The role of avoidance and stress in understanding emotional dysfunction in adults and adolescents with a fixed emotion mindset

By

Vanessa Emily Schell

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FIXED MINDSETS AND AVOIDANCE

Abstract

Emotion mindsets refer to global beliefs about the controllability of one’s emotions. Individuals with fixed emotion mindsets view their emotions as uncontrollable and believe that no effort or strategy on their part can alter them, and these individuals display high rates of internalizing symptoms. Thus, holding a fixed mindset represents a vulnerability for emotional dysfunction; however, the proximal factors and circumstances that explain this relationship for fixed individuals are unclear. For my dissertation, I examined whether the use of avoidance-based regulation strategies were the process by which mindsets might indirectly influence internalizing symptoms in two age groups: first year post-secondary students (17 to 21 years old; Study 1 & 2) and adolescents (13 to 15 years old; Study 3). Avoidance is a strong predictor of internalizing symptoms and fixed individuals are shown to use avoidance in response to negative emotions. Furthermore, I examined this relationship within the context of perceived levels of stress. High levels of perceived stress increase negative emotions which may trigger emotion mindsets more strongly since mindsets become more salient when stress is high (Michl et al., 2013; Zautra et al., 2002). Post-secondary school and adolescence are well-known periods of transition known to increase levels of stress. In Study 1, (N=163; mean age = 17.9), a fixed emotion mindset was associated more with use of avoidance-based strategies, and greater presence of depression and anxiety symptoms in undergraduates. Furthermore, avoidance-based strategies accounted for a significant indirect effect between mindset and anxiety, but not depression. Study 2 (N=183; mean age = 18.7) was a conceptual replication of the Study 1 model and extended this finding by examining the moderating role of perceived stress. Avoidance-based strategies indirectly explained the relationship between both anxiety and depression; however, there was no moderating effect of perceived stress. In Study 3 (N=187; mean age =
13.9), avoidance-based strategies indirectly explained the relationship between anxiety and depression; however, levels of perceived stress did not significantly moderate the indirect relationship. Overall, these studies extend the literature on emotion mindsets by expanding the knowledge on the behaviour of fixed individuals who are relatively understudied and are most vulnerable to emotional dysfunction. Discussions will focus on the general themes of the dissertation, such as expanding on what it looks like to be an individual with a fixed emotion mindset and how these mindsets might develop. Clinical implications of these results, as well as considerations for future studies, are also discussed.
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Finally, I am extremely proud of myself. Two serious brain injuries could not prevent me from accomplishing what I set out to do 7 years ago. No situation is hopeless. Everyone’s timeline is different and life can get in the way and we should remind ourselves with compassion that this is okay.
Statement of Co-Authorship

The two manuscripts of this dissertation were the collaborative effort of the doctoral candidate, Vanessa Schell and her supervisor, Dr. Tom Hollenstein. As the principal investigator, Ms. Schell was responsible for the conceptualization, design, data collection, analysis, and preparation of the manuscripts. Dr. Hollenstein supervised and assisted with all aspects of the research process and was thus included as a co-author on both manuscripts.
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Chapter 1: General Introduction

Peyton and Jesse are both 17-year-old high school students moving out of province to attend university. In their relatively small high schools, they were popular, bright, happy, and considered to be well-adapted adolescents. They knew university would be a big change, but both felt prepared and excited.

Being at university came with increased independence, but for the first time, Peyton and Jesse were responsible for managing their academics, social life, health, finances, and more. University brought with it more challenges than either Jesse or Peyton expected. The courses were fast-paced and the content more abstract. Moving away from home meant making new friend groups, pressure to attend parties and get togethers, join extracurricular activities, and engage more with social media in order to foster these new friendships. They experienced feelings of loneliness and longing for their familiar friends and family. As well, they exercised less, ate more greasy food, got less sleep, and had more hangovers. Sometimes these demands seemed to pile up all at once like when midterms and homecoming overlapped.

Similar to other new students, these challenges led to high levels of distress for Jesse and Peyton. They experienced a range of negative emotions such as anxiety, sadness, despair, and anger more often and intensely than they expected or were accustomed to. Neither Jesse nor Peyton wanted to experience so many negative emotions, since university was supposed to be one of the best times of their lives and the path to a good career. Despite similar backgrounds and experiences, Jesse and Peyton responded to their distressing emotions in very different ways. Jesse knew that she could avoid the situations that made her feel bad, but that would mean losing out on the positive feelings that those situations also brought. She decided to keep going into these situations despite the emotional risk. When these big emotions came up, she tried different
things to change them. She reached out to friends or her parents for help with problem-solving. She tried to coach herself before going into these situations or thinking about the situation in a different way. She also tried to make lifestyle changes to help reduce the stress that triggered negative emotions. Jesse found that as she used these different techniques again and again, they became more effective. She started feeling less worried about going into situations where big emotions might be triggered. The more stressful things got, the more she used her different strategies, sought out to learn new ways, and doubled down on her efforts to manage her emotions. Jesse eventually adapted well to the demands of university.

Peyton had a different response to his big emotions. He didn’t know what to do with them. They felt so intense that it seemed like nothing would make them go away. He saw that other people didn’t seem to get as upset or bounced back quickly and he felt embarrassed that he was so emotional. Even when he did try to do something it never worked, so he started seeing little point of trying it again. The only things that seemed to work were distracting himself from the thoughts and feelings by playing video games or smoking marijuana or drinking to dull the negative emotions. He also stopped going into situations that might trigger negative emotions. Eventually, he only chose to be in situations that were familiar and that he knew wouldn’t make him upset. He kept to a small group of friends he knew. He was hesitant to form intimate emotional connections with others, preferring shallow, casual relationships; however, by avoiding new relationships he also missed out on opportunities for positive emotions. The more stressful things got, the more intense the emotions, and the more he tried his best to avoid them. Despite all his efforts to stay away from his negative emotions, they always came back and continued to become more intense and frequent. Although Peyton was very bright, he returned home after a year at university due to struggles with his mental health.
How is it that individuals who appear to have similar backgrounds, qualities, and experiences end up with different outcomes? Although there are many factors that contribute to these different paths, a precipitating factor might be what each person believed about those challenging emotional moments. These beliefs may in turn have impacted how they responded to these emotions and situations. Jesse believed her emotions were something that could be changed and sought out ways to improve her emotional experience. In contrast, Peyton interpreted his emotional experiences as something that was unchangeable. He became stuck in his emotions and did his best to avoid them. As emotional challenges amplified, Jesse further engaged with the emotion, while Peyton became more withdrawn. These approaches had direct and influential impacts on their mental health and overall well-being.

The overarching goal of this dissertation is to understand how beliefs about emotions, specifically the changeability of emotions, lead to different responses and psychosocial outcomes when faced with emotional challenges. My focus was on those individuals who believe that nothing can be done to change their emotions. To this end, I examined the process and circumstances through which beliefs about the unchangeability of emotions might predict poor emotional functioning. First, I sought to understand whether the relationship between these beliefs and internalizing symptoms (e.g. anxiety and depression) was accounted for by the greater use of avoidance. Second, I sought to explore perceived stress as one of the contextual factors for better understanding the relationship between emotion controllability beliefs and emotional functioning.

**Theoretical Foundations**

Implicit beliefs are poorly articulated beliefs that lie below conscious awareness but strongly impact behaviour nonetheless (Dweck & Leggett, 1988). As the study of beliefs moved
within the domain of scientific study, implicit beliefs were explored within domains such as personality, developmental, and clinical psychology. For example, Jean Piaget theorized that children have implicit mental models of the world which inform how they understand and respond to an onslaught of new incoming information (Piaget, 1936). Second, Cronbach and Gleser’s Implicit Personality Theory refers to individuals’ subconscious beliefs about how personality characteristics in themselves and others were interrelated (Schneider, 1973). Finally, Aaron Beck’s early cognitive model explores the idea that implicit negative views of the self, others, and the world (i.e., schemas) have significant effects on one’s psychological functioning (Beck, 1979).

One of the most comprehensive and influential research programs studying implicit beliefs has been carried out by Carol Dweck over the course of 30 years (Dweck & Leggett, 1988; Dweck & Yeager, 2019). In her earliest work, she questioned why students who did not differ on qualities such as intelligence, opportunity, personality, or confidence differed in their academic success (Dweck et al., 1995; Dweck & Leggett, 1988). The difference was in how children responded to academic challenges; some children relished challenging academic tasks, whereas other students were easily frustrated and became disengaged. The explanation of these differences was that individual children held implicit theories, or mindsets, about their own intelligence. These implicit theories reflect individuals’ beliefs about how malleable their intelligence is, but also create a lens through which individuals view the world and develop particular judgments, goals, and responses (Dweck et al., 1995; Hong et al., 1999).

In general, people tend to hold one of two mindsets: a fixed mindset or a growth mindset (also referred to as entity and incremental theories, respectively). A growth mindset refers to a belief that one’s qualities or abilities are malleable (Growth individuals), that everyone begins
with a baseline quality, and that through strategy and effort, all qualities can be improved upon. In stark contrast are those with a fixed mindset who believe that one’s qualities are innate (fixed individuals) and that no level of effort or strategy can improve upon these abilities. That is, a person’s ability is set in stone and cannot be changed.\(^1\)

A fixed or growth mindset is activated when an individual perceives a challenge; something that is perceived to be beyond their current skill level and that represents a potential for failure (Dweck & Leggett, 1988; Dweck & Yeager, 2019; Hong et al., 1999). Fixed individuals see challenges as an evaluation of their innate abilities, and they are worried that they might be measured as fundamentally inadequate, they disengage from challenges if success is not guaranteed (Dweck & Leggett, 1988; Dweck & Yeager, 2019; Hong et al., 1999). For example, a fixed individual may be more likely to procrastinate studying to self-sabotage their performance, having an excuse for doing poorly. In contrast, growth individuals see challenging situations as opportunities for learning and growth, and thus readily engage in these situations regardless of the guarantee of success. Furthermore, not all challenges are perceived as equally stressful. For example, a final exam is more intellectually challenging compared to a quiz. As the level of perceived challenge increases, mindsets and their behavioural responses are amplified. As things become more challenging, growth individuals increase their effort and strategy in kind, compared to fixed individuals whose disengagement becomes more pronounced. In brief, growth individuals tend to approach whereas fixed individuals tend to avoid (Dweck et al., 1995; Dweck & Leggett, 1988).

\(^1\) Mindsets relate to constructs such as locus-of-control, which refer to whether an individual attributes events and outcomes to external or internal influences (Cooper et al., 1981). Dweck and Leggett (1988) argued that mindsets precede locus-of-control perceptions, in that these general beliefs inform whether individuals perceive control over specific events and outcomes. For example, individuals with a growth mindset who believe that their intelligence is malleable would expect themselves to have greater internal control over their academic outcomes. Indeed, recent work has demonstrated that locus-of-control was a mediator between mindsets and behaviour (Shreiber, Job, & Dolhe, 2020). Thus, locus-of-control is distinct but important in understanding the effects of mindsets.
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Fixed and growth mindsets have been implicated in other domains such as personality (Yeager & Dweck, 2012), athletic ability (Chen et al., 2008), will-power (Job et al., 2015), weight loss (Burnette, 2010), leadership (Offermann & Coats, 2018), and recently, emotions. Although fixed and growth mindsets are now applied to many domains, they are domain specific (Burnette et al., 2013; Schroder et al., 2016). That is, one can have a fixed mindset for intelligence while having a growth mindset for athletic ability. Thus, while it is critical to have a basic framework to apply to mindsets across domains, examining the specific processes, outcomes, and moderating factors within a domain is necessary in order to understand how the theory of mindsets apply to a specific domain. The goal of the current work is to further extend Dweck’s implicit theories into the domain of emotion by examining how mindsets about the controllability of one’s emotions predict differing behavioural responses that may explain individual differences in emotional functioning.

Emotion mindsets

The notion that beliefs have a significant impact on emotional functioning is not novel. Specific beliefs about depressive or anxiety symptoms (e.g. “I will always be sad” or “my anxiety will never get better”) are key aspects in the theory and treatment of clinical disorders (Beck & Haigh, 2014; Eysenck, 1992). However, the study of global beliefs or mindsets about one’s emotion (e.g. my emotions are uncontrollable) is relatively new. A fixed emotion mindset refers to the belief that your emotions are not within your control, whereas a growth emotion mindset is the belief that your emotions can be changed through effort and strategy (Tamir et al., 2007). Compared to individuals with a growth mindset, a fixed mindset about emotion predicts greater levels of distress, anxiety and depressive symptoms (i.e. internalizing symptoms), lower
life satisfaction, and poor self-esteem experimentally, cross-sectionally, and longitudinally in adults and adolescents.

Emotion mindsets are activated during perceived emotional challenge. Although this has not yet been explicitly explored, I speculated that emotional challenges are circumstances of unwanted or negative emotions (e.g. sadness, anxiety, apathy, anger) where the perceived success of managing these emotions is uncertain. Thus, in the same way that a final exam can be challenging, so is the experience of intense anxiety during a new social situation where successful emotion regulation might not be guaranteed.

