recruitment material informed participants that the study was an interview focused on losing control. Participants with stronger than average negative beliefs about losing control may have self-selected into the study. After accounting for the increased prevalence due to the COVID-19 pandemic, individuals meeting criteria for one or more anxiety-related disorders were overrepresented in our sample (Chang et al., 2021) which might explain in part the prevalence of negative beliefs about losing control. Given that there is good evidence from psychometric research that negative beliefs about losing control are fairly common among undergraduate students (Radomsky & Gagné, 2020), the descriptions in this study likely fall within the continuum of what we would expect in the larger

population. A strength of qualitative research is not necessarily in its generalizability to a population, but rather its ability to provide a deep, rich account of phenomena (Levitt, 2021). In this way, we believe that our results have furthered our understanding of beliefs about losing control and raise many interesting questions for future research.

Finally, it is worth noting that our approach to this analysis was situated between a realist/essentialist understanding of cognitive theory and the recognition that the results herein represent a subjective interpretation of participants' reported experiences of losing control. To that end, our approach to analysis focused on constructing meaning as we interpreted the narratives participants provided while integrating that experience into established cognitive theory. Although this diverges somewhat from a purely reflexive thematic analysis by relying on an essentialist understanding of psychopathology (e.g., Braun & Clarke, 2016, 2019), we believe that this approach provided valuable insight and well reflects the interplay between the laboratory and the clinic (as well as the realities of applying cognitive theory to explain client experiences in clinical practice; e.g., Gagné et al., 2018).

Summary

The present study investigated how people view their losses of control. Participants reported losing control as a multifaceted process, including cognitive, behavioural, and emotional components. Losing control was seen as inherently negative due to fears of harm, feelings of powerlessness and unpleasant emotions during and following the perceived loss. These results suggest that losing control is a common experience that is used to make sense of aversive sensations, unpleasant thoughts, and regrettable behaviour. Further, these explanations appear to be frequently made post hoc. 'Losing control' may represent a personally significant misappraisal of normative experiences. Future research should systematically examine its relationship with other cognitive-behavioural phenomena to identify which aspects are transdiagnostic and which are disorder specific. These losses appear to be distressing and future work developing interventions to target these beliefs more specifically warrants further investigation.

Tables

Table 4

Participant demographics

Demographics	
Age [*M* (*SD*)]	25.1 (8.3)
Gender (% women)	52.4
Ethnicity (%)	
Caucasian	42.9
Asian	38.1
Latino/Latina	5.8
Middle Eastern	19.0
Diagnosis (%)	
No diagnosis	57.1
Panic Disorder	9.5
Agoraphobia	4.8
OCD	9.5
GAD	14.3
PTSD	14.3
MDD	9.5

Note. Percent totals for ethnicity sum to more than 100% as one participant self-identified as biracial. Percent totals for diagnosis sum to greater than 100% as some participants met criteria for two or more diagnoses.

Table 5

Selected quotes for subthemes of Behaving Badly

Subtheme	Sample quotes
Hurting or Mistreating Others	"I accept her viewpoint, and I totally agree that's a valid point, but like she didn't not [sic] accept my viewpoint and it was like really late in the night as well. And so, I was just tired. So, I just I yelled at her, which I shouldn't have." Participant 8 "Like someone just walked up and killed my dog. You know, I'd probably want to kill them. And I, you know, I might go through it all the way. If I was in a enraged enough state." Participant 16 "a specific person was just, hurting me, like emotionally, and I just got to a point where it's like, um. […] It's like they just keep adding onto it and you sort of get into this physical fight." Participant 15
Impulsivity & Reactivity	"Present focused […] like constrained solely to acting for immediate gratification or like whatever the next uncontrollable thought comes to mind is the course of action" Participant 16 "You had control […] And then either something happened externally or internally. You know, you could- you could, just be a fact of getting tired eventually, depending on what you're doing. And you can lose that state of being in control and switch to a reactive one" Participant 2 "You can say something to them and they'll become very aggressive very quickly and like to me that's someone that doesn't have much control."
Substance use, Excess & Sensation Seeking	"But I find people who escape from that. You know, that take too much time like I did, escaping, you know? Whether it's my father, it's his crossword puzzles. And me, it used to be something else. Other people, it's– My brother, it's harder drugs." Participant 14 "if it's just a complete stranger on the street, for example, like the only way I can really tell is if they're, quote unquote, going insane. So, like,

Unwanted, Weird or Inappropriate Behaviour	acting out recklessly, very recklessly, shouting or going crazy, basically." Participant 15 "If a person who is usually very composed starts fidgeting and- and. And maybe they start crying or if they start saying certain things, I guess. You could say, oh, this person really lost control, because that's not the way they usually act," Participant 7

Table 6

Selected quotes for subthemes of Overwhelming Emotions

Subtheme	Sample quotes
Intense or Unwanted Emotions	"If someone tells me, 'You should have done this differently,' I would get upset. And I don't. I do consider it a loss of control, even though I didn't in the- for the most part, like in most cases, I usually didn't lash out or- or act too differently." Participant 4 "I start telling myself, why are you having that emotion? Which isn't necessarily a good thing, because then you're telling yourself, you know, you're not in control of your emotions. Nobody wants to feel like they're wrongfully feeling something, a feeling they shouldn't be feeling." Participant 17
Emotions being Visible to Others	"When I grew up, I was sort of bullied and then my dad said, like, you shouldn't be out of control, meaning that you can cry but like, don't cry in front of them." Participant 8
Emotions Controlling Me	"If Amy is very afraid of public speaking and but she's forced to do an impromptu speech in front of a very large crowd without prior knowledge […] she tries to put up a brave face and say, no, I've got this under control. But still, she's unable to produce the speech. Because she's under the influence with a lot of nerves and she can't think properly." Participant 10 "[…] what I felt was more, I guess, a sort of confusion as to why I wasn't able to say the thing I wanted to say first. And, um. And then I guess. My emotions were like more like taking control of me." Participant 7 "You're not supposed to be depressed, supposed to be impaired to the– by your emotions. There it is, impaired, being impaired by your emotions is a lose [sic] of control for me." Participant 20

Table 7

Selected quotes for subthemes of Abnormal Thinking

Subtheme	Sample quotes
At the Mercy of Thoughts	"Like people who- that are out of control, who let the thoughts control them rather than them controlling the thoughts" Participant 8 "Perspective. […] Becoming more, uh, everything is short term. So like it- it- it doesn't matter because it's a quiz. But what does that quiz mean in perspective, what does it mean in your overall grade and things like that?" Participant 9
Absence or Excess of Thoughts	"When I'm like really, really sad, I like zone out and […] I feel really blank" Participant 6 "[…] something random, like my friend not answering his phone, cause a worry, and that worry makes me feel so out of, so not in control, that this will cause me to have a panic attack where […] I either lose my vision, or I see someone talking, but I won't hear them at all. And I know that I'm dissociating, and I can't control that." Participant 20 "[…] if we talk about thoughts, like losing control over your thoughts. It's kind of like when you see your thoughts racing, but you can't stop them." Participant 12
Uncertainty and Indecisiveness	"I was going to study at a cafe, and I wasn't getting anything done. So, I would get up to leave and I'd sit back down because I wasn't sure that's what I wanted. And then I got outside. I was like, do I want to go shop, or do I want to go home?" Participant 4 "we picture how it's going to, like, go, this is going to be an ideal situation. But I think sometimes that doesn't work the way we expect it to work. And then that picture breaks. That's where, you know, you can't always stay in control of that," Participant 13
Having Strange or Irrational Thoughts.	"Why else would I be thinking of that? That's so weird, like, why am I losing it? I'm losing it. Like, why would my thoughts go there?" Participant 11

“I guess just not, um, be able to kind of sit down and reason why they're doing things, um, in a logical manner. Or why they're not doing things” Participant 3

Table 8

Selected quotes for themes related to the Negative Consequences of Losing Control

Theme	Sample Quotes
Powerlessness	"I didn't know what to do. Um. Like, I felt like it couldn't do anything to make it better. Or I didn't know what to do to make it better. […] I got on my computer and did my- did my schoolwork, it's kind of. But at the same time, I didn't get anything productive done." Participant 13 "So kind of like I need this to. I want this to be over, this panicking feeling, not even the event itself, just the panicking." Participant 5 "So it would be pessimistic maybe on- on- of the relationships they've had, sort of the events in their life they've lived through and the future. That it's just not going to get better." Participant 9
Harm to Oneself or Others	"I guess, not necessarily that I'll get a heart attack, but I worry that, you know, this isn't really healthy for my heart." Participant 18 "That's also something that scares me, that oh if I lose control, like what if it lasts forever and I'm kind of stuck in that horrible feeling until, you know, who knows how long?" Participant 5 "Well, negative would be that it creates stress within your own body, losing control. I mean, it's not very, it doesn't, it's not healthy for your own mental well-being." Participant 19 "just saying things that I shouldn't say [...] for example, if you're in argument with your partner, then breaking up. […] Or calling them names, I guess. Yeah." Participant 12 "Even though everything I was saying was not hurtful, it was just truth, but how I dealt with it, I guess. The tone and maybe with this person should have been handled very differently, you know?" Participant 14
Painful Emotions during the Loss	"there are reasons to be sad and I think it's good to experience sadness, but I definitely think that thinking about it– or not thinking about it too much, but letting it affect your life too much is negative." Participant 4

	“But like in that moment, […] even though I knew they weren't real, they felt kind of real. […] but it wasn't like a nice feeling or anything. It's pretty bad.” Participant 6
Painful Emotions after the Loss	“I left there feeling not... Not happy with how I acted, so I guess I would say that I did lose control a little bit,” Participant 19
	“[…] I lost, like, I lost control, nothing major happened, but I was like, oh my gosh, you know, I'm kind of playing into this like I normally would. And it's- it's annoying. I want to be better." Participant 1
	“Maybe sometimes we say stuff and then we regret it later, but it's like, you know, you were aware of what you were saying at the time, it's just it just so happens that later on you maybe regret it and then you were like, why did I say that?” Participant 21
	“That's the worst feeling. And also, just, the idea of showing incompetence is something I- I don't like others to perceive me as because it's not my strength in giving speeches without preparation,” Participant 10

CHAPTER 5

Bridge

Maladaptive beliefs about losing control have been proposed as a novel belief domain which may serve to maintain and exacerbate anxiety-related disorders (Clark & Purdon, 1993; Moulding & Kyrios, 2006; Radomsky, 2022). However, theoretical and experimental work examining beliefs about losing control presuppose these beliefs are inherently maladaptive and tied to psychopathology. Radomsky (2022) proposed that these beliefs may exist on a continuum, and understanding what, if any characteristics are common among people's beliefs about losing control can provide valuable insight into new novel research questions and improvements in assessment and clinical intervention. Study 2 aimed to address this gap in the literature by identifying themes and commonalities among individuals' beliefs about losing control in an unselected sample.

Study 2 was developed with the intent of identifying how individuals discuss their own and others' losses of control, in their own words, with the intent of fostering rich information leading to new research questions and providing novel clinical insights. An unselected sample was used with the intent of elucidating the range of non-clinical and clinical accounts of losses of control, as these insights are integral in better understanding the phenomenology of disorder specific presentations of maladaptive cognitions, which in turn can inform future measure and intervention development (e.g., Dudley & Over, 2003; Freeston et al., 1994; Ingram, 1990; Rachman & de Silva, 1978). Results from an unselected undergraduate sample indicated that negative beliefs about losing control are multifaceted cognitive-behavioural processes which may not be inherently pathological. Participants endorsed having lost control in the past, that these losses consisted of some combination of overwhelming emotions, regrettable behaviour and/or thinking which was/were out of character or otherwise abnormal for them. They reported holding these negative beliefs about their losses because they led to perceived powerlessness, perceived harm to themselves or others, and/or unpleasant emotions during and/or following the loss of control.

Study 2 informs and enriches our definition of beliefs about losing control, providing support for it as a transdiagnostic cognitive phenomenon which is experienced by both clinical and non-clinical individuals. It further reinforces the relevance of negative beliefs about losing

control as relevant beyond concerns about losing control over thoughts in OCD (Clark, 2004; Clark & Purdon, 1993) as well as the relevance of concerns about losing control over behaviour, thoughts, and emotions as they relate to other anxiety-related disorders (e.g., Clark, 1986; Hofmann, 2007; Radomsky, 2022). Participants reported that losing control over emotions might lead to humiliating, out of control behaviour and that some losses of control are frightening and upsetting because of the anticipated madness, pain, and mental damage that they might produce. These concerns support the relevance of negative beliefs about losing control in cognitive theories of SAD and panic disorder, among other problem domains (Radomsky, 2022). This is further supported by experimental and psychometric evidence showing beliefs about losing control are relevant to OCD (Gagné & Radomsky, 2017, 2020; Gelfand & Radomsky, 2013; Moulding et al., 2008; Moulding & Kyrios, 2007), SAD (Hofmann, 2005; Kelly-Turner & Radomsky, 2020, 2022; Spokas et al., 2009), and Panic Disorder (Cloitre et al., 1992; Rapee et al., 1986; Salkovskis & Clark, 1990; Sanderson et al., 1989; White et al., 2006).

Existing assessment measures of control-related constructs either focus on perceived controllability of situations or phenomena (i.e., Locus of Control; Levenson, 1974; Rotter, 1966) or focus narrowly on control over a single domain, such as emotions (e.g., ASI-3; Taylor et al., 2007) or thoughts (e.g., OBQ-44 ICT subscale; OCCWG, 2005). The BALCI was designed to address these limitations in the assessment of beliefs about losing control in OCD by measuring perceived likelihood and consequences of losing control, not just over a single domain (i.e., thoughts), but over the multifaceted collection of feared losses over thoughts, emotions, behaviours and physiological arousal (Radomsky & Gagné, 2020). However, there is compelling theoretical (Clark, 1986; Clark & Wells, 1995; Hofmann, 2005; Radomsky, 2022) and experimental evidence (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022; Salkovskis & Clark, 1990) to suggest these beliefs operate more broadly than in OCD alone. Indeed, Radomsky and Gagné (2020) argue that the measure would be improved by extending it to cover concerns about losing control as they relate to anxiety-related disorders more broadly. Therefore, a revision and extension of the BALCI to capture a broader, transdiagnostic view of negative beliefs about losing control is warranted.

CHAPTER 6

Update and Validation of the Beliefs about Losing Control Inventory-II (BALCI-II)

Radomsky and Gagné (2020) developed the Beliefs about Losing Control Inventory (BALCI) to assess negative beliefs of losing control in obsessive-compulsive disorder (OCD). The 21-item measure was divided into three subscales assessing beliefs about losing control over thoughts/behaviours/emotions (TBE); losing control over bodily functions (BBF); and importance of maintaining control (ISC). It has been shown to have good to excellent reliability and validity (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020). However, its development focussed on losing control in OCD rather than psychopathology more broadly. Recent developments in theoretical and experimental work suggests the measure could be improved by extending it to address fears about losing control more broadly (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022; Radomsky, 2022). Further, subscales could be improved by extending item content to differentiate between losing control over thoughts, behaviours and emotions (Radomsky & Gagné, 2020). The present study aimed to extend and improve the BALCI.

Negative beliefs about losing control (BALC) are defined as maladaptive beliefs about the likelihood, consequences and nature of perceived losses of control over one's thoughts, behaviours, emotions or physiological sensations (Clark & Purdon, 1993; Gagné & Radomsky, 2017; Moulding & Kyrios, 2006; Radomsky, 2022). A recent thematic analysis found that, like other cognitive phenomena (e.g., intrusive thoughts, worry), negative BALC appear to be commonly experienced (Kelly-Turner & Radomsky, 2023). Losses are generally perceived as negative due to the observed or imagined emotional, social, and personal consequences associated with them. Given concerns about losing control were observed among individuals with and without psychopathology, negative BALC may be more common and pervasive than previously proposed (Radomsky, 2022).

The BALCI was developed with specific interest in OCD (Radomsky & Gagné, 2020). One of the six fundamental belief domains in OCD is the importance of/need to control thoughts (i.e., ICT; Obsessive Compulsive Cognitions Working Group, 2005). However, individuals with OCD express concerns that failure to control thoughts will lead to subsequent losses of control (e.g., over their behaviour, over their emotions) suggesting that their fear of losing control may be more all encompassing (see Clark & Purdon, 1993). Manipulating negative BALC has been

shown to increase OC symptoms (e.g., checking, safety behaviours around 'dangerous' objects Gagné & Radomsky, 2017, 2020). These beliefs have been shown to predict OC symptoms above and beyond existing measures of obsessive beliefs (Radomsky & Gagné, 2020). However, since the BALCI was developed, it has been proposed that the fear of losing control may have clinical relevance beyond OCD (see Radomsky, 2022).

