12-7-2011 12:00 AM

A Self-Regulation Model of Depression: Content of Cognitive Representations and Prediction of Treatment Seeking

Catherine Leite, *University of Western Ontario*

Supervisor: Dr. Nicholas Kuiper, *The University of Western Ontario*

A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Psychology

A SELF-REGULATION MODEL OF DEPRESSION: CONTENT OF COGNITIVE REPRESENTATIONS AND PREDICTION OF TREATMENT SEEKING

(Spine title: A Self-Regulation Model of Depression)

(Thesis format: Monograph)

by

Catherine M. Leite

Graduate Program in Psychology

A thesis submitted in partial fulfilment
of the requirements for the degree of
Doctor of Philosophy

School of Graduate and Postdoctoral Studies
The University of Western Ontario
London, Ontario, Canada

THE UNIVERSITY OF WESTERN ONTARIO
SCHOOL OF GRADUATE AND POSTDOCTORAL STUDIES

CERTIFICATE OF EXAMINATION

Supervisor

_____
Dr. Nicholas A. Kuiper

Supervisory Committee

_____
Dr. David Dozois

_____
Dr. Leora Swartzman

Examiners

_____
Dr. Leora Swartzman

_____
Dr. Tony Vernon

_____
Dr. Louis Charland

_____
Dr. James Aiken

The thesis by

Catherine M. Leite

entitled:

A Self-Regulation Model of Depression: Content of Cognitive Representations and Prediction of Treatment Seeking

is accepted in partial fulfilment of the
requirements for the degree of
Doctor of Philosophy

Date_____ _____
Chair of the Thesis Examination Board

Abstract

Leventhal's self-regulation model (SRM) was applied as a conceptual framework from which to examine individuals' cognitive representations of depressive symptoms. This thesis explored the nature of these representations, as well as factors that may impact on these representations and, in turn, influence coping strategies and professional help seeking. In particular, Study 1 examined the effect of symptom severity and the label used to identify the symptoms on the cognitive representations of depressive symptoms and coping, whereas Study 2 examined the effect of symptom duration in this regard. This thesis also considered the extent to which the various SRM domains are predictive of beliefs regarding the helpfulness of professional treatment and likely treatment use. In Study 1 (N = 315) and 2 (N = 297), undergraduate students from the University of Western Ontario were asked to self-reference experiencing low, mild, or moderate depressive symptoms. In Study 1, the symptoms were either identified with a specific label (e.g., depression) by the experimenter or were not identified with any label at all. Participants then completed measures assessing SRM belief domains regarding the depressive symptoms. Study 2 assessed what label individuals, themselves, would use to identify the presenting condition. In Study 2, individuals were also asked to imagine that the depressive symptoms have lasted longer than initially expected, and then completed the SRM measures a second time. Here, symptom severity and duration had significant effects on cognitive representations of depressive symptoms. Label use, particularly in Study 2, also had a notable effect. Furthermore, the SRM was a significant predictor of beliefs regarding the helpfulness of professional treatment and likely treatment use, with this effect being particularly strong when symptom severity was low. Moderator effects

were also found in Studies 1 and 2, although these were generally limited. There was also support in Study 2 for mediator effects regarding certain aspects of the model. Implications relate to psycho-education and mental health literacy programs designed to enhance individuals' understanding of depressive symptoms and decisions to seek treatment.

Keywords: Self-regulation model, Depression, Cognitive illness representations, Coping, Treatment seeking

Acknowledgements

I would like to thank my supervisor, Dr. Nicholas Kuiper. I deeply appreciate his continuous guidance with this research, and his mentorship and support throughout my graduate training. I am thankful to have worked with such a dedicated supervisor. I also thank him for the opportunity to choose an area of research inspired by my clinical interests. In this way, he created room for my curiosity to grow. I would also like to thank my departmental committee members, Dr. David Dozois, Dr. Leora Swartzman, and Dr. Tony Vernon, for their insightful comments that helped to enhance this research. I also extend my thanks to my colleague, Melissa Care, for helping to edit this thesis. Lastly, I would like to thank my family and friends for their care and support.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Chapter 1

General Introduction

Mental disorders are a serious and costly public health concern. Nearly 50% of the population will suffer from at least one psychiatric condition in their lifetime (Kessler et al., 2005). Depression, in particular, is one of the most prevalent disorders, and results in significant personal, social, and economic costs (Judd et al., 2000; Kessler et al., 2005). Despite there being effective treatments, studies have shown there to be an underreporting of mental disorders, especially depression. Approximately one-third to one-half of individuals with depression do not seek treatment (Aalto-Setala, Marttunen, Tuulio-Henriksson, Poikolainen, & Lonnqvist, 2002; Christiana et al., 2000; Galbaud du Fort, Newman, Boothroyd, & Bland, 1999; Wang et al., 2005). Of those individuals who do, a considerable portion fail to adhere to treatment and/or terminate treatment prematurely (Arnow et al., 2007; Mitchell, 2006; Olfson et al., 2009). This failure to receive and fully complete treatment may increase the risk of an individual's depression becoming more severe and more difficult to treat in the future (Leahy, 2003).

The above considerations clearly indicate the importance of identifying those factors that influence individuals' decisions to seek or not seek help, and to adhere or not adhere to treatment. In the recent literature, there has been an increased focus on the client as an important factor in the treatment process. In this context, "client" refers to not only someone already receiving treatment, but also an individual who is in the process of initially identifying their current symptoms and problems, and then deciding whether or not to seek treatment. In this regard, it has been proposed that clients' mental representation of their condition may be an important factor that predicts and influences decisions regarding how to cope with mental and emotional difficulties (Lobban,

Barrowclough, & Jones, 2003). Accordingly, this thesis will focus on individuals' perceptions and decisions regarding the interpretation, identification, and management of depression.

Client-Related Factors in Mental Health

There has been increased awareness and recognition that the client plays a large role in managing their psychological health. Regarding treatment outcome, Lambert (1992) concluded that a substantial proportion of change in therapy is accounted for by characteristics of the client. Duncan, Miller, and Sparks (2004) proposed that individuals with psychological difficulties are aware of what they need in order to increase their well-being and, thus, should have their "theories" of change respected and incorporated into the treatment process. Such views speak to clients' beliefs regarding what is necessary to manage current difficulties.

Research in this area has examined individuals' beliefs about causes of mental disorders, and has found that, in general, perceived cause is associated with beliefs about appropriate treatment. Studies have focused largely on the extent to which mental disorders are believed to be caused by biological versus social/psychological factors, and believed to be best treated by medication or psychotherapy (Kessing, Hansen, Demyttenaere, & Bech, 2005; Williams & Healy, 2001). Results have shown that the majority of individuals believe mental disorders to be caused by social/psychological factors, rather than biological conditions, and also, accordingly, that psychotherapy is believed to be a more effective treatment than pharmacotherapy (Kessing et al., 2005; Lauber, Nordt, Falcato, & Rossler, 2001; Priest, Vize, Roberts, Roberts, & Tylee, 1996; Riedel-Heller, Matschinger, & Angermeyer, 2005). Thus, studies have begun to show

that clients' beliefs about the cause of their current psychological difficulties relate to their choice of how to cope and manage their difficulties.

With respect to depression, several studies have examined individuals' beliefs about specific causes of depression. These studies have differed in the ways they have examined this issue. Some studies have developed various questionnaires using items generated by researchers and therapists, based on theory and/or causes of depression commonly reported by clients (e.g., Kuyken, Brewin, Power, & Furnham, 1992; Pistrang & Barker, 1992; Thwaites, Dagnan, Huey, & Addis, 2004), whereas other studies have been based on interview responses (e.g., Jadhav, Weiss, & Littlewood, 2001; Kangas, 2001). A review of the various findings suggests that, for the most part, individuals tend to perceive depression to be caused by difficulties with relationships (including loss of relationships, bereavement, and loneliness), trauma, and failure to achieve hopes, ambitions, and desires.

There has also been work examining individuals' beliefs regarding effective ways of coping with and treating depression (Furnham, Pereira, & Rawles, 2001; Rippere, 1976, 1977). Studies have varied in the specific way they have examined this issue. Some researchers have measured individuals' perceived efficacy of specific therapeutic orientations in the treatment of depression, such as cognitive or psychodynamic therapy, based on descriptions of techniques (e.g., Furnham et al., 2001; Kuyken, et al., 1992; Pistrang & Barker, 1992). These studies have found people to perceive cognitive, and other "talk therapies," to be most effective. Other researchers have examined individuals' open-ended responses about the ways in which they would try to manage and reduce their depression (e.g., Hetherington & Stoppard, 2002). For example, Rippere (1976, 1977, 1979) found that most individuals believe "the thing to do when you're feeling

depressed" is to see a friend, do something you enjoy, talk to someone about how you're feeling, and "keep busy."

In the above studies, it is important to note that the term "depression" is presented by the researchers, but is very rarely defined. Thus, it is difficult to know the extent to which people believe these strategies to be helpful for depression, as it specifically refers to a mental disorder, or depression as it may refer to sadness or normal variations in levels of negative affect. A mental disorder refers to an impairment in normal cognitive, emotional or behavioural functioning that is associated with considerable distress or impaired functioning in at least one important area of life (e.g., work, relationships; DSM-IV-TR, 2000**)**. Recent studies in the area of mental health literacy[1] have presented individuals with a vignette of a person with DSM depression criteria (although not the label) and asked, in an open-ended format, how they think this person could be best helped. Goldney, Fisher, Wilson, and Cheok (2002) found that, of their sample, only about 50% of individuals suggested seeing a family doctor, and only 25% suggested seeing a counsellor. Thus, the majority of individuals do not seem to inherently recognize the importance of seeking formal treatment for clinically depressive symptoms.

In summary, the literature examining individuals' beliefs regarding depression has focused on beliefs about causes and ways of coping with depressive symptoms. Although this work has certainly revealed some interesting findings, it lacks a more general underlying conceptual framework that would help us to understand issues such as the impact of these various beliefs, and the possibility of additional belief domains regarding depression. In particular, what is called for is an integrated conceptual model that will

[1] Mental health literacy refers to beliefs and knowledge about mental disorders that may assist in their recognition and management (Jorm et al., 1997). There is a considerable literature on this topic that will be referred to throughout this thesis when relevant.

help clarify the way in which these various belief dimensions may account for differences in the way that individuals identify, interpret, and try to manage depressive symptoms. For example, previous studies have not examined how individuals come to recognize depressive symptoms as "depression" rather than normal negative affect, or the way in which individuals decide to change their strategy of coping with their depressive symptoms from, for example, talking with a friend to seeking help from a psychologist.