**Mindsets and emotion regulation**

Emotion mindsets are global beliefs that do not lead directly to emotional dysfunction. They create a mental framework in which to interpret incoming information and respond to it (Dweck et al., 1995; Hong et al., 1999). Thus, more proximal factors such as emotion regulation may account for the mindset-internalizing relationship. Indeed, the emotion regulation responses of growth and fixed individuals differ. The majority of research has focused on the regulation strategies of growth individuals that predict well-being (De Castella et al., 2013; Gutentag et al., 2017; Kneeland et al., 2016b; Kneeland & Dovidio, 2019; Schroder et al., 2015a). Growth individuals are more likely to use cognitive reappraisal, an adaptive and cognitively active strategy that involves altering an emotional experience by reframing the situation (McRae et al., 2012). While these findings on cognitive reappraisal demonstrate that emotion regulation is key to understanding the relation between mindset and emotional functioning, our knowledge of the regulation behaviour of fixed individuals is limited to knowing that they are less likely to use cognitive reappraisal. The question is what regulatory behaviours account for the relationship
between a fixed mindset and internalizing symptoms (i.e., anxiety and depression) and under what circumstances might this process unfold?

**Avoidance**

Dweck’s work indicates that fixed individuals are more likely to avoid anticipated or in the moment challenge (Dweck & Leggett, 1988; Hong et al., 1999); however, whether avoidance-based regulation is the process by which a fixed emotion mindset predicts internalizing symptoms is relatively unexplored. The avoidance of emotions refers to strategies that attempt to deny, minimize, and push away thoughts, feelings, and bodily experiences in response to negative emotions, as well as seeking escape or preventing the occurrence of situations that evoke negative emotions (De Castella et al., 2018). It is also a strategy that can be less effortful (Sheppes & Gross, 2012). Avoidance-based strategies have the advantage of reducing distress immediately, as it allows the person to escape distressing thoughts or situations. However, the frequent use of it can have a paradoxical effect, increasing distress and negative thoughts in the short term, as well as increasing anxiety and depressive symptoms in the long term (Hayes et al., 1996a; Karekla et al., 2004; Tull & Gratz, 2008). Consequently, frequent use of avoidance-based strategies is one of the strongest predictors of internalizing symptoms (Aldao et al., 2010).

Fixed individuals who feel as if they are at the mercy of their emotions may be unlikely to put significant effort towards emotion regulation as they believe it to be fruitless. Thus, the low effort avoidance-based regulation strategies may be what fixed individuals gravitate towards. Only two studies to date have examined the use of avoidance by fixed and growth individuals. In an experimental setting, fixed and growth adults viewed an emotionally aversive film clip that cut off before the climax. Fixed individuals self-reported avoiding looking at the aversive stimuli
on screen and reported a higher level of negative emotion afterward compared to growth individuals. Furthermore, fixed individuals more often opted to forgo finishing the clip (Kappes & Schikowski, 2013). In a second study, De Castella et al. (2018) found that across the lifespan, fixed individuals (18 to 60 years old) were more likely to use avoidance-based strategies in response to their emotions and that the use of avoidance explained the relationship between mindset and emotional dysfunction such as loneliness, depression, and anxiety. These findings indicate that avoidance may be important in understanding the fixed mindset-internalizing relationship; however, the broad age range glosses over potential age-specific differences in regulation (De France & Evans, 2020; De France & Hollenstein, 2019). Emotion regulation varies from emerging adulthood to middle age (Tavolacci et al., 2013; Zimmermann & Iwanski, 2014). Furthermore, periods of transition such as adolescence or emerging adulthood have been shown to be relevant for the impact of mindsets (Burnette et al., 2013). Transitions represent new expectations, dynamics, and challenges. Therefore, it is necessary to explore the mindset-avoidance-internalizing relationship within specific age groups and at specific life transitions.

Stress and Challenge

What is also key to understanding the mindset-internalizing relationship are the contextual factors that may impact this relationship. As outlined earlier, another facet of Dweck’s theory is that the effect of mindset varies depending on how formidable the challenge is perceived to be (Dweck et al., 1995; Hong et al., 1999). For example, a final exam versus a quiz differ in their degree of challenge, making one more stressful than the other. As circumstances become more challenging, mindsets influence behaviours more strongly (Burnette et al., 2013). Thus, increased levels of emotional challenge might amplify the effects of a fixed mindset on the use of avoidance. If negative emotions activate mindsets, then higher levels of emotional
intensity and frequency might increase the use of avoidance for fixed individuals. Perceived stress is strongly associated with more frequent and intense negative emotions (Gunthert et al., 2007; van Winkel et al., 2015; Wichers et al., 2007), and is shown to encourage the use of more avoidance-based strategies (Dyson & Renk, 2006; Hampel & Petermann, 2006a).

Two studies to date have examined emotion mindsets and perceived stress. Schroder and colleagues (2017) found that stress moderated the relationship between mindset and emotional distress. Individuals with a fixed mindset reported higher levels of distress in response to stressful events, compared to those with a growth mindset, whose beliefs appeared to mitigate the stress. Similarly, De Castella and colleagues (2018) found that a fixed mindset was associated with higher levels of perceived stress. These two findings indicate that stress is linked with a fixed mindset; however, its role is not yet clear. For individuals with a fixed mindset, perceived stress might lead to a stronger reliance on avoidance-based strategies in response to negative emotions. Given that stress is an inevitable part of life, taking into account the role of stress will provide a more nuanced understanding of the circumstances that affect the mindset-internalizing relationship.

**Current Dissertation**

The goal of this dissertation was to further our understanding of the role of fixed mindset in emotional functioning by examining the process and circumstances through which this relationship might unfold. In light of burgeoning emotion mindset literature, the three studies in the current dissertation were designed to make novel contributions to the literature in two important ways.

In Study 1 and 2, we examined this relationship in first year post-secondary students (17 to 21 years old) and in Study 3, we examined this in adolescents (13 to 15 years old). The
mindset-avoidance-internalizing relationship has not yet been examined within these specific age groups, both of which are well-known periods of transition. Post-secondary school, especially the transition into the first year, is considered a normatively stressful period due to the significant changes that include, but are not limited to, increased academic demands, increased independence and responsibility, personal and social changes, isolation, homesickness, changes in health, and financial stress (Papier et al., 2015). These stressors produce distress symptoms and functional impairment across all students (Besser & Zeigler-Hill, 2014); however, not all students successfully adapt to these stressors. Mental health problems, such as internalizing symptoms, suicidal ideation, substance abuse, and self-injury are prevalent in university populations (Kumaraswamy, 2013; Mortier, 2018). Differences in emotion mindset and its accompanying regulation may illuminate why some students are able to adapt while others are not.

Adolescence is another well-known period of transition with significant changes in emotional functioning due to a variety of biological, psychological, and social factors (Steinberg, 2005). Adolescents tend to experience their emotions more intensely (both positive and negative) and they experience more volatility in their mood states (Larson et al., 2002). Adolescents report experiencing daily stress (Byrne et al., 2007) that is strongly associated with more frequent and intense negative emotions (Michl et al., 2013; Zautra et al., 2002). As well, we see the emergence of internalizing disorders around the mid-adolescence point (Alloy et al., 2016; Thapar et al., 2012). Consequently, adolescence represents a time of emotional vulnerability and challenge (Dahl, 2001; Hollenstein & Lougheed, 2013) where mindset might be particularly relevant.
In Study 2 and 3, we examined whether the strength of the mindset-avoidance-internalizing relationship varied as a function of perceived stress for young adults and adolescents. The moderating influence of stress has not yet been examined within these age groups; however, perceived stress is associated both with mindset and avoidance-based strategies. The degree of perceived challenge is shown to increase the impact of mindsets on functioning.

A strength of these studies is the conceptual replication of the mindset-avoidance-internalizing relationship in two similar undergraduate and an adolescent population, using different measures for avoidance and internalizing symptoms. Conceptual replication is valuable in that it provides an examination of the validity of the underlying theory rather than testing whether the exact findings can be replicated under the same conditions (Stroebe & Strack, 2014). A theory is strengthened when the findings are not dependent on specific operationalizations but can be found more generally. In this way, the three studies serve to not only test the presence of this relationship in these age groups, but also the stability and robustness of this model.
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FIXED MINDSETS AND AVOIDANCE

Abstract

Individuals differ in the extent to which they believe that their emotions are controllable or not, and these beliefs have significant impacts on emotional functioning. A strong belief that one’s emotions are uncontrollable (fixed emotion mindset) is a vulnerability for emotional dysfunction, such as internalizing symptoms; however, the proximal mechanisms that might explain how emotional beliefs manifest as symptoms remain unclear. Across two studies, we examined whether mindset was indirectly related to internalizing symptoms through use of avoidance-based strategies and whether stress amplified this relationship. In Study 1, (N=163; mean age = 17.9), a fixed mindset was associated with higher use of avoidance, and greater presence of depression and anxiety symptoms in undergraduates. Furthermore, avoidance accounted for a significant indirect effect between mindset and anxiety, but not depression. In Study 2 (N=183; mean age = 18.74) we replicated this model and extended this finding by examining the moderating role of perceived stress. Avoidance-based strategies indirectly explained the relationship between anxiety and depression separately; however, contrary to predictions, there was no moderating effect of perceived stress. These findings extend the previous literature by demonstrating the role of avoidance in understanding the relationship between fixed mindsets and internalizing symptoms.

Keywords: emotion mindset; fixed mindset; internalizing symptoms; avoidance-based strategies; stress.
The role of avoidance in understanding emotional dysfunction associated with a fixed emotion mindset.

Emotion mindsets refer to a continuum of individually held beliefs about the controllability of one’s emotions (Tamir et al., 2007). At one end are those who have a fixed mindset and believe that their emotions are uncontrollable and that no effort on their part can alter them. On the other end of the continuum are those who have a growth mindset and believe that emotions are changeable through effort or strategy. The focus of this study was those individuals who hold strongly fixed mindsets, as this mindset is associated with high rates of internalizing problems such as anxiety and depression (for a meta-analysis, see Burnette et al., 2013). However, our knowledge of the proximal factors that explain the mindset-internalizing relationship and the conditions which affect this relationship remains unclear. The goal of the present studies was to examine whether the use of avoidance-based strategies might explain the relationship between mindset and internalizing symptoms, as avoidance is strongly tied to anxiety and depression (Aldao et al., 2010), and is shown to be used by individuals with a fixed mindset (Kappes & Schikowski, 2013). Furthermore, we sought to examine the moderating role of stress on the indirect mindset-avoidance-internalizing relationship. Stress amplifies the negative effects of fixed mindsets on self-regulatory behaviors in the mindset domains of intelligence and personality (Burnette et al., 2013).

Avoidance as a proximal factor

Because they differ in the degree to which they think emotions are changeable, fixed and growth individuals tend to use different approaches when down-regulating their negative emotions.

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2 In this literature, emotion mindsets may also be referred to as emotion beliefs, implicit theories of emotion, and emotion regulation self-efficacy. The current work uses the terms emotion mindsets and emotion beliefs interchangeably.
emotional experiences, which in turn are linked with their emotional functioning (De Castella et al., 2018; Schroder et al., 2015a). The specific regulation strategies that have received the most attention with respect to emotion mindsets are cognitive reappraisal and expressive suppression. Cognitive reappraisal involves altering an emotional experience by changing how one thinks about it, and is often linked to better emotional functioning (McRae et al., 2012). Expressive suppression refers to actively attempting to reduce outward displays of emotion, and tends to be associated with poorer emotional functioning (Gross, 1998). Cognitive reappraisal was more likely to be used by growth individuals, whereas individuals with a fixed mindset were less likely to implement this strategy (De Castella et al., 2013; King & dela Rosa, 2019). Furthermore, cognitive reappraisal accounts for the relationship between growth mindset and internalizing symptoms (De Castella et al., 2013; Ford et al., 2017; King & dela Rosa, 2019; Tamir et al., 2007). In contrast, the use of expressive suppression does not differ between growth and fixed individuals (Kneeland et al., 2016a, 2016c; Schroder et al., 2015a).

Although these findings suggest that growth individuals rely more heavily on reappraisal when compared to fixed individuals, they fail to answer a simple question: if they are not using reappraisal very much, then what strategies do fixed individuals tend to rely on in response to their negative emotions? One possibility is that the use of avoidance-based strategies is one potential mechanism for how a fixed mindset influences internalizing symptoms (De Castella et al., 2018; Kappes & Schikowski, 2013). Avoidance refers to strategies that attempt to deny, minimize, and push away thoughts, feelings, and bodily experiences in response to negative emotions, as well as seeking escape or preventing the occurrence of situations that evoke negative emotions (De Castella et al., 2018). Avoidance has the advantage of reducing distress immediately, as it allows the person to escape distressing thoughts or situations. However, the
frequent use of it can have a paradoxical effect, increasing distress and negative thoughts in the short term, as well as increasing and anxiety and depression symptoms in the long term (Hayes et al., 1996; Karekla et al., 2004; Tull & Gratz, 2008). Consequently, frequent use of avoidance-based strategies is one of the strongest predictors of internalizing symptoms (Aldao et al., 2010).