Radomsky (2022) argued that negative BALC may be broadly relevant in psychopathology. For example, in social anxiety disorder (SAD), BALC over behaviour and emotions appear to be particularly relevant to concerns about behaviour which might lead negative evaluation by others (Hackmann et al., 1998; Hofmann, 2007). These negative beliefs about their ability to control their emotions have been positively associated with symptom severity (De Castella et al., 2014). When analogue samples were led to believe they were at risk of losing control over their social behaviour, they reported greater anxiety leading up to and more rumination following novel social interactions (Kelly-Turner & Radomsky, 2020, 2022). Only a single item in the BALCI addresses these concerns: "I'm afraid I might do something inappropriate or embarrassing." To that end, items which capture the consequences of losing control as they relate to SAD are warranted.

The experience and fear of thoughts and sensations as out-of-control are well established misappraisals in the cognitive theory of panic disorder (Clark, 1986). In experimental work, participants who were offered neutral explanations for 'out-of-control' physiological sensations (e.g., that it is an expected consequence of voluntary hyperventilation) experience less anxiety relative to individuals who were led to appraise them as dangerous (Salkovskis & Clark, 1990). Further, when individuals were led to believe that they had greater control over the proportion of oxygen they receive, they experienced fewer panic symptoms and lower anxiety in CO_2 inhalation tasks relative to those who believed they had no control (Sanderson et al., 1989). Low perceived control over internal experience predicted symptom severity (Cloitre et al., 1992) and subsequent agoraphobic avoidance of frightening situations (White et al., 2006) among individuals with panic disorder. Negative BALC over sensations is only captured by the three-item BBF subscale on the BALCI, suggesting there is room to extend this subscale to capture agoraphobia and panic-related concerns.

The fear of losing control appears to be separate, albeit related to other control related constructs (see Sandstrom et al., 2023). One proposed explanation for control-related concerns in anxiety-related disorders is control mismatch theory (Moulding & Kyrios, 2006). Moulding and Kyrios argued that individuals with anxiety-related disorders have a high desire for situational control and low perceived personal control in feared contexts. This mismatch has been linked with OCD symptoms both psychometrically and experimentally (Gelfand & Radomsky, 2013; Moulding et al., 2008; Moulding & Kyrios, 2007). However, these control cognitions appear to be more related to intolerance of uncertainty and inflated responsibility than the need to control thoughts. Therefore negative BALC may be distinct from other control related cognitions (Moulding et al., 2008; Moulding & Kyrios, 2007). This suggests that the fear of losing control is less related to desire for control and may instead be more relevant to sensitivity to internal states (e.g., anxiety sensitivity) and the need to control thoughts in OCD, among other domains that may apply more broadly.

The present study aimed to update the BALCI to address these limitations. We aimed to expand the TBE subscale to capture fears of losing control as they relate not just to OCD, but other anxiety-related disorders (e.g., panic disorder, SAD). Given the relative importance of losing control over physiological sensations in panic disorder and agoraphobia, we aimed to extend the BBF subscale to produce a more robust subscale comparable to the other domains. We expected the final BALCI-II to consist of 4-5 subscales (i.e., each of the domains described above with a possible fifth general/importance of control domain). We predicted that the BALCI-II would be strongly associated with measures of anxiety sensitivity and importance of control over thoughts but less strongly associated with the desire for control over non-anxiety-provoking situations and depressive mood. Finally, we predicted that the BALCI would be predictive of symptoms of OCD, SAD, panic disorder/agoraphobia above and beyond existing measures of disorder-specific beliefs.

Method

Participants

The validation sample for the revised BALCI-II consisted of 440 undergraduate students recruited from Concordia University's Psychology Participant Pool. They received course credit for participating. Mean age was 23.4 (*SD* = 5.7) years. Most participants identified as women

(84.5%) and were mostly White (55.7%), followed by Middle Eastern (17.5%) and Asian (10.4%).

Measures

Beliefs about Losing Control Inventory Second Edition (BALCI-II; adapted from Radomsky & Gagné, 2020). Item development was informed by cognitive theories of a range of anxiety-related disorders (e.g., OCD, SAD, panic disorder and agoraphobia), clinical experience and themes identified in the qualitative analysis conducted by Kelly-Turner and Radomsky (2023) to expand coverage of the BALCI beyond OCD. Item generation aimed to distinguish between losses of control over behaviours, thoughts, emotions, and physiological sensations. The initial item pool for the BALCI-II consisted of 76 items split into categories based on our hypothesized content domains: thoughts, behaviours, emotions, physiological sensations & a 'general' domain for items which did not make specific mention of the other four (e.g., "In the past I have lost control and it was catastrophic,"). The final scale was intended for use in research and clinical practice and was expected to be 25-30 items. Therefore, 76 items was more than sufficient (Boateng et al., 2018).

Vancouver Obsessional Compulsive Inventory (VOCI; Thordarson et al., 2004). This 55-item self-report measure assesses OCD symptomatology. The VOCI shows excellent internal consistency, retest reliability, convergent and divergent validity (Thordarson et al., 2004). In this study, the VOCI showed excellent internal consistency ($\alpha = .97$).

Obsessive Beliefs Questionnaire (OBQ-44; OCCWG, 2005). This 44-item measure assesses belief domains related to OCD and has shown excellent internal consistency and good convergent and divergent validity. It consists of three subscales assessing responsibility and threat overestimation (RT), perfectionism and intolerance of uncertainty (PC), and importance of/need to control of thoughts (ICT). In this study, the OBQ-44 showed excellent internal consistency ($\alpha = .97$).

Body Sensations Questionnaire (BSQ; Chambless et al., 1984). This 17-item measure assesses fear of sensations associated with autonomic arousal. Items are rated based on how frightening they find experiencing the described sensation. It has been shown to have good

internal consistency, convergent and divergent validity (Chambless et al., 1984). In this study, the BSQ showed excellent internal consistency (α = .92).

Agoraphobic Cognitions Questionnaire (ACQ; Chambless et al., 1984). This 14-item measure assesses the degree to which individuals experience catastrophic thoughts about anxiety. Items relate to negative cognitions during periods of fear or anxiety. It has good internal consistency, convergent and divergent validity (Chambless et al., 1984). In this study, the ACQ showed good internal consistency (α = .86).

Social Phobia Inventory (SPIN; Connor et al., 2000). This 17-item measure assesses fear of social situations. It consists of Likert-type items asking participants to rate how frightening they would find various scenarios. It has good internal consistency in non-clinical populations (Connor et al., 2000). In this study, the SPIN showed excellent internal consistency (α = .93).

Brief Fear of Negative Evaluation Scale (BFNE; Leary, 1983). This 12-item measure assesses the degree to which one is concerned with being negatively evaluated by others. The BFNE has excellent convergent validity with the original Fear of Negative Evaluation Scale (Watson & Friend, 1969). In this study, the BFNE demonstrated good internal consistency (α = .78).

Anxiety Sensitivity Index, third edition (ASI-3; Taylor et al., 2007). The ASI-3 is an 18-item measure assessing fears of anxiety- and panic-related physical sensations as well as the perceived catastrophic consequences of those sensations. Psychometric properties of the ASI-3 are good, with good to excellent internal consistency. In this study, the ASI-3 showed excellent internal consistency (α = .93).

Desirability of Control Scale (DCS; Burger & Cooper, 1979). This 20-item measure assesses desire for control over events of daily life (e.g., “When it comes to orders, I would rather give them than receive them”). The DCS has good internal consistency and retest reliability (Burger & Cooper, 1979). In this study, the DCS demonstrated good internal consistency (α = .78).

Depression Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995). This 21-item self-report measure assesses negative emotional states. It consists of three subscales (i.e.,

depression, anxiety, and stress). The DASS-21 has excellent internal consistency (Lovibond & Lovibond, 1995). In this study, the DASS-21 had excellent full-scale reliability (α = .93) and good to excellent subscale reliability (αs = .83-.90).

Procedure

All data were collected with the approval of Concordia University's Human Research Ethics Committee and participants provided informed consent prior to their participation. Participants completed an online survey on the Qualtrics platform. The package consisted of the questionnaires above and two randomized orders of the BALCI-II item pool. All measures were presented in the same order regardless of BALCI-II version completed.

Three weeks later, participants received a link to complete the BALCI-II items a second time (*M* = 23.2, *SD* = 3.6 days later). Due to an issue with the scheduling software, only the final 188 participants received the follow-up link, of which 98 completed it (52.1%). There were no differences between completers and non-completers. Upon receiving the link to the follow-up, participants had one week to complete the retest questionnaire.

Results

Data Cleaning and Screening

Prior to analysis, the data were assessed for skewness and kurtosis. One BALCI-II item was identified as problematic, with |kurtosis| > 10 and removed. The correlation matrix for the remaining 76 BALCI-II items was examined. Twenty items were removed for having more than ten correlations with an absolute value less than .3 (Field, 2018). No evidence of multicollinearity or singularity was found based on the variance inflation factors, tolerances and collinearity diagnostics (Field, 2018). We identified one multivariate outlier. Its removal had no impact on results, therefore it was retained (Osborne & Overbay, 2004).

Exploratory Factor Analysis

An exploratory factor analysis (EFA) with a goemin rotation was conducted to identify item fit and number of factors to retain (Costello & Osborne, 2005; Fabrigar et al., 1999; Field, 2018). The initial EFA generated 4 factors with eigenvalues greater than 1 (see supplementary table 1). The final number of factors was determined based on a conceptual review of factor

content, validated by eigenvalues produced by parallel analysis (Velicer & Jackson, 1990). Mean eigenvalues indicated retaining a four-factor solution. This initial factor structure was reviewed for items with low factor loading on all factors (i.e., |loading| < 0.4). Items were considered cross-loaded if the ratio of the larger-to-smaller factor variance was less than two (Hair et al., 2019). Problematic items were removed and the EFA was rerun (Field, 2018; Hair et al., 2019; Hayton et al., 2004). The initial four-factor solution led to the removal of 17 items due to poor loading and four items which cross loaded onto two or more factors. A second pass EFA led to the removal of two additional items with low factor loadings on all four factors. A third EFA produced the final four-factor structure consisting of 32 items (see supplementary table 1). As expected, the subscales were moderately correlated (see Table 10).

Reliability

Internal consistency was assessed using Cronbach's alpha for the full scale and each subscale. Full scale (α = .96) and subscales reliabilities were excellent (Overwhelming Emotions α = .90; Probability/Severity α = .91; Harmful Behaviour α = .92; Madness α = .90).

To assess retest reliability, 98 participants completed the BALCI-II item pool *M* = 23.2 (*SD* = 3.5) days following initial assessment. Retest reliability was good for the full BALCI-II (*r* = .88) and its subscales (Overwhelming Emotions *r* = .84; Probability/Severity *r* = .83; Harmful Behaviour *r* = .83; Madness *r* = .82; all *p*s < .001).

Convergent and Divergent Validity

Moderate to strong zero-order Pearson correlations between the BALCI-II and the ASI-3 (*r* = .71) and the OBQ-44 ICT subscale (*r* = .63) supported convergent validity. Divergent validity was assessed by considering zero-order Pearson correlations between the BALCI-II total score and the DCS (i.e., general desire for control; *r* = .46) and DASS-21 depression subscale (i.e., depressive symptoms; *r* = .19; all *p*s < 0.001). Further evidence for convergent and divergent validity can be established using *z* tests for dependent correlations (Meng et al., 1992). By comparing correlations between BALCI-II scores and convergent measures with correlations between the BALCI-II scores and divergent measures. As expected, the correlation with the ASI-3 was significantly stronger than with the DCS (*z* = 10.82) and with the DASS-21 Depression subscale (*z* = 6.81). Similarly, the correlation with the OBQ-44 ICT subscale was significantly

stronger than with the DCS (z = 8.31) and with the DASS-21 Depression subscale (z = 4.24, all ps < .001).

Predictive Utility

A series of hierarchical linear regressions examined the relationship between BALCI-II scores and anxiety symptoms of a relevant anxiety-related disorder, above and beyond disorder-specific beliefs and general distress (i.e., DASS-21 scores).

The first tested the association between BALCI-II and symptoms of SAD, above and beyond the fear of negative evaluation. DASS-21 and BFNE scores were entered at step 1 and explained a significant amount of variance in SPIN scores, R^2 *adjusted* = .52, p < .001. BALCI-II scores were entered at step 2 and significantly increased the variance explained, $R^2\Delta$ = .02, p < .001. The final model accounted for 53.1% of variance, $F(3, 433) = 165.69$, p < .001. All predictor variables remained significant in the final model (See Table 11).

The second tested the association between the BALCI-II and symptoms of OCD, above and beyond obsessive beliefs. DASS-21 and OBQ-44 scores were entered at step 1 and explained a significant amount of variance in VOCI scores, R^2 *adjusted* = .51, p<.001. BALCI-II scores were entered at step 2 and significantly increased the variance explained, $R^2\Delta$ = .03, p < .001. The final model accounted for 53.7% of variance, $F(3, 433) = 169.58$, p<.001. All predictor variables remained significant in the final model (See Table 11).

The third tested the association between BALCI-II scores and symptoms of panic symptoms, above and beyond panic-related cognitions. DASS-21 and ACQ scores were entered at step 1 and explained a significant amount of variance in BSQ scores, R^2 *adjusted* = .42, p < .001. BALCI-II scores were entered at step 2 and did not increase the variance explained, $R^2\Delta$ = 0.00, p = .643. The final model accounted for 42.1% of variance, $F(3, 435) = 106.98$, p<.001. The BALCI-II was not a significant predictor of BSQ scores in the final model (See Table 11). A post hoc regression of the BALCI-II on the BSQ showed that it was a significant predictor of panic symptoms and accounted for 22.0% of variance when the ACQ was omitted, $F(1, 438)$ = 124.83, p < .001.

Discussion

The original BALCI had good psychometric properties and good predictive utility for OCD (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020). However, it was developed prior to theoretical (Radomsky, 2022) and experimental (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022) work linking the fear of losing control to other anxiety-related disorders. The present study aimed to improve and extend the BALCI and to provide preliminary psychometric properties of the BALCI-II.

The EFA supported a four-factor solution. Though the factors disentangled the nuance between negative BALC over thoughts, behaviours, and emotions, they did not align directly to predicted domains (i.e., thoughts, behaviours, emotions, and physiology). Instead, the factors reflected the feared *consequences* of losing control. Three factors captured the feared consequences of losing control based on the way that it feels (i.e., Overwhelming Emotions), what one might do (i.e., Dangerous Behaviour) and the consequences to one's thoughts/physiology/mind (i.e., Madness). The fourth factor captured the perceived probability imagined severity of those consequences. This support the theory that fear of losing control is driven by the frightening and/or unpleasant consequences associated perceived losses rather than the belief that control can be lost (Radomsky, 2022).

Convergent and divergent validity were consistent with predictions. The BALCI-II was strongly associated with importance of control and anxiety sensitivity. This relationship was significantly stronger than the relationship between BALC and desire for control in non-anxiety inducing scenarios or general depressive symptoms. Further, the BALCI-II was shown to have excellent internal consistency and good retest reliability, as did its subscales. These results suggest that the BALCI-II is a reliable and valid measure of negative BALC.

The BALCI-II was a significant predictor of symptoms of SAD and OCD above and beyond general psychopathology and existing belief domains relevant to the disorders. This is consistent with theoretical (Clark & Purdon, 1993; Hofmann, 2007; Rachman, 1997, 1998; Radomsky, 2022) and experimental (Gagné et al., 2020; Gagné & Radomsky, 2017, 2020; Kelly-Turner & Radomsky, 2020, 2022) work related to both disorders and further supports the relevance of negative BALC in OCD and SAD.

Unexpectedly, the BALCI-II did not predict panic symptoms above and beyond the ACQ. Given the ACQ includes concerns about the consequences of a panic attack, wherein they might feel out of control (e.g., "I will not be able to control myself") it is unsurprising that there would be overlap between it and the ACQ. Therefore, the incremental utility of the BALCI-II above and beyond the ACQ in agoraphobia and panic may be lower. Still, *post hoc* analysis showed that negative BALC are relevant in panic disorder and agoraphobia, just not above and beyond an existing measure of panic-related cognitions.

Negative BALC have been proposed as possible maintaining factors for disorders beyond those discussed here (e.g., eating disorders, chronic illness, pain; Fairburn et al., 2003; Radomsky, 2022). The moderate correlation between negative BALC and depressive symptoms provides preliminary support for this and raises interesting questions about the possible transdiagnostic utility of the BALCI-II. This association with depression may relate to the fear of negative affective states (e.g., sadness; Berg et al., 1998; Williams et al., 1997). Following a major depressive episode, individuals report concerns about their ability to control their minds, even after symptoms have abated, above and beyond other symptoms of anxiety (Cassin & Rector, 2012; Cox et al., 2001). This implies that depressive episode may be appraised as a loss of control, fostering negative BALC (i.e., a fear of overwhelming emotions). Assessing the role of negative BALC in all disorders is beyond the scope of this study, but this finding highlights an interesting future direction.