In considering an appropriate underlying conceptual model, it is useful to turn to the physical health literature. In this literature, several social cognition models have been developed that recognize the importance of individuals' beliefs about illnesses, explain the way in which individuals come to understand their symptoms, and account for individuals' decisions to use various strategies to manage their illness (Ajzen, 1991; Ajzen & Fishbein, 1980; Becker, 1974; Prochaska & DiClemente, 1984). Accordingly, the application of such models to the mental health field might help to clarify the aforementioned issues with respect to mental disorders, such as depression. In this regard, one of the most well-validated models used in the physical health domain is Leventhal's self-regulation model (Leventhal, Meyer, & Nerenz, 1980; Leventhal, Nerenz, & Steele, 1984; Leventhal, Nerenz, & Strauss, 1982). This model has been used with a wide range of physical health difficulties, and has been found to significantly enhance prediction of individuals' health-related behaviors, such as treatment seeking and adherence (Hampson, Glasgow, & Toobert, 1990; Heijmans, 1998; Moss-Morris, Petrie, & Weinman, 1996; Petrie, Weinman, Sharpe, & Buckley, 1996; Scharloo et al., 1998). As Leventhal's approach will provide the main conceptual model for the present thesis, it is described in some detail below.

Leventhal's Self-Regulation Model

Leventhal's self-regulation model (SRM) views individuals as active problem solvers who, when faced with problematic symptoms, engage in a process that involves identifying the illness/problem, and using strategies to try to reduce these symptoms and return to normal, or desired, functioning. Leventhal and others have found that individuals have mental representations of illnesses that consist of five dimensions: *identity*, which refers to both the symptoms and label associated with a given illness; the *causes* of the illness; the social, physical, psychological, and financial *consequences* of the illness; the *timeline* for how long the illness and/or its symptoms are expected to last; and the extent to which the illness can be *controlled or treated* (Lau, Bernard, & Hartman, 1989; Lau & Hartman, 1983; Leventhal et al., 1980; Meyer, Leventhal, & Gutmann, 1985).

The SRM proposes that, when a change in physical health occurs, individuals interpret their symptoms and create an hypothesis of what their illness may be. The characteristics of the individual's illness representation influence the type of strategies the person uses to cope or control the symptoms. The hypothesis may be expressed as an "if-then" statement. For example, if the pain in my stomach is indigestion (identity) caused by eating a certain food (cause), then I can take a pill (treatment) and I will feel better (consequence) in about 30 minutes (timeline; Leventhal, Brissette, & Leventhal, 2003). After implementing the treatment strategy, the individual re-evaluates their symptoms. If they feel better, their hypotheses regarding the illness are confirmed. However, if the treatment was ineffective in reducing the symptoms, the individual repeats the process, and thus reinterprets the symptoms, re-identifies the illness, and selects a new way of coping. The SRM emphasizes the dynamic nature of this process. According to

Leventhal and Diefenbach (1991), people's interpretations of their symptoms are based on several factors. These factors include the individual's memory of their own or others' previous experience with the symptoms, knowledge of various illnesses, socially learned information, and external factors such as stressful events.

In general, the self-regulation model has been well-validated in the physical health domain. It has been used with a wide range of physical health problems, such as arthritis, diabetes, and heart disease; and it has been found to significantly enhance prediction of individuals' coping strategies, adherence to treatment, and psychological and social functioning (Cooper, Lloyd, Weinman, & Jackson, 1999; Hampson et al., 1990; Heijmans, 1998; Moss-Morris et al., 1996; Petrie et al., 1996; Scharloo et al., 1998). For example, Meyer et al. (1985) found that patients with hypertension were more likely to discontinue treatment seeking and drop out of treatment if they believed the disease to be acute.

As a further illustration, Cameron, Leventhal, and Leventhal (1993) compared the illness representations of individuals who sought treatment at a medical clinic for new physical symptoms with those who did not. Results showed that, compared to individuals who did not seek treatment, those who sought treatment were more likely to have identified their symptoms with a specific label, perceived increases in the severity of their symptoms from their initial onset, and believed that there would be more negative consequences as a result of their condition. Cooper et al. (1999) and Petrie et al. (1996) examined the extent to which individuals with myocardial infarction adhered to a prescribed cardiac rehabilitation course, and found attendance at the course to be positively related to individuals' belief in the controllability of their condition. Finally, in a study demonstrating the utility of applying the SRM to an illness that has been

associated with both physical and mental health, Heijmans (1998) examined the extent to which illness cognitions predicted the coping strategies and functioning of individuals with chronic fatigue syndrome. Findings showed that individuals who had a strong illness identity, and believed that their symptoms had a chronic time-line, serious consequences, and could not be controlled or treated, were more likely to use avoidant coping strategies, and less likely to use problem-focused coping. In turn, individuals with these illness cognitions were also more likely to have impaired social and physical functioning and psychological well-being. Evidence thus suggests that illness cognitions, as defined by the SRM, significantly predict individuals' strategies for managing their conditions and subsequent outcome.

Given the validity and utility of the SRM in the physical health domain, it may be useful to extend the application of this model more fully to mental health issues. Within the latter domain, the SRM may be a useful framework from which to understand, extend, integrate, and utilize findings from previous studies examining individuals' beliefs related to the cause and coping dimensions of mental illness. Furthermore, the SRM may help in understanding factors that influence individuals' interpretation of mental and emotional symptoms, and their decision to seek or not seek help.

Several researchers have recently begun to recognize the potential utility of applying the SRM to the mental health domain (Lobban et al., 2003). Studies have begun to examine the extent to which the SRM provides a valid description of the cognitive representations of mental illness, and is a valid predictor of mental illness-related behaviors and functioning (Brown et al., 2001; Lobban, Barrowclough, & Jones, 2004, 2005). Preliminary work in this area has been conducted with schizophrenia (Lobban et al., 2005). For example, the Illness Perception Questionnaire (IPQ; Weinman, Petrie,

Moss-Morris, & Horne, 1996), which was originally designed to assess the SRM's five belief dimensions of illness representations with respect to physical health, was modified by Lobban et al. (2005) to assess the five belief dimensions with respect to schizophrenia. Lobban et al. found the modified IPQ to be a reliable and valid measure of cognitive representations of schizophrenia. Similar work has been conducted in the area of eating disorders (Holliday, Wall, Treasure, & Weinman, 2005; Stockford, Turner, & Cooper, 2007). Such studies suggest that the five belief dimensions of physical illness representations are also characteristic of mental illness representations. Lobban and colleagues (2004, 2005) also found the SRM's five belief dimensions of illness representations to significantly predict levels of anxiety, and medication adherence among individuals with schizophrenia.

There has also been some initial work examining the extent to which the SRM may be applied to depression (Brown et al., 2001; Brown et al., 2007; Edwards, Tinning, Brown, Boardman, & Weinman, 2007; Fortune, Barrowclough, & Lobban, 2004). Fortune et al. (2004) examined the cognitive representations of depression among individuals with a history of depression by asking these individuals to write down everything they could remember about their depressive episodes, and found that individuals' cognitive representations of depression consist of the same five SRM dimensions as individuals' cognitive representation of physical illnesses. In another study, Brown et al. (2001) found the SRM dimensions to significantly predict coping strategies, treatment-seeking behavior, and treatment compliance among individuals with depression. For example, perceived controllability of depressive symptoms was negatively related to the use of religious coping, and perceived chronic duration of depressive symptoms was predictive of increased treatment seeking. Thus, current

research suggests that the SRM may provide a useful conceptual framework from which to further understand individuals' cognitive representations of mental illness, including depression.

Applying the SRM to Existing Depression Research

Applying the self-regulation model (SRM) to the existing depression literature may help to clarify the importance of beliefs about depression by highlighting the way in which these beliefs impact on individuals' health-related behaviors (e.g., seeking treatment). Understanding individuals' beliefs regarding the various aspects of depression (e.g., symptoms, causes, consequences, treatment) may help to more clearly understand the process by which individuals decide to seek treatment and comply with treatment approaches. The SRM may also help to identify the processes individuals use to interpret depressive symptoms that have not yet been extensively examined in the depression literature. For example, the SRM may identify aspects of self-regulation (such as hypothesis-testing) that may impact on the process of identifying one's symptoms as depression and selecting ways to manage these symptoms. Understanding such a process can, in turn, lead to ways of modifying this process to increase the early identification of depression among clients and increase the likelihood that individuals will seek and adhere to treatment. Accordingly, the following sections will discuss the extent to which existing relevant studies in the depression literature relate to, and have examined each of the five SRM belief domains of cognitive illness representations (i.e., identity, cause, timeline, consequences, and control/treatment).

Identity. There has been relatively limited research examining the SRM identity domain of the cognitive representation of depression. Of the studies that have been conducted in this area, most have focused on individuals' beliefs regarding the symptoms

of depression. For example, Jadhav et al. (2001) examined the symptoms that depressed patients reported in describing their depression, and found sadness, anxiety, and maladaptive cognitions to be most spontaneously reported. Lauber and colleagues (2005) assessed the symptoms that university students identified as the main and additional symptoms of depression. Depressed mood, reduced energy, and a pessimistic outlook were identified as the main symptoms of depression by, respectively, 93%, 89%, and 85% of the participants. Disturbed sleep and considerable distress/agitation were identified as additional symptoms of depression by 45% and 56% of the participants, respectively. Recently, studies directly applying the SRM to depression have found that, among depressed patients, depressed mood and anhedonia were most frequently identified as characteristic of their depression. Fatigue and sleep disturbances were also frequently reported, along with feelings of worthlessness, hopelessness, agitation, and difficulty with concentration (Brown et al., 2001; Brown et al., 2007; Vollman et al., 2010).

It should be noted that much of this research has been conducted on individuals who currently have major depression and are seeking treatment. Research in the depression literature has not yet examined how individuals would identify and interpret depressive symptoms prior to receiving any formal label, or diagnosis, of "major depression." Furthermore, those studies that used non-depressed samples often presented individuals with the label "depression," and then asked individuals to identify its symptoms (e.g., Vollmann et al., 2010). Such studies reflect the symptoms that individuals may associate with, and that are triggered by, the label "depression." However, these studies do not examine the label that individuals initially use to interpret depression-related symptoms. Given that many symptoms of depression are also associated with various other mental and physical difficulties, as well as normal responses

to daily events, individuals may not initially identify their symptoms as “depression.” Rather, they may initially identify the symptoms as “sadness,” “stress,” or “fatigue.”