Fixed individuals who feel as if they are at the mercy of their emotions may be unlikely to put significant effort toward emotion regulation as they believe it to be fruitless. Thus, avoidance-based regulation strategies may be what fixed individuals gravitate towards. Only two studies to date have examined the use of avoidance by individuals with fixed and growth mindsets. In an experimental setting, fixed and growth individuals viewed an emotionally aversive film clip that cut off before the climax. Fixed individuals reported avoiding looking at the aversive stimuli on screen and reported a higher level of negative emotion afterwards. Furthermore, fixed individuals more often opted to forgo finishing the clip (Kappes & Schikowski, 2013). In a second study, De Castella et al. (2018) found that fixed individuals were more likely to use avoidance-based strategies in response to their emotions, and that the use of avoidance explained the relationship between mindset and emotional dysfunction such as loneliness, depression and anxiety. These findings illustrate that avoidance is a way in which to understand how fixed mindsets foster emotional dysfunction. These promising findings need to be replicated, as well as extended by understanding how other factors may impact the mindset-avoidance-internalizing relationship.

**Perceived Stress**

Intelligence and personality mindsets are shown to be sensitive to the level of perceived challenge that one is experiencing in that domain. The effect of mindset on regulatory behavior is stronger when a situation or event is perceived especially challenging (Burnette et al., 2013). For
example, a belief that one’s intelligence is fixed is shown to be strongly activated while studying for a final exam, compared to studying for a quiz. Both tests may activate one’s mindsets, but to different intensities based on the perceived level of challenge (Blackwell et al., 2007). In the context of emotion mindsets, perceived stress might be what modulates the indirect effect of mindsets on internalizing symptoms. Perceived stress is strongly associated with more frequent and intense negative emotions (Gunthert et al., 2007; van Winkel et al., 2015; Wichers et al., 2007), and is shown to encourage the use of more avoidance-based strategies (Dyson & Renk, 2006; Zahniser & Conley, 2018).

Two studies to date have examined emotion mindsets and perceived stress. Schroder and colleagues (2017) found that stress moderated the relationship between mindset and emotional distress. Individuals with a fixed mindset reported higher levels of distress in response to stressful events, compared to those with a growth mindset, whose beliefs appeared to mitigate the stress. Similarly, De Castella and colleagues (2018) found that a fixed mindset was associated with higher levels of perceived stress. These two findings indicate that stress is linked with a fixed mindset; however, its role is not yet clear. Based on previous work, high levels of perceived stress are associated with increased negative emotionality. For individuals with a fixed mindset about emotions, this increase in the frequency or intensity of negative emotions due to stress might lead to a stronger reliance on avoidance-based strategies in response to negative emotions. That is, the relationship between a fixed mindset and internalizing symptoms via avoidance may be amplified by perceived stress (Michl et al., 2013; Zautra et al., 2002).

**Current Studies**

Across two studies, the current work aimed to expand our understanding of fixed emotion mindsets. In Study 1, we sought to replicate previous findings that mindset operates through
avoidance to impact internalizing symptoms (De Castella et al., 2018). Whereas De Castella and colleagues examined this pattern with individuals aged 18 to 60-years-old, we selected a narrow age range (17 to 20 years old) as emotion regulation and levels of perceived stress can vary from emerging adulthood to middle age (Tavolacci et al., 2013; Zimmermann & Iwanski, 2014). In Study 2, we sought to replicate the mindset-avoidance-internalizing model and expand on this by examining whether stress moderated the mindset-avoidance-internalizing relationship, specifically the relationship between mindset and use of avoidance. Fixed individuals experience greater levels of perceived stress, but it is unclear whether this influences regulatory behaviors. We hypothesized that mindset was indirectly related to internalizing symptoms through avoidance and that at greater levels of perceived stress, the relationship between mindset and avoidance would be stronger, indicating that the indirect effect was dependent on the level of perceived stress.

**Study 1**

**Methods**

**Participants**

One hundred and sixty two first- and second-year undergraduate students (82.1% Female) were recruited from psychology classes voluntarily enrolled in this pool, and students were contacted by email to participate in research studies. Participant age range was 17 to 20 years old ($M = 17.95$, $SD = .78$) Participants were compensated with 0.5 academic credits towards their psychology course.

**Procedure**

Students from the Participant Pool were contacted via email with a description of the study, time requirement, and compensation. Participants who expressed interest were emailed a
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link to participate. On the first screen of the survey, participants read a letter of information and provided informed consent. Participants then completed self-report questionnaires regarding their beliefs about emotions, their recent mood, and their tendencies to avoid emotions (see below for list and description of measures). Completing the questionnaires took approximately 30 minutes.

Measures

**Fixed Emotion Mindset.** The Implicit Theories of Emotion Scale (ITES; De Castella et al., 2013; Appendix A) is a four item questionnaire assessing emotional mindsets. A sample item is “No matter how hard I try, I can't really change the emotions that I have.” Participants responded to questions on a 5-point scale (not at all applies to me = 1, very much applies to me = 5). The ITES had good internal consistency (α = .85). Two items were reverse coded and the four items were averaged to create the mean. The mean score across all the items was used to create the variable for Fixed Mindset, where higher scores reflected a more fixed mindset, and lower scores reflected a more growth mindset.

**Avoidance.** Two subscales from the Multidimensional Experiential Avoidance Questionnaire (MEAQ; Gámez, Chmielewski, Kotov, Ruggero, & Watson, 2011; Appendix B) were used in order to measure avoidance: the Distraction & Suppression subscale and the Behavioral Avoidance subscale. A sample item from the 7-item Distraction & Suppression subscale is “When something upsetting comes up, I try very hard to stop thinking about it.” A sample item from the 11-item Behavioral Avoidance subscale is “I won't do something if I think it will make me uncomfortable.” Participants responded to questions on a 5-point scale (strongly disagree = 1, strongly agree = 5). The mean score across all items from both subscales were used to create the variable Avoidance. Higher scores indicated a higher endorsement of avoidant behaviors and had good internal consistency (α = .91)
**Anxiety & Depression.** The Depression and Anxiety subscales were selected from the Depression, Anxiety, and Stress Scale – 21 items (DASS-21; Lovibond & Lovibond, 1995; Appendix C). A sample item from the 7-item Depression subscale is, “I felt that life was meaningless” and a sample from the 7-item Anxiety subscale, “I felt close to panic.” Participants responded to questions on a 4-point scale (did not apply to me = 0, applied to me = 3) over the past week. The DASS-21 had high internal consistency for anxiety subscale ($\alpha=.86$) and depression ($\alpha=.90$). The mean score of all items for each scale was used to create the two internalizing variables, Depression and Anxiety. Higher scores indicated a greater presence of depression and anxiety symptoms.

**Results**

All measures were assessed for missing values, outliers, and normality of distributions. Scores on Avoidance, Depression, and Anxiety were positively skewed, which is expected in non-clinical samples. However, we used PROCESS (Hayes, 2015) for analyses, which employs bootstrapping to calculate the statistics of interest (i.e., the indirect effect) thousands of times over and is robust with non-normal distributions. All relationships between variables yielded linear relationships. Table 1 shows descriptive means, standard deviations, and correlations among variables. Consistent with previous findings, Mindset was significantly and positively correlated with Avoidance, Anxiety, and Depression. Furthermore, Avoidance was significantly positively correlated with Anxiety and Depression.
Table 1.  
*Variable means, standard deviations, and correlations (Study 1)*

<table>
<thead>
<tr>
<th></th>
<th>Fixed Mindset</th>
<th>Avoidance</th>
<th>Anxiety</th>
<th>Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Mindset</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>.28**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.32**</td>
<td>.30**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>.29**</td>
<td>.23**</td>
<td>.67**</td>
<td>-</td>
</tr>
<tr>
<td>Mean</td>
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<td>1.06</td>
<td>1.03</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.02</td>
<td>.80</td>
<td>.84</td>
<td>.99</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01.

Indirect Effect of Avoidance

Indirect Effect analyses were conducted using the PROCESS macro in SPSS, specifying Model 4. In the first analysis, we examined the indirect effect of Mindset on Anxiety through Avoidance. In the second analysis, we examined the indirect effect of Mindset on Depression through Avoidance. The indirect effect is quantified as the product of the coefficients, \(a\) (mindset to avoidance) and \(b\) (avoidance to symptoms). Consistent with hypotheses, results indicated a significant indirect effect of Mindset via Avoidance for Anxiety (\(ab = .07, 95\% \text{ CI} = [.01, .13]; \) Figure 1a). Individuals with a more fixed mindset endorsed a more avoidant approach, while greater use of avoidance was associated with a greater presence of anxiety symptoms. However, contrary to hypotheses, there was no indirect effect via avoidance for depression (\(ab = .04, 95\% \text{ CI} = [-.001, .09]; \) Figure 1b).
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Figure 1: The indirect effect of fixed mindset on anxiety and depression via use of avoidance.

Note: Values are standardized coefficients to facilitate comparison with Study 2. * significance at the .05 level, ** .001, and ***.0001.

Discussion

We hypothesized that there would be an indirect effect between mindset and anxiety and mindset and depression via avoidance. The results supported our hypothesis for anxiety but not depression. Consistent with previous work, there was a significant indirect effect between mindset and anxiety via avoidance (De Castella et al., 2018). Fixed individuals reported more anxiety symptoms, and this was explained by greater use of avoidance. Although depression was significantly associated with mindset, we did not find significant evidence that avoidance was the process by which these are linked. This result is in contrast to what was found in the study by De Castella et al., (2018), who examined this relationship across a broader age range. Regulation strategies and emotional experiences change over the lifespan; thus, using a wide age span may not fully capture the mindset-avoidance-depression relationship if it does differ across age groups. One possibility is that social avoidance is more important in explaining the relationship between mindset and depression as social avoidance and withdrawal are strongly linked to the development and maintenance of depressive symptoms (Hames et al., 2013).
Study 2: examining the moderating role of stress on the indirect relationship

Study 2 had two main goals. First, we sought to replicate the conceptual model for the anxiety and depression found in Study 1. Second, we also sought to examine whether perceived stress moderated the relationship; that is, if the nature of the mindset-avoidance-internalizing relationship was dependent on levels of perceived stress. We hypothesized that higher levels of perceived stress would interact with mindset to predict greater use of avoidance. In Study 1, we looked at the tendency to use avoidance-based strategies in general, whereas in Study 2, we specifically examined whether emotion mindsets influenced the use of social avoidance-based strategies in social circumstances. Interpersonal relationships and interactions are one of the most common places where emotions are triggered (Gunthert et al., 2007; Cohen et al., 2005). Measuring social avoidance allowed us to understand more specifically what types of thoughts and situations fixed individuals might avoid. Furthermore, this study used alternate measures to assess depression and anxiety and, as such, is a conceptual replication. Using alternate measures serves to demonstrate the stability and robustness of this theoretical model. To measure internalizing symptoms, the Beck Depression Inventory and the Beck Anxiety Inventory were selected as they are the gold standard in the field. As well, (Kessler et al., 2015) more clinically precise measures of anxiety and depression were selected to determine the nature of the indirect mindset-avoidance-depression relationship.

Methods

Participants

A new sample of undergraduates in the same age range as Study 1 were recruited to examine these questions. One hundred and eighty-three first- and second-year undergraduate students (85.8% female) were recruited from psychology classes voluntarily enrolled in this pool,
and students were contacted by email to participate in research studies. Participant age range was 17 to 22 years old ($M=18.74$, $SD= 1.22$). Participants were compensated with 0.5 academic credits towards their psychology course.

**Procedure**

Same procedure as Study 1.

**Measures**

**Fixed Emotion Mindset.** The Implicit Theories of Emotion Scale (ITES; De Castella et al., 2013; Appendix A) was used. See Study 1 for a description. The ITES had adequate internal consistency in this sample ($\alpha = .67$). The mean score across social items was used to create the variable Fixed Mindset. Higher scores indicated a more fixed mindset.

**Social Avoidance.** The social items from the Cognitive and Behavioral Avoidance Scale (CBAS; Ottenbreit & Dobson, 2004; Appendix D). Sample items are, "try not to think about problems in relationships” and “I tend to make up excuses to get out of social activities.” Participants responded on a 5-point scale (extremely true = 5, not at all true = 1). The CBAS had good internal consistency ($\alpha = .88$). The mean score across social items was used to create the variable Avoidance. Higher scores indicated a greater use of avoidance.