Though this study improves upon the original BALCI and provides additional support for the transdiagnostic relevance of BALC across anxiety-related disorders it is not without limitations. The BALCI-II was validated in an undergraduate sample which limits the generalizability of the findings to clinical populations. Still, clinical symptoms occur on a continuum and there is considerable evidence that both BALC and symptoms of psychopathology can reliably studied in analogue samples (e.g., Abramowitz et al., 2014; Stopa & Clark, 2001). There is ample reason to believe that most participants have experienced unpleasant intrusive thoughts and fears about how they are perceived by others (e.g., Purdon & Clark, 1993, 1994; Radomsky et al., 2014). Testing the utility of the BALCI-II in clinical samples, especially with respect to panic-related symptoms and cognitions, is needed.

Given that this study aimed to revise and extend the measure beyond OCD, an exploratory factor analysis was deemed the appropriate means of investigation. A CFA is a necessary next step to validate the present factor structure. Relatedly, a four-factor solution was retained based the mean eigenvalues of our parallel analysis, which may have led to retention of redundant factors (Field, 2018; Hair et al., 2019; Hayton et al., 2004). The more conservative three factor solution consisted of the three consequence factors, without the probability/severity subscale. Other misappraisals of common cognitions (e.g., intrusive thoughts, worrying) have been identified by severity and perceived likelihood of feared outcomes (Hazlett-Stevens & Craske, 2003; Radomsky et al., 2014). Therefore, appraisals of the perceived severity and likelihood of the imagined consequences of losing control could provide useful insight for researchers and clinicians aiming to target these beliefs in the clinic (Rachman, 1997, 1998). The additional conceptual utility of the probability/severity subscale to identify the catastrophic misappraisal of those imagined consequences described by the other three factors warrants its inclusion.

The present study improves and extends the measure of BALC to include thoughts relevant to anxiety disorders. The BALCI-II produced a more robust, balanced subscales which differentiate between behavioural, emotional, and cognitive/interoceptive losses of control. These results support the relevance of negative BALC in OCD, SAD, and panic/agoraphobia, albeit not above and beyond existing measures for the latter. There are reasons to expect that the measure may well be predictive of other domains of psychopathology as well (Radomsky, 2022), and future investigations of this are needed. Further, the observed factor structure aligns well with clinical and qualitative accounts of BALC, highlighting the relative importance of *consequences* of losing control. The BALCI-II appears to offer greater insight into the clinical significance of these beliefs. It represents a promising next step in the assessment and treatment of maladaptive negative BALC.

Tables

Table 9
BALCI-II factor loadings by item

	Factors			
Item	Factor 1: Overwhelming Emotions	Factor 2: Probability/ Severity	Factor 3: Dangerous Behaviour	Factor 4: Madness
Staying in control of my emotions means things won't get out of hand	**0.65**	0.034	0.103	0.011
Intense emotions make people lose control	**0.638**	0.036	0.137	0.014
If I lose control, I will get too upset.	**0.614**	0.003	0.051	0.194
Strong emotions can be dangerous because you might lose control	**0.535**	0.13	0.253	0.045
It's important for me to keep my emotions from spiraling out of control	**0.528**	0.305	-0.04	0.054
If I lose control, I will get too anxious	**0.519**	0.167	-0.139	0.289
Appearing out of control is as bad as being out of control	**0.428**	0.156	0.037	0.175
If I can't control my emotions, I might lose control of my whole life	**0.417**	0.241	0.077	0.128
If I lose control over my emotions, I might go crazy	**0.417**	0.287	0.081	0.13

I'm concerned about my ability to handle my emotions	0.117	**0.718**	0.077	-0.023
I am likely to lose control of my emotions	0.165	**0.681**	0.104	-0.046
I'm afraid that I might not be able to keep my emotions in check	0.207	**0.642**	0.07	0.05
If I get too emotional, I worry that I might never calm down	0.059	**0.632**	0.064	0.119
I am likely to lose control over my thoughts	0.039	**0.587**	0.025	0.276
I'm more likely to lose control than other people	0.017	**0.528**	0.248	0.196
I am afraid of losing control of my thoughts	0.222	**0.505**	-0.055	0.217
If I get too angry, I might do something dangerous	0.17	-0.026	**0.815**	-0.001
I'm afraid I might lash out and break something or hurt someone if I'm not careful	0.125	0.133	**0.708**	0.035
I may lose control of myself and injure someone	0.006	0.023	**0.689**	0.192

If I lose control at the wrong time I might cause an accident or hurt someone	-0.001	0.104	**0.686**	0.155
If I lose control of my anger, I don't know what I might do	0.261	0.161	**0.586**	-0.058
If I can't always control my thoughts it means I might become a dangerous person	-0.009	-0.014	**0.569**	0.318
If I lose control, I'm afraid of what I might do	0.058	0.197	**0.567**	0.13
I may lose control in public and be taken to the hospital	-0.169	0.235	**0.463**	0.299
I might lose control if I feel a strange sensation in my body	0.112	0.027	-0.013	**0.693**
If I feel weird in my body in ways can't explain, it means I'm about to completely lose it	0.071	0.067	0.096	**0.653**
If I can't keep physical sensations in check, I may never regain control	0.107	0.056	0.134	**0.589**
If I don't control my physical sensations, I might go crazy	0.121	0.018	0.14	**0.575**

If I don't manage the thoughts, images or impulses in my mind, I will lose control	0.22	0.177	0.106	**0.47**
Feeling shaky means I am about to go insane	0.128	0	0.179	**0.463**
If I have too many thoughts, I could lose control of my mind	0.178	0.251	0.064	**0.461**
Having a bad thought puts me at risk of going crazy	-0.001	0.284	0.251	**0.437**

Note: Significant factor loadings denoted by bolded text.

Table 10

Correlations between latent factors

	Factor 1: Overwhelming Emotions	Factor 2: Probability/ Severity	Factor 3: Dangerous Behaviour	Factor 4: Madness
Factor 1: Overwhelming Emotions	--			
Factor 2: Probability/ Severity	0.499*	--		
Factor 3: Dangerous Behaviour	0.292*	0.365*	--	
Factor 4: Madness	0.405*	0.446*	0.430*	--

N=439. * Correlation significant at the 0.05 level.

Table 11

Hierarchical Regression assessing Predictive Utility

	Model		*B*	SE *B*	β	*t*	*p*	Adjusted R^2	$R^2\Delta$
Analysis A: Including DASS-21 at step 1									
SAD									
	1	BFNE	0.89	0.07	0.50	12.72	<.001	0.52	
		DASS-21	0.35	0.04	0.31	7.93	<.001		
	2	BFNE	0.81	0.07	0.46	11.23	<.001	0.53	0.02
		DASS-21	0.28	0.05	0.25	5.76	<.001		
		BALCI-II	0.1	0.03	0.16	3.86	<.001		
OCD									
	1	DASS-21	0.96	0.12	0.33	8.25	<.001	0.51	
		OBQ-44	0.34	0.03	0.48	11.85	<.001		
	2	DASS-21	0.76	0.12	0.26	6.28	<.001	0.54	0.03
		OBQ-44	0.27	0.03	0.38	8.56	<.001		
		BALCI-II	0.35	0.07	0.22	4.88	<.001		
Panic Disorder									
	1	DASS-21	0.23	0.05	0.22	4.72	<.001	0.42	
		ACQ	0.81	0.07	0.50	10.94	<.001		
	2	DASS-21	0.24	0.05	0.22	4.68	<.001	0.42	0
		ACQ	0.83	0.09	0.51	9.21	<.001		
		BALCI-II	-0.02	0.03	-0.03	-0.46	0.643		

Note: BFNE=Brief Fear of Negative Evaluation Scale. ACQ=Agoraphobic Cognitions Questionnaire. OBQ-44=Obsessive Beliefs Questionnaire. DASS-21=Depression Anxiety and Stress Scale.

Table 12

Follow-up analysis of predictive utility of the BALCI-II above and beyond disorder-specific belief measures

Analysis B: Excluding DASS-21 at step 1									
SAD									
	1	BFNE	1.18	0.06	0.67	18.86	<.001	0.45	
	2	BFNE	0.95	0.07	0.54	13.65	<.001	0.50	0.05
		BALCI-II	0.16	0.03	0.26	6.59	<.001		
OCD									
	1	OBQ-44	0.47	0.03	0.66	18.38	<.001	0.44	
	2	OBQ-44	0.33	0.03	0.46	10.53	<.001	0.50	0.06
		BALCI-II	0.50	0.07	0.32	7.22	<.001		
Panic Disorder									
	1	ACQ	1.01	0.06	0.63	16.90	<.001	0.39	
	2	ACQ	0.97	0.09	0.60	11.21	<.001	0.39	0.00 1
		BALCI-II	0.02	0.03	0.04	0.71	0.48		

Note. BFNE=Brief Fear of Negative Evaluation Scale. ACQ=Agoraphobic Cognitions Questionnaire. OBQ-44=Obsessive Beliefs Questionnaire.

CHAPTER 7

General Discussion

This program of research aimed to further our understanding of some of the roles of negative beliefs about losing control, and of how they may relate to anxiety-related disorders. Given that clients frequently report that perceived losses of control cause considerable distress and that they reportedly worry about future losses, it is important to delineate how and when negative beliefs about losing control become problematic (Clark & Purdon, 1993; Freeston et al., 1994; Rachman & de Silva, 1978; Radomsky, 2022). Recent psychometric (Froreich et al., 2016; Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020) and experimental (Gagné & Radomsky, 2017, 2020) work supports the relevance of negative beliefs about losing control in OCD. Further, emerging experimental work supports the relevance of beliefs about losing control in disorders beyond OCD (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022). The work described in this program of research aimed to build upon that knowledge and further expand our understanding of negative beliefs about losing control.

Study 1 consisted of a replication and extension of experimental work examining the impact of negative beliefs about losing control on symptoms of SAD (Kelly-Turner & Radomsky, 2020). Specifically, Study 1 sought to address whether greater negative beliefs about losing control led to greater anticipatory anxiety, greater doubt about performance and more post-event processing associated with a non-threatening social interaction. Study 2 consisted of a thematic analysis of the fear of losing control itself (Kelly-Turner & Radomsky, 2023). That is, it sought to examine how and why laypeople believe they lose control as well as the perceived consequences and meaning of those perceived losses. Finally, Study 3 consisted of the revision, extension, and initial validation of a self-report measure of maladaptive beliefs about losing control over one's behaviours, emotions and internal experience: the BALCI-II. Specifically, the BALCI-II aimed to assess the consequences of losing control over these domains and the perceived likelihood and severity of those losses (Kelly-Turner & Radomsky, under review).

Summary of Findings

Study 1. Experimental and theoretical work highlighted the role of negative beliefs about losing control as a cognitive factor in the development and maintenance of symptoms of SAD when entering into stressful social situations (Gagné et al., 2020; Kelly-Turner & Radomsky,

2020; Radomsky, 2022). However, it remained to be seen whether beliefs about losing control could be sufficient to generate symptoms of SAD in relatively benign social situations. Accordingly, undergraduate students (N = 126 after data cleaning) were randomly assigned to receive false feedback that they were at high (versus low) risk of losing control over their behaviour and physiology in social situations prior to meeting and getting to know a neutral, welcoming actor to determine whether negative beliefs about losing control generate anxiety prior to and during a social interaction. Furthermore, it aimed to determine how this manipulation would impact doubts about social performance immediately following the interaction as well as post-event processing 24-hours later.

Results from independent samples *t*-tests comparing the experimental conditions showed individuals who believed they were at high risk of losing control experienced significantly more anxiety leading up to meeting someone new compared to those who believed they were at low risk of losing control with a large effect size. The data also demonstrated that, despite no difference in actor-rated performance, participants who believed they were at risk of losing control rated their performance as significantly worse than those who believed they were at low risk. Finally, there was a large significant effect of negative beliefs about losing control on post-event processing such that individuals who believed they were at risk of losing control ruminated significantly more about the interaction 24-hours later than participants who believed they were at low risk. Taken together, it appears that holding negative beliefs about one's ability to maintain control of behaviour in social situations leads to symptoms of social anxiety in the absence of other risk factors, further supporting the importance of beliefs about losing control to the etiology and maintenance of disorders more broadly than OCD alone.

Study 2. Following the identification of the causal impact of negative beliefs about losing control on symptoms of SAD, questions remained about the ubiquity and breadth of people's beliefs about the losing control. Accordingly, interview and transcript data from an unselected sample of undergraduate students (N = 21) were analyzed to explore how laypeople defined their own and others' losses of control and what, if any perceived consequences they associated with losing control.

Results indicated that all 21 participants believed that it was possible to lose control, that these losses were temporary, negative states which represented a lapse or deviation from one's

own or society's definition of 'normal.' These losses represented multifaceted experiences consisting of interconnected cognitive, behavioural, and emotional components. A loss of control could occur in one or more domains and these losses could cascade into one another (e.g., a loss of control over thoughts could trigger a loss of control over behaviour). With regard to the consequences of losing control, four themes were identified: powerlessness over the loss of control itself and the resultant outcomes it triggered (e.g., being judged by others); harm to oneself and others, including relatively benign concerns such as hurt feelings and more severe outcomes such as death, madness, and/or serious illness; painful and unpleasant emotions during the loss itself, that is, the loss of control is unpleasant in and of itself; and painful emotions when control returns and one is faced with the consequences of their perceived loss (e.g., regret and shame surrounding how one acted when they lost their temper). Together, these results provide complementary evidence that concerns about losing control cover more domains than just losses of control over thoughts and/or anxiety as proposed by earlier work examining control-related beliefs (e.g., OCCWG, 2005; Taylor et al., 2007). Further, these results imply that, like other cognitive processes, negative beliefs about losing control may not be inherently pathological (e.g., Ingram, 1990; Rachman & de Silva, 1978; Wells & Morrison, 1994).

Study 3. Given the that concerns about losing control described by an unselected sample included cognitive, behavioural and emotional components, and that psychometric, (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020), experimental (Gagné et al., 2020; Kelly-Turner & Radomsky, 2020, 2022) and qualitative (Kelly-Turner & Radomsky, 2023) work support the relevance of these concerns more broadly than in OCD alone, a revision of the BALCI was warranted to integrate current evidence about negative beliefs about losing control. To that end, undergraduate students (N = 440) completed a questionnaire battery including a revised and extended BALCI item pool to develop the BALCI-II and better distinguish between losses of control over thoughts, behaviours, emotions, and physiological reactions. In addition to building on the existing measure, Study 3 aimed to show that negative beliefs about losing control were associated with anxiety-related disorders with clear theoretical relevance to the belief domain (i.e., OCD, SAD, and panic disorder).

Results from Study 3 suggested that a four-factor solution best described the 32-item BALCI-II. The resultant measure had good to excellent validity and reliability. Further, negative

beliefs about losing control were shown to predict symptoms of OCD and SAD above and beyond disorder-specific belief domains (i.e., obsessive beliefs and fear of negative evaluation respectively). Contrary to hypotheses, the BALCI-II did not predict symptoms of panic above and beyond panic-related cognitions. However, given that the fear of losing control is already considered to be a feature of panic, it may be that the incremental utility of the BALCI-II over existing measures of panic-related beliefs (i.e., the ACQ) is smaller for panic disorder. Together, these results support the relevance of negative beliefs about losing control in anxiety-related disorders beyond OCD. Further, the resultant BALCI-II successfully disentangles concerns about the likelihood and consequences of losing control over thoughts, behaviours and emotions.

Limitations and future directions

No study is without limitations and the present program of research is no exception. Aside from the limitations of each individual study highlighted in their relevant chapters, there are several limitations of the program of research collectively which highlight interesting potential future directions for the study of beliefs about losing control.

Across the program of research, I relied upon unselected, non-clinical samples to study beliefs about losing control. Naturally, this limits the generalizability of results to clinical populations. However, the goal of this program of research was largely to explore and expand our understanding of the cognitive phenomena that are beliefs about losing control. When trying to examine novel beliefs, unselected and non-clinical samples can provide valuable insight into the full range of beliefs associated with a particular domain, from the normative to the maladaptive (e.g., Dudley & Over, 2003; Freeston et al., 1991, 1992, 1994; Rachman & de Silva, 1978; Radomsky et al., 2014). Further, experiments with analogue samples such as employed in Study 1 can provide compelling evidence of potential causal and maintaining factors of disorders and can also effectively link changes in these beliefs with cognitive and behavioural changes, which mirror disorder-specific processes (Abramowitz et al., 2014; Gagné et al., 2018; Stopa & Clark, 2001). To that end, while research into the role of beliefs about losing control in clinical samples is a clear and necessary next step, the present program of research provides compelling evidence that these concerns are common, and that they are relevant in a variety of disorders and impact symptoms of a range of anxiety-related disorders.