Studies in the area of mental health literacy have not presented individuals with the term “depression.” Instead, they examined the label that individuals use to identify the problem of a person (in a vignette) presenting with most of the DSM depression symptoms. These studies found that about 50% of individuals do not identify DSM depression symptoms as “depression,” but rather identify the problem as other things such as “stress”, “nervous breakdown,” or “work-related problems” (Goldney, Fisher, & Wilson, 2001; Goldney et al., 2002; Jorm et al., 1997). It is currently recognized that these other conditions may have features that overlap with those of depression (e.g., similar causes). However, perceived differences between these conditions and depression may also exist. For example, the different labels may be associated with different treatment strategies. Thus, the label that is applied to the depressive symptoms may have differential implications for how and when individuals try to treat these symptoms, which has not been examined in this area.

A further limitation of this mental health literacy research is that it examines the interpretation of a constellation of the majority of depression symptoms when presented together. However, it does not indicate how individuals interpret a smaller number of depression symptoms, as may be initially experienced by individuals during the onset of depression. It may be the case that an even larger percentage of individuals do not interpret a small number of depressive symptoms as depression. Furthermore, studies in the depression literature have not yet examined the process by which individuals come to identify their depressive symptoms either as a problem other than depression (e.g., stress), or as depression itself.

Cause. There has been somewhat more research in the clinical psychology area examining the SRM causal domain of the cognitive representation of depression. Studies in this area tend to use methodologies that involve open-ended questions regarding why individuals become depressed (e.g., Jadhav et al., 2001; Kuyken et al., 1992); and questionnaires based on the causes purported by various theoretical orientations (e.g., Pistrang & Barker, 1992; Thwaites et al., 2004). Due to the different methodologies and conceptual bases used across studies, findings regarding individuals' perceived causes of depression have taken various forms across studies. For example, Thwaites et al. (2004) reported that individuals believe the causes of depression to be events related to "achievement, intimacy, and relationships", and Kuyken et al. (1992) found the perceived causes of depression to be "unfulfilled desires and ambitions," "loss," and "trauma." A review of the general themes of the findings in this literature suggests that individuals tend to believe the cause of depression to stem from achievement failures (e.g., work), relationship difficulties (including interpersonal loss), trauma (e.g., childhood abuse) and biological factors (e.g., heredity; Broadbent, Kydd, Sanders, & Vanderpyl, 2008; Brown et al., 2001; Brown, 2007; Cirakoglu, Kokdemir, & Demirutku, 2003; Kangas, 2001; Kuyken et al., 1992; Thwaites et al., 2004; Wong, Tran, Kim, Van Horn Kerne, & Calfa, 2010).

Thus, the existing literature has begun to identify what individuals believe to be the causes of depression, and has even begun to consider the extent to which these causal beliefs relate to individuals' beliefs regarding the type of therapy that will be useful. However, it is currently unclear the extent to which events that are believed to cause depression (as it refers to a clinical disorder) are also believed to cause normal negative affect (e.g., normal sadness). If individuals believe that depression and normal negative

affect share common causes, this would suggest the importance of examining how individuals differentially interpret their depressive symptoms as either depression or normal negative affect.

Timeline. Only a few known studies have examined and reported beliefs regarding the SRM's timeline domain with respect to depression. Of these studies, findings showed that the majority of individuals believe depression to be intermittent (comes and goes; 63-70%), while approximately half of individuals believe that depression may be chronic (Brown et al., 2001; Brown et al., 2007; Godoy-Izquierdo, Lopez-Chicheri, Lopez-Torrecillas, Velez, & Godoy, 2007; Vollmann et al., 2010; Wong et al., 2010). However, given the limited work in this area, it may be useful to further examine individuals' beliefs regarding the duration of depressive symptoms, and particularly the extent to which expected duration is influenced by the severity of depressive symptoms.

Consequence. Studies have found that most individuals believe depression to have negative consequences (Brown et al., 2001, 2007; Godoy-Izquierdo et al., 2007; Vollmann et al., 2010). However, as with timeline, few studies have examined beliefs in this domain. Furthermore, these studies examined individuals' beliefs about very broad consequences of depression, for example "my depression has affected the way others see me." It may be helpful to clarify the negative impact that individuals believe depression may have. As one illustration, it may be useful to understand individuals' beliefs regarding exactly how others' opinions of them may change as a result of their depression.

Control/Treatment. There has been somewhat more research examining the SRM's control/treatment domain of the cognitive representation of depression. In the

SRM, this domain focuses on the extent to which individuals believe that their illness is controllable/treatable. Studies that have applied the SRM directly to depression have found that the majority of individuals view depression as controllable (63-80%; Brown et al., 2001; Brown et al., 2007; Godoy-Izquierdo et al., 2007). The existing depression literature has extended this dimension of the model by also examining the extent to which individuals believe *certain* treatment approaches to be effective in reducing depressive symptoms. In the clinical psychology literature, studies tend to use questionnaires with items based on techniques from various theoretical orientations. Findings regarding individuals' beliefs about the most effective forms of therapy have been inconsistent across studies, with some reporting individuals to believe "social interventions" to be most effective in treating depression (e.g., Kuyken et al., 1992); whereas others report "cognitive" therapy to be perceived as most effective (e.g., Furnham et al., 2001).

Studies in the mental health literacy area have often used a more open-ended approach to examine how individuals would go about treating depressive symptoms. In this literature, individuals are presented with a vignette describing a person with DSM criteria for depression (although the diagnosis is not presented), and individuals are then asked how they "think the person could best be helped." Only approximately 50% of both individuals with or without a history of depression reported seeing a family physician as a useful treatment strategy, and only about 9% suggested seeing a psychologist (Goldney et al., 2001; Goldney et al., 2002). Wong et al. (2010) applied a self-referent vignette methodology among Asian American students and only 36% indicated that they would seek professional help. However, it should be noted that many of the individuals in these studies may not have labelled the presenting problem as "depression," as it refers to the mental disorder. Similarly, with respect to labelling,

Rippere (1976, 1977, 1979) examined what a random sample of individuals believed to be "common sense" strategies for coping when they are feeling "depressed." However, it was unclear whether individuals interpreted this term as referring to a mental disorder, or to normal negative affect. Thus, it is unclear what most individuals believe to be the most effective strategies for treating depression, as it refers to a mental disorder. Furthermore, it is unclear if these strategies differ from those that individuals believe to be useful for managing normal negative affect.

Studies directly applying the SRM to depression have also begun to assess broader ways that individuals may try to cope with depressive symptoms, and particularly how the SRM belief domains relate to the use of these coping strategies (Brown et al. 2001; Brown et al., 2007; Kelly, Sereika, Battista, & Brown, 2007). For example, Kelly et al. (2007) found perceptions of more negative consequences to be associated with more disengagement and less problem solving, while perceptions of high controllability were associated with more active coping. Studies have also begun to assess how the SRM belief domains relate to treatment seeking and treatment adherence (Aikens, Nease, & Klinkman, 2008; Broadbent et al., 2008; Brown et al., 2001; Edwards et al., 2007). For example, Brown et al. (2001) found that, after controlling for severity, patients who received mental health treatment believed their depressive symptoms were more chronic and had more negative consequences, than individuals who did not receive treatment. Poor adherence to antidepressant medication was found to be significantly higher among patients who believe their symptoms are mild and transient, and caused by either interpersonal problems or bad luck/chance (Aikens et al., 2008; Brown et al., 2001).

Current Limitations of the SRM as Applied to Existing Depression Literature

Most studies that have looked at SRM domains in relation to depression have not clarified what was meant by the term "depression" to their participants. As a result, individuals may have differed in their interpretation of the term. For example, some individuals may have interpreted the term as referring to a severe clinical disorder, while others may have interpreted the term as referring to normal variation in affect. Thus, the results of this literature seem to be confounded by variation along the continuum of depressive affect. As such, individuals' beliefs about depression (e.g., causes and ways of coping) in that literature are unclear. It may be helpful to attempt to clarify the beliefs associated with each end point of the depressive affect continuum by variation in symptom severity and labels identifying the condition.

Secondly, regarding the literature that has directly applied the SRM to depression, the samples in the large majority of these studies consisted of individuals who were currently depressed and had been diagnosed with major depression, with many of them currently receiving treatment. While it is important to look at the illness representations of individuals who are clear that their condition is depression, it is also important to assess how these beliefs may differ when individuals identify the depressive symptoms as something different. Individuals may not always clearly identify depressive symptoms as depression, and instead may identify their symptoms with another label, such as "stress." Thus, it may be helpful to clarify how the identification of depressive symptoms impacts additional SRM belief domains and coping strategies. Furthermore, it may also be helpful to examine the extent to which these SRM domain beliefs and coping strategies vary as a function of severity in terms of the range of symptoms experienced.

Thirdly, there has been little work examining the illness representation associated with depressive symptoms at their onset, when the identity of the problem may be unclear. Furthermore, no study has explicitly tested the factors that the self-regulation model hypothesizes lead to changes in the illness representation during the early process of understanding the depressive symptoms, such as factors that lead to changes in the identity of the depressive symptoms, and how individuals may come to identify their difficulties as depression. For example, no study has tested the model's proposal that the duration of symptoms for longer than originally expected leads individuals to change their initial understanding of these symptoms.

Studies have found that approximately one-third to one-half of individuals with depression do not seek treatment (Aalto-Setala et al., 2002; Christiana et al., 2000; Galbaud du Fort et al., 1999). This high degree of underreporting may reflect difficulties that individuals have in identifying their symptoms as depression, and their tendency to, instead, identify their symptoms as part of a less severe difficulty that does not require professional treatment. In this regard, studies in the area of mental health literacy have found that approximately 50% of individuals presented with a vignette of a person with depressive symptoms are unable to identify the person as having depression. Instead, they may identify the symptoms as "stress," or "work-related problems," etc. (Goldney et al., 2001; Goldney et al., 2002; Jorm et al., 1997). Depending on the situational cues, individuals may also identify depressive symptoms as normal sadness or bereavement and thus not seek professional help, or not report these symptoms as depression if they do seek treatment. However, the longer that individuals with major depression wait to receive treatment, the more severe their condition may become and the more difficult their condition may be to treat (Leahy, 2003).