**Internalizing symptoms.**

**Anxiety:** The Beck Anxiety Inventory (BAI; Beck, Brown, Epstein, & Steer, 1988) measured anxiety symptoms. A sample symptom item is, “fear of worst happening.” Participants rate how much they were bothered by a symptom in the past month on a 4-point scale (not at all = 0, bothered me a lot = 3). The BAI had high internal consistency ($\alpha = .94$). The mean score across all items was used to create the variable, Anxiety. Higher scores indicated a higher number of anxiety symptoms.
Depression: The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 199) measured depressive symptoms. The suicide item was excluded due to ethics requirements. A sample item is, “I am sad all the time.” Participants responded to each item on a 4-point scale (low intensity= 0, high intensity= 3). The BDI-II had high internal consistency ($\alpha = .93$). The mean score across all items was used to create the variable, Depression. Higher scores indicated a higher number of depressive symptoms.

Stress. The Perceived Stress Scale (PSS; Cohen & Williamson, 1988; Appendix E) was used to measure stress. A sample item is, “how often have you been upset because of something that happened unexpectedly?” Participants rated on a 4-point scale how often they experienced an item over the past month (never = 0, very often = 3). The PSS had high internal consistency ($\alpha = .88$). Four items on the scale were reversed coded. The mean score across all items was used to create the variable, Stress. Higher scores indicated a higher level of perceived stress.

Results

All measures were assessed for missing values, outliers, and normality of distributions. All relationships between variables yielded significant linear relationships. Table 2 shows descriptive means, standard deviations, and correlations among variables. There were no significant gender differences for any of the variables. Consistent with previous findings, Mindset was significantly positively correlated with Avoidance, Stress, Anxiety, and Depression. Avoidance was significantly positively correlated with Stress, Anxiety, and Depression. Furthermore, Stress was significantly associated with Anxiety and Depression.
Table 2. Variable means, standard deviations, and correlations

<table>
<thead>
<tr>
<th></th>
<th>Fixed Mindset</th>
<th>Avoidance</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Mindset</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>.23**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.27**</td>
<td>.45**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>.42**</td>
<td>.56**</td>
<td>.67**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Stress</td>
<td>.48**</td>
<td>.49**</td>
<td>.51**</td>
<td>.71**</td>
<td>-</td>
</tr>
<tr>
<td>Mean</td>
<td>3.29</td>
<td>1.93</td>
<td>.82</td>
<td>.76</td>
<td>2.05</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>1.17</td>
<td>.67</td>
<td>.62</td>
<td>.54</td>
<td>.70</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01.

Indirect Effect of Avoidance

Using Model 4 in PROCESS (Hayes, 2015), we examined the mediating effect of social avoidance on the association between mindset on anxiety and depression. As shown in Figure 2a, a significant indirect effect of Mindset via Avoidance was found for Anxiety (ab = .09, 95% CI = [.03, .17]), which is consistent with findings from Study 1. Individuals with a fixed mindset reported greater use of avoidance-based strategies, with greater avoidance associated with a greater presence of anxiety symptoms. Contrary to the findings from Study 1, the indirect effect via Avoidance for Depression was also significant (ab = .11, 95% CI = [.04, .20]; Figure 2b). Individuals with a fixed mindset reported greater use of avoidance-based strategies, with greater use associated with a greater presence of depressive symptoms.
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Figure 2. The indirect effect of fixed mindset on anxiety and depression via use of avoidance.

Note: Values are standardized coefficients to facilitate comparison with Study 2. * significance at the .05 level, ** .001, and ***.0001.

Conditional Effect of Stress

Using Model 8 in PROCESS, we examined the moderating effect of stress on the indirect association between mindset on anxiety and depression, via social avoidance (a path) as well as the direct relationship between mindset and internalizing symptoms (b path). See Figure 4 for a conceptual model. We hypothesized that stress would moderate the direct and indirect effect of mindset on internalizing symptoms. Specifically, we expected that high levels of stress would strengthen the relationship between mindset and avoidance. As well, based on previous work, we hypothesized that stress would moderate the direct relationship between mindset, anxiety and depression.

Figure 3. Conceptual model for stress moderating the indirect relationship between mindset and internalizing symptoms via avoidance.
The index of moderated mediation for Anxiety (ab = -.01, 95% CI = [-.5, .03]) and Depression (ab = -.01, 95% CI = [-.05, .03]) was not significant. Varying levels of perceived stress did not have a significant impact on the indirect relationship between mindset and anxiety and depression via avoidance. There was a conditional effect of Stress on Avoidance (t = 6.66, p < .001) but not for Mindset on Avoidance (t = .07, p = .95) when the other variable was at zero. Not surprisingly, Stress moderated the relationship between Mindset and Anxiety (t = 2.28, p = .02) and Mindset and Depression (t = 3.95, p < .001). See table 3 for a depiction of conditional effects and interactions.

### Table 3. Conditional effects and interactions for avoidance, anxiety, and depression

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Paths a1, a2, a3</th>
<th>Paths c1, c2, c3</th>
<th>Paths c1, c2, c3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>p</td>
</tr>
<tr>
<td>Avoidance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mindset</td>
<td>.005</td>
<td>.074</td>
<td>.947</td>
</tr>
<tr>
<td>Stress</td>
<td>.48</td>
<td>.073</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Mindset x Stress</td>
<td>-.05</td>
<td>.058</td>
<td>.416</td>
</tr>
</tbody>
</table>
Discussion

In line with Study 1, we replicated the indirect effects conceptual model of mindset on anxiety via avoidance. We extended this finding by showing that social avoidance explained the mindset-anxiety-relationship. Contrasting with Study 1 results, avoidance was the process by which a fixed mindset was associated with depression. Two primary differences between the studies were the focus on social avoidance rather than general avoidance in Study 1 and the change of internalizing measures from Study 1 to Study 2. Social avoidance and withdrawal are strongly linked to the development and maintenance of depressive symptoms (Hames et al., 2013). Other regulatory strategies, such as rumination, may also add to our understanding of the mindset-depression relationship. With respect to the change in measurement, the DASS-21 was used to measure depression in Study 1 whereas the BDI-II was use in Study 2. The DASS-21 is a widely used measure that is shown to reliably distinguish between depression, anxiety, and stress; however, it is typically used for convenience in research settings. The BDI is a targeted measure, meant to be highly sensitive in distinguishing between anxiety and depression symptoms. In order to further understanding the mindset-avoidance-depression relationship, future research should continue to explore this question.

Contrary to expectations, current levels of perceived stress did not moderate the indirect effect of mindset on internalizing symptoms via avoidance. Specifically, the interaction between mindset and stress did not predict the use of avoidance. Not surprisingly, stress moderated the relationship between mindset and internalizing symptoms. Taken together, these results confirm the indirect mindset-avoidance-internalizing relationship, but stress does not appear to moderate this relationship.
The current study had two main objectives. First, we sought to examine the process by which fixed emotion mindsets might influence internalizing symptoms in young adults, and second, we sought to identify the conditions under which this process may unfold. In Study 1, we found that the use of avoidance-based strategies was the process by which a fixed mindset influenced anxiety, but not depression. In Study 2, we tested the robustness of this model and replicated the mindset-avoidance-internalizing model for both anxiety and depressive symptoms. Contrary to our hypothesis, stress did not significantly impact the indirect relationship. Across two studies, we replicated and extended previous work in that we provided insights specifically into fixed individuals’ self-regulatory efforts and internalizing outcomes (De Castella et al., 2018; Schroder et al., 2015a; Tamir et al., 2007). Furthermore, these results contribute to other work on fixed and growth mindsets that indicate that emotion regulation is key to understanding how mindsets influence emotion functioning (De Castella et al., 2018; Kneeland et al., 2016c; Schroder et al., 2015a).

Individuals with a fixed emotion mindset report the poorest emotional outcomes yet little is known about the process by which these are associated. The current results not only elucidated that a fixed mindset encourages both general and social avoidance but also offered insights into types of situations and thoughts that fixed individuals avoid. Avoidance is a strong predictor of emotional dysfunction, and, in line with past research, fixed individuals were more likely to use this strategy compared to growth individuals (De Castella et al., 2018; Kappes & Schikowski, 2013). In Study 1, we learned that fixed individuals reported using cognitive and behavioural avoidance, both pre-emptively and in the moment. For example, they were more likely to report avoiding situations that have the potential to evoke upsetting feelings, leaving situations that...
made them uncomfortable, and using distraction or blocking out unwanted thoughts more often. In Study 2, we found that fixed individuals engaged specifically in cognitive and behavioral social avoidance, suggesting that interpersonal interactions could be perceived as emotionally risky. This would be in line with the research that indicates that emotions are commonly triggered within interpersonal relationships (Gunthert et al., 2007; Cohen et al., 2005).

A consequence of using avoidance-based strategies both pre-emptively and in real-time is that fixed individuals lose opportunities to gain evidence that may challenge their fixed beliefs. Avoidance-based strategies become entrenched over time because they are successful in the short-term for relieving distress, reinforcing the response in future situations (Hayes et al., 1996; Tull & Gratz, 2008). To break this cycle, one has to tolerate the distress and override an automatic reaction through effort until another strategy can be implemented. Given the lack of effort fixed individuals are theorized to put forth, it is likely that, over time, fixed individuals avoid putting themselves in or staying in situations that are distressing. Thus, by missing key learning opportunities, a fixed mindset is likely to remain relatively stable over time.

Contrary to our predictions, perceived stress did not moderate the indirect relationship between mindset and internalizing symptoms via avoidance. Although mindset and avoidance were significantly associated, there was no interaction between perceived stress and mindset predicting use of avoidance. One possibility is that stress moderates the mindset-internalizing relationship but may not impact the regulatory process. For fixed individuals, the automatic and low effort strategy of avoidance may be one of the only strategies they have, and therefore they rely on it to the same extent regardless of levels of stress. Our findings indicate that stress plays a role in understanding the effects of mindsets; however, the extent of its role remains unclear. Our study is the first to explore how stress impacts how mindsets at a global level might operate, and
as such, we took a broad cross-sectional approach in exploring stress. To more rigorously examine the relationship of stress to mindset, regulatory effort, and internalizing outcomes, longitudinal and experience sampling methods may allow for a more comprehensive and targeted examination of the role of stress and negative emotions in the moment when avoidance occurs and over longer periods of time.

**Implications for mental health**

Although a fixed mindset represents an emotional vulnerability, mindsets can also be malleable. In priming studies, individuals show short-term improvements in their use of cognitive reappraisal when primed with education about growth emotion mindsets (Kneeland et al., 2016a, 2016c). However, the modification of fixed mindsets in the long-term for therapeutic benefits has only been examined indirectly. For example, the chief complaint of individuals seeking therapeutic services tends to be that they feel as if they do not have control over their emotions, such as experiencing panic or low mood (Kunkel & Newsom, 1996). In approaches such as Cognitive Behavioural Therapy, the goal is to teach the client to challenge their thought patterns and beliefs, and adopt new behaviours and strategies in order to change how they feel (Dobson, 2013). In the beginning, clients with a fixed mindset about emotions might be resistant to new strategies (e.g. deep breathing), as they believe that doing so is unlikely to change their emotions. Furthermore, they may be less likely to persevere in learning strategies that are not effective immediately. Indeed, growth individuals admitted to an inpatient treatment program showed fewer internalizing symptoms at discharge than those with a fixed mindset (Schroder et al., 2019). Assessing and challenging emotion mindsets early on in therapy may foster engagement with the therapeutic process. For example, fixed individuals were more likely to
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endorse a medication-only treatment option, whereas growth individuals were more likely to choose talk therapy (Schroder et al., 2015a).

Limitations and Future Directions

The current study relied exclusively on predominantly female undergraduate samples, and therefore it may not be possible to generalize beyond this population. To understand whether these relationships are true for the larger population, a community-based sample with ethnic, cultural, and socioeconomic diversity would be optimal.

Research in the area of emotion mindsets is in its infancy and as such there are a number of important and interesting areas to explore. The first area of future research is to examine the full range of emotion regulation strategies that might explain the process by which the mindset-internalizing relationship unfolds. In addition, instead of examining individual strategies, it would be informative to examine the full repertoire of strategies that fixed and growth individuals tend to employ. Individuals who experience greater internalizing symptoms tend to have a limited repertoire of emotional regulation strategies (De France & Hollenstein, 2017). These findings, in concert with previous work on cognitive reappraisal, suggests fixed individuals also may have a limited repertoire of strategies.

Second, examining how these relationships play out in daily interactions would yield valuable information for understanding the dynamic relationship between mindset and behaviour. Our results indicate that fixed individuals report using avoidance more often, but we were not able to assess how they employ avoidance-based strategies in real-time response to negative emotions. The use of experiential sampling methods would allow for examination of how fixed individuals use avoidance-based strategies, in what circumstances, and how it impacts their daily emotional state.
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Third, mapping out the developmental trajectory of fixed and growth mindsets would assist in bolstering our understanding of how, when, and why mindsets develop. Emotion mindsets are present by mid-adolescence and show similar outcomes as adults (Romero et al., 2014; Schleider & Weisz, 2016b). However, the onset, stability, process, and conditions under which these mindsets operate is still an open question for younger age groups. Adolescence is a period of significant emotional vulnerability when adolescents experience more extreme emotion (both positive and negative) and experience more volatility in their mood states compared to adults (Larson et al., 2002; Steinberg, 2005). Emotional dysregulation in early adolescence is shown to predict the development of more serious mental health problems well into adulthood (Copeland et al., 2009). Therefore, adolescence may be a particularly vulnerable time for emotion mindset development and an examination of the link between mindset development and emotion dysregulation would provide key insights into how mindsets may function to moderate or mitigate the links between emotion dysregulation and future mental health.