Relatedly, the program of research does not address the question of what to do when presented with maladaptive beliefs about losing control in the clinic. That is, it highlights that these concerns can be problematic and distressing but does not address how (or whether) reducing these beliefs would lead to positive outcomes. Given that negative beliefs about losing control are a relatively novel belief domain, especially in disorders outside OCD (Radomsky, 2022), it is critical to include experimental research assessing the efficacy of novel interventions to improve treatment outcomes (e.g., Alcolado & Radomsky, 2016; Levy & Radomsky, 2016; Neal & Radomsky, 2020; Reimer & Moscovitch, 2015). It is beyond the scope of this dissertation to determine whether or how targeting and reducing maladaptive beliefs about losing control would impact symptoms. However, preliminary evidence from the studies herein supports this future direction. Study 1 provides some promising, albeit extremely preliminary, evidence that targeting these beliefs may lead to reductions in anticipatory anxiety, as participants in the LLC condition reported a small reduction in anxiety about the upcoming social interaction following the false feedback that they were at low risk of losing control. Given that this feedback encouraged participants to recall a time they had "almost lost control" but at the last moment had thought better of it and behaved in a way that was consistent with their desired social image (e.g., thinking better of saying the wrong thing), then it may be that reappraising one's need to perfectly control one's anxiety or behaviour could lead to reductions in social anxiety. That is, like other social skills and safety behaviours in SAD, it may be that individuals with SAD overvalue the need to maintain perfect control at the expense of engaging with their conversation partner (e.g., Rowa et al., 2015; Voncken & Bögels, 2008). Further, the results of Study 2 highlight that a significant concern about losing control was the harm to oneself or others, especially in an interpersonal context, as well as embarrassment, guilt and shame following perceived failures of control. Together, this suggests that there may be a misappraisal of normal consequences of anxiety (e.g., a wavering voice, blushing, sweating) as perceived failures of control, which could have personally significant meaning (e.g., that they are socially inept or likely to be humiliated). This raises interesting questions about whether working with individuals with SAD to reappraise these behaviours as normal, relatively benign outcomes would lead to symptom reduction. Comparing outcomes for participants who have been trained to reinterpret their perceived losses of control as normal with those who have not been given this training would be an interesting experiment for a future intervention study.

Though a strength of this program of research is the use of multiple research methodologies to study beliefs about losing control, data collection relied largely on self-report methods. The validity of self-report methods has long been debated, and there are compelling reasons to believe that people often provide unreliable information, even when participants believe that they are providing reliable accounts (e.g., avoidance is best measured by a behavioural metric such a behavioural approach task; Nisbett & Wilson, 1977). Although some authors argue the limitations presented by self-report are overstated and miss the larger issue of measuring target constructs appropriately (e.g., Haeffel & Howard, 2010). Self-report is an appropriate measure for high-level cognitive constructs such as beliefs and appraisals of one's own thoughts, behaviours, and emotions (Haeffel & Howard, 2010). Still, using only self-report data does increase the possibility of measurement bias and may overstate the associations between beliefs about losing control, other control-adjacent constructs and symptoms of anxiety-related disorders (Podsakoff et al., 2011). The limitations of self-report apply mainly to Studies 1 and 3, as Study 2 was more aimed at exploring the phenomenon itself as it was experienced by participants, and as such, the employment of alternative assessment methods would have been challenging. Conversely, in Studies 1 and 3, the reliance on self-report measures for most of the hypotheses of interest may have limited our results somewhat. In Study 1, the only measure of participant avoidance was actor ratings of social performance (e.g., did they appear nervous to their conversation partner?). Given that a significant maintaining factor in SAD is the use of safety behaviours to prevent feared outcomes (McManus et al., 2008; Plasencia et al., 2011), it would have been interesting to code the social interactions in a future study for behavioural measures such as use of safety behaviours.

Finally, although there are theoretical reasons to expect beliefs about losing control to be relevant transdiagnostically, this program of research limited itself to a relatively narrow scope of anxiety-related disorders. Recent theoretical work suggests that beliefs about losing control may be relevant in not only anxiety-related disorders such as OCD, panic disorder, agoraphobia and SAD, but that it may extend considerably more broadly (Radomsky, 2022). Indeed cognitive theories of eating disorders (Fairburn et al., 2003), posttraumatic stress disorder (Ehlers & Clark, 2000), and fear of disease recurrence (Lee-Jones et al., 1997) all potentially implicate fears about losing control. Including all these disorders was beyond the scope of this dissertation. In Study 2, we did not exclude participants based on the criteria they met, but we were also not sampling

with clinical populations in mind; therefore, it is likely that some ideographic descriptions of what it means to lose control were not featured in our sample. That said, there was some very preliminary evidence for the relevance of maladaptive beliefs about losing control in these disorders. A small number of participants in Study 2 reported concerns about losing control over consumption of food. These perceived losses of control were coded as behavioural losses and even compared to addiction by some participants. Further, several participants framed dissociative experiences as losses of control. Still, recruitment efforts targeting specific clinical populations in Study 2 may have led to additional details about concerns about losing control beyond those described above. Similarly, Study 3 could have included additional measures to assess the utility of the BALCI-II beyond OCD, SAD and panic disorder. A clear future direction is to assess the utility of the measure more broadly.

Theoretical implications

This program of research was informed by cognitive-behavioural theories of OCD (Clark, 2004; Rachman, 1997, 1998; Salkovskis, 1985), SAD (Clark & Wells, 1995; Hofmann, 2007; Rapee & Heimberg, 1997; Schlenker & Leary, 1982) and panic disorder (Clark, 1986). Consequently, the results herein raise novel avenues through which to situate negative beliefs about losing control within those theories.

Existing cognitive models which account for the role of maladaptive beliefs about losing control highlight domain-specific concerns. For example, in SAD, it has been proposed that the primary concerns around losing control pertain to failure to control intense, externally visible signs of anxiety which might lead to humiliation or embarrassment (Hofmann, 2007). Similarly, the cognitive theory of panic highlights the fear of losing control over internal sensations which may lead to madness or death (Clark, 1986). Indeed concerns about uncontrolled or poorly managed anxiety have been linked to SAD symptom severity and avoidance of feared situations (De Castella et al., 2014; Hofmann, 2005; Rapee, 1997) and perceived controllability of interoceptive sensations has been shown to reduce panic symptoms (e.g., Sanderson et al., 1989; Zvolensky & Eifert, 2001). However, results from Study 1 suggest that domain-specific concerns about losing control may be only a portion of what concerns these individuals. In the context of the social situation in Study 1, participants in the HLC condition reported more concern about losing control over behaviour and physiology, but not emotional losses. Given that cognitive

theories and correlational research have linked the fear of losing control over anxiety with SAD symptoms, it seems likely that that 'uncontrollable' anxiety may be feared precisely because it gives way to more perceived losses which are visible to others (or imagined to be so). This is corroborated by results in Study 2 which found participants may link their losses of control over emotions to the acts and decisions they make while emotionally aroused (i.e., emotions 'controlling' them). Together, these results suggest that fears about losing control may be more closely tied to the feared consequences of the loss, than the feared domain itself.

The fear of losing control in OCD was the original exemplar of this overlap between domains over which we can lose control. The loss of control over thoughts is proposed to be misappraised as leading to subsequent losses of control over behaviour or one's mind, ultimately leading to madness, badness, or dangerousness (Clark, 2004). This is borne out in Study 3 which found that the factors of the BALCI-II were moderately correlated, suggesting if one believes that they are at risk of losing control over one domain, they likely believe that they are at risk of losing control over others. To that end, I would expect individuals with other disorders to fear losing control over their thoughts, behaviours, emotions, and physiological responses regardless of the disorder, but with different emphases based on the personal meaning one ascribes to those losses. One possible way individuals might misappraise their perceived losses of control is the likelihood of the imagined losses and/or their consequences. Manipulating beliefs about how likely one is to lose control over intrusive thoughts and social behaviour have been shown to increase symptoms of OCD and SAD respectively (Gagné et al., 2020; Gagné & Radomsky, 2017, 2020; Kelly-Turner & Radomsky, 2020). Study 1 adds further evidence to this by showing these effects are reproduceable in a naturalistic online conversation with a friendly partner and that these concerns persist for at least 24-hours.

Another factor which would be expected to influence the relative importance people ascribe to maintaining control over different domains is feared consequences. From the perspective of the appraisal model, one would assume that the main feared outcome (e.g., hurting others, going insane, looking foolish) would interact with experiences which one defines as a loss of control (Rachman, 1997, 1998). For example, someone with OCD who fears becoming a dangerous person might appraise harm-related intrusions as a loss of control. Since they have experienced this 'loss,' one would expect them to update their predicted likelihood of losing

control over behaviour (e.g., “Dangerous people have these types of thoughts. I am having them. Therefore, if I lose control in other ways, I am at risk of acting/becoming dangerous”). Similarly, someone who has experienced intense anxiety in social situations because they perceive themselves as socially inept may experience behaviours or physical symptoms of that anxiety as losses that were triggered by that initial ‘out of control’ anxiety. An unanswered question in the present program of research is the extent to which each sub domain is predictive of disorder-specific symptoms (e.g., one might expect the madness subscale to be especially relevant to panic disorder, followed by overwhelming emotions, and then dangerous behaviour). This supports Radomsky (2022), who suggests that though one would expect beliefs about losing control to be transdiagnostic, more work is needed to look at the specificity of the types of experiences individuals with specific disorders define as a loss.

Another fascinating point that was highlighted in recent theoretical (Radomsky, 2022) and psychometric work (Mercan & Kabadayı, 2023; Radomsky & Gagné, 2020) is that beliefs about losing control are in fact commonly experienced by non-clinical samples. Understanding normative beliefs about losing control provides valuable insight into their maladaptive counterparts. For example, research into normative intrusions, worry and perfectionism have further highlighted the underlying misappraisals about those phenomena, reinforcing the maladaptive beliefs which maintain and exacerbate anxiety-related disorders (e.g., Egan et al., 2011; Freeston et al., 1994; Ingram, 1990; Ladouceur et al., 2000; Rachman & de Silva, 1978; Radomsky et al., 2014). In the present program of research, Study 2 provides further support for this assertion. Participants who did not meet criteria for any disorder reported beliefs about the nature and possibility of losing control which were qualitatively similar to those reported by participants who met criteria for one or more anxiety-related disorders. This implies that the belief that losing control is possible, and even likely, may not be maladaptive in isolation. In fact, given that some participants defined behaviour or reactions that they felt were egodystonic as losses of control, this suggests that in certain circumstances, the belief that one can lose control may be protective. Negative beliefs about losing control may therefore interact with other misappraisals about the significance or severity of the consequences of those losses. For example, concerns about harm may be mild, (e.g., that one might hurt other people’s feelings or harm a relationship if they lose control in an argument but have little meaning about them as a person) and therefore lead to little avoidance due to one’s interpretation of regrettable behaviour

as an insignificant loss of control due to the circumstances (e.g., heightened emotions in said argument). Alternatively, one might hold the belief that any harm to others, real or imagined, is unacceptable. That belief is likely to increase the perceived significance of that loss of control and may reinforce or maintain the belief that one is at risk of becoming a violent, aggressive person. It would be expected that this would lead in turn to fear and avoidance situations where they feel frustration and attempt to exert excess control over those emotions (e.g., Gagné & Radomsky, 2020; Radomsky et al., 2007; Whiteside & Abramowitz, 2004, 2005). Understanding precisely how these beliefs about losing control are impacted by other mechanisms such as misappraisal of the significance of intrusive thoughts and/or urges represents an interesting future direction.

Clinical implications

The current gold standard for treatment of anxiety-related disorders is cognitive-behavioural therapy (CBT), which integrates behavioural techniques such as exposure with cognitive techniques aimed at updating and reconsidering clients' maladaptive misappraisals of themselves, the world, and others. Though CBT has been shown to be effective for a wide range of disorders including OCD (e.g., Hans & Hiller, 2013; Öst et al., 2015, 2022; Stewart & Chambless, 2009), SAD (e.g., Acarturk et al., 2009; Hans & Hiller, 2013; Kindred et al., 2022; Powers et al., 2008; Stewart & Chambless, 2009), and panic disorder (e.g., Hans & Hiller, 2013; Papola et al., 2022; Pompoli et al., 2016; Stewart & Chambless, 2009) not everyone benefits from treatment, leaving room for improvement. A significant challenge of many of these interventions is their reliance on exposure, which although effective, faces high dropout rates and relatively low treatment acceptability compared other approaches (e.g., Foa et al., 2005; Milosevic et al., 2015; Öst et al., 2015; Whittal et al., 2005). An alternative approach to exposure-based treatment protocols which have shown similar efficacy, but may be more acceptable is the use of cognitive techniques which target underlying misappraisals through behavioural experiments without need for prolonged exposure (e.g., Bennett–Levy et al., 2004; Mayo-Wilson et al., 2014; McMillan & Lee, 2010; Neal & Radomsky, 2019, 2020). Though the current program of research did not include any intervention studies, the results do raise interesting clinical questions for future enquiry.

Study 1 provides preliminary support that reducing negative beliefs about losing control may serve to inoculate against anxiety in a social situation. Though the primary aim of Study 1 was to show that increasing negative beliefs about losing control increases symptoms of SAD, it also provides preliminary evidence that challenging the belief that one is likely to lose control may reduce symptoms of social anxiety. Participants in the LLC condition reported low anticipatory anxiety leading up to the social interaction despite the manipulation informing them that losing control was indeed possible (e.g., "You can probably think of a time where you were nervous but avoided saying the wrong thing"). It may be that asking participants to recall times when control was maintained despite their apprehension in a social situation provided them with evidence that a full loss of control was unlikely. This could be easily adapted to a behavioural experiment with clients wherein they are encouraged to define a loss of control, then asked to evaluate whether it occurred, perhaps with he use of video feedback to disconfirm the belief (e.g., McManus et al., 2009; Orr & Moscovitch, 2010; Warnock-Parkes et al., 2017). A clear next step would be a preliminary intervention study targeting misappraised beliefs about the likelihood and perceived consequences of losing control in social situations.

Normalization of cognitive processes perceived as catastrophic is a powerful strategy used to challenge maladaptive beliefs (e.g., Beck, 1967; Rachman et al., 2015). The results of Study 2 suggest that losing control is a common explanation for experiences which reflect poorly on the individual and/or cognitive states which persist beyond what they believe is appropriate or desirable. Interventions targeting the meaning of supposed losses may be beneficial and bear consideration in future research. For example, if a client with OCD believes that only by maintaining careful control over their thoughts can they avoid losing control over their behaviour, then encouraging them to relax those standards and *try* to lose control in-session might serve to challenge their belief that one loss leads to another. It remains to be seen whether these perceived and reported losses of control can be appraised in other ways (e.g., "Was it truly a loss of control if it was something over which one has imperfect control, such as an emotional reaction or the first thought that pops into your head?"). Further work is needed to test the efficacy of such approaches in addressing negative beliefs about losing control in clinical samples.

Regular assessment and symptom tracking is a key component of treatment which has been shown to improve outcomes (e.g., de Jong et al., 2021). Study 3 provides a promising next

step in the development and refinement of a measure of maladaptive beliefs about losing control. Importantly, it highlights the perceived *consequences* of losing control in a way that identifies unhelpful beliefs that are testable. It remains to be seen whether these beliefs can be effectively targeted to lead to symptom reduction, but experimental work showing that these beliefs are malleable and manipulating them led to increases in maladaptive behaviours (i.e., Study 1, but see also Gagné et al., 2020; Gagné & Radomsky, 2017, 2020; Kelly-Turner & Radomsky, 2020), so it seems reasonable that the opposite is true. To that end, a valid and reliable measure of these has potential to provide valuable insight into symptom change over time. That said, the present program of research is entirely cross-sectional; longitudinal research tracking the relationship between these beliefs about losing control and symptom change over time would provide additional valuable support for the utility of the BALCI-II.

Conclusion

Negative beliefs about the likelihood and consequences of losing control over one's thoughts, behaviours emotions and physiological reactions have been observed in clinical and non-clinical populations (e.g., Clark, 2004; Clark, 1986; Fernández-Basanta et al., 2023; Hofmann, 2007). There is a growing body of work supporting the relevance of these concerns in OCD (e.g., Gagné & Radomsky, 2017, 2020) and SAD (e.g., Gagné et al., 2020; Kelly-Turner & Radomsky, 2020) as well as anecdotal clinical accounts and theoretical grounds to support their relevance transdiagnostically (e.g., Radomsky, 2022). The current program of research has built upon that body of work, highlighting the enduring effect of negative beliefs about losing control following a social interaction perceived as having gone poorly. Qualitative and psychometric studies in this program have provided preliminary evidence of maladaptive beliefs about losing control as a transdiagnostic construct and have highlighted the nuance between the potentially normative process of appraising certain experiences as losses of control and the catastrophic misappraisal of perceived consequences and likelihood of future losses. This program of study lays the groundwork for future investigation into the transdiagnostic potential of beliefs about losing control both within and beyond anxiety-related disorders. Future work should examine the clinical impact of reappraising maladaptive beliefs about losing control and its impact on symptoms of anxiety-related disorders and other problems.