Thus, it is important to understand the way in which clients interpret and identify their depressive symptoms. The study of this issue involves the clarification of the treatment strategies that are used in association with each type of interpretation. For example, is an interpretation of symptoms as normal sadness associated with treatment that involves talking to a friend, whereas interpreting the symptoms as a condition closer to a mental disorder is associated with treatment that involves professional assistance? If so, this would help clarify the importance of understanding how individuals come to interpret their symptoms as depression and helping individuals to properly identify their condition early on.

Related to the limitations of the SRM as it applies to the current depression literature, there also exist limitations in certain theoretical aspects of the self-regulation model in general. In particular, while the SRM helps to identify the content domains of illness representations, it does not clarify the ways in which these domains may inter-relate in their prediction of the strategies used by individuals to cope with a given condition. For example, it does not describe the relative importance of each SRM domain in its contribution to the prediction of the coping strategies used by individuals, particularly treatment seeking. The model also does not clarify whether the overall strength of the SRM in the prediction of coping may differ depending on particular circumstances, such as the severity of the symptoms.

Furthermore, studies have not examined facets of the model in which there may be moderator relationships among SRM domains within an illness representation of a given condition, such as in the prediction of coping. It is possible that the impact of one belief domain on a decision regarding a management strategy, such as seeking professional treatment, is dependent on the content in another domain. For example, the relationship

between the expected duration of a condition and the coping strategy that is selected may be dependent on the extent to which the individual believes the condition will have negative consequences. If the condition is expected to have a long duration, individuals may be more likely to seek professional treatment if high negative consequences are also expected. However, even if a long duration is expected, individuals may be less likely to seek professional services if the condition is not believed to have a negative impact.

As another example, there may be a moderator effect between beliefs regarding a condition's controllability and consequences. In particular, high perceived controllability may lead to a lower likelihood of seeking professional treatment (and instead using more self-help coping strategies); but only if individuals believe the condition has low negative consequences. However, the expectation of high negative consequences may lead individuals to view professional treatment as more helpful, provided they also believe the condition is controllable. Although studies have examined how levels of individual SRM domains relate to coping (e.g., high duration and high negative consequences have been found to be predictive of treatment use; Edwards et al., 2007; O'Mahen, Flynn, Chermack, & Marcus, 2009; Wong et al., 2010); studies have not examined how content in these domains may be interdependent and interact in the process of selecting strategies for managing a presenting condition.

It is also possible that, within other facets of the self-regulation model, a mediator relationship may exist among some of the SRM domains. For example, the SRM proposes that the label that individuals use to identify a given condition impacts beliefs regarding the other domains of the representation (e.g., expected consequences, duration, etc.) and, in turn, coping. Thus, the model alludes to a mediator effect in which the relationship between the identification of a given condition and the strategies used to

manage the condition is mediated by the other SRM domains within the illness representation. However, no research has yet examined and tested this possibility.

The Current Thesis

The current thesis applied the self-regulation model to depression. One goal of this thesis was to have a further descriptive look at individuals' beliefs about depressive symptoms in terms of the various SRM domains. Given the relatively limited number of studies that have examined this issue in this framework, further information would help to validate or clarify findings thus far. For example, it may be helpful to clarify how long individuals expect depressive symptoms to last. The second, and central, goal of the current thesis was to examine factors that may influence the illness representations associated with depressive symptoms. In this regard, Study 1 used a vignette-based methodology to assess the impact of experimenter-provided labels identifying a set of depressive symptoms, and the impact of symptom severity on other SRM domains, including coping.

Study 2 examined a component of the model that hypothesizes the process whereby individuals modify their illness representations. Specifically, the model predicts that, when individuals experience symptoms, they form hypotheses regarding how long the condition will last, based on their initial illness representation of the condition. If the symptoms last longer than expected, especially after using strategies to manage the condition, individuals are believed to re-hypothesize the nature of the condition, and thus modify their illness representation. Thus, using a vignette methodology, Study 2 examined the illness representations that are initially formed at the onset of depressive symptoms, and assessed how these representations change as a result of experiencing the same symptoms for longer than expected. The study also assessed the extent to which

these changes in the illness representations are impacted by symptom severity in terms of the range of symptoms experienced. In addition, Study 2 further assessed the label component of the identity domain in terms of how it relates to other SRM domains and coping strategies used.

A third goal of this thesis was to examine how the SRM domains in illness representations may inter-relate in their prediction of coping, particularly seeking professional treatment. Study 1 assessed the relative strength of the SRM domains in predicting perceived helpfulness of professional services. Study 1 also examined the extent to which this differed depending on the severity of the symptoms. In addition, Study 1 assessed the potential moderator effects among the SRM domains in predicting beliefs regarding the helpfulness of professional treatment.

Study 2 further examined these issues using a different methodology. This made it possible to begin to examine an aspect of the self-regulation model that may involve a mediator relationship. In particular, Study 2 examined the extent to which the relationship between the label used to identify a given condition and the strategies used to cope (particularly treatment seeking) are mediated by the other SRM domains within an illness representation.

Regarding individual differences, Study 2 also briefly examined how individuals' previous experiences of depression may relate to SRM beliefs regarding current depressive symptoms. The model identifies individuals' personal history with a condition as one of the knowledge domains used to interpret current symptoms. However, few previous studies have explicitly examined how history of depression relates to individuals' illness representations of current depressive symptoms. Kirk, Haaga, Solomon, and Brody (2000) examined differences in beliefs about depression in general

among individuals with a history of major depressive disorder and those with no history of the condition. Individuals with a depression history viewed the condition as more likely to result in negative consequences. However, an SRM conceptual framework was not used in the study, and thus, the study did not assess beliefs about other aspects of depression, such as causes. The current thesis examined both the manner in which history of depression (in terms of frequency) relates to the content of the SRM domains of current depressive symptoms, as well as the process by which history of depression may relate to decisions about managing a current episode. In particular, the thesis examined the model's implied proposition that the SRM domains of the current symptoms may mediate the relationship between past experiences with depression and the decision to seek professional help for current symptoms.

Chapter 2

Study 1

Introduction

According to the self-regulation model (SRM), when individuals experience an onset of symptoms, they attempt to self-diagnose by matching the experienced symptoms to a label to form the identity of their condition. The label to which the individual matches their symptoms is based on several factors, such as their personal history with the symptoms, past observation of the symptoms in others, and social-cultural information about the symptoms (Leventhal, Leventhal, & Cameron, 2001; Martin, Rothrock, Leventhal, & Leventhal, 2003). Although the SRM acknowledges that individuals may consider environmental factors to determine potential causes of the symptoms to help determine the identity of their condition, the model also proposes that the way in which individuals identify their symptoms (that is, the label used to understand their condition) provides the individual with information regarding the other illness domains (e.g., additional causes, consequences, duration, controllability). The illness representation thus influences the choice of strategies for managing the symptoms (Leventhal et al., 2001). As an example, Leventhal et al., (2001) notes that "if a large, soft tissue mass in the shoulder is accurately labelled a malignant sarcoma rather than a benign lipoma, the implications are vastly different for the individual's experience of consequences, duration, and controllability of the threat" (p. 256).

Studies in the physical health literature have demonstrated that individuals may interpret a set of symptoms, particularly ambiguous symptoms, differently. For example, Baumann, Cameron, Zimmerman, and Leventhal (1989) found that a set of ambiguous symptoms were identified as stress by students who were preparing for exams, and as a

physical illness by students who were not. Studies have also found the label given to a set of symptoms to be related to treatment seeking. For example, Cameron, Leventhal, and Leventhal (1995) found that individuals not experiencing a stressful event in their lives labelled new symptoms as a physical illness, while individuals experiencing a difficult event labelled their symptoms as stress and were significantly less likely to seek treatment. Dempsey, Dracup, and Moser (1995) found that women experiencing heart attacks who labelled their symptoms as more benign issues, such as overexertion due to their physical activity, or as a normal part of daily life, delayed in seeking medical help by several hours.

The mental health literacy literature has shown that individuals often interpret depressive symptoms as something else. For example, when given a vignette describing a person with major depression and asked whether the person in the vignette was either suffering from a mental illness or experiencing a crisis, 60% of individuals chose "crisis" (Lauber, Nordt, Falcato, & Rossler, 2003). Other studies have allowed individuals to provide their own label to identify the condition presented in a vignette describing depressive symptoms. These studies have found that approximately 50% of individuals do not identify the person in the vignette as having depression. Instead, they may identify the symptoms as "stress", or "work-related problems," etc. (Goldney et al., 2001; Goldney et al., 2002; Jorm et al., 1997).

Few studies, however, have assessed the way in which these differences in labels may impact individuals' beliefs about the other SRM domains regarding their condition (e.g., causes, consequences, duration) and their decision to seek treatment. Both Wright, Jorm, Harris, and McGorry (2007) and Cabassa and Zayas (2007) presented individuals with a vignette describing depressive symptoms and found that individuals who identified

the condition as something other than depression were significantly less likely to seek professional help. Detweiler-Bedell, Detweiler-Bedell, Hazlett, and Friedman (2008) presented individuals with a vignette of depressive symptoms and labelled the symptoms as either depression or a heart condition. Results showed that the depression label led to significantly higher attributions of psychological causes and lower attributions of physical causes than the heart condition label. They further found that the depression label led individuals to believe that remission would most likely occur as a result of perseverance and social support. In contrast, the heart condition label led individuals to believe remission would most likely occur as a result of professional help. Thus, preliminary research has begun to show how the label used to identify depressive symptoms may impact beliefs regarding other SRM domains and ways of coping with the symptoms.

Accordingly, the first major goal of Study 1 was to clarify the effect of labels on beliefs regarding diverse SRM domains (e.g., duration, consequences). In particular, Study 1 examined the effect of several labels that are typically used to identify depressive symptoms. To illustrate, Goldney et al. (2001) presented individuals with a vignette describing a person with depressive symptoms. Using an open-ended response format, results indicated that, after depression, stress was the second most common label used to identify the condition in the vignette. Thus, Study 1 assessed the extent to which interpreting depressive symptoms as stress differentially influences beliefs regarding the other SRM illness domains, including professional help seeking. Study 1 also assessed the impact of identifying depressive symptoms as typical affective experiences, rather than a disorder. Given that some depressive symptoms can be part of the normal spectrum of affect, it is worthwhile to assess the extent to which identifying depressive

symptoms as normal affect, such as sad, impacts beliefs about other SRM domains, including coping.