Conclusion

In conclusion, a fixed mindset about the controllability of emotions has significant consequences for emotional functioning. The current study adds to existing research indicating that the use of avoidance is critical to understanding how mindsets operate to influence internalizing symptoms. Given the significant impact of mindsets on emotional wellbeing and the potential malleability of fixed mindsets, improving our understanding of the regulatory efforts of these individuals is a necessary step to support preventative measures and intervention efforts for emotional dysfunction.
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Chapter 3: The role of avoidance in understanding the relationship between fixed emotional mindset and internalizing symptoms in youth

Schell, V., De France, K., & Hollenstein, T. The role of avoidance in understanding the relationship between fixed emotional mindset and internalizing symptoms in youth.
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Abstract

Individuals who possess a fixed emotion mindset hold beliefs that emotions are uncontrollable. Evidence shows that holding such beliefs is associated with adolescent emotional functioning; youth with fixed emotion mindsets report greater levels of internalizing symptoms. Adult research has indicated that the association between fixed mindsets and internalizing symptoms may be indirectly affected by avoidance: adults with fixed mindsets are more likely to use avoidance, which is a long-standing predictor of internalizing symptoms. However, it is unclear whether these patterns hold for adolescents. Therefore, the goal of the current work was to examine whether avoidance mediated the relationship between fixed mindsets and internalizing symptoms. Moreover, given that stress, a common feature of adolescence, is shown to amplify the effects of mindsets in other domains we sought to examine the moderating role of stress. Participants included 187 adolescents (ages 13-15, $M=13.9$, $SD=.90$; 53% female) who completed questionnaires on emotion mindsets, internalizing symptoms (depression and anxiety), stress, and avoidance. There was a significant indirect effect of mindset on depression and anxiety through the use of avoidance-based strategies. Level of perceived stress did not moderate either model. The results of this study suggest that fixed mindsets may have an impact on adolescent internalizing symptoms through its effect on avoidance. Fixed adolescents were more likely to use avoidance-based strategies and in turn show a greater presence of internalizing symptoms.

Keywords: adolescence; emotion mindsets; internalizing symptoms; stress; avoidance
The role of avoidance in understanding the relationship between fixed emotional mindset and internalizing symptoms in youth.

Emotion mindsets\(^3\) are global beliefs about the controllability of one’s emotions. A fixed mindset is the belief that your emotions are uncontrollable and that no effort can alter them; in contrast is a growth mindset, the belief that emotions can be controlled through strategy and effort (Tamir et al., 2007). Individuals with a fixed mindset experience greater levels of internalizing symptoms such as anxiety and depression (De Castella et al., 2013; Ford et al., 2018; Romero et al., 2014; Schleider & Weisz, 2016; Schroder et al., 2015a; Tamir et al., 2007). A mechanism explaining the relationship between mindset and internalizing symptoms is the use of avoidance-based strategies for regulating negative emotions (citation withheld for peer review; De Castella et al., 2018). However, this indirect relationship has only been shown in adults and has not yet been explored in adolescents, who are in a period of heightened emotional vulnerability (Steinberg, 2005). Furthermore, adolescents experience more frequent and intense feelings of perceived stress (Grant et al., 2006; Hampel & Petermann, 2006b) and stress is shown to amplify the negative effects of a fixed mindset on self-regulatory behaviors in the mindset domains of intelligence and personality (Burnette et al., 2013). The goal of the current study was to examine whether avoidance-based strategies explained the mindset and internalizing relationship in adolescents, and to explore the factors that might affect this relationship by examining the moderating role of perceived stress.

The development of emotion mindsets

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\(^3\) In this literature, emotion mindsets are also referred to as emotion beliefs, implicit theories of emotion, and emotion regulation self-efficacy. To be consistent, we will use the emotion mindset terminology.
While we are beginning to understand how mindsets influence emotional functioning in adults, our knowledge of their developmental trajectory is limited. Although we do not yet have evidence to when emotion mindsets first form, we know from past research that they are present and have an impact on emotional functioning in early to mid-adolescence (De Castella et al., 2013, 2013; Ford, Lwi, et al., 2018; Romero et al., 2014; Schleider & Weisz, 2016b). However, it is likely that they develop much earlier; mindsets in the domains of intelligence have been measured in children as young as 4 years old (Warren et al., 2018). What makes adolescence a particularly good time to examine emotion mindsets is that it is a period of time where there are significant changes in emotional functioning due to a variety of biological, psychological, and social factors (Steinberg, 2005). During this period, adolescents tend to experience more extreme emotion (both positive and negative) and experience more volatility in their mood states compared to adults (Larson et al., 2002). As well, we see the emergence of internalizing disorders around the mid-adolescence point (Alloy et al., 2016; Thapar et al., 2012). Consequently, adolescence represents a time of emotional vulnerability and challenge (Dahl, 2001; Hollenstein & Lougheed, 2013). Adolescents’ mindsets towards the controllability of emotions might play an important role in how they manage their emotions during this time vulnerability.

Similar to adults, the link between adolescents’ fixed emotion mindsets and greater internalizing symptoms (De Castella et al., 2013; Ford, Lwi, et al., 2018) has been further confirmed through longitudinal research (Ford, Lwi, et al., 2018; Schleider & Weisz, 2016b). For example, Romero and colleagues (2014) examined the transition through middle school at 4-time points and found that a fixed mindset predicted poorer wellbeing and more depressive symptoms at each time point. Similarly, Schleider & Weisz (2016) measured mindset and emotional
functioning 3 times over the school year in 11- to 13-year-olds. The authors found that at each time point, a fixed mindset predicted internalizing and externalizing symptoms (e.g. anxiety, depression, aggression). The stable and consistent association between mindset and emotional functioning indicates that mindsets play an important role during the adolescent period of emotional vulnerability; however, the mechanism of how mindsets influence internalizing symptoms in adolescents is not yet clear. Mindsets represent global beliefs that do not directly impact emotional functioning but influence more proximal causes such as behaviour. Indeed, findings from the adult work show that mindsets affect regulatory behaviors, which are shown in countless studies to predict emotional functioning (Aldao et al., 2010; Schäfer et al., 2017). Thus, to understand the mindset-internalizing relationship in adolescents it is critical to examine whether regulatory behaviors may account for this relationship as well.

Avoidance

Avoidance refers to attempts to deny, minimize, and suppress thoughts, feelings, and bodily experiences in response to negative emotions, and seeking escape or preventing the occurrence of situations that evoke negative emotions (De Castella et al., 2018). In the face of perceived threat, avoidance can trigger the automatic flight response and as such requires very little cognitive effort (Gross et al., 2007). While avoidance has the advantage of reducing distress immediately, as it allows the person to escape the distressing situations or internal experiences, frequent use of these strategies can have a paradoxical effect. Frequent use of avoidance is associated with greater distress and negative thoughts in the short term, as well as greater internalizing symptoms in the long term (Hayes et al., 1996; Werner & Gross, 2010). Consequently, frequent use of avoidance is one of the strongest predictors of internalizing
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symptoms (Aldao et al., 2010). The connection between mindset and internalizing symptoms might be explained by differences in how growth and fixed individuals regulate their emotions.

Indeed, fixed mindset adults are more likely to use avoidance to down-regulate negative emotions (De Castella et al., 2018; Kappes & Schikowski, 2013). Furthermore, the relationship between a fixed mindset and internalizing symptoms (i.e. anxiety and depression) is explained by the use of avoidance (Studies 1 and 2; De Castella et al., 2018). In adolescence, the use of avoidance is predictive of internalizing symptoms. Compared to other periods in adolescence and adulthood, 13- to 15-year-old’s have a relatively limited repertoire of emotion regulation strategies, relying more on avoidance-based strategies (Cracco et al., 2017; Hampel & Petermann, 2006b; Zimmermann & Iwanski, 2014). Thus, fixed adolescents in this age range might be the most vulnerable for using avoidance-based strategies.

For adolescents, interpersonal relationships mark one of the most frequent contexts in which emotions are triggered (Adrian et al., 2011; Gunthert et al., 2007; Leary, 2015). As relationship dynamics shift, interpersonal conflict within relationships is more frequent during adolescence and it can produce a range of negative emotional responses such a sadness, anxiety, shame, and anger (Gunthert et al., 2007; Wichers et al., 2007). As such, social situations might be considered emotionally risky to adolescents. If you have a fixed mindset, the least effortful option may be to avoid or disengage from these social situations and avoid the negative thoughts and emotions that are evoked. Indeed, there is a trend for increased social avoidance during adolescence (Miers et al., 2014; Sumter et al., 2009). Social avoidance has been shown to explain the relationship between mindset and internalizing symptoms in adults (Study 2). Whether social avoidance also accounts for the relationship between mindset and internalizing symptoms in fixed adolescents is unclear. These findings need to be extended to adolescents, as well as
understanding what factors may impact this mindset-avoidance-internalizing relationship unfolds.

**Perceived Stress**

Perceived stress is strongly associated with more frequent and intense negative emotions (Gunthert et al., 2007; van Winkel et al., 2015; Wichers et al., 2007), and perceived stress is shown to encourage the use of more avoidance-based strategies (Dyson & Renk, 2006; Hampel & Petermann, 2006b). A fixed mindset is linked with higher levels of stress (Study 2; De Castella et al., 2018; Schroder et al., 2017); however, its role is unclear. Adolescents perceive events and relationships as more stressful and experience stress more intensely (Byrne et al., 2007; Michl et al., 2013). Adolescents report experiencing daily stress (Byrne et al., 2007) that is strongly associated with more frequent and intense negative emotions (Michl et al., 2013; Zautra et al., 2002). As well, perceived stress is shown to have a negative impact on coping and to encourage more avoidant coping strategies (Dyson & Renk, 2006; Hampel & Petermann, 2006b). Thus, stress may impact how the mindset process unfolds.

In the domains of intelligence and personality, mindsets are shown to be sensitive to the degree to which an individual perceives something as challenging or stressful within that domain. When individuals are not anticipating or in the midst of a challenge, the effect of mindset on regulatory behavior is lesser than when the perceived stress is high (Burnette et al., 2013). For example, beliefs about the malleability of one’s intelligence are stronger when studying for a final exam, compared to studying for a quiz. Both tests may activate one’s mindsets and regulatory behaviors but to different intensities. (Blackwell et al., 2007). In the midst of stressful situations where emotions are triggered, fixed mindset individuals might employ avoidance responses more often.
No studies to date have examined the role of stress with respect to emotion mindsets in adolescents, which is critical given that stress is one of the strongest predictors of youth depression and anxiety (McLaughlin & Hatzenbuehler, 2009a, 2009b; Michl et al., 2013). In the adult work, perceived stress has been associated with fixed mindsets, use of avoidance-based strategies, and internalizing symptoms (Study 1; De Castella et al., 2018; Schroder et al., 2017); however, the exact role of stress is mixed. It is shown to amplify the effects of mindset on depression, but not impact the regulatory behaviors in adults (Study 1). This relationship may be different in adolescents who experience more frequent and higher levels of perceived stress. A fixed adolescent who is experiencing more intense and frequent emotions associated with stress may engage in avoidance-based regulation more often than when their perceived stress is lower. Thus, stress may moderate the mindset-avoidance-internalizing relationship by amplifying the association between mindset and the use of avoidance-based strategies.

**The current study**

The objective of the current work was twofold. First, we sought to extend previous research by examining whether the use of social avoidance-based strategies is a mechanism through which fixed mindsets are associated with internalizing symptoms in adolescents. We predicted that in line with adult research, mindset would influence internalizing symptoms indirectly through social avoidance. Second, we aimed to determine whether the level of perceived stress moderated the relationship between a fixed mindset and the use of social avoidance-based strategies. We expected that stress would amplify the relationship between fixed mindsets and avoidance, thus moderating the mindset-avoidance-internalizing relationship.

**Method**

**Participants**
One hundred and eighty-seven adolescents (53% female) between the ages of 13 to 15-years-old ($M=13.90$, $SD=.90$) were recruited from a database maintained by the faculty in the developmental program of a medium-sized university in Canada. Parents and youth enroll in this database, and parents of the participants are contacted by phone or email when their child is eligible for a study. Participants were compensated 10 dollars.

**Procedure**

Participants and their parents were invited to attend a laboratory session. Once they provided informed consent to participate in the study, they completed self-report questionnaires regarding their beliefs about emotions, their recent mood, and their tendencies to avoid emotions (see below for list and description of measures). Completing the questionnaires took approximately 30 minutes.