REFERENCES

Abramowitz, J. S., Fabricant, L. E., Taylor, S., Deacon, B. J., McKay, D., & Storch, E. A. (2014). The relevance of analogue studies for understanding obsessions and compulsions. *Clinical Psychology Review*, *34*(3), 206–217. https://doi.org/10.1016/j.cpr.2014.01.004

Acarturk, C., Cuijpers, P., Straten, A. van, & Graaf, R. de. (2009). Psychological treatment of social anxiety disorder: A meta-analysis. *Psychological Medicine*, *39*(2), 241–254. https://doi.org/10.1017/S0033291708003590

Alcolado, G. M., & Radomsky, A. S. (2011). Believe in yourself: Manipulating beliefs about memory causes checking. *Behaviour Research and Therapy*, *49*(1), 42–49. https://doi.org/10.1016/j.brat.2010.10.001

Alcolado, G. M., & Radomsky, A. S. (2016). A novel cognitive intervention for compulsive checking: Targeting maladaptive beliefs about memory. *Journal of Behavior Therapy and Experimental Psychiatry*, *53*, 75–83. https://doi.org/10.1016/j.jbtep.2015.02.009

Alden, L. E., & Wallace, S. T. (1995). Social phobia and social appraisal in successful and unsuccessful social interactions. *Behaviour Research and Therapy*, *33*(5), 497–505. https://doi.org/10.1016/0005-7967(94)00088-2

American Psychiatric Association. (2013). Anxiety Disorders. In *Diagnostic and Statistical Manual of Mental Disorders* (1–0). American Psychiatric Association. https://doi.org/10.1176/appi.books.9780890425596.dsm05

Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment*, *10*(2), 176–181. https://doi.org/10.1037/1040-3590.10.2.176

Ashbaugh, A. R., Antony, M. M., McCabe, R. E., Schmidt, L. A., & Swinson, R. P. (2005). Self-Evaluative Biases in Social Anxiety. *Cognitive Therapy and Research*, *29*(4), 387–398. https://doi.org/10.1007/s10608-005-2413-9

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (2001). Self-efficacy beliefs as shapers of children's aspirations and career trajectories. *Child Development*, *72*(1), 187–206. https://doi.org/10.1111/1467-8624.00273

Barlow, D. H. (2000). Unraveling the mysteries of anxiety and its disorders from the perspective of emotion theory. *American Psychologist*, *55*(11), 1247–1263. https://doi.org/10.1037/0003-066X.55.11.1247

Barlow, D. H. (2002). *Anxiety and its disorders, second edition: The nature and treatment of anxiety and panic*. Guilford Publications.

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. University of Pennsylvania Press.

Bennett–Levy, J., Westbrook, D., Fennell, M., Cooper, M., Rouf, K., & Hackmann, A. (2004). Behavioural experiments: Historical and conceptual underpinnings. In K. Rouf, J. Bennett-Levy, G. Butler, M. Fennell, A. Hackmann, M. Mueller, & D. Westbrook (Eds.), *Oxford Guide to Behavioural Experiments in Cognitive Therapy* (pp. 1–20). Oxford University Press. https://doi.org/10.1093/med:psych/9780198529163.003.0001

Berg, C. Z., Shapiro, N., Chambless, D. L., & Ahrens, A. H. (1998). Are emotions frightening? II: an analogue study of fear of emotion, interpersonal conflict, and panic onset. *Behaviour Research and Therapy*, *36*(1), 3–15. https://doi.org/10.1016/S0005-7967(97)10027-4

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: A primer. *Frontiers in Public Health*, *6*, 149. https://doi.org/10.3389/fpubh.2018.00149

Boddy, C. R. (2016). Sample size for qualitative research. *Qualitative Market Research: An International Journal*, *19*(4), 426–432. https://doi.org/10.1108/QMR-06-2016-0053

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. https://doi.org/10.1191/1478088706qp063oa

Braun, V., & Clarke, V. (2016). (Mis)conceptualising themes, thematic analysis, and other problems with Fugard and Potts' (2015) sample-size tool for thematic analysis. *International Journal of Social Research Methodology*, *19*(6), 739–743. https://doi.org/10.1080/13645579.2016.1195588

Braun, V., & Clarke, V. (2019). Reflecting on reflexive thematic analysis. *Qualitative Research in Sport, Exercise and Health*, *11*(4), 589–597. https://doi.org/10.1080/2159676X.2019.1628806

Braun, V., & Clarke, V. (2021). To saturate or not to saturate? Questioning data saturation as a useful concept for thematic analysis and sample-size rationales. *Qualitative Research in Sport, Exercise and Health*, *13*(2), 201–216. https://doi.org/10.1080/2159676X.2019.1704846

Braun, V., & Clarke, V. (2023). Toward good practice in thematic analysis: Avoiding common problems and be(com)ing a knowing researcher. *International Journal of Transgender Health*, *24*(1), 1–6. https://doi.org/10.1080/26895269.2022.2129597

Bream, V., Challacombe, F., Palmer, A., & Salkovskis, P. (2017). *Cognitive behaviour therapy for obsessive-compulsive disorder* (pp. xviii, 281). Oxford University Press.

Brozovich, F., & Heimberg, R. G. (2008). An analysis of post-event processing in social anxiety disorder. *Clinical Psychology Review*, *28*(6), 891–903. https://doi.org/10.1016/j.cpr.2008.01.002

Burger, J. M., & Cooper, H. M. (1979). The desirability of control. *Motivation and Emotion*, *3*(4), 381–393. https://doi.org/10.1007/BF00994052

Cassin, S. E., & Rector, N. A. (2012). The Scarring Effects of Past Depression on Anxiety Sensitivity: Examining Risk for Depressive Relapse and Recurrence. *International Journal of Cognitive Therapy*, *5*(1), 18–27. https://doi.org/10.1521/ijct.2012.5.1.18

Chambless, D. L., Caputo, G. C., Bright, P., & Gallagher, R. (1984). Assessment of fear of fear in agoraphobics: The Body Sensations Questionnaire and the Agoraphobic Cognitions Questionnaire. *Journal of Consulting and Clinical Psychology*, *52*(6), 1090–1097. https://doi.org/10.1037/0022-006X.52.6.1090

Chang, J.-J., Ji, Y., Li, Y.-H., Pan, H.-F., & Su, P.-Y. (2021). Prevalence of anxiety symptom and depressive symptom among college students during COVID-19 pandemic: A meta-analysis. *Journal of Affective Disorders*, *292*, 242–254. https://doi.org/10.1016/j.jad.2021.05.109

Chiang, B., & Purdon, C. (2023). A study of doubt in obsessive-compulsive disorder. *Journal of Behavior Therapy and Experimental Psychiatry*, *80*, 101753. https://doi.org/10.1016/j.jbtep.2022.101753

Chrisler, J. C. (2008). 2007 presidential address: Fear of losing control: Power, perfectionism, and the psychology of women. *Psychology of Women Quarterly*, *32*(1), 1–12. https://doi.org/10.1111/j.1471-6402.2007.00402.x

Clark, D. A. (2004). *Cognitive-behavioral therapy for OCD*. The Guilford Press.

Clark, D. A., & Purdon, C. (1993). New perspectives for a cognitive theory of obsessions. *Australian Psychologist*, *28*(3), 161–167. https://doi.org/10.1080/00050069308258896

Clark, D. M. (1986). A cognitive approach to panic. *Behaviour Research and Therapy*, *24*(4), 461–470. https://doi.org/10.1016/0005-7967(86)90011-2

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. Heimberg, M. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.), *Social phobia: Diagnosis, assessment and treatment* (pp. 69–93). Guilford Press.

Clarke, V., Braun, V., & Hayfield, N. (2015). Thematic Analysis. In J. A. Smith (Ed.), *Qualitative Psychology: A Practical Guide to Research Methods* (3rd ed.). SAGE Publications, Inc.

Cloitre, M., Heimberg, R. G., Liebowitz, M. R., & Gitow, A. (1992). Perceptions of control in panic disorder and social phobia. *Cognitive Therapy and Research*, *16*(5), 569–577. https://doi.org/10.1007/BF01175142

Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Weisler, R. H., & Foa, E. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating scale. *British Journal of Psychiatry*, *176*(4), 379–386. https://doi.org/10.1192/bjp.176.4.379

Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Exploratory Factor Analysis*, *10*(7), 9.

Cox, B. J., Enns, M. W., Freeman, P., & Walker, J. R. (2001). Anxiety sensitivity and major depression: Examination of affective state dependence. *Behaviour Research and Therapy*, *39*(11), 1349–1356. https://doi.org/10.1016/S0005-7967(00)00106-6

Creswell, J. W., & Plano Clark, V. L. (2017). *Designing and conducting mixed methods research*. SAGE Publications.

De Castella, K., Goldin, P., Jazaieri, H., Ziv, M., Heimberg, R. G., & Gross, J. J. (2014). Emotion beliefs in social anxiety disorder: Associations with stress, anxiety, and well-being. *Australian Journal of Psychology*, *66*(2), 139–148. https://doi.org/10.1111/ajpy.12053

de Jong, K., Conijn, J. M., Gallagher, R. A. V., Reshetnikova, A. S., Heij, M., & Lutz, M. C. (2021). Using progress feedback to improve outcomes and reduce drop-out, treatment

duration, and deterioration: A multilevel meta-analysis. *Clinical Psychology Review*, *85*, 102002. https://doi.org/10.1016/j.cpr.2021.102002

Dudley, R. E. J., & Over, D. E. (2003). People with delusions jump to conclusions: A theoretical account of research findings on the reasoning of people with delusions. *Clinical Psychology & Psychotherapy*, *10*(5), 263–274. https://doi.org/10.1002/cpp.376

Egan, S. J., Wade, T. D., & Shafran, R. (2011). Perfectionism as a transdiagnostic process: A clinical review. *Clinical Psychology Review*, *31*(2), 203–212. https://doi.org/10.1016/j.cpr.2010.04.009

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behaviour Research and Therapy*, *38*(4), 319–345. https://doi.org/10.1016/S0005-7967(99)00123-0

Everly, G. S., & Lating, J. M. (2019). *A Clinical Guide to the Treatment of the Human Stress Response*. Springer New York. https://doi.org/10.1007/978-1-4939-9098-6

Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, *4*(3), 272–299.

Fairburn, C. G., Cooper, Z., & Cooper, P. J. (1986). The clinical features and maintenance of bulimia nervosa. In K. D. Brownell & J. P. Foreyt (Eds.), *Handbook of eating disorders: Physiology, psychology and treatment of obesity, anorexia and bulimia* (pp. 389–404). Basic Books.

Fairburn, C. G., Cooper, Z., & Shafran, R. (2003). Cognitive behaviour therapy for eating disorders: A "transdiagnostic" theory and treatment. *Behaviour Research and Therapy*, *41*(5), 509–528. https://doi.org/10.1016/S0005-7967(02)00088-8

Fehm, L., Hoyer, J., Schneider, G., Lindemann, C., & Klusmann, U. (2008). Assessing post-event processing after social situations: A measure based on the cognitive model for social phobia. *Anxiety, Stress, & Coping*, *21*(2), 129–142. https://doi.org/10.1080/10615800701424672

Fernández-Basanta, S., Dahl-Cortizo, C., Coronado, C., & Movilla-Fernández, M.-J. (2023). Pregnancy after perinatal loss: A meta-ethnography from a women's perspective. *Midwifery*, 103762. https://doi.org/10.1016/j.midw.2023.103762

Field, A. P. (2018). *Discovering statistics using ibm spss statistics* (5th ed.). SAGE Publications.

Foa, E. B., Liebowitz, M. R., Kozak, M. J., Davies, S., Campeas, R., Franklin, M. E., Huppert, J. D., Kjernisted, K., Rowan, V., Schmidt, A. B., Simpson, H. B., & Tu, X. (2005). Randomized, Placebo-Controlled Trial of Exposure and Ritual Prevention, Clomipramine, and Their Combination in the Treatment of Obsessive-Compulsive Disorder. *American Journal of Psychiatry*, *162*(1), 151–161. https://doi.org/10.1176/appi.ajp.162.1.151

Freeston, M. H., & Ladouceur, R. (1997). What do patients do with their obsessive thoughts? *Behaviour Research and Therapy*, *35*(4), 335–348. https://doi.org/10.1016/S0005-7967(96)00094-0

Freeston, M. H., Ladouceur, R., Thibodeau, N., & Gagnon, F. (1991). Cognitive intrusions in a non-clinical population. I. Response style, subjective experience, and appraisal. *Behaviour Research and Therapy*, *29*(6), 585–597. https://doi.org/10.1016/0005-7967(91)90008-Q

Freeston, M. H., Ladouceur, R., Thibodeau, N., & Gagnon, F. (1992). Cognitive intrusions in a non-clinical population. II. Associations with depressive, anxious, and compulsive symptoms. *Behaviour Research and Therapy*, *30*(3), 263–271. https://doi.org/10.1016/0005-7967(92)90072-O

Freeston, M. H., Rhéaume, J., & Ladouceur, R. (1996). Correcting faulty appraisals of obsessional thoughts. *Behaviour Research and Therapy*, *34*(5–6), 433–446. https://doi.org/10.1016/0005-7967(95)00076-3

Freeston, M. H., Rhéaume, J., Letarte, H., Dugas, M. J., & Ladouceur, R. (1994). Why do people worry? *Personality and Individual Differences*, *17*(6), 791–802. https://doi.org/10.1016/0191-8869(94)90048-5

Friedrichsen, M., & Milberg, A. (2006). Concerns about losing control when breaking bad news to terminally ill patients with cancer: Physicians' perspective. *Journal of Palliative Medicine*, *9*(3), 673–682. https://doi.org/10.1089/jpm.2006.9.673

Froreich, F. V., Vartanian, L. R., Grisham, J. R., & Touyz, S. W. (2016). Dimensions of control and their relation to disordered eating behaviours and obsessive-compulsive symptoms. *Journal of Eating Disorders*, *4*(1), 14. https://doi.org/10.1186/s40337-016-0104-4

Gagné, J.-P., Kelly-Turner, K., & Radomsky, A. S. (2018). From the laboratory to the clinic (and back again): How experiments have informed cognitive–behavior therapy for obsessive–

compulsive disorder. *Journal of Experimental Psychopathology*, *9*(4), 1–22. https://doi.org/10.1177/2043808718810030

Gagné, J.-P., & Radomsky, A. S. (2017). Manipulating beliefs about losing control causes checking behaviour. *Journal of Obsessive-Compulsive and Related Disorders*, *15*, 34–42. https://doi.org/10.1016/j.jocrd.2017.08.013

Gagné, J.-P., & Radomsky, A. S. (2020). Beliefs about losing control, obsessions, and caution: An experimental investigation. *Behaviour Research and Therapy*, *126*, 103574. https://doi.org/10.1016/j.brat.2020.103574

Gagné, J.-P., Radomsky, A. S., & O'Connor, R. M. (2020). Manipulating Alcohol Expectancies in Social Anxiety: A Focus on Beliefs About Losing Control. *Cognitive Therapy and Research*. https://doi.org/10.1007/s10608-020-10165-6

Gelfand, L. A., & Radomsky, A. S. (2013). Beliefs about control and the persistence of cleaning behaviour: An experimental analysis. *Journal of Behavior Therapy and Experimental Psychiatry*, *44*(2), 172–178. https://doi.org/10.1016/j.jbtep.2012.08.002

Gillham, B. (2005). *Research interviewing: The range of techniques*. McGraw-Hill Education (UK).

Greene, J. C. (2007). *Mixed methods in social inquiry*. Jossey-Bass.

Hackmann, A., Surawy, C., & Clark, D. M. (1998). Seeing yourself through others' eyes: A study of spontaneously occurring images in social phobia. *Behavioural and Cognitive Psychotherapy*, *26*(1), 3–12. https://doi.org/10.1017/S1352465898000022

Haeffel, G. J., & Howard, G. S. (2010). Self-Report: Psychology's Four-Letter Word. *The American Journal of Psychology*, *123*(2), 181–188. https://doi.org/10.5406/amerjpsyc.123.2.0181

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). *Multivariate data analysis* (Eighth edition). Cengage.

Hans, E., & Hiller, W. (2013). A meta-analysis of nonrandomized effectiveness studies on outpatient cognitive behavioral therapy for adult anxiety disorders. *Clinical Psychology Review*, *33*(8), 954–964. https://doi.org/10.1016/j.cpr.2013.07.003

Harvey, A. G., Watkins, E., Mansell, W., & Shafran, R. (Eds.). (2004). *Cognitive behavioural processes across psychological disorders: A transdiagnostic approach to research and treatment*. Oxford University Press.