Furthermore, Study 1 also examined the effect of not using a label to identify depressive symptoms, in contrast to using a label. According to the self-regulation model, if individuals do not match their symptom to a specific label, their illness representation of their symptoms may be "fuzzy." That is, these individuals may not have detailed or clear beliefs regarding the SRM domains pertaining to their symptoms, which may reduce the motivation to engage in strategies to manage their symptoms, such as seeking treatment. In this regard, Cameron and colleagues (1993) found that more individuals who sought medical care for new symptoms used a specific label to identify their condition than individuals who did not seek treatment, even after controlling for the number of symptoms. Such findings suggest that the lack of a label to identify a condition may impact on individuals' illness representation associated with their symptoms and, in turn, affect their decisions regarding management of their condition. Thus, the present study examined the extent to which not using a label to identify depressive symptoms impacts beliefs regarding other SRM domains, including coping.

It was predicted that label would have an effect on a wide range of SRM domains, given the model's proposal that label plays a large role in determining individuals' illness representations of a condition. More specifically, it was predicted that the depression label would lead to beliefs indicative of a more severe condition than stress, sad, or no label. For example, it was predicted that, compared to other label conditions, the depression label would lead individuals to believe the symptoms were more likely to result in more negative consequences in a wide range of areas, and be less controllable. It was also predicted that the depression label would lead individuals to expect the condition

to last for a longer period of time and be more likely to have a more permanent timeline, whereas the stress, sad, and no label conditions were expected to be viewed as more likely to have an acute or intermittent timeline. Furthermore, the depression label was expected to lead individuals to view professional treatment as more helpful and one's own personal efforts as less helpful in managing the condition, compared to the stress, sad, or no label conditions. Similar patterns were expected with respect to the stress label in comparison to the sad or no label, and the sad label in comparison to no label. Hypotheses regarding causes were based on the depression literature examining individuals' beliefs about the causes of depression (Kuyken et al., 1992; Pistrang & Barker, 1992; Thwaites et al., 2004). Based on those findings, it was expected that the depression label would lead individuals to believe the condition was more likely to be due to relationship and work related difficulties compared to the stress or sad label, or no label. However, it is possible that individuals also attribute conditions identified as stress or normal negative affect to work or interpersonal difficulties.

A second major goal of Study 1 was to consider the effect of symptom severity on illness representations. Within the health psychology literature, symptom severity has been found to be predictive of SRM domains, such as consequences and timeline, as well as treatment seeking (e.g., Cameron et al., 1993; Frostholm et al., 2005; Martin et al., 2003). Similarly, within the depression literature, studies have found symptom severity to be related to individuals' decisions to seek professional help and adherence to antidepressant medication (Aikens et al., 2008; Broadbent et al., 2008; Brown et al., 2005; Edwards et al., 2007; Thompson, Hunt, & Issakidis, 2004). Preliminary work has begun to examine how depression symptom severity relates to other SRM illness representation belief domains. Findings suggest that more severe conditions may be

perceived as less controllable and are expected to have a longer duration and more serious consequences (Brown et al., 2007; Fortune et al., 2004). However, there has been relatively little work in this area.

Furthermore, the majority of the studies examining severity have focused on at least a moderate level of symptom severity. Research has not yet examined low symptoms in terms of how they are identified and their impact on other SRM belief domains, including coping strategies. For some individuals, this issue is important to examine, as the onset of low depressive symptoms may predict an escalation to moderate severity and, in turn, diagnosable major depression (Horwath, Johnson, Klerman, & Weissman, 1994). As such, Study 1 also examined individuals' illness representation beliefs regarding low symptoms of depression (i.e., their causes, consequences, duration, controllability), as well as beliefs regarding how to manage these low symptoms.

Given the model's proposal that symptoms play a large role in individuals' illness representation of a condition, it was expected that symptom severity would have a significant impact on a wide range of belief domains. Furthermore, it was expected that moderate symptoms would lead to beliefs in other domains that were reflective of a more severe condition. In particular, it was hypothesized that, compared to low symptoms, moderate symptoms would lead individuals to believe the condition was more likely to be due to stable causes (e.g., genetics) and significant disruptions in one's life (e.g., a relationship ending), would have more negative and less positive consequences in a range of areas, and would be less controllable. It was also predicted that moderate symptoms would lead individuals to believe the condition was more likely to be permanent and last longer than low symptoms, whereas low symptoms were expected to be viewed as more intermittent than moderate symptoms. It was also believed that moderate symptoms

would lead individuals to view professional treatment as more helpful and view one's own personal efforts (e.g., seeking social support) as less helpful in managing the condition, compared to low symptoms.

Study 1 also examined how the effect of symptom severity on SRM belief domains and coping is potentially impacted by the label used to identify the symptoms. For example, given the important role that label is believed to play in individuals' illness representations, it is possible that a label that has a clear illness representation in terms of severity (depression) may be less impacted by the severity of the symptoms than a label that may be more vague, such as stress or sad. Thus, it is possible that symptom severity has less of an effect on beliefs regarding other SRM domains when a depression label is used than when a stress, sad, or no label is used.

A third purpose of Study 1 was to examine the strength of the self-regulation model *overall* in predicting the coping strategies that individuals use, with a particular interest in professional help-seeking. In this regard, Study 1 also examined the *relative* strength of the various SRM domains in the prediction of coping. Relatively few studies have examined these aspects of the model, particularly with respect to treatment seeking.

In the physical health literature, several studies have examined the ways in which the SRM domains relate to various types of coping, such as avoidance and active coping (e.g., Hagger & Orbell, 2003; Heijmans, 1998; Kemp, Morley, & Anderson, 1999; Moss-Morris et al., 1996; Rutter & Rutter, 2002). Studies in this area have generally found individuals to be more likely to use avoidance-related coping, including passive styles and disengagement, when they believed their condition to have more severe consequences and a chronic timeline. However, these studies have generally only presented simple correlations, and, as such, have not simultaneously assessed the relative contribution of

each SRM domain, nor the overall variance in coping accounted for by all of the proposed elements of the self-regulation model, by using multiple regression procedures. Furthermore, the coping strategies examined in these studies relate more to general styles of coping rather than the specific ways in which individuals attempt to manage their conditions, such as through seeking professional treatment.

Studies in the physical health literature that more closely examine specific management strategies, such as professional help, include studies assessing the relationship between the SRM and treatment adherence (Brewer, Chapman, Brownlee, & Leventhal, 2002; Hampson et al., 1990; Stafford, Jackson, & Berk, 2008). Research in this area has more often used a regression approach to examine the predictive power of the SRM overall and the SRM domains. While these studies have found the SRM to significantly add to the prediction of treatment adherence, the amount of variance accounted for by the model overall was relatively limited. Furthermore, these studies have generally found beliefs regarding serious consequences to be associated with greater treatment adherence, which is inconsistent to some extent with studies that have found perceived serious consequences to be associated with more avoidance and disengagement-based coping strategies as noted above (Hagger & Orbell, 2003; Moss-Morris et al., 1996; Rutter & Rutter, 2002). The relatively low treatment adherence variance accounted for by the SRM and the inconsistencies in findings across studies suggests that it may be helpful to clarify the different circumstances in which the SRM may be differentially predictive of the strategies used to cope with their conditions. For example, the strength of the SRM in predicting coping strategies may differ depending on the severity of the symptoms.

Furthermore, while it is helpful to understand the relationship between the SRM and treatment adherence, it is also important to examine the extent to which the SRM relates to individuals' decision to initially seek professional help at all. Relatively few studies in the physical health literature have examined how the SRM relates to professional help-seeking. Of these studies, several have examined this issue by assessing differences in SRM domains between individuals who have sought treatment for a given condition and those who have not (e.g., Cameron et al., 1993); or assessing the correlational relationship between the SRM domains and the number of doctor visits related to the condition (e.g., Hampson, Glasgow, & Zeiss, 1994); or a qualitative assessment of individuals' beliefs regarding their condition prior to and at the point of seeking professional help (e.g., Dempsey et al., 1995). In these studies, beliefs regarding consequences and identity, particularly the number and perceived seriousness of the symptoms, were predictive of treatment seeking. However, such studies have not examined the overall strength of the SRM in predicting professional help-seeking.

Similarly, in the mental health literature, few studies have assessed the extent to which the SRM relates to seeking professional help for such difficulties as depression. Of these studies, the majority have investigated this issue by contrasting the beliefs in the SRM domains between individuals who have received professional treatment for mental health issues with those who have not (Broadbent et al., 2008; Brown et al., 2001; Edwards et al., 2007). Furthermore, several of these studies have examined this issue with respect to mental health issues in general, rather than focusing specifically on depression. Findings from these studies have generally found beliefs regarding consequences to differentiate between individuals who are likely to seek treatment from those who are not.

However, few studies have examined the overall strength of the SRM in predicting professional treatment-seeking. Furthermore, findings of those studies that have examined this issue have been inconsistent to an extent. For example, some studies have found causal beliefs to be predictive of help-seeking, while others have found beliefs regarding the chronic timeline of the condition to be predictive (O'Mahen et al., 2009; Vanheusden et al., 2009). Thus, it may be helpful to clarify the circumstances in which the SRM domains may be differentially predictive. Similarly, it is also important to further examine the relative contribution of each SRM domain in predicting aspects of coping, such as beliefs regarding the helpfulness of professional treatment.

Furthermore, no study has examined how the SRM factors may interact in predicting individuals' beliefs regarding the helpfulness of various strategies, particularly professional treatment, for managing a given condition. In addition, the theory itself offers little discussion regarding the possibility of interactions among the SRM domains, or the specific ways in which the SRM factors may interact (i.e., moderator effects). However, interactions between the SRM factors may potentially exist. For example, beliefs regarding the duration of a given condition may be differentially predictive of seeking professional help depending on beliefs regarding the negative consequences of a condition, such as expected functioning difficulties. If an individual believes the condition will last for a long period of time, this may lead to seeking professional help only if the individual also believes that the consequences of the condition will very likely involve difficulties functioning in other areas of life. If the individual does not expect such negative consequences, their belief regarding the duration of the condition may not be as predictive of seeking professional help. Similarly, if an individual believes the condition will result in negative consequences, such as functioning difficulties, the

individual may be more likely to seek help only if they believe the condition will have a long duration. Thus, it may be worthwhile to examine the potential interaction, or moderator, effects between the various SRM domains in predicting beliefs regarding coping strategies, particularly professional treatment.