**Measures**

**Emotion Mindset.** The Implicit Theories of Emotion Scale – Personal Version (ITAES-PV; De Castella et al., 2013; Appendix A) is a four-item questionnaire assessing emotional mindsets. A sample item is “No matter how hard I try, I can't really change the emotions that I have.” Participants responded to questions on a 5-point scale (not at all applies to me = 1, very much applies to me = 5). The ITES-PV had adequate internal consistency ($\alpha = .76$). The mean score across all the items (2 items were reverse coded) was used to create a variable for Mindset, where higher scores reflected a more fixed mindset, and lower scores reflected a more growth mindset.

**Social Avoidance.** The 15 social items from the Cognitive and Behavioral Avoidance Scale (CBAS; Ottenbreit & Dobson, 2004; Appendix D). The social items were selected due to their association with stress and negative emotions in adolescents. A sample item is “I tend to make
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up excuses to get out of social activities.” Participants responded on a 5-point scale (extremely true = 5, not at all true = 1). The CBAS had good internal consistency ($\alpha = .88$). The mean score across all items was used to create the variable, Avoidance. Higher scores indicated greater use of avoidance.

**Internalizing symptoms.**

**Depressive Symptoms.** The Children’s Depression Inventory (CDI; Kovacs & Beck, 1977) was used to measure depressive symptoms. Twenty-six items were rated on a 3-point scale, (no presence of symptoms = 1, high levels of symptoms = 3). The CDI had strong internal consistency ($\alpha = .93$). The mean score across all items was used to create the variable, Depression. Higher scores indicated a high number of depressive symptoms.

**Anxiety Symptoms.** The Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997) was used to measure anxiety. A sample item is “I keep my eyes open for dangerous situations.” Thirty-nine items are rated on a 4-point scale, from (almost never = 1, almost always = 4). The MASC had high internal consistency ($\alpha = .91$). The mean score across all items was used to create the variable, Anxiety. Higher scores indicated a great presence of anxiety symptoms.

**Perceived Stress.** The Perceived Stress Scale (PSS; Cohen & Williamson, 1988; Appendix E) was used to measure stress. A sample item is, “how often have you been upset because of something that happened unexpectedly?” Participants rated on a 4 point scale how often they experienced an item over the past month (never = 0, very often = 3). The PSS had high internal consistency ($\alpha = .89$). The mean score across all 10 items was used to create the variable Stress. Higher scores indicated a higher level of stress.
Results

All measures were assessed for missing values, outliers, and normality of distributions. Scores on Avoidance, Depression, and Anxiety were positively skewed, which is expected in non-clinical samples. However, we used PROCESS (Hayes, 2015) for analyses, which employs a bootstrapping method to calculate the statistics of interest (i.e., the indirect effect) and is robust with non-normal distributions. All relationships between variables yielded linear relationships. Table 1 shows descriptive means, standard deviations, and correlations among variables. There were no significant gender differences for any of the variables. Consistent with previous findings, Emotion Mindset was significantly and positively correlated with Avoidance, Anxiety, and Depression. Furthermore, Avoidance was significantly positively correlated with Anxiety and Depression.

Table 4. Variable means, standard deviations, and correlations

<table>
<thead>
<tr>
<th>Fixed Mindset</th>
<th>Avoidance</th>
<th>Anxiety</th>
<th>Depression</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fixed Mindset</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Avoidance</td>
<td>.31**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety</td>
<td>.35**</td>
<td>.56**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>.52**</td>
<td>.59**</td>
<td>.65**</td>
<td>-</td>
</tr>
<tr>
<td>Stress</td>
<td>.24**</td>
<td>.19**</td>
<td>.41**</td>
<td>.43**</td>
</tr>
</tbody>
</table>

Mean (SD)

<table>
<thead>
<tr>
<th></th>
<th>Girls</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3.30 (1.5)</td>
<td>2.0 (.67)</td>
<td>2.26 (.46)</td>
<td>1.48 (.34)</td>
<td>2.11 (.39)</td>
</tr>
<tr>
<td>Boys</td>
<td>3.50 (1.5)</td>
<td>2.0 (.70)</td>
<td>2.05 (.42)</td>
<td>1.41 (.38)</td>
<td>2.31 (.37)</td>
</tr>
</tbody>
</table>

*p<.05. **p<.01.

Indirect Effect of Avoidance
Indirect Effect analyses were conducted using the PROCESS macro in SPSS (Hayes, 2015), specifying Model 4 using a bootstrapping method. In the first and second analyses, we sought to test the indirect effect model of mindset on anxiety and depression through avoidance (see Figure 1a and 1b). Gender was entered as a covariate. Results indicated that an indirect effect of Mindset via Avoidance was significant for Anxiety (ab = .05 95% CI = [.02, .07]). Individuals with a more fixed mindset endorsed a more avoidant approach, with greater avoidance associated with a greater presence of anxiety symptoms. The indirect effect via Avoidance for Depression was also significant (ab = .03, 95% CI = [.01, .06]). Individuals with a more fixed mindset endorsed a more avoidant approach, with greater avoidance associated with a greater presence of depressive symptoms.

Figure 4. The indirect effect of fixed mindset on anxiety and depression via use of avoidance.

Note. Values are standardized coefficients. ** significance at the .05 level.

Conditional Effect of Stress
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Using Model 8 in PROCESS, we examined the moderating effect of stress on the indirect association between mindset on anxiety and depression (a path), via avoidance as well as the direct relationship between mindset and internalizing symptoms (b path; see Figure 4 for conceptual model). We hypothesized that stress would moderate the direct and indirect effect of mindset on internalizing symptoms. We hypothesized that high levels of stress would strengthen the relationship between mindset and avoidance. As well, based on previous work we hypothesized that stress would moderate the direct relationship between mindset and anxiety and depression.

Figure 5. The conceptual model for the stress moderating the indirect relationship between mindset and internalizing symptoms via avoidance.

Stress did not moderate the indirect effect for Anxiety (ab = -.02, 95% CI = [-.08, .05]) or Depression (ab = .04, 95% CI = [-.01, .10] was not significant). Mindset and Stress did not interact to predict avoidance for Anxiety and Depression. There was no conditional effect of Stress or Mindset on Avoidance when the other variable was at zero. Varying levels of perceived stress did not have a significant impact on the indirect relationship between mindset and anxiety.
and depression via avoidance. See Table 3a (Anxiety) and 3b (Depression) for a depiction of conditional effects and interactions.

Table 5.

<table>
<thead>
<tr>
<th></th>
<th>Paths a1, a2, a3</th>
<th>Outcome: Avoidance</th>
<th>b</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td></td>
<td></td>
<td>.28</td>
<td>.199</td>
<td>.166</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td>.48</td>
<td>344</td>
<td>.168</td>
</tr>
<tr>
<td>Mindset x Stress</td>
<td></td>
<td></td>
<td>-.06</td>
<td>.086</td>
<td>.466</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Paths c1, c2, c3</th>
<th>Outcome: Anxiety</th>
<th>b</th>
<th>SE</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>Mindset</td>
<td></td>
<td></td>
<td>.03</td>
<td>.265</td>
<td>.792</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td>.23</td>
<td>.173</td>
<td>.194</td>
</tr>
<tr>
<td>Mindset x Stress</td>
<td></td>
<td></td>
<td>.04</td>
<td>.043</td>
<td>.763</td>
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</table>

Table 6.

<table>
<thead>
<tr>
<th></th>
<th>Paths a1, a2, a3</th>
<th>Outcome: Avoidance</th>
<th>b</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td></td>
<td></td>
<td>-.30</td>
<td>.216</td>
<td>.161</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td>-.17</td>
<td>.339</td>
<td>.615</td>
</tr>
<tr>
<td>Mindset x Stress</td>
<td></td>
<td></td>
<td>.17</td>
<td>.091</td>
<td>.066</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Paths c1, c2, c3</th>
<th>Outcome: Depression</th>
<th>b</th>
<th>SE</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mindset</td>
<td></td>
<td></td>
<td>.04</td>
<td>.087</td>
<td>.630</td>
</tr>
<tr>
<td>Stress</td>
<td></td>
<td></td>
<td>.24</td>
<td>.034</td>
<td>.300</td>
</tr>
<tr>
<td>Mindset x Stress</td>
<td></td>
<td></td>
<td>.14</td>
<td>.136</td>
<td>.561</td>
</tr>
</tbody>
</table>

**Discussion**

The current work had two main goals. First, we sought to examine the process by which fixed mindsets affect internalizing symptoms in adolescents aged 13- to 15-years old. Second, we examined whether perceived stress impacted the strength of this indirect relationship. Consistent with previous research (Ford, Lwi, et al., 2018; Romero et al., 2014; Schleider & Weisz, 2016b), we found that a fixed mindset was associated with a greater presence of internalizing symptoms in adolescents. However, our work is the first to show that social avoidance might explain for the relationship between a fixed mindset and internalizing
symptoms in adolescents. Fixed adolescents endorsed higher use of social avoidance and in turn, avoidance predicted greater internalizing symptoms. Furthermore, the current study was the first to explore the role of stress in understanding the mindset-avoidance-internalizing relationship in adolescence. Contrary to our hypotheses, we found that perceived stress did not moderate this relationship; greater levels of perceived stress did not interact with mindset to increase the use of social avoidance-based strategies.

Avoidance is a well-known predictor of internalizing symptoms in adolescents and our findings offer insights into how these symptoms might be influenced by emotion mindsets. In our study, we focused on avoidance within social relationships, given their prominence during adolescence. In line with the adult mindset research, fixed adolescents were more likely to use avoidance-based strategies related to social situations and relationships compared to growth individuals (Study 2; De Castella et al., 2018; Kappes & Schikowski, 2013). Importantly, social avoidance-based strategies accounted for the relationship between fixed mindsets and internalizing symptoms. Fixed adolescents reported engaging in social avoidance such as avoiding thoughts about relationship tension and avoiding attending social events. One consequence of relying on avoidance-based strategies is that fixed adolescents are more likely to miss opportunities to challenge their fixed beliefs by encountering contradictory information about those beliefs. For example, being in a situation where avoidance is not feasible, the individual may be forced to employ other strategies that turn out to be successful or they might watch their emotions peak and then decrease on their own, thus contradicting their belief that their emotions cannot be changed. Without these opportunities, avoidance-based strategies may become entrenched over time because they are successful for relieving distress in the short-term, reinforcing the use of those strategies in future situations (Hayes et al., 1996; Tull & Gratz,
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2008). To break this cycle, one has to be able to tolerate momentary distress and override an automatic reaction so that another strategy can be implemented. It is likely that, over time, fixed individuals avoid putting themselves in or staying in situations that are distressing. Thus, by missing key growth opportunities, a fixed mindset is likely to remain relatively stable over time.

Surprisingly, perceived stress did not moderate the relationship between fixed mindsets and internalizing symptoms in adolescents; yet, to conclude that stress does not play a role is premature. Fixed mindsets, internalizing symptoms and avoidance, albeit to a lesser extent were, significantly associated with increased stress. This is consistent with past findings that mindsets are associated with stress (Schroder et al., 2015, 2017). These results suggest that although stress is relevant to understanding the mindset-internalizing relationship, it may not affect the regulatory process. These results are not in line with findings from the other mindset domains (e.g. intelligence), in which stress is demonstrated to increase the strength of mindsets and the impact on subsequent behaviors (Burnette et al., 2013). One possible explanation of our current findings is that a fixed mindset’s impact on regulatory behaviour is significant during both stressful and non-stressful periods. For fixed adolescents the continual relevancy of their fixed mindset may lead them to rely on avoidance for the majority of the time, regardless of stress levels. This age group is shown to have a relatively limited repertoire of emotion regulation strategies (Cracco et al., 2017; Hampel & Petermann, 2006b; Zimmermann & Iwanski, 2014). We found that stress plays a role in understanding the effects of mindsets; however, the extent of its role remains unclear.

The impact of emotion mindsets in both adolescence and adulthood presents interesting developmental questions as to when and how these mindsets develop. These mindsets are present and impacting emotional functioning as early as 11-years-old (Schleider & Weisz, 2016b);
however, it is unknown at this point at what age these mindsets emerge and whether the mindset-avoidance-internalizing relationship would be replicated. Children have a smaller repertoire of emotional regulation strategies than adolescents and tend to be more reliant on parents to support their emotion regulation (Sanders et al., 2015). Parents play a large role in children’s emotional socialization: parental discussions and reactions to emotions impact children’s own emotional understanding (Denham, 2007). In the domain of intelligence, a parent’s own mindset is shown to be less impactful than their reactions to their child’s academic failures (Haimovitz & Dweck, 2016). Parents’ reactions convey whether the child’s failure was due to their degree of innate intelligence (fixed) or due to the child’s effort and strategy (growth). Thus, how parents respond to their child’s emotions and how parents directly and indirectly teach children about regulation might communicate similar information about the controllability of emotions in several ways (Morris et al., 2017).