Hayton, J. C., Allen, D. G., & Scarpello, V. (2004). Factor retention decisions in exploratory factor analysis: A tutorial on parallel analysis. *Organizational Research Methods*, *7*(2), 191–205. https://doi.org/10.1177/1094428104263675

Hazlett-Stevens, H., & Craske, M. G. (2003). The catastrophizing worry process in generalized anxiety disorder: A preliminary investigation of an analog population. *Behavioural and Cognitive Psychotherapy*, *31*(4), 387–401. https://doi.org/10.1017/S1352465803004016

Hedley, L. M., Hoffart, A., & Sexton, H. (2001). The change process in a cognitive-behavioral therapy: Testing a cognitive, a behavioral, and an integrated model of panic disorder with agoraphobia. *Psychotherapy Research*, *11*(4), 401–413. https://doi.org/10.1093/ptr/11.4.401

Hofmann, S. G. (2005). Perception of control over anxiety mediates the relation between catastrophic thinking and social anxiety in social phobia. *Behaviour Research and Therapy*, *43*(7), 885–895. https://doi.org/10.1016/j.brat.2004.07.002

Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy*, *36*(4), 193–209. https://doi.org/10.1080/16506070701421313

Hofmann, S. G., Asmundson, G. J. G., & Beck, A. T. (2013). The science of cognitive therapy. *Behavior Therapy*, *44*(2), 199–212. https://doi.org/10.1016/j.beth.2009.01.007

Huneke, N., Rowlatt, H., Hyde, J., McEwan, A., Maryan, L., Baldwin, D., & Garner, M. (2021). *A Modified Trier Social Stress Test to Investigate Social Anxiety using Videoconferencing Software: A Proof-of-Concept study*. PsyArXiv. https://doi.org/10.31234/osf.io/q5rbj

Ingram, R. E. (1990). Self-focused attention in clinical disorders: Review and a conceptual model. *Psychological Bulletin*, *107*(2), 156. https://doi.org/10.1037/0033-2909.107.2.156

Johns, A., & Peters, L. (2012). Self-Discrepancies and the Situational Domains of Social Phobia. *Behaviour Change*, *29*(2), 109–125. https://doi.org/10.1017/bec.2012.1

Johnson, R. B., Onwuegbuzie, A. J., & Turner, L. A. (2007). Toward a definition of mixed methods research. *Journal of Mixed Methods Research*, *1*(2), 112–133. https://doi.org/10.1177/1558689806298224

Kelly-Turner, K., & Radomsky, A. S. (2020). The Fear of Losing Control in Social Anxiety: An Experimental Approach. *Cognitive Therapy and Research*, *44*(4), 834–845. https://doi.org/10.1007/s10608-020-10104-5

Kelly-Turner, K., & Radomsky, A. S. (2022). Always Saying the Wrong Thing: Negative Beliefs About Losing Control Cause Symptoms of Social Anxiety. *Cognitive Therapy and Research*, *46*, 1137–1149. https://doi.org/10.1007/s10608-022-10325-w

Kelly-Turner, K., & Radomsky, A. S. (2023). At the Mercy of Myself: A Thematic Analysis of Beliefs about Losing Control. *Psychology and Psychotherapy: Theory, Research and Practice*, *00*, 1–17. https://doi.org/10.1111/papt.12515

Kelly-Turner, K., & Radomsky, A. S. (2024). *Update and Validation of the Beliefs about Losing Control Inventory (BALCI-II)* [Under review].

Kessler, R. C., Chiu, W. T., Demler, O., & Walters, E. E. (2005). Prevalence, severity, and comorbidity of 12-month DSM-IV disorders in the national comorbidity survey replication. *Archives of General Psychiatry*, *62*(6), 617–627. https://doi.org/10.1001/archpsyc.62.6.617

Kessler, R. C., McGonagle, K. A., Zhao, S., Nelson, C. B., Hughes, M., Eshleman, S., Wittchen, H.-U., & Kendler, K. S. (1994). Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States: Results from the national comorbidity survey. *Archives of General Psychiatry*, *51*(1), 8–19. https://doi.org/10.1001/archpsyc.1994.03950010008002

Kindred, R., Bates, G. W., & McBride, N. L. (2022). Long-term outcomes of cognitive behavioural therapy for social anxiety disorder: A meta-analysis of randomised controlled trials. *Journal of Anxiety Disorders*, *92*, 102640. https://doi.org/10.1016/j.janxdis.2022.102640

Kline, R. B. (2020). *Becoming a behavioral science researcher: A guide to producing research that matters* (2nd ed.). Guilford Press.

Klinger, E. (1975). Consequences of commitment to and disengagement from incentives. *Psychological Review*, *82*(1), 1–25. https://doi.org/10.1037/h0076171

Ladouceur, R., Freeston, M. H., Rhéaume, J., Dugas, M. J., Gagnon, F., Thibodeau, N., & Fournier, S. (2000). Strategies used with intrusive thoughts: A comparison of OCD patients with anxious and community controls. *Journal of Abnormal Psychology*, *109*(2), 179–187. https://doi.org/10.1037/0021-843X.109.2.179

Lasch, K. E., Marquis, P., Vigneux, M., Abetz, L., Arnould, B., Bayliss, M., Crawford, B., & Rosa, K. (2010). PRO development: Rigorous qualitative research as the crucial

foundation. *Quality of Life Research*, *19*(8), 1087–1096. https://doi.org/10.1007/s11136-010-9677-6

Leary, M. R. (1983). A brief version of the fear of negative evaluation scale. *Personality and Social Psychology Bulletin*, *9*(3), 371–375. https://doi.org/10.1177/0146167283093007

Lee-Jones, C., Humphris, G., Dixon, R., & Bebbington Hatcher, M. (1997). Fear of Cancer Recurrence—A Literature Review and Proposed Cognitive Formulation to Explain Exacerbation of Recurrence Fears. *Psycho-Oncology*, *6*(2), 95–105. https://doi.org/10.1002/(SICI)1099-1611(199706)6:2<95::AID-PON250>3.0.CO;2-B

Leung, A. W., & Heimberg, R. G. (1996). Homework compliance, perceptions of control, and outcome of cognitive-behavioral treatment of social phobia. *Behaviour Research and Therapy*, *34*(5), 423–432. https://doi.org/10.1016/0005-7967(96)00014-9

Levenson, H. (1974). Activism and Powerful Others: Distinctions within the Concept of Internal-External Control. *Journal of Personality Assessment*, *38*(4), 377–383. https://doi.org/10.1080/00223891.1974.10119988

Levitt, H. M. (2021). Qualitative generalization, not to the population but to the phenomenon: Reconceptualizing variation in qualitative research. *Qualitative Psychology*, *8*(1), 95. https://doi.org/10.1037/qup0000184

Levy, H. C., & Radomsky, A. S. (2016). Are all safety behaviours created equal? A comparison of novel and routinely used safety behaviours in obsessive-compulsive disorder. *Cognitive Behaviour Therapy*, *45*(5), 367–379. https://doi.org/10.1080/16506073.2016.1184712

Lovibond, P. F., & Lovibond, S. H. (1995). The structure of negative emotional states: Comparison of the Depression Anxiety Stress Scales (DASS) with the Beck Depression and Anxiety Inventories. *Behaviour Research and Therapy*, *33*(3), 335–343. https://doi.org/10.1016/0005-7967(94)00075-U

Mandler, G., & Watson, D. L. (1966). Anxiety and the interruption of behavior. In C. D. Spielberger (Ed.), *Anxiety and Behavior* (pp. 263–288). Academic Press. https://doi.org/10.1016/B978-1-4832-3131-0.50016-0

Mayo-Wilson, E., Dias, S., Mavranezouli, I., Kew, K., Clark, D. M., Ades, A. E., & Pilling, S. (2014). Psychological and pharmacological interventions for social anxiety disorder in

adults: A systematic review and network meta-analysis. *The Lancet Psychiatry*, *1*(5), 368–376. https://doi.org/10.1016/S2215-0366(14)70329-3

McEvoy, P. M., & Kingsep, P. (2006). The post-event processing questionnaire in a clinical sample with social phobia. *Behaviour Research and Therapy*, *44*(11), 1689–1697. https://doi.org/10.1016/j.brat.2005.12.005

McEvoy, P. M., & Mahoney, A. E. J. (2013). Intolerance of uncertainty and negative metacognitive beliefs as transdiagnostic mediators of repetitive negative thinking in a clinical sample with anxiety disorders. *Journal of Anxiety Disorders*, *27*(2), 216–224. https://doi.org/10.1016/j.janxdis.2013.01.006

McEvoy, P. M., Mahoney, A. E. J., & Moulds, M. L. (2010). Are worry, rumination, and post-event processing one and the same? *Journal of Anxiety Disorders*, *24*(5), 509–519. https://doi.org/10.1016/j.janxdis.2010.03.008

McManus, F., Clark, D. M., Grey, N., Wild, J., Hirsch, C., Fennell, M., Hackmann, A., Waddington, L., Liness, S., & Manley, J. (2009). A demonstration of the efficacy of two of the components of cognitive therapy for social phobia. *Journal of Anxiety Disorders*, *23*(4), 496–503. https://doi.org/10.1016/j.janxdis.2008.10.010

McManus, F., Sacadura, C., & Clark, D. M. (2008). Why social anxiety persists: An experimental investigation of the role of safety behaviours as a maintaining factor. *Journal of Behavior Therapy and Experimental Psychiatry*, *39*(2), 147–161. https://doi.org/10.1016/j.jbtep.2006.12.002

McMillan, D., & Lee, R. (2010). A systematic review of behavioral experiments vs. exposure alone in the treatment of anxiety disorders: A case of exposure while wearing the emperor's new clothes? *Clinical Psychology Review*, *30*(5), 467–478. https://doi.org/10.1016/j.cpr.2010.01.003

Mellings, T. M. B., & Alden, L. E. (2000). Cognitive processes in social anxiety: The effects of self-focus, rumination and anticipatory processing. *Behaviour Research and Therapy*, *38*(3), 243–257. https://doi.org/10.1016/S0005-7967(99)00040-6

Meng, X., Rosenthal, R., & Rubin, D. B. (1992). Comparing correlated correlation coefficients. *Psychological Bulletin*, *111*(1), 172–175. https://doi.org/10.1037/0033-2909.111.1.172

Mercan, O., & Kabadayı, F. (2023). Psychometric properties of the BALCI Turkish version. *Psicologia: Reflexão e Crítica*, *36*(1), 7. https://doi.org/10.1186/s41155-023-00248-0

Milosevic, I., Levy, H. C., Alcolado, G. M., & Radomsky, A. S. (2015). The Treatment Acceptability/Adherence Scale: Moving Beyond the Assessment of Treatment Effectiveness. *Cognitive Behaviour Therapy*, *44*(6), 456–469. https://doi.org/10.1080/16506073.2015.1053407

Mobini, S., Reynolds, S., & Mackintosh, B. (2013). Clinical Implications of Cognitive Bias Modification for Interpretative Biases in Social Anxiety: An Integrative Literature Review. *Cognitive Therapy and Research*, *37*(1), 173–182. https://doi.org/10.1007/s10608-012-9445-8

Mor, N., & Winquist, J. (2002). Self-focused attention and negative affect: A meta-analysis. *Psychological Bulletin*, *128*(4), 638. https://doi.org/10.1037/0033-2909.128.4.638

Moscovitch, D. A., & Hofmann, S. G. (2007). When ambiguity hurts: Social standards moderate self-appraisals in generalized social phobia. *Behaviour Research and Therapy*, *45*(5), 1039–1052. https://doi.org/10.1016/j.brat.2006.07.008

Moulding, R., Doron, G., Kyrios, M., & Nedeljkovic, M. (2008). Desire for control, sense of control and obsessive-compulsive checking: An extension to clinical samples. *Journal of Anxiety Disorders*, *22*(8), 1472–1479. https://doi.org/10.1016/j.janxdis.2008.03.001

Moulding, R., & Kyrios, M. (2006). Anxiety disorders and control related beliefs: The exemplar of obsessive–compulsive disorder (OCD). *Clinical Psychology Review*, *26*(5), 573–583. https://doi.org/10.1016/j.cpr.2006.01.009

Moulding, R., & Kyrios, M. (2007). Desire for Control, Sense of Control and Obsessive-Compulsive Symptoms. *Cognitive Therapy and Research*, *31*(6), 759–772. https://doi.org/10.1007/s10608-006-9086-x

Mulkens, S., de Jong, P. J., Dobbelaar, A., & Bögels, S. M. (1999). Fear of blushing: Fearful preoccupation irrespective of facial coloration. *Behaviour Research and Therapy*, *37*(11), 1119–1128. https://doi.org/10.1016/S0005-7967(98)00198-3

Naragon-Gainey, K. (2010). Meta-analysis of the relations of anxiety sensitivity to the depressive and anxiety disorders. *Psychological Bulletin*, *136*(1), 128. https://doi.org/10.1037/a0018055

Neal, R. L., & Radomsky, A. S. (2019). How Do I Say This? An Experimental Comparison of the Effects of Partner Feedback Styles on Reassurance Seeking Behaviour. *Cognitive Therapy and Research*, *43*(4), 748–758. https://doi.org/10.1007/s10608-019-10007-0

Neal, R. L., & Radomsky, A. S. (2020). What do you really need? Self- and partner-reported intervention preferences within cognitive behavioural therapy for reassurance seeking behaviour. *Behavioural and Cognitive Psychotherapy*, *48*(1), 25–37. https://doi.org/10.1017/S135246581900050X

Ness, L., & Fusch, P. I. (2015). Are we there yet—Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408–1416.

Nisbett, R. E., & Wilson, T. D. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, *84*(3), 231–259. https://doi.org/10.1037/0033-295X.84.3.231

Norton, P. J. (2006). Toward a clinically-oriented model of anxiety disorders. *Cognitive Behaviour Therapy*, *35*(2), 88–105. https://doi.org/10.1080/16506070500441561

Obsessive Compulsive Cognitions Working Group. (2005). Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory—Part 2: Factor analyses and testing of a brief version. *Behaviour Research and Therapy*, *43*(11), 1527–1542. https://doi.org/10.1016/j.brat.2004.07.010

Orr, E. M. J., & Moscovitch, D. A. (2010). Learning to re-appraise the self during video feedback for social anxiety: Does depth of processing matter? *Behaviour Research and Therapy*, *48*(8), 728–737. https://doi.org/10.1016/j.brat.2010.04.004

Osborne, J. W., & Overbay, A. (2004). The power of outliers (and why researchers should ALWAYS check for them). *Practical Assessment, Research & Evaluation*, *9*(6). https://doi.org/10.7275/QF69-7K43

Öst, L.-G., Enebrink, P., Finnes, A., Ghaderi, A., Havnen, A., Kvale, G., Salomonsson, S., & Wergeland, G. J. (2022). Cognitive behavior therapy for obsessive-compulsive disorder in routine clinical care: A systematic review and meta-analysis. *Behaviour Research and Therapy*, *159*, 104170. https://doi.org/10.1016/j.brat.2022.104170

Öst, L.-G., Havnen, A., Hansen, B., & Kvale, G. (2015). Cognitive behavioral treatments of obsessive–compulsive disorder. A systematic review and meta-analysis of studies published 1993–2014. *Clinical Psychology Review*, *40*, 156–169. https://doi.org/10.1016/j.cpr.2015.06.003

Ouimet, A. J., Dixon-Luinenburg, T., & Rooyakkers, M. (2021). Experimental Psychopathology at the Crossroads: Reflections on Past, Present, and Future Contributions to Cognitive

Behavioural Therapy. *International Journal of Cognitive Therapy*, *14*(1), 133–159. https://doi.org/10.1007/s41811-020-00093-4

Papageorgiou, C., & Wells, A. (2002). Effects of heart rate information on anxiety, perspective taking, and performance in high and low social-evaluative anxiety. *Behavior Therapy*, *33*(2), 181–199. https://doi.org/10.1016/S0005-7894(02)80024-7

Papola, D., Ostuzzi, G., Tedeschi, F., Gastaldon, C., Purgato, M., Giovane, C. D., Pompoli, A., Pauley, D., Karyotaki, E., Sijbrandij, M., Furukawa, T. A., Cuijpers, P., & Barbui, C. (2022). Comparative efficacy and acceptability of psychotherapies for panic disorder with or without agoraphobia: Systematic review and network meta-analysis of randomised controlled trials. *The British Journal of Psychiatry*, *221*(3), 507–519. https://doi.org/10.1192/bjp.2021.148

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (Fourth edition). SAGE Publications, Inc.