Overall, then, the purpose of Study 1 was to begin to examine how both (1) the labels used to identify depressive symptoms and (2) the severity of the symptoms impact individuals' illness representations in terms of their beliefs regarding the self-regulation model's various domains. A further purpose of Study 1 was to examine the strength of the self-regulation model overall, and the relative contributions of each SRM domain in predicting beliefs regarding the helpfulness of various coping strategies. This was done by using a self-referent vignette format in which individuals were asked to imagine that they were experiencing the depressive symptoms presented in the vignette. To assess the effect of symptom severity, two vignettes were created for the present study, one describing depressive symptoms at a low level and the other describing depressive symptoms at a moderate level. The low and moderate symptom severity vignettes varied with respect to the number and range of depressive symptoms, their duration, and their impact on functioning. Individuals were presented with either the low or moderate symptom vignettes. Thus, symptom severity was a between-subjects independent variable.

To assess the effect of label on illness representations, four label conditions were created. In the first three conditions, one of the following three labels was used to identify the experience in the vignette, *depression, stress,* or *sad.* In the fourth condition, a label was <u>not</u> provided by the experimenter to identify the experience (i.e., the no label condition). Each of these label conditions were applied to both the low and moderate

symptom severity vignettes. The depression label assessed the beliefs associated with this label. The stress label was selected because it has been found in the mental health literacy literature to be the second most common label used by individuals to identify depressive symptoms presented in a vignette (Goldney et al., 2001; Goldney et al., 2002; Jorm et al., 1997). The sad label was selected to assess the impact of identifying depressive symptoms within the realm of normal affective experiences. The no label condition was included primarily to examine the ways in which not providing a label for the set of symptoms impacts on illness representations and coping. Thus, each participant received either a low or moderate vignette with one of the three labels or no label. As with symptom severity, label was a between-subjects independent variable.

The dependent variables in this study assessed beliefs regarding the causes, consequences, duration, and controllability of the conditions presented in the vignettes, as well as the helpfulness of strategies for coping with the condition. The Illness Perception Questionnaire (IPQ; Weinman et al., 1996) was developed within the physical health literature to assess the components of the self-regulation model, and was revised by Moss-Morris et al. (2002). Although adapted versions of the IPQ have recently been used in the depression literature (Brown et al., 2001; Brown et al., 2007), a scale was developed for the present study that related more specifically to the current approach. While this scale drew from certain items of the IPQ, the subscales were either broadened or refined versions of those in the IPQ. For example, the Cause subscale included a wider range of items to capture areas that have been found in the depression literature to be actual and/or perceived causes of depression. The Consequence subscale clarified the specific types of consequences that may be expected to occur in a range of domains (namely self-evaluative, interpersonal, functioning, physical health, mental health, and

positive domains), as a result of the condition. Items in the Duration subscale were refined, and an item was added that begins to assess the specific length of time the condition is expected to last (e.g., *about 1 week*).

The self-regulation model focuses on beliefs about the general controllability of a given condition. The present study extended this domain to have a preliminary look at beliefs about the helpfulness of specific management strategies, which, in the present approach, consisted of various forms of professional help, social support, and one's own personal efforts. These areas were selected based on findings from the mental health literacy literature regarding individuals' beliefs about the ways in which a person with depression may be helped (Angermeyer, Matschinger, & Riedel-Heller, 2001; Davies, Sieber, & Hunt, 1994; Goldney et al., 2001; Jorm et al., 1997).

A further purpose of Study 1 was to examine the strength of the self-regulation model overall, and the relative contributions of each SRM domain, in predicting beliefs regarding the helpfulness of professional treatment. In addition, Study 1 assessed the extent to which the relationship between the SRM and beliefs regarding professional help seeking differs depending on the severity level of the symptoms (low versus moderate). Furthermore, Study 1 examined the possible interaction effects between the various SRM domains in predicting beliefs regarding the helpfulness of strategies, particularly professional treatment, in managing the symptoms.

Method

Participants

Ethics approval to conduct the study was first obtained (see Appendix A). Following this, a total of 324 students in an introductory psychology course at the University of Western Ontario participated in this study for course credit. Nine cases

were excluded due to excessive missing data. Thus, the final sample consisted of 315 students (185 women and 130 men) with a mean age of 18.81 (*SD* = 1.32), and an age range of 17 to 28.

Materials

Vignettes. To manipulate severity level, two vignettes were created for the current study, one describing moderate depressive symptoms and one describing low depressive symptoms (see Appendix B for a copy of these vignettes). To help maximize individuals' representations of depression, the moderate depression vignette for this study was created by ensuring that symptoms pertaining to a wide-range of categories were included, namely, cognitive, affective/anhedonic, hopelessness, behavioural, somatic, motivational, and functional components of depression. The severity level of the vignettes in this study was established by varying the number of symptoms presented, the intensity of the symptoms, the length of time the symptoms have been experienced, and degree of impaired functioning.

The identity, or label, of the experience described in the vignette was also manipulated. One of the following three labels was presented to identify the experience described in the vignette: depressed, stressed, or sad. These labels were selected based on studies that have examined individuals' identification of depressive symptoms (e.g., Goldney et al., 2001; Indiana Consortium for Mental Health Services Research, 1996; Jorm et al., 1997). There was also a condition in which no label was presented with the vignette. Thus, the study consisted of the following eight conditions: two severity conditions (moderate and low depression) each of which were identified with either a depressed, stressed, or sad label, or no label at all. Each vignette was written in the first

person, and individuals were asked to imagine that they, themselves, were having the experience described in the vignette.

Questionnaires.

SRM-Measure (see Appendix C for a copy of each questionnaire).

SRM-Cause. This part of the measure was developed to assess individuals' beliefs regarding the causes of the experience described in the vignette. Items were selected from various sources. One source was a review of the depression literature that examined individuals' general beliefs of the causes of depression (e.g., Jadhav et al., 2001; Kuyken et al., 1992; Thwaites et al., 2004). This review suggested that individuals believe the causes to include events related to trauma, loss/relationship difficulties, and achievement-related difficulties, which are related to theoretical conceptualizations of the causes of depression. Items were also selected from additional theories of the causes of depression, such as biological and psychodynamic theories (Beckham & Leber, 1995; Pistrang & Barker, 1992). Examples of items that were used include *genetics*, *ending a romantic relationship*, *losing a job*, and *your childhood*. For each item, participants were asked to rate how likely they think the experience in the vignette was caused by the item, on a scale of 1 (*Very Unlikely*) to 7 (*Very Likely*).

SRM-Consequence. This part of the measure was developed to assess individuals' beliefs regarding the consequences of the experience described in the vignette. Items were created with the purpose of capturing potential consequences in four domains, namely, self-evaluation (e.g., *think of myself as weak*), others' evaluation (e.g., *be viewed by others as a failure*), functioning (e.g., *have difficulties performing day to day tasks*), and health (e.g., *be more susceptible to physical illnesses*). The others' evaluation and self evaluation subscales included both negative and positive consequences (e.g., *shown*

encouragement from other). Participants were asked to rate how likely each item would be a consequence of the experience described in the vignette, on a scale of 1 (*Very Unlikely*) to 7 (*Very Likely*).

SRM-Timeline. This part of the SRM measure was used to assess individuals' beliefs regarding the duration of the experience described in the vignette. The first portion consisted of modified items taken from the Timeline subscale of the revised Illness Perception Questionnaire (Moss-Morris et al., 2002). Participants were asked to indicate how likely the experience in the vignette will be acute (i.e., *completely go away over time*), chronic (i.e., *last for the rest of your life*), or cyclical (i.e., *be worse at some times and better at other times*). Each item was scored on a 7-point scale ranging from *Very Unlikely* to *Very Likely*. In the second portion, participants were asked to indicate how long they expect the experience described in the vignette to last, in terms of a specific length of time. Responses were recorded on a scale consisting of seven time ranges, beginning with *Less Than 1 Hour* and ending with *1 Year or Longer*. Examples of options in between these end points include *About 1 Week* and *2-3 Months.*

SRM-Control. This part of the SRM measure was used to assess individuals' beliefs regarding the controllability of depressive symptoms. The first portion consisted of modified items taken from the Control subscale of the revised Illness Perception Questionnaire (Moss-Morris et al., 2002). These items assessed beliefs about the general controllability of the experience described in the vignette (e.g., *That experience would be controllable*), and personal control over the experience (e.g., *Nothing I do would affect that experience*). Responses were recorded on a 5-point scale ranging from *Strongly Disagree* to *Strongly Agree*.

The second portion assessed beliefs about the helpfulness of specific strategies for treating the experience described in the vignette. Items were selected from studies in the mental health literacy literature examining individuals' beliefs regarding treatment strategies for depression (e.g., Goldney et al., 2001; Goldney et al., 2002). Example items included *seeing a family physician* and *talking with friends/family about the experience*. Participants rated the likely helpfulness of each item on a 7 point scale from *Very Unhelpful* to *Very Helpful.*

Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995). The DASS is a 42-item measure consisting of three subscales (14-items each) assessing current symptoms of depression, anxiety, and stress. The depression subscale was of particular interest in the present study. Example items are *I felt down-hearted and blue*, *I felt that I had nothing to look forward to,* and *I just couldn't seem to get going.* For each item, participants are asked to indicate the degree to which they have experienced the given symptom over the past week, on a scale of 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). The DASS has been shown to have good internal consistency and temporal reliability (Brown, Chorpita, Korotitsch, & Barlow, 1997; Lovibond & Lovibond, 1995). Good convergent and discriminant validity has also been demonstrated (Antony, Bieling, Cox, Enns, & Swinson, 1998; Brown et al., 1997).

History of Depression Scale (see Appendix D). This measure was created for this thesis to briefly assess participants' history of experiences with depression. The first item asked participants to indicate their general frequency of being depressed on a scale of 1 (*Never*) to 5 (*All of the time*). Individuals who indicated some past experience with depression were then asked about the severity of these past experiences. In particular, they were asked to indicate the extent to which they experienced a series of depressive

symptoms on a scale of 1 (*Not at all*) to 5 (*A lot*), the typical duration of their depression on a scale of 1 (*Less than 1 hour*) to 7 (*1 year or longer*), whether they have been diagnosed with depression, and how many specific times they have experienced depression.