First, emotional meltdowns may be conceptualized as “emotion failure,” for example. A child who is told that their emotions are out of proportion to the situation and are not supported in regulation might develop more fixed beliefs than when parents respond with validation and support. Second, parents who model avoidant behavior or encourage avoidance-based strategies over strategies such as reframing might also influence the development of fixed beliefs. Third, a child’s temperament may play a role and interact with parental behavior. Children who are more prone to avoiding novel stimuli, negative moods, and emotional dysregulation may experience their emotions as less controllable and evoke reactions from parents that reinforce these beliefs (Mezulis et al., 2006). Lastly, the development of a fixed mindset may be influenced by other factors such as early and/or chronic stressful life events, trauma, and adversity as these events
tend to produce strong emotions that may feel uncontrollable to the child. The more a child is exposed to these types of experiences, the more likely they may become fixed.

**Limitations and Future Directions**

While this study provides a picture of the process by which mindset and internalizing symptoms might develop in adolescents, it was not without limitations. The current study used a community sample of adolescents and, representative of the larger community, participants were predominantly Caucasian. Future studies should include efforts to replicate these findings in more ethnically diverse adolescent populations before generalizations can be made (Henrich, Heine, & Norenzayan, 2010).

Based on our current findings and previous findings, regulatory strategies are critical to understanding the effects of mindset on emotional functioning. Indeed, the adult research shows that growth individuals use cognitive reappraisal more often compared to fixed individuals (Kneeland et al., 2016a; Kneeland & Dovidio, 2019; Schroder et al., 2015a). It would be informative to examine the full repertoire of strategies that fixed and growth individuals tend to employ. Other work demonstrates that adolescents who experience greater internalizing symptoms tend to have a limited repertoire of emotional regulation strategies (De France & Hollenstein, 2017). Our findings indicate that fixed individuals rely on low effort avoidance-based strategies and may have a limited repertoire of strategies.

Emotion regulation is an in the moment dynamic process; however, due to the infancy of this line of research, most studies, the current one included, have largely been a broad examination of these relationships. To confirm hypotheses about the role of emotion regulation in understanding the mindset-internalizing relationship we need to understand how mindsets influence regulatory behaviors as the process unfolds in real-time. Using experience sampling
methods to examine how this relationship plays out in daily interactions would yield valuable information for understanding the dynamic relationship between beliefs and behaviour. The use of experiential sampling methods allows for the collection of data in the moment or shortly thereafter multiple times per day over the course of a period of time (e.g. 5 times per day for 2 weeks). By using this method, significant and detailed insights could be gained on how fixed and growth individuals differ in their response to negative emotions, the strategies they employ, regulation success, as well as any factors that impact this process.

Longitudinal research would serve to further map out the developmental trajectory of fixed and growth mindsets from childhood to adulthood. The current work demonstrated that adolescent mindset impacts their emotional functioning through avoidance; however, our understanding of how, when, and why mindsets develop is still an open question. Employing longitudinal approaches will bolster our understanding of the onset, stability, process, and conditions under which these mindsets operate at younger ages.

**Conclusion**

Fixed mindsets about the controllability of emotions have significant consequences for emotional functioning in adolescents. The current study adds to and extends previous research indicating that use of social avoidance-based strategies is critical to understanding how mindsets operate to influence internalizing symptoms. Given the significant impact of mindsets on emotional wellbeing, improving our understanding of the regulatory efforts of these individuals is a necessary step to support the development of competent socioemotional functioning and perhaps inspiring preventative measures and intervention efforts for emotion dysfunction in adolescents.
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Chapter 4: General Discussion

The overarching goal of this dissertation was to further our understanding of individuals with a fixed emotion mindset; specifically, the potential process and circumstance by which a fixed mindset relates to emotional dysfunction. Across three studies, I sought to make novel contributions to the literature in two important ways. First, I examined whether the use of avoidance-based strategies explained the relationship between a fixed mindset and internalizing symptoms (e.g. anxiety and depression) in first-year post-secondary students (17 to 21 years old) and adolescents (13 to 15 years old), which is a well-known period of transition. Second, I examined the level of perceived stress as a moderating factor of the mindset-avoidance-internalizing relationship in these age groups.

Fixed adults and adolescents were more likely to use avoidance-based strategies, and the use of these strategies was the process by which a fixed mindset might influence internalizing symptoms. These results are a conceptual replication of the mindset-avoidance-internalizing relationships also found by De Castella et al. (2018) and provide support for the robustness and stability of this relationship across a wide age range. One repercussion of using avoidance-based strategies is that they become reinforced over time, since they may seem immediately successful for relieving distress in the short-term but not in the long-term (Hayes et al., 1996; Tull & Gratz, 2008). To break this cycle, one has to tolerate distress and override an entrenched, avoidant reaction until another emotion regulation strategy can be implemented. Given the lack of effort and strategy that fixed individuals are theorized to put forth, it is likely that, over time, fixed individuals avoid putting themselves in or staying in situations that are distressing. Ironically, it is exposure to exactly these situations which may provide the regulatory practice they need and
the evidence contrary to their beliefs. Thus, by missing key learning opportunities, a fixed mindset is likely to remain relatively stable over time.

Perceived stress did not moderate the indirect mindset-avoidance-internalizing relationship. However, stress was significantly related to fixed mindsets and the use of avoidance-based strategies, indicating that it plays a role that is currently unclear. There are some possible interpretations of the current result. First, stress may be relevant to mindset, but not the regulatory process. Fixed individuals may rely on avoidance-based strategies to the same extent regardless of the level of stress they are experiencing. That is, their level of stress does not impact their regulatory behaviours. Second, the role of stress might need to be further examined using alternate methodology where its influence can be closely observed in real-time, such as experiential sampling methods or in-lab manipulations. My work was one of the first studies to examine the moderating effect of stress on the mindset process and as such, it was a broad exploratory approach using a cross-sectional measure. Third, the role of stress may moderate the process but due to an incomplete understanding of what an emotional challenge is, the true effect of stress might be obscured (the issues with defining emotional challenge will be expanded upon later on).

What is exciting about the burgeoning area of mindset research is that there are numerous questions that remain to be answered. The literature has demonstrated the link between fixed and growth emotion mindsets and many facets of psychosocial functioning (e.g. internalizing symptoms, life-satisfaction, interpersonal functioning; De Castella et al., 2018; Romero et al., 2014; Schleider & Weisz, 2016a; Schroder et al., 2015; Tamir et al., 2007), yet we are only beginning to understand the processes and circumstances that illuminate this relationship. This discussion will focus on three main ideas. First, developing a more comprehensive model of
emotion mindsets, discussing facets of Dweck’s mindset model that remain unclear for emotion mindsets (e.g. emotional challenge) and considering further regulatory behaviours of fixed individuals. Second, I will discuss how emotion mindsets might develop by examining the role of parents and how the development fits into the emotion mindset model. Finally, I will discuss the clinical implications of these findings for intervention and preventative efforts.

**The Emotion Mindset model**

*Other beliefs about emotions*

Beyond controllability, individuals can hold other emotion beliefs such as emotion acceptance (e.g. “having negative emotions is bad”; Ford et al., 2018) and emotion helpfulness (e.g. “emotions always make things worse”; Karnaze & Levine, 2018). Similar to controllability, these beliefs are shown to influence emotion regulation and emotional functioning (Caprara et al., 2008; Gutentag et al., 2017; Linehan, 1993; Sydenham et al., 2017; Tran & Rimes, 2017), yet it is not clear how these beliefs relate to each other. Combining beliefs about emotions into one construct has been suggested by others (Ford & Gross, 2019; Veilleux et al., 2015), but not yet incorporated into a coherent emotion mindset model. For example, under a combined construct the fixed individual profile would entail beliefs that emotions are uncontrollable, unacceptable, and unhelpful. Another possibility is that these beliefs, while related, can operate relatively independent of each other. For example, an individual could believe that their emotions are uncontrollable, but only moderately endorse beliefs about acceptability and helpfulness. Currently, the relationship among these beliefs is unclear and the value of such a model would deepen our understanding of what it means to be an emotionally fixed or growth individual.

*Emotional challenge*
Mindsets become salient in the face of challenges (Burnette et al., 2013). However, what constitutes an emotional challenge? Challenge is considered to be the activator of mindsets, which in turn promotes specific regulatory behaviours. Negative emotions are assumed to represent an emotional challenge as experimental studies demonstrate that when negative emotions are elicited, fixed and growth individuals respond differently (Kappes & Schikowski, 2013; Kneeland et al., 2016a, 2016b). Indeed, in my studies I theorized that stress represented an emotional challenge because of the intense and frequent negative emotions that accompany perceived stress.

What activates an emotion mindset, however, only partly answers the question of what an emotional challenge entails. Challenge as defined by Dweck, are situations that have the potential for failure, (Burnette et al., 2013). With intelligence, failure is more obvious and explicit; the parameters are clearly defined (e.g. a test) and there are typically right or wrong answers that have specific consequences (e.g. passing the class). With emotions, there are not the same explicit guidelines or “emotion tests” that clearly indicate failure or success. Thus, emotional failure is much more subjective and consequently difficult to define. Failure may be the mere experience of negative emotions, losing control of your emotions, or that your negative emotions are outwardly identifiable. Moreover, these might represent various intensities of emotional failure. Given its importance in activating the mindset-regulatory-functioning relationship, this facet of challenge has yet to be examined.

**Emotion regulation**

The current findings and other work on emotion mindsets highlight the importance of emotion regulation as one of the processes by which mindsets influence psychosocial functioning. Fixed individuals’ regulation tends to be maladaptive due to the frequent use of
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avoidance-based strategies and infrequent use of cognitive reappraisal, in contrast to growth individuals who show the opposite. However, those are only two of many strategies that individuals can use to regulate their emotions. In any given situation an individual can also use strategies such as distraction, acceptance, suppression, rumination, and engagement. Fixed individuals are theorized to put less effort into developing and deploying strategies, but it is currently unclear if fixed individuals use additional strategies and how they apply them across situations. This range or repertoire of strategies available to individuals is linked to wellbeing; a small repertoire of strategies is associated with difficulties in emotion regulation and internalizing symptoms (Aldao et al., 2015; Lougheed & Hollenstein, 2012; Sheppes & Gross, 2012). Furthermore, situations have different regulatory demands where a strategy may be adaptive or maladaptive depending on one’s goals. For example, using avoidance of anger at work may be an adaptive way to manage colleague conflicts, but using avoidance of anger at home may be maladaptive for having a healthy relationship. Individuals must be sensitive to the demands of the situation and flexibly apply the right strategies (Aldao et al., 2015; Sheppes & Gross, 2012). Given the frequent use of avoidance-based strategies use and poor emotional functioning, I would speculate that individuals with a fixed mindset have smaller repertoire of strategies and inflexibly apply them in situations that pose an emotional challenge. To further develop our understanding of fixed individual’s maladaptive regulation it is necessary to consider the range and flexible application of strategies.
Figure 6: the emotion mindset model depicting the mindset-regulatory-functioning-outcome relationship.

Figure 6 depicts an expansion of the basic mindset model I used in my dissertation by incorporating acceptability and helpfulness beliefs and a more nuanced breakdown of the regulatory behaviours dictated by mindsets. Beginning on the left are the thoughts associated with fixed emotion beliefs about controllability, acceptance, and helpfulness. These beliefs are implicit and lay relatively dormant until an emotional challenge (e.g. anxiety about meeting new people) activates this mindset, which in turn drives certain maladaptive regulatory responses.
These responses reflect a small repertoire of inflexible strategies that do not meet the regulatory demands and goals of the situation. The consequence of maladaptive regulation is ineffective management of negative emotions in the short-term and an increased vulnerability to internalizing symptoms in the long-term.

For growth individuals, the experience is very different. A growth individual might believe that emotions are acceptable, helpful, and can be controlled through effort and strategy. In the face of an emotional challenge, they are able to select from a larger repertoire and choose the strategy appropriate to the demands of a situation. As a result, their efforts are more likely to be successful in emotion management in the short-term and they are less likely to develop anxiety and depressive symptoms in the long-term.

Important to note in this model is that not only do mindsets affect emotional functioning, but that emotional functioning affects one’s mindset. When fixed individuals use ineffectual regulatory strategies in response to their negative emotions, their emotions may not subside, or subside only for a short time. The reemergence of negative emotions caused by ineffectual emotion regulation would hypothetically trigger the process again. Furthermore, when their emotional state does not improve, it reinforces the belief that their emotions cannot be controlled. One longitudinal study with adolescents found that mindset predicted internalizing symptoms, but also that the reverse was true; internalizing symptoms predicted mindsets becoming more fixed. (Schleider & Weisz, 2016b). This reciprocal process reinforces fixed beliefs that can become more entrenched over time. To mitigate or prevent this entrenchment it is critical to explore how these mindsets develop.
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How do mindsets develop?