Perera, S., Rowa, K., & McCabe, R. E. (2016). Post-Event Processing across Multiple Anxiety Presentations: Is it Specific to Social Anxiety Disorder? *Behavioural and Cognitive Psychotherapy*, *44*(5), 568–579. https://doi.org/10.1017/S1352465815000697

Plasencia, M. L., Alden, L. E., & Taylor, C. T. (2011). Differential effects of safety behaviour subtypes in social anxiety disorder. *Behaviour Research and Therapy*, *49*(10), 665–675. https://doi.org/10.1016/j.brat.2011.07.005

Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2011, November 30). *Sources of Method Bias in Social Science Research and Recommendations on How to Control It* (world) [Review-article]. Https://Doi-Org.Lib-Ezproxy.Concordia.ca/10.1146/Annurev-Psych-120710-100452; Annual Reviews. https://doi.org/10.1146/annurev-psych-120710-100452

Pompoli, A., Furukawa, T. A., Imai, H., Tajika, A., Efthimiou, O., & Salanti, G. (2016). Psychological therapies for panic disorder with or without agoraphobia in adults: A network meta-analysis. *Cochrane Database of Systematic Reviews*, *4*. https://doi.org/10.1002/14651858.CD011004.pub2

Powers, M. B., Sigmarsson, S. R., & Emmelkamp, P. M. G. (2008). A Meta–Analytic Review of Psychological Treatments for Social Anxiety Disorder. *International Journal of Cognitive Therapy*, *1*(2), 94–113.

Purdon, C., & Clark, D. A. (1993). Obsessive intrusive thoughts in nonclinical subjects. Part I. Content and relation with depressive, anxious and obsessional symptoms. *Behaviour Research and Therapy*, *31*(8), 713–720. https://doi.org/10.1016/0005-7967(93)90001-B

Purdon, C., & Clark, D. A. (1994). Obsessive intrusive thoughts in nonclinical subjects. Part II. Cognitive appraisal, emotional response and thought control strategies. *Behaviour Research and Therapy*, *32*(4), 403–410. https://doi.org/10.1016/0005-7967(94)90003-5

Rachman, S. (1997). A cognitive theory of obsessions. *Behaviour Research and Therapy*, *35*(9), 793–802. https://doi.org/10.1016/s0005-7967(97)00040-5

Rachman, S. (1998). A cognitive theory of obsessions: Elaborations. *Behaviour Research and Therapy*, *36*(4), 385–401. https://doi.org/10.1016/S0005-7967(97)10041-9

Rachman, S. (2003). *The Treatment of Obsessions*. Oxford University Press.

Rachman, S., Coughtrey, A., Radomsky, A., & Shafran, and R. (2015). *Oxford Guide to the Treatment of Mental Contamination*. Oxford University Press.

Rachman, S., & de Silva, P. (1978). Abnormal and normal obsessions. *Behaviour Research and Therapy*, *16*(4), 233–248. https://doi.org/10.1016/0005-7967(78)90022-0

Rachman, S., Grüter-Andrew, J., & Shafran, R. (2000). Post-event processing in social anxiety. *Behaviour Research and Therapy*, *38*(6), 611–617. https://doi.org/10.1016/S0005-7967(99)00089-3

Rachman, S., & Hodgson, R. J. (1980). *Obsessions and compulsions*. Prentice Hall.

Radomsky, A. S. (2022). The fear of losing control. *Journal of Behavior Therapy and Experimental Psychiatry*, *77*, 101768. https://doi.org/10.1016/j.jbtep.2022.101768

Radomsky, A. S., Alcolado, G. M., Abramowitz, J. S., Alonso, P., Belloch, A., Bouvard, M., Clark, D. A., Coles, M. E., Doron, G., Fernández-Álvarez, H., Garcia-Soriano, G., Ghisi, M., Gomez, B., Inozu, M., Moulding, R., Shams, G., Sica, C., Simos, G., & Wong, W. (2014). Part 1—You can run but you can't hide: Intrusive thoughts on six continents. *Journal of Obsessive-Compulsive and Related Disorders*, *3*(3), 269–279. https://doi.org/10.1016/j.jocrd.2013.09.002

Radomsky, A. S., Ashbaugh, A. R., & Gelfand, L. A. (2007). Relationships between anger, symptoms, and cognitive factors in OCD checkers. *Behaviour Research and Therapy*, *45*(11), 2712–2725. https://doi.org/10.1016/j.brat.2007.07.009

Radomsky, A. S., & Gagné, J.-P. (2019). The development and validation of the Beliefs About Losing Control Inventory (BALCI). *Cognitive Behaviour Therapy*, 1–16. https://doi.org/10.1080/16506073.2019.1614978

Radomsky, A. S., & Gagné, J.-P. (2020). The development and validation of the Beliefs About Losing Control Inventory (BALCI). *Cognitive Behaviour Therapy*, *49*(2), 97–112. https://doi.org/10.1080/16506073.2019.1614978

Radomsky, A. S., Gilchrist, P. T., & Dussault, D. (2006). Repeated checking really does cause memory distrust. *Behaviour Research and Therapy*, *44*(2), 305–316. https://doi.org/10.1016/j.brat.2005.02.005

Rapee, R. M. (1997). Perceived threat and perceived control as predictors of the degree of fear in physical and social situations. *Journal of Anxiety Disorders*, *11*(5), 455–461. https://doi.org/10.1016/S0887-6185(97)00022-4

Rapee, R. M., & Heimberg, R. G. (1997). A cognitive-behavioral model of anxiety in social phobia. *Behaviour Research and Therapy*, *35*(8), 741–756. https://doi.org/10.1016/S0005-7967(97)00022-3

Rapee, R. M., Mattick, R., & Murrell, E. (1986). Cognitive mediation in the affective component of spontaneous panic attacks. *Journal of Behavior Therapy and Experimental Psychiatry*, *17*(4), 245–253. https://doi.org/10.1016/0005-7916(86)90059-5

Reimer, S. G., & Moscovitch, D. A. (2015). The impact of imagery rescripting on memory appraisals and core beliefs in social anxiety disorder. *Behaviour Research and Therapy*, *75*, 48–59. https://doi.org/10.1016/j.brat.2015.10.007

Reiss, S., & McNally, R. J. (1985). Expectancy model of fear. In S. Reiss & R. R. Bootzin (Eds.), *Theoretical issues in behaviour therapy* (pp. 107–121). Academic Press.

Reuven-Magril, O., Dar, R., & Liberman, N. (2008). Illusion of control and behavioral control attempts in obsessive-compulsive disorder. *Journal of Abnormal Psychology*, *117*(2), 334–341. https://doi.org/10.1037/0021-843X.117.2.334

Rotter, J. B. (1954). *Social learning and clinical psychology.* (pp. ix, 466). Prentice-Hall, Inc. https://doi.org/10.1037/10788-000

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied*, *80*(1), 1. https://doi.org/10.1037/h0092976

Rowa, K., Paulitzki, J. R., Ierullo, M. D., Chiang, B., Antony, M. M., McCabe, R. E., & Moscovitch, D. A. (2015). A false sense of security: Safety behaviors erode objective speech performance in individuals with social anxiety disorder. *Behavior Therapy*, *46*(3), 304–314. https://doi.org/10.1016/j.beth.2014.11.004

Saldaña, J. (2016). *The coding manual for qualitative researchers* (3rd ed.). SAGE.

Salkovskis, P. M. (1985). Obsessional-compulsive problems: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, *23*(5), 571–583. https://doi.org/10.1016/0005-7967(85)90105-6

Salkovskis, P. M. (2007). Psychological treatment of obsessive–compulsive disorder. *Psychiatry*, *6*(6), 229–233. https://doi.org/10.1016/j.mppsy.2007.03.008

Salkovskis, P. M., & Clark, D. M. (1990). Affective responses to hyperventilation: A test of the cognitive model of panic. *Behaviour Research and Therapy*, *28*(1), 51–61. https://doi.org/10.1016/0005-7967(90)90054-M

Sanavio, E. (1988). Obsessions and compulsions: The Padua inventory. *Behaviour Research and Therapy*, *26*(2), 169–177. https://doi.org/10.1016/0005-7967(88)90116-7

Sanderson, W. C., Rapee, R. M., & Barlow, D. H. (1989). The influence of an illusion of control on panic attacks induced via inhalation of 5.5% carbon dioxide-enriched air. *Archives of General Psychiatry*, *46*(2), 157–162. https://doi.org/10.1001/archpsyc.1989.01810020059010

Sandstrom, A., Krause, S., Ouellet-Courtois, C., Kelly-Turner, K., & Radomsky, A. S. (2023). *What's Control Got To Do With It: A Systematic Review of Control Beliefs in Obsessive-Compulsive Disorder* [Under review]. Department of Psychology, Concordia University.

Schlenker, B. R., & Leary, M. R. (1982). Social anxiety and self-presentation: A conceptualization model. *Psychological Bulletin*, *92*(3), 641–669. https://doi.org/10.1037/0033-2909.92.3.641

Sexton, K. A., Norton, P. J., Walker, J. R., & Norton, G. R. (2003). Hierarchical model of generalized and specific vulnerabilities in anxiety. *Cognitive Behaviour Therapy*, *32*(2), 82–94. https://doi.org/10.1080/16506070302321

Shafran, R., Cooper, Z., & Fairburn, C. G. (2002). Clinical perfectionism: A cognitive-behavioural analysis. *Behaviour Research and Therapy*, *40*(7), 773–791. https://doi.org/10.1016/s0005-7967(01)00059-6

Shalom, J. G., Israeli, H., Markovitzky, O., & Lipsitz, J. D. (2015). Social anxiety and physiological arousal during computer mediated vs. Face to face communication. *Computers in Human Behavior*, *44*, 202–208. https://doi.org/10.1016/j.chb.2014.11.056

Shapiro, D. H., Schwartz, C. E., & Astin, J. A. (1996). Controlling Ourselves, Controlling Our World. *American Psychologist*, *51*(12), 1213–1230.

Sheehan, D., Lecrubier, Y., Harnett Sheehan, K., Janavs, J., Weiller, E., Keskiner, A., Schinka, J., Knapp, E., Sheehan, M., & Dunbar, G. (1997). The validity of the Mini International Neuropsychiatric Interview (MINI) according to the SCID-P and its reliability. *European Psychiatry*, *12*(5), 232–241. https://doi.org/10.1016/S0924-9338(97)83297-X

Simard, S., Thewes, B., Humphris, G., Dixon, M., Hayden, C., Mireskandari, S., & Ozakinci, G. (2013). Fear of cancer recurrence in adult cancer survivors: A systematic review of quantitative studies. *Journal of Cancer Survivorship*, *7*(3), 300–322. https://doi.org/10.1007/s11764-013-0272-z

Sjögren, B. (1997). Reasons for anxiety about childbirth in 100 pregnant women. *Journal of Psychosomatic Obstetrics & Gynecology*, *18*(4), 266–272. https://doi.org/10.3109/01674829709080698

Smith, J. A., & Osborn, M. (2015). Interpretative phenomenological analysis. In J. A. Smith (Ed.), *Qualitative Psychology: A Practical Guide to Research Methods* (3rd ed.). SAGE Publications, Inc.

Spokas, M., Luterek, J. A., & Heimberg, R. G. (2009). Social anxiety and emotional suppression: The mediating role of beliefs. *Journal of Behavior Therapy and Experimental Psychiatry*, *40*(2), 283–291. https://doi.org/10.1016/j.jbtep.2008.12.004

Spurr, J. M., & Stopa, L. (2002). Self-focused attention in social phobia and social anxiety. *Clinical Psychology Review*, *22*(7), 947–975. https://doi.org/10.1016/S0272-7358(02)00107-1

Stewart, R. E., & Chambless, D. L. (2009). Cognitive–behavioral therapy for adult anxiety disorders in clinical practice: A meta-analysis of effectiveness studies. *Journal of Consulting and Clinical Psychology*, *77*(4), 595–606. https://doi.org/10.1037/a0016032

Stopa, L., & Clark, D. M. (1993). Cognitive processes in social phobia. *Behaviour Research and Therapy*, *31*(3), 255–267. https://doi.org/10.1016/0005-7967(93)90024-O

Stopa, L., & Clark, D. M. (2000). Social phobia and interpretation of social events. *Behaviour Research and Therapy*, *38*(3), 273–283. https://doi.org/10.1016/S0005-7967(99)00043-1

Stopa, L., & Clark, D. M. (2001). Social phobia: Comments on the viability and validity of an analogue research strategy and British norms for the fear of negative evaluation questionnaire. *Behavioural and Cognitive Psychotherapy*, *29*(4), 423–430. https://doi.org/10.1017/S1352465801004039

Taylor, C. T., & Alden, L. E. (2005). Social interpretation bias and generalized social phobia: The influence of developmental experiences. *Behaviour Research and Therapy*, *43*(6), 759–777. https://doi.org/10.1016/j.brat.2004.06.006

Taylor, S., & Rachman, S. J. (1991). Fear of sadness. *Journal of Anxiety Disorders*, *5*(4), 375–381. https://doi.org/10.1016/0887-6185(91)90037-T

Taylor, S., & Rachman, S. J. (1992). Fear and avoidance of aversive affective states: Dimensions and causal relations. *Journal of Anxiety Disorders*, *6*(1), 15–25. https://doi.org/10.1016/0887-6185(92)90022-Y

Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., Abramowitz, J. S., Holaway, R. M., Sandin, B., Stewart, S. H., Coles, M., Eng, W., Daly, E. S., Arrindell, W. A., Bouvard, M., & Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment*, *19*(2), 176–188. https://doi.org/10.1037/1040-3590.19.2.176

Thompson, S., & Rapee, R. M. (2002). The effect of situational structure on the social performance of socially anxious and non-anxious participants. *Journal of Behavior Therapy and Experimental Psychiatry*, *33*(2), 91–102. https://doi.org/10.1016/S0005-7916(02)00021-6

Thordarson, D. S., Radomsky, A. S., Rachman, S. J., Shafran, R., Sawchuk, C. N., & Ralph Hakstian, A. (2004). The Vancouver Obsessional Compulsive Inventory (VOCI). *Behaviour Research and Therapy*, *42*(11), 1289–1314. https://doi.org/10.1016/j.brat.2003.08.007

Thyer, B. A. (1985). Audio-taped exposure therapy in a case of obsessional neurosis. *Journal of Behavior Therapy and Experimental Psychiatry*, *16*(3), 271–273. https://doi.org/10.1016/0005-7916(85)90074-6

Tolin, D. F., Abramowitz, J. S., Przeworski, A., & Foa, E. B. (2002). Thought suppression in obsessive-compulsive disorder. *Behaviour Research and Therapy*, *40*(11), 1255–1274. https://doi.org/10.1016/S0005-7967(01)00095-X

van den Hout, M., & Kindt, M. (2004). Obsessive–compulsive disorder and the paradoxical effects of perseverative behaviour on experienced uncertainty. *Journal of Behavior Therapy and Experimental Psychiatry*, *35*(2), 165–181. https://doi.org/10.1016/j.jbtep.2004.04.007

Velicer, W. F., & Jackson, D. N. (1990). Component analysis versus common factor analysis: Some issues in selecting an appropriate procedure. *Multivariate Behavioral Research*, *25*(1), 1–28. https://doi.org/10.1207/s15327906mbr2501_1

Voncken, M. J., & Bögels, S. M. (2008). Social performance deficits in social anxiety disorder: Reality during conversation and biased perception during speech. *Journal of Anxiety Disorders*, *22*(8), 1384–1392. https://doi.org/10.1016/j.janxdis.2008.02.001

Warnock-Parkes, E., Wild, J., Stott, R., Grey, N., Ehlers, A., & Clark, D. M. (2017). Seeing is believing: Using video feedback in cognitive therapy for social anxiety disorder. *Cognitive and Behavioral Practice*, *24*(2), 245–255. https://doi.org/10.1016/j.cbpra.2016.03.007

Watson, D., & Friend, R. (1969). Measurement of social-evaluative anxiety. *Journal of Consulting and Clinical Psychology*, *33*(4), 448–457. https://doi.org/10.1037/h0027806

Wells, A. (1999). A Cognitive Model of Generalized Anxiety Disorder. *Behavior Modification*, *23*(4), 526–555. https://doi.org/10.1177/0145445599234002

Wells, A., & Morrison, A. P. (1994). Qualitative dimensions of normal worry and normal obsessions: A comparative study. *Behaviour Research and Therapy*, *32*(8), 867–870. https://doi.org/10.1016/0005-7967(94)90167-8

White, K. S., Brown, T. A., Somers, T. J., & Barlow, D. H. (2006). Avoidance behavior in panic disorder: The moderating influence of perceived control. *Behaviour Research and Therapy*, *44*(1), 147–157. https://doi.org/10.1016/j.brat.2005.07.009

Whiteside, S. P., & Abramowitz, J. S. (2004). Obsessive–Compulsive Symptoms and the Expression of Anger. *Cognitive Therapy and Research*, *28*(2), 259–268. https://doi.org/10.1023/B:COTR.0000021544.64104.29

Whiteside, S. P., & Abramowitz, J. S. (2005). The expression of anger and its relationship to symptoms and cognitions in obsessive–compulsive disorder. *Depression and Anxiety*, *21*(3), 106–111. https://doi.org/10.1002/da.20066

Whittal, M. L., Thordarson, D. S., & McLean, P. D. (2005). Treatment of obsessive–compulsive disorder: Cognitive behavior therapy vs. exposure and response prevention. *Behaviour Research and Therapy*, *43*(12), 1559–1576. https://doi.org/10.1016/j.brat.2004.11.012

Wigert, H., Nilsson, C., Dencker, A., Begley, C., Jangsten, E., Sparud-Lundin, C., Mollberg, M., & Patel, H. (2020). Women's experiences of fear of childbirth: A metasynthesis of qualitative studies. *International Journal of Qualitative Studies on Health and Well-Being*, *15*(1), 1704484. https://doi.org/10.1080/17482631.2019.1704484

Wild, J., Clark, D. M., Ehlers, A., & McManus, F. (2008). Perception of arousal in social anxiety: Effects of false feedback during a social interaction. *Journal of Behavior Therapy and Experimental Psychiatry*, *39*(2), 102–116. https://doi.org/10.1016/j.jbtep.2006.11.003

Williams, K. E., Chambless, D. L., & Ahrens, A. (1997). Are emotions frightening? An extension of the fear of fear construct. *Behaviour Research and Therapy*, *35*(3), 239–248. https://doi.org/10.1016/S0005-7967(96)00098-8

Zvolensky, M. J., & Eifert, G. H. (2001). A review of psychological factors/processes affecting anxious responding during voluntary hyperventilation and inhalations of carbon dioxide-enriched air. *Clinical Psychology Review*, *21*(3), 375–400. https://doi.org/10.1016/S0272-7358(99)00053-7

Zvolensky, M. J., Lejuez, C. W., Stuart, G. L., & Curtin, J. J. (2001). Experimental Psychopathology in Psychological Science. *Review of General Psychology*, *5*(4), 371–381. https://doi.org/10.1037/1089-2680.5.4.371

APPENDIX A
Beliefs about Losing Control Inventory – Second Edition

Please rate each statement by circling the option that best describes how much the statement is true of you. Please answer every item, without spending too much time on any particular item.

Item	None at all	A little	Somewhat	A lot	A great deal
1. If I lose control over my emotions, I might go crazy **(OE)**	0	1	2	3	4
2. If I lose control, I'm afraid of what I might do **(DB)**	0	1	2	3	4
3. If I don't control my physical sensations, I might go crazy **(M)**	0	1	2	3	4
4. I am afraid of losing control of my thoughts **(PS)**	0	1	2	3	4
5. If I get too emotional, I worry that I might never calm down **(PS)**	0	1	2	3	4
6. If I can't control my emotions, I might lose control of my whole life **(OE)**	0	1	2	3	4
7. I'm afraid that I might not be able to keep my emotions in check **(PS)**	0	1	2	3	4
8. Having a bad thought puts me at risk of going crazy **(M)**	0	1	2	3	4
9. I am likely to lose control of my emotions **(PS)**	0	1	2	3	4
10. If I have too many thoughts, I could lose control of my mind **(M)**	0	1	2	3	4
11. I'm more likely to lose control than other people **(PS)**	0	1	2	3	4
12. If I lose control of my anger, I don't know what I might do **(DB)**	0	1	2	3	4
13. If I can't always control my thoughts it means I might become a dangerous person **(DB)**	0	1	2	3	4
14. If I feel weird in my body in ways can't explain, it means I'm about to completely lose it **(M)**	0	1	2	3	4
15. If I lose control at the wrong time I might cause an accident or hurt someone **(DB)**	0	1	2	3	4
16. Strong emotions can be dangerous because you might lose control **(OE)**	0	1	2	3	4
17. I may lose control of myself and injure someone **(DB)**	0	1	2	3	4
18. I may lose control in public and be taken to the hospital **(DB)**	0	1	2	3	4

19. It's important for me to keep my emotions from spiraling out of control **(OE)**	0	1	2	3	4
20. Intense emotions make people lose control **(OE)**	0	1	2	3	4
21. Staying in control of my emotions means things won't get out of hand **(OE)**	0	1	2	3	4
22. I might lose control if I feel a strange sensation in my body **(M)**	0	1	2	3	4
23. I'm concerned about my ability to handle my emotions **(PS)**	0	1	2	3	4
24. If I can't keep physical sensations in check, I may never regain control **(M)**	0	1	2	3	4
25. I'm afraid I might lash out and break something or hurt someone if I'm not careful **(DB)**	0	1	2	3	4
26. If I lose control, I will get too anxious **(OE)**	0	1	2	3	4
27. If I don't manage the thoughts, images or impulses in my mind, I will lose control **(M)**	0	1	2	3	4
28. If I get too angry, I might do something dangerous **(DB)**	0	1	2	3	4
29. Feeling shaky means I am about to go insane **(M)**	0	1	2	3	4
30. If I lose control, I will get too upset. **(OE)**	0	1	2	3	4
31. I am likely to lose control over my thoughts **(PS)**	0	1	2	3	4
32. Appearing out of control is as bad as being out of control **(OE)**	0	1	2	3	4

Subscales:

OE – Overwhelming Emotions

PS – Probability/Severity

DB – Dangerous Behaviour

M – Madness

APPENDIX B
Human Research Ethics Council Approval Certificates

CERTIFICATION OF ETHICAL ACCEPTABILITY
FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant:	Ken Kelly-Turner
Department:	Faculty of Arts and Science\Psychology
Agency:	Social Sciences & Humanities Research Council
Title of Project:	The fear of losing control: A multimethod investigation
Certification Number:	30013481

Valid From: February 16, 2023 To: February 15, 2024

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Dr. David Waddington, Chair, University Human Research Ethics Committee

CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant:	Ken Kelly-Turner
Department:	Faculty of Arts and Science\Psychology
Agency:	Social Sciences & Humanities Research Council
Title of Project:	The fear of losing control: A multimethod investigation
Certification Number:	30013481

Valid From: February 16, 2022 To: February 15, 2023

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Dr. Richard DeMont, Chair, University Human Research Ethics Committee

UNIVERSITÉ Concordia UNIVERSITY

CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant:	Ken Kelly-Turner
Department:	Faculty of Arts and Science\Psychology
Agency:	Social Sciences & Humanities Research Council
Title of Project:	The fear of losing control: A multimethod investigation
Certification Number:	30013481

Valid From: March 02, 2021 To: March 01, 2022

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Richard DeMont

Dr. Richard DeMont, Chair, University Human Research Ethics Committee

CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant:	Ken Kelly-Turner
Department:	Faculty of Arts and Science\Psychology
Agency:	Social Sciences & Humanities Research Council
Title of Project:	The fear of losing control: A multimethod investigation
Certification Number:	30013481

Valid From: October 14, 2020 To: October 13, 2021

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Richard DeMont

Dr. Richard DeMont, Chair, University Human Research Ethics Committee

UNIVERSITÉ Concordia UNIVERSITY

CERTIFICATION OF ETHICAL ACCEPTABILITY FOR RESEARCH INVOLVING HUMAN SUBJECTS

Name of Applicant:	Ken Kelly-Turner
Department:	Faculty of Arts and Science\Psychology
Agency:	Social Sciences & Humanities Research Council
Title of Project:	The fear of losing control: A multimethod investigation
Certification Number:	30013481

Valid From: August 13, 2020 To: August 12, 2021

The members of the University Human Research Ethics Committee have examined the application for a grant to support the above-named project, and consider the experimental procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

Richard DeMont

Dr. Richard DeMont, Chair, University Human Research Ethics Committee

APPENDIX C
Consent Forms

Informed Consent for Study 1

INFORMATION AND CONSENT FORM

Study Title: Self-control and impulsivity: a behavioural task
Researcher: Ken Kelly-Turner, M. A.
Researcher's Contact Information: 514-848-2424 ext. 5965; k_kellyt@live.concordia.ca
Faculty Supervisor: Adam Radomsky, Ph.D
Faculty Supervisor's Contact Information: 514-848-2424 ext. 2202;
adam.radomsky@concordia.ca
Source of funding for the study: Social Sciences & Humanities Research Council (SSHRC)

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to assess the relationship between self-control and impulsivity. We are particularly interested the associations between self-control and social interactions.

B. PROCEDURES

If you participate, you will be asked to press agree at the bottom of this page, complete a series of questionnaires, perform a brief cognitive task and participate in a getting to know you activity with a research assistant (both will be video recorded for subsequent review).

You will also receive a link via email to a second questionnaire 24-hours following participation, which should take 5-10 minutes to complete.

In total, participating in this study will take approximately one hour.

C. RISKS AND BENEFITS

To the best of our knowledge, there are no risks associated with your participation in this study. If you experience distress at any point, let the experimenter know immediately.

Potential benefits for your participation include: the opportunity to gain first-hand insight into how research is conducted in psychology. Further, you will have made a direct contribution to the development of psychological treatments through your participation.

D. CONFIDENTIALITY

By participating, you agree to let researchers have access to the data you will have provided during the study. This information will be obtained from the questionnaires you will complete, the results of the cognitive task, your performance, video recordings and the ratings you provide.

We will not allow anyone to access the information, except people directly involved in conducting the research. We will only use the information for the purposes of the research described in this form.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name which will be kept separate under lock and key.

By agreeing to participate in this study you are consenting to be video recorded. These recordings will only be accessible to people directly involved in conducting the research. These recordings will only be used for the purposes of the research described in this form.

All information obtained will be kept strictly confidential and will be on password protected files for a period of seven years after publication, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you choose to withdraw from the study, your data will be destroyed. If you decide that you don't want us to use your information, you must tell the researcher at any time within one week following your participation. After that time, it is not possible to have your information omitted from analysis

As a compensatory indemnity for participating in this research, you will receive one point towards the participant pool OR an entry ballot into our cash draw for $250 (odds of winning vary by year, based on number of participants who enter), held annually between August and September, following your participation. If you withdraw before the end of the research, you will receive the same compensation anyway.

To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

By clicking on the "I agree" button below, I confirm that I agree to participate in the study described above.

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca

Debrief consent form for Study 1

Thank you for participating in the study today! This page contains additional information about the experiment. This study involved the use of some deception, which means certain aspects of the study must be re-explained.

Firstly, you were told yesterday that this study was looking at the relationship between self-control and impression management. We were really interested in the relationship between negative beliefs about losing control and social anxiety. We wanted to know if holding certain beliefs about losing control would cause people to experience more social anxiety. Had you known this was the true purpose of the study, it could have influenced your behaviour and questionnaire responses.

Yesterday, you completed a task which you were told assessed your self-control and received feedback on your score. This task was invented for the study. It was meant to be hard enough that you would make mistakes and wouldn't know how well you did. The feedback you received was random, in order to randomly assign you to one of two conditions. You were either told that you scored above average and were unlikely to lose control or below average and more likely to lose control. This bogus feedback was necessary as we were trying to change your *beliefs* about your risk of losing control and to you for negative social consequences of losing control. Had you known we were trying to manipulate these beliefs, it's unlikely anything would have changed when you received the feedback.

Participating in a study which relies deception can be unnerving. These deceptions were necessary so we could test our hypotheses experimentally without biasing your behaviour. We were interested in seeing whether increasing people's negative beliefs about losing control would lead to more symptoms of social anxiety and discomfort when meeting new people. We were also interested in seeing whether holding these negative beliefs about losing control would lead to more negative processing in the day following.

Since the study relied on deception and included a false purpose, you now have another opportunity to decide whether you want your data included.

Finally, as this study does rely on deception, we ask that you do not discuss any of the specifics described above to you with friends or classmates. You are welcome to talk about details you were told prior to this debrief, such that you did a cognitive task, that you got to know a research assistant, and that you completed questionnaires over two days.

If you think of any questions, concerns or comments, please contact Ken Kelly-Turner (email: k_kellyt@live.concordia.ca; phone: 613-612-7031) or Professor Adam Radomsky (adam.radomsky@concordia.ca).

Please select 'I agree' if you consent to have your data included given the use of deception.

Informed Consent for Study 2

INFORMATION AND CONSENT FORM

Study Title: Beliefs about losing control: a qualitative investigation
Researcher: Ken Kelly-Turner, M. A.
Researcher's Contact Information: 514-848-2424 ext. 5965; k_kellyt@live.concordia.ca
Faculty Supervisor: Adam Radomsky, Ph.D
Faculty Supervisor's Contact Information: 514-848-2424 ext. 2202; adam.radomsky@concordia.ca
Source of funding for the study: Social Sciences & Humanities Research Council (SSHRC)

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to conduct an investigation of beliefs about losing control and to understand what people believe happens when they lose control.

B. PROCEDURES

If you participate, you will be asked various questions related to your beliefs about losing control. Additionally, you will be asked to fill out some questionnaires.

In total, participating in this study will take approximately 90 minutes.

The interview will be audio recorded and will only be made available to members of Professor Radomsky's research team.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research. These risks include: slight discomfort when thinking about some topics and/or when answering questions of a somewhat sensitive nature (e.g., related to anxiety and/or low mood), or when talking about potentially sensitive areas of your life that may be difficult for you to discuss. We expect that any discomfort you may experience will be mild and temporary; please inform the experimenter if you feel in any way uncomfortable.

Potential benefits for your participation include: the opportunity to gain first-hand insight into how research is conducted in psychology. Further, you will have made a direct contribution to the development of psychological treatments through your participation.

D. CONFIDENTIALITY

By participating, you agree to let researchers have access to the data you will have provided during the study. This information will be obtained from the questionnaires (e.g., symptoms you may be experiencing) you will complete, recordings and the ratings you provide.

We will not allow anyone to access the information, except people directly involved in conducting the research. We will only use the information for the purposes of the research described in this form.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name which will be kept separate under lock and key.

By agreeing to participate in this study you are consenting to be video recorded. These recordings will only be accessible to people directly involved in conducting the research. These recordings will only be used for the purposes of the research described in this form.

All information obtained will be kept strictly confidential and will be on password protected files for a period of seven years after publication, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results. Select quotes from interviews may be included in the final published results, however, all included quotes will be anonymized, without any link to demographic characteristics of the speaker.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you choose to withdraw from the study, your data will be destroyed. If you decide that you don't want us to use your information, you must tell the researcher at any time within one week following your participation. After that time, it is not possible to have your information omitted from analysis

As a compensatory indemnity for participating in this research, you will receive 1.5 points towards the participant pool OR an entry ballot into our cash draw for $250 (odds of winning vary by year, based on number of participants who enter), held annually between August and September, following your participation OR $10/hour. If you withdraw before the end of the research, you will receive the same compensation anyway.

To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

By clicking on the "I agree" button below, I confirm that I agree to participate in the study described above.

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.

Informed Consent for Study 3

INFORMATION AND CONSENT FORM

Study Title: Beliefs about losing control: a psychometric investigation
Researcher: Ken Kelly-Turner, M. A.
Researcher's Contact Information: 514-848-2424 ext. 5965; k_kellyt@live.concordia.ca
Faculty Supervisor: Adam Radomsky, Ph.D
Faculty Supervisor's Contact Information: 514-848-2424 ext. 2202;
adam.radomsky@concordia.ca
Source of funding for the study: Social Sciences & Humanities Research Council (SSHRC)

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to conduct an investigation of beliefs about losing control and to understand what people believe happens when they lose control.

B. PROCEDURES

If you agree to participate in this study, you will be asked to complete two online questionnaire packages. Part 1 of the study should take approximately 60-90 minutes to complete. Part 2 of the study will take place three (3) weeks following your completion of part 1 and should take 10-15 minutes to complete. These questionnaires ask no information regarding your name and they will not be connected in any way with your contact details. The data collected from these questionnaires will be hosted on a Concordia University server, but no identifying information will be linked to the questionnaires or hosted on the server. Finally, you will be provided with a debriefing form highlighting additional details of the research study and further readings and resources.

C. RISKS AND BENEFITS

there are no risks associated with your participation in this study.

Potential benefits for your participation include: the opportunity to gain first-hand insight into how research is conducted in psychology. Further, you will have made a direct contribution to the development of psychological treatments through your participation.

D. CONFIDENTIALITY

By participating, you agree to let researchers have access to the data you will have provided during the study.

We will not allow anyone to access the information, except people directly involved in conducting the research. We will only use the information for the purposes of the research described in this form.

The information gathered will not be linked to you in any way.

All information obtained will be kept strictly confidential and will be on password protected files for a period of seven years after publication, after which all identifying information will be destroyed and all other data will be archived indefinitely.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you choose to withdraw from the study, your data will be destroyed. If you decide that you don't want us to use your information, you must tell the researcher at any time within one week following your participation. After that time, it is not possible to have your information omitted from analysis

As a compensatory indemnity for participating in this research, you will receive 1.5 points towards the participant pool OR an entry ballot into our cash draw for $250 (odds of winning vary by year, based on number of participants who enter), held annually between August and September, following your participation for the completion of part 1 of the study. For part 2 of the study, you will receive an additional 0.5 points towards the pool OR an additional entry ballot into our cash draw. If you withdraw after starting but before completing either part of the study, you will still receive the same compensation for that part anyway.

To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

By clicking on the "I agree" button below, I confirm that I agree to participate in the study described above.

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia.ca.