For information regarding participants' current depressive symptomatology and history of depression, please see Appendix E.

Positive Scenario (see Appendix F). To help ensure that individuals left the study in a positive mindset, a positive scenario was developed in which participants were asked to imagine that they received a very good grade on an important exam. They were then asked to answer several questions related to this scenario.

Procedure

Participants were tested in groups of 10-20 people. After reading and signing an informed consent form (see Appendix G), participants received a booklet of vignettes and questionnaires, which placed them randomly into one of eight conditions. In each condition, participants were first asked to read a vignette and imagine that they were having the experience described in the vignette. Next, they were asked to complete the questionnaires related to the vignette. They then completed individual difference questionnaires with respect to their actual selves, namely, the DASS and History of Depression Scale, as well as other questionnaires unrelated to the current study. Finally, participants were given the positive scenario and related questions. After completion of the booklet, participants were given a debriefing form that offered further information about the present study (See Appendix H).

Results

Preliminary Analyses: Specifying the Factors for each SRM Belief Domain

The scales assessing the SRM belief domains regarding causes, consequences, duration, and controllability of the experience described in the vignette, as well as resources for coping with the condition, each consisted of a number of items. As such, a Principal Components Analysis with a Varimax rotation was conducted on the items for each scale, in order to create a more manageable number of dependent variables for subsequent analyses. Meaningful factors were selected based on eigenvalues greater than one. An item was included in a factor if its loading was higher than .4 on the given factor and less than .35 on the remaining factors. Items that did not clearly load were not retained, in order to ensure that the resulting factors most clearly reflected each given construct.

Causes. The Cause scale consisted of 16 items. A factor analysis produced three meaningful causal factors, namely, (1) Relationship and Work Difficulties (five items; e.g., *ending a romantic relationship*), (2) Stable Attributes (five items; e.g., *genetics*), and (3) Daily/Physical Stressors (three items; e.g., *being overworked*). These three factors accounted for 48% of the cumulative variance. Table I1 in Appendix I shows all of the cause item loadings on each factor, the unique variance accounted for by each factor, and the Cronbach alpha for each factor.

Consequences. The Consequence scale consisted of 12 items. A factor analysis produced three factors, namely (1) Vulnerability to Further Harm (five items; e.g., *be viewed by others as weak*), (2) Functioning Difficulties (two items; e.g., *have difficulty performing day to day tasks*), and (3) Positive Responses (two items; e.g., *be shown encouragement from others*). These three factors accounted for 56% of the cumulative

variance (see Table I2 in Appendix I for further details). Since the Cronbach alpha for the Positive Responses subscale was .32, it was not included in further analyses.

Timeline. A factor analysis was conducted on the three items of the scale that measured beliefs about the duration of the condition described in the vignette. The analysis produced two meaningful factors, namely, (1) Permanence (two items; e.g., *last for the rest of your life*) and (2) Cyclical (one item; *worse at some times and better at other times*; see Table I3 in Appendix I for further details).

Control. The Control scale consisted of three items. The analysis produced one factor that accounted for 63% of the total variance. The factor consisted of all three items, namely, *There is a lot I could do to control that experience* (factor loading of .87); *Nothing I do would affect that experience* (-.75); and *That experience would be controllable* (.75). The Cronbach alpha for this factor was .70.

Coping. The Coping scale consisted of six items. A factor analysis produced two factors, namely (1) Professional Help (four items; e.g., *seeing a psychologist*), and (2) Personal Efforts (two items; *talking with friends/family about that experience*). These two factors accounted for 71% of the cumulative variance (see Table I4 in Appendix I for further details). The Cronbach alpha for the Personal Efforts factor was .29. Thus, the factor was not included in the analyses below. However, given its conceptual relevance, the seeking social support item was retained and included in further analyses to assess the effect of symptom severity and label on beliefs regarding the helpfulness of seeking social support; and also examine its perceived helpfulness, relative to professional services.

Effect of Symptom Severity and Label on SRM Belief Domains

The first purpose of Study 1 was to examine how the SRM illness representation of depressive symptoms is affected by the severity level of the symptoms and the label used to identify these symptoms. Thus, for each factor identified in the principal components analyses, a 4 x 2 analysis of variance was conducted, with both label (depressed, stress, sad, and no label) and symptom severity (low and moderate) as the between-subject independent variables. Thus, the dependent measures consisted of the SRM belief factors regarding the causes, consequences, duration, and controllability of the experience described in the vignette as well as resources for coping with the condition (as described in Appendix I).

Causes. The means and standard deviations for each of the three factors in the cause domain (Relationship/Work Difficulties, Stable Attributes, and Daily/Physical Stressors) are presented in Table 1. As shown in the means in the bottom row of Table 1a, label had a significant main effect on the Relationship/Work Difficulties factor, $F(3, 307) = 2.73$, $p < .05$. Although the post hocs were not significant at traditional levels (i.e., $p < .05$), the pattern hinted that the depression label had higher attributions of this causal factor than the stress label ($p = .07$).

Label also had a significant main effect on the Daily/Physical Stressors factor, $F(3, 307) = 2.72$, $p < .05$, as shown in the means in the bottom row of Table 1c. Although the post hoc analyses were not significant at traditional levels (i.e., $p < .05$), the pattern hinted that the stress label led to higher attributions of daily/physical stressors as the cause of the condition, compared to the depression label ($p = .08$) and no label ($p = .09$). Finally, there was no main effect of label on the Stable Attributes factor, $F(3, 307) = 1.32$, *ns*.

Table 1

Means and Standard Deviations for each Cause Factor as a Function of Label and Severity

a) Relationship and Work Difficulties

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	4.74	(1.30)	4.87	(1.28)	5.14	(1.17)	5.42	(1.18)	5.05
Moderate	5.64	(0.94)	5.27	(1.16)	5.09	(1.06)	5.65	(1.02)	5.41
	5.20		5.08		5.11		5.53		

b) Stable Attributes

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.75	(1.17)	3.50	(1.30)	3.86	(1.09)	3.71	(1.23)	3.71
Moderate	4.29	(1.09)	3.78	(1.17)	3.77	(1.02)	3.92	(1.27)	3.94
	4.02		3.64		3.82		3.81		

c) Daily/Physical Stressors

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.75	(1.14)	4.24	(1.13)	4.53	(1.18)	3.86	(1.08)	4.10
Moderate	3.98	(0.93)	4.39	(1.33)	3.63	(1.15)	3.85	(1.37)	3.96
	3.87		4.32		4.08		3.85		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a cause.

Symptom severity had a significant main effect on the Relationship/Work Difficulties factor, $F(1, 307) = 8.29$, $p < .01$, as shown in the means in the right most column of Table 1a. Here, relationship and work difficulties were believed to be the cause of moderate symptoms significantly more so than low symptoms. Severity had no main effect on the Stable Attributes cause factor or the Daily/Physical Stressors cause factor, F's $(1, 307) \leq 3.17$, *ns* (see Tables 1b and 1c, respectively).

There was also a significant two-way interaction between label and symptom severity on the Daily/Physical Stressors factor, $F(3, 307) = 3.99$, $p < .01$, as shown in the main body of Table 1c. At moderate severity, the stress label led to higher attributions of daily/physical stressors as the cause of the condition than the sad label, $p < .05$. At low severity, the sad label led individuals to attribute daily/physical stressors as the cause to a higher degree than no label, $p < .05$, and almost to a higher degree than the depression label, $p = .06$. Thus, if individuals were experiencing low symptoms and the condition was identified as sad, they were more likely to attribute their symptoms to daily/physical stressors, than if the condition was identified as depression. Furthermore, symptom severity had no effect on beliefs of daily/physical stressors as a cause when the condition was identified as depression, stress, or with no label. However, symptom severity did have an effect when the condition was identified as sad, whereby low symptoms were significantly more likely to be attributed to daily/physical stressors, than moderate symptoms ($p < .01$). There was no significant interaction effect for the Relationship/Work Difficulties or Stable Attributes cause factors.

Consequences. The means and standard deviations for each of the two factors in the consequence domain (Vulnerability to Further Harm and Functioning Difficulties) are presented in Table 2. Label had no significant main effect on either the Vulnerability to

Table 2

Means and Standard Deviations for each Consequence Factor as a Function of Label and Severity

a) Vulnerability to Further Harm

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.92	(1.08)	3.63	(1.31)	3.97	(0.99)	4.37	(0.98)	3.87
Moderate	4.44	(0.90)	4.43	(1.09)	4.12	(0.92)	3.96	(1.16)	4.34
	4.18		4.02		4.04		4.16		

b) Functioning Difficulties

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	4.08	(1.77)	4.29	(1.16)	4.76	(1.14)	4.45	(1.49)	4.40
Moderate	5.60	(0.91)	5.67	(1.19)	5.34	(1.26)	5.54	(0.96)	5.54
	4.86		4.97		5.05		4.98		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a consequence.

Further Harm factor, nor the Functioning Difficulties factor, *F*'s (3, 307) ≤ .48, *ns*, as shown in the bottom rows of Table 2a and b, respectively. Severity, however, had a significant main effect on both the Vulnerability to Further Harm factor, $F(1, 307) = 15.77$, $p < .001$, and the Functioning Difficulties factor, $F(1, 307) = 64.38$, $p < .001$. Compared to low symptoms, moderate symptoms led individuals to believe that they were (1) more vulnerable to further types of harm and (2) more likely to experience functioning difficulties as a consequence of the condition. There was no significant interaction for either of the consequence factors, *F*'s (3, 307) ≤ 2.17, *ns*.

Timeline. The means and standard deviations for the two factors in the Timeline domain (Permanence and Cyclical) are presented in Table 3a. Neither label nor symptom severity had a significant main effect on the Permanence factor, *F's* (3 or 1, 307) ≤ .65, *ns*, nor the Cyclical factor, *F's* (3 or 1, 307) ≤ 1.50, *ns*. The interaction effect was also not significant for either of these factors, *F's* (3, 307) ≤ .63, *ns*.

Length of Duration. This item uniquely assessed the length of time that individuals expected the condition in the vignette to last. The item consisted of seven response options that were coded on a scale from one to seven, with 1 = *Less than 1 Hour* and 7 = *1 Year or Longer*. The means and standard deviations for expected length of duration are presented in Table 3b. Label had a significant main effect on beliefs about the duration of the experience described in the vignette, $F(3, 307) = 3.84$, $p < .05$. As shown in the bottom most row of Table 3b, depression label and no label led participants to expect the condition to last significantly longer (between 2-3 weeks) than a condition identified with the sad label (which was expected to last about 1 week), $p < .05$. Symptom severity also had a significant main effect, $F(1, 307) = 20.72$, $p < .001$. As shown in the right most column of Table 3b, low symptoms led individuals to believe the

Table 3a

Means and Standard Deviations for each Timeline Factor as a Function of Label and Severity

a) Permanence

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	2.95	(1.29)	3.12	(1.43)	2.93	(1.40)	3.29	(1.62)	3.07
Moderate	3.04	(1.24)	3.05	(1.28)	3.39	(1.19)	3.27	(1.26)	3.19
	2.99		3.08		3.16		3.28		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the condition is permanent.

b) Cyclical

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	5.55	(1.48)	5.36	(1.37)	5.25	(1.50)	5.27	(1.57)	5.35
Moderate	5.58	(1.17)	5.16	(1.33)	4.90	(1.63)	5.46	(1.71)	5.27
	5.56		5.26		5.08		5.36		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the condition is cyclical.

Table 3b

Means and Standard Deviations for Length of Duration as a Function of Label and Severity

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.61	(1.57)	3.51	(1.47)	3.00	(1.11)	3.51	(1.47)	3.41
Moderate	4.45	(1.30)	3.87	(1.44)	3.73	(1.18)	4.38	(1.33)	4.11
	4.04		3.69		3.36		3.94		

Note. Response scale coded from 1 to 7, with higher numbers indicating longer expected duration.

condition would last for a significantly shorter amount of time (a little over 1 week) than moderate symptoms (which were expected to last a little over 2-3 weeks). The two-way interaction was not significant, $F(3, 307) = .59$, *ns*.

Control. The means and standard deviations for the Control factor are presented in Table 4. Regarding symptom severity, as shown in the right most column of Table 4, moderate symptoms were believed to be significantly less controllable than low symptoms, $F(1, 307) = 4.17$, $p < .05$. The main effect of label and the two-way interaction were not significant, $F(3, 307) \leq 2.53$, *ns*.

Coping. The means and standard deviations for the Professional Help coping factor and the seeking social support item are presented in Table 5. Symptom severity had a significant main effect on the Professional Help factor, $F(1, 307) = 6.88$, $p < .01$. As shown in the right most column of Table 5a, professional help was believed to be more helpful for moderate symptoms than low symptoms. There was no effect of severity on the perceived helpfulness of seeking social support, $F(1, 307) = .40$, *ns*. Label had no main effect on the Professional Help factor, nor on the seeking social support item, F's $(3, 307) \leq .75$, *ns*, as shown in Table 5a and b. There were no significant interaction effects, F's $(3, 307) \leq 1.26$, *ns*.

Overall Summary of the Severity by Label Findings

Table 6 presents a summary of the significant effects for the 4 x 2 analyses of variance just described. As expected, symptom severity had a significant effect on each of the four SRM belief domains that were examined, namely cause (particularly, the Relationship/Work Difficulties factor), consequence (both the Vulnerability to Further Harm and the Functioning Difficulties factors), timeline (particularly, Length of Duration), and control, as well as on the perceived helpfulness of professional treatment.

Table 4

Means and Standard Deviations for the Control Factor as a Function of Label and Severity

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.41	(0.92)	3.75	(0.67)	3.58	(0.63)	3.61	(0.56)	3.59
Moderate	3.38	(0.80)	3.62	(0.72)	3.46	(0.79)	3.21	(0.83)	3.42
	3.40		3.69		3.52		3.41		

Note. Response scale ranged from 1 to 5, with higher numbers indicating greater expected control.

Table 5

Means and Standard Deviations for Professional Help Coping Factor and Social Support as a Function of Label and Severity

a) Professional Help

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	3.84	(1.57)	3.70	(1.55)	3.86	(1.19)	4.28	(1.41)	3.92
Moderate	4.31	(1.46)	4.46	(1.31)	4.19	(1.24)	4.37	(1.47)	4.33
	4.08		4.07		4.02		4.33		

b) Social Support

	Label								
Severity	No Label		Stress		Sad		Depression		
Low	5.21	(1.49)	5.31	(1.44)	5.83	(1.01)	5.51	(1.00)	5.47
Moderate	5.58	(1.13)	5.63	(1.38)	5.50	(1.22)	5.51	(1.43)	5.55
	5.40		5.47		5.66		5.51		

Note. Response scale ranged from 1 to 7, with higher numbers indicating greater perceived helpfulness.

Table 6

Summary of the Significant Main Effects of Symptom Severity and Label, and Interaction Effects, for each Factor in each SRM Domain

SRM Factor	Main Effect		Interaction Effect
	Symptom Severity	Label	
Cause			
Relationship/work difficulties	✓	✓	
Stable attributes			
Daily/physical stressors		✓	✓
Consequences			
Vulnerability for further harm	✓		
Functioning difficulties	✓		
Timeline			
Permanence			
Cyclical			
Length of duration	✓	✓	
Control	✓		
Coping			
Professional help	✓		
Seeking social support			

Note: ✓ = significant effect

The pattern of these effects was generally as expected, in that moderate symptoms were associated with beliefs reflective of a more severe condition (e.g., more negative consequences, longer duration) than low symptoms, and with the perception of professional treatment as more helpful in coping with the condition.

It was originally expected that label would also have a large number of significant effects across a wide range of belief domains. However, as shown in Table 6, label had only a few significant effects, namely in the cause domain (the Relationship/Work Difficulties factor and the Daily/Physical Stressors factor) and the timeline domain (particularly, Length of Duration). Furthermore, there was only one interaction effect between label and symptom severity. In general, the effect of symptom severity on SRM belief domains did not differ across the labels used to identify the symptoms.

However, it is important to note that these findings regarding the label variable could be difficult to interpret in a completely unambiguous manner, due to possible incongruence between the labels provided by the experimenter versus the labels that participants might have provided themselves when presented with the set of symptoms. This potential issue is addressed below.

Assessing Congruence Between Experimenter Provided and Participant Provided Labels

At the end of the SRM questionnaires, participants were asked to provide the label that they, themselves, would use to identify the experience described in the vignette. It was thus possible to examine the percentage of congruence between the labels that were provided by the experimenter and those that participants, themselves, provided. For this analysis, labels provided by participants were grouped into categories. In each condition,

between two to seven participants did not provide a label. See Appendix J for a description of how the 16 categories were derived.

Of particular interest was the extent to which participants provided the same label as was experimentally provided in the depression, stress, and sad experimental label conditions. Table 7 presents the percentage of agreement between the labels that participants provided and the respective experimenter provided label for the depression, stress, and sad label conditions, for each severity level. At moderate symptom severity, there was quite high agreement with the depression label (89%). However, in the stress and sad experimental label conditions, only 6% of participants provided these stress or sad labels to identify the experience in the vignette. At low severity, there was moderate to high agreement with the depression label, such that 61% of participants also labelled the experience in the low severity vignette as depression. In the stress and sad label conditions at low severity, 21-24% of participants provided these labels. In general, very few people actually provided a label that was consistent with the label provided in two of the experimental conditions, namely, stress or sad (i.e., normal negative affect).

The above analysis indicated that there were incongruencies of various sizes between the experimenter and participant provided labels according to condition. In this regard, the no label condition was also of interest, as it allowed for a further analysis of the types of labels that participants provided to identify the experience in the vignette. As such, the no label condition was examined further, since participants in this condition were not exposed to any of the labels provided by the experimenter. Thus, the labels provided in this condition solely reflected how the participants, *themselves,* identified the experience in the vignette. Table 8 presents the frequencies and percentages of each label category used in the no label condition, as a function of symptom severity. Findings

Table 7

Degree of Congruence between the Label Provided by the Experimenter and the Label Provided by Participants in the Depression, Stress, and Sad Label Conditions

	Experimental Label Conditions		
Severity	Depression (n = 38)	Stress (n = 37)	Sad (n = 38)
Low			
% of Label Agreement	61%	24%	21%
% of Label Disagreement	39%	76%	79%
Moderate	(n = 37)	(n = 36)	(n = 35)
% of Label Agreement	89%	6%	6%
% of Label Disagreement	11%	94%	94%

Table 8

Frequency and Percentage of each Category of Labels Provided by Participants in the No Label Condition

	No Label Condition			
Label by Participants	Low (*n* = 36)		Moderate (*n* = 40)	
Depression	14	39%	34	85%
Mild Depression	11	31%	2	5%
Other types of Depression			1	3%
Stress	2	6%	1	3%
Sad	3	8%		
“the Blues/slump”	1	3%		
Relationship/Social problems			1	3%
Ending a romantic relationship			1	3%
Loneliness/withdrawal	1	3%		
Death of a loved one/grief	1	3%		
PMS	1	3%		
Broken-hearted	1	3%		
Difficult situation	1	3%		

showed that, at moderate symptom severity, 85% of individuals identified the condition as depression. At low symptom severity, the majority of individuals still identified the condition as related to depression; in particular, 39% labelled it as depression and 31% as mild depression, totalling 70%. There was, however, more variability in the labels at low symptom severity than at moderate, with 17% using labels suggesting more day to day mood changes, or normal experiences, such as "sad," "the blues," and "difficult situations."

Overall, the preceding analyses suggest that the depression label that was experimentally provided was generally consistent with how participants, themselves, identified the experience in the vignette. However, the stress and sad label, particularly at moderate severity, were considerably less consistent with the label that participants would have used. This further suggests that the interpretations of the results of the current study regarding the experimental effect of label on SRM belief domains must be made with caution.

Predicting Perceived Helpfulness of Professional Treatment

A further main goal of Study 1 was to examine the utility of the SRM domains in predicting the perceived helpfulness of seeking professional treatment. The first block in all of the regression analyses to be reported here consisted of the participants' age, gender, current level of depression (as assessed by the DASS Depression subscale), and general frequency with which they have been depressed in the past. These variables were entered first to control for the effects of individual differences on subsequent responses. Block