Emotion mindsets are present by early-adolescence, but the onset, stability, process, and conditions under which emotion mindsets develop are still open questions. Fortunately, there is a significant body of work on the development of intelligence mindsets to draw upon. Key to the development of mindsets are parents; however, their influence is not in the way that one would expect. A number of key studies found no significant correlation between the mindsets of children and their parents (Dweck & Yeager, 2019; Gunderson et al., 2013; Haimovitz & Dweck, 2016; Haimovitz & Corpus, 2011). That is, growth-minded parents do not necessarily raise growth-minded children.

What predicts the development of either growth or fixed mindsets are parents’ reactions to their children’s’ failure and success rather than their own mindset (Haimovitz & Dweck, 2016; Haimovitz & Henderlong Corpus, 2011). Some parents are more likely to perceive their child’s success and failure as reflective of their child’s inherent qualities and they tend to use more person-focused language. For example, saying, “you are so smart” when their child gets a good mark and saying “not everyone can be good at math” when the mark is poor (Haimovitz & Dweck, 2017; Pomerantz & Kempner, 2013). Children can internalize these beliefs into a fixed mindset about the changeability of their own qualities. In contrast, other parents see failure as enhancing and an opportunity for growth. They are more likely to focus on the process (e.g. strategy and effort) and communicate this as such to their children (e.g. “looks like you have to study more in math”). These children are more likely to develop a growth mindset within that domain.

With respect to emotions, a circumstance in which to observe parent socialization of mindsets is in the midst of emotion arousal (e.g. a tantrum). Despite being a normative part of
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childhood development, parent’s beliefs about what tantrums mean might influence the
development of fixed or growth emotion mindsets. Some parents might perceive typical
emotional dysregulation as something that reflects the child’s fundamental quality (e.g. “My
child is so emotional”). These beliefs may be communicated by labeling the child’s emotions as
bad, an overreaction to the situation, and the parent may be less likely to coregulate with the
child and praise the child only if they are calm. These types of responses are less likely to reduce
negative emotions and are related to poor emotional functioning later on (Yap et al., 2008). Over
time, these children might develop beliefs that their emotions are unacceptable, unhelpful, and
uncontrollable. In contrast, other parents might perceive meltdowns as opportunities for
developing regulation skills and communicating to their child that their emotions are normal,
point to specific causes why they are feeling this way (e.g. “sounds like you are tired’), and
praise the child’s efforts to regulate. In turn, this response is more likely to foster these beliefs
that their emotions are acceptable, helpful, and controllable, making them more resilient in the
face of emotional challenges. In short, the responses of parents and the language they use to
frame emotional experiences, which parents might not even be explicitly aware of, are likely key
to fostering fixed and growth mindsets.

In the development of mindsets, we see further indications of the reciprocal nature of the
mindset-emotional functioning relationship. Experiences with emotional dysregulation and
parental response more strongly influence the development of mindset compared to later on
when mindsets are more often the driving force of emotional functioning. Furthermore, we see
that how emotions are responded to, whether that be by the parent or by the individual, is a
process by how this relationship unfolds in both directions. Examining the developmental
trajectory of these mindsets offers valuable information that can be used for determining areas for intervention and prevention.

Clinical Implications

Over time, fixed mindsets are likely to become entrenched due to the ineffectiveness of inflexible use of avoidance-based strategies and the reciprocal nature of the relationship. Thus, holding a fixed mindset plays a strong role in the development and maintenance of emotional dysfunction. There is no doubt that intervention is critical in order to break this maladaptive cycle, but how mindset plays a role in the therapeutic process is a question that is only beginning to be explored. There are three ways in which mindsets might be clinically relevant.

First, a fixed mindset can prevent individuals from seeking out help in the first place. Schroder et al., (2015) found that individuals with a fixed mindset were more likely to select medication for treatment of internalizing symptoms compared to talk therapy. The authors argued that fixed individuals might be more likely to endorse genetic-based beliefs of mental illness and choose a treatment option that would impact their physiological functioning. Consistent with a belief that emotions cannot be controlled through effort or strategy it is not surprising that fixed mindset individuals were less likely to select talk therapy. It is concerning though that by holding a fixed mindset, individuals are missing out on professionally guided opportunities to challenge their fixed mindsets.

Second, mindsets can influence one’s level of progress through therapy. De Castella et al. (2015) examined whether fixed or growth anxiety mindsets influenced changes in social anxiety symptoms after 16-weeks of Cognitive Behavioural Therapy (CBT). Having a more growth emotion mindset of anxiety at the outset of therapy predicted more gains than those who were fixed. In a tertiary clinical population, those with a fixed shyness mindset made the fewest gains
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during an intensive anxiety treatment program (Valentiner et al., 2013). These results are predictable as therapy can be hard work and typically involves learning about and practicing new skills. If a person does not believe that effort and strategy are worthwhile then they might be less likely to complete their homework, give up more easily, or end therapy prematurely. As such, assessing for and addressing emotion mindsets at the outset of therapy may foster treatment success.

Third, changing mindsets can impact outcomes and explain improvements. Changes in mindsets were measured in treatment-seeking undergraduates (Reffi et al., 2020) who were treated for anxiety using a blend of therapeutic modalities (e.g. CBT, motivational interviewing, Acceptance and Commitment Therapy - ACT, Dialectical Behavioural Therapy - DBT). Individuals with the greatest shift in their mindset also reported the best emotional functioning at the end of therapy. In the study by De Castella et al. (2015), patients’ anxiety mindsets became less fixed over the course of therapy and this shift in beliefs explained the relationship between treatment-related reductions in social anxiety symptoms. What is exciting about these findings is that the therapeutic modalities used (e.g. ACT, CBT, DBT) do not explicitly address emotion mindsets but we still see treatment-related outcomes for mindset. There is only one study to date that examined an explicit emotion mindset intervention. Smith and colleagues (2018) created online modules to foster growth mindsets of emotion, which were completed over a number of weeks by high school students. Students became more growth minded and displayed overall improvement in wellbeing at school. It is currently unclear whether such direct modifications of mindset would further improve engagement, progress, and improvements in functioning, but is worthwhile if it would further improve outcomes.
What would be of most value is the fostering of growth emotion mindsets early on through preventative efforts. By adulthood, fixed mindsets may preclude seeking, engaging in, and progressing through therapy (Schroder et al., 2019; Valentiner et al., 2013). Drawing upon our discussion on how emotion mindsets might develop via parental responses creates opportunities to foster a growth mindset. Parents’ praise of effort and process at only 3-years-old months-old predicted growth intelligence mindsets at ages 7 and 8 years old, highlighting the potential long-reaching effects of parental responses (Gunderson et al., 2013). Explicitly incorporating fixed and growth emotion mindsets through existing community-based programming and resources (e.g. Positive Parenting Program) would greatly enhance the long-term success of these programs. In-person and online interventions that directly teach intelligence and personality mindsets to parents, teachers, or children have been successful in making mindsets more growth-oriented (Paunesku et al., 2015; David S. Yeager et al., 2016). Thus, it is possible that improvements in emotion mindsets could be made as well.

**Conclusion**

Thus far, the majority of work on emotion mindsets has focused on growth individuals, despite fixed individuals experiencing significant psychosocial dysfunction. The results from my dissertation provide a valuable contribution to the literature by demonstrating that 1) fixed mindsets predict emotional dysfunction (i.e. anxiety and depression) in adolescents and adults, and 2) the process by which fixed mindsets influence emotional functioning is through emotion regulation strategies, specifically the more frequent use of avoidance-based strategies. My work is an important step in understanding what it means to be a fixed individual, thereby providing the foundation from which to develop effective ways to intervene with fixed individuals or foster growth mindsets and healthy emotional functioning. The research on fixed and growth
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individuals is a relatively new area and there are a number of basic research questions that will need to be examined in order for us to comprehensively understand the process and circumstances that affect it.
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Implicit Theories of Emotion Scale (ITES)

For each statement below, please circle the appropriate number to indicate how much you agree or disagree.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Not at all</th>
<th>Very Much</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I can learn to control my emotions.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2. No matter how hard I try, I can't really change the emotions that I have.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. If I want to, I can change the emotions that I have.</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Personally, I have very little control over my emotions.</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
Appendix B

Multi-Dimensional Avoidance Questionnaire (MEAQ)

Please indicate the extent to which you agree or disagree with each of the following statements.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I won’t do something if I think it will make me uncomfortable</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>2. When something upsetting comes up, I try very hard to stop thinking about it</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>3. I avoid activities if there is even a small possibility of getting hurt</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>4. When negative thoughts come up, I try to fill my head with something else</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>5. I usually try to distract myself when I feel something painful</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>6. I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>7. When upsetting memories come up, I try to focus on other things</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>8. I prefer to stick to what I am comfortable with, rather than try new activities</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>9. I work hard to keep out upsetting feelings</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>10. If I have any doubts about doing something, I just won’t do it</td>
<td>1 2 3 4 5 6</td>
<td></td>
</tr>
<tr>
<td>11. When unpleasant memories come to me, I try to put them out of my mind</td>
<td>1 2 3 4 5 6</td>
<td></td>
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</table>
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<p>| | | | | | | |</p>
<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>12.</td>
<td>If I am starting to feel trapped, I leave the situation immediately</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>13.</td>
<td>When a negative thought comes up, I immediately try to think of something else</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>14.</td>
<td>I go out of my way to avoid uncomfortable situations</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>15.</td>
<td>If I am in a slightly uncomfortable situation, I try to leave right away</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>16.</td>
<td>I avoid situations if there is a chance that I’ll feel nervous</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>17.</td>
<td>I’m quick to leave any situation that makes me feel uneasy</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>18.</td>
<td>I rarely do something if there is a chance that it will upset me</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Appendix C

Depression, Anxiety, Stress Scale (DASS-21)

Please read each statement and circle a number 0, 1, 2, or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did not apply to me at all</td>
<td>Applied to me to some degree, or some of the time</td>
<td>Applied to me to a considerable degree or a good part of time</td>
<td>Applied to me very much or most of the time</td>
<td></td>
</tr>
</tbody>
</table>

1. I found it hard to wind down
2. I was aware of dryness of my mouth
3. I couldn’t seem to experience any positive feeling at all
4. I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)
5. I found it difficult to work up the initiative to do things
6. I tended to over-react to situations
7. I experienced trembling (e.g. in the hands)
8. I felt that I was using a lot of nervous energy
9. I was worried about situations in which I might panic and make a fool of myself
10. I felt that I had nothing to look forward to
11. I found myself getting agitated
12. I found it difficult to relax
13. I felt down-hearted and blue
14. I was intolerant of anything that kept me from getting on with what I was doing
15. I felt I was close to panic
16. I was unable to become enthusiastic about anything
17. I felt I wasn’t worth much as a person
18. I felt that I was rather touchy
19. I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)
20. I felt scared without any good reason
21. I felt that life was meaningless
Appendix D

Cognitive-Behavioural Avoidance Scale (CBAS)

Instructions: Different people use different strategies to deal with situations and problems in their lives. Below are a number of strategies that people may use to deal with situations and problems. Please read each statement carefully and indicate how true, in general, each statement is for you using the following key:

1= Not at all true for me  
2= Somewhat true for me  
3= Moderately true for me  
4= Very much true for me  
5= Extremely true for me

1. I avoid attending social activities
2. I do not answer the phone in case people are calling with social invitations
3. I try not to think about problems in my personal relationships
4. I do not go out to events when I know there will be a lot of people I do not know
5. Instead of thinking about problems in the social life, I tell myself that I prefer to be alone
6. I fail to discuss/address tension that builds in a friendship
7. I find that I often want to leave social gatherings
8. I just want out tension in my relationships hoping that it will go away
9. I tend to make up excuses to get out of social activities
10. There is nothing I can do to improve problems in my relationships
11. I turn down opportunities to socialize with the opposite sex
12. I tend to remain to myself during social gatherings or activities
13. When I experience confusion in my relationships, I do not try to figure things out
14. I do not bother thinking about how to solve problems in my family – it is useless
15. While I know I should make decisions about my personal relationships, I just let things go on as they are
Appendix E

Perceived stress scale (PSS)

The questions in this scale ask you about your feelings and thoughts during the last month. In each case, you will be asked to indicate by clicking on the number that represents how often you felt or thought a certain way.

0 = Never 1 = Almost Never 2 = Sometimes 3 = Fairly Often 4 = Very Often

1. In the last month, how often have you been upset because of something that happened unexpectedly?  
2. In the last month, how often have you felt that you were unable to control the important things in your life?  
3. In the last month, how often have you felt nervous and “stressed”?  
4. In the last month, how often have you felt confident about your ability to handle your personal problems?  
5. In the last month, how often have you felt that things were going your way?  
6. In the last month, how often have you found that you could not cope with all the things that you had to do?  
7. In the last month, how often have you been able to control irritations in your life?  
8. In the last month, how often have you felt that you were on top of things?  
9. In the last month, how often have you been angered because of things that were outside of your control?  
10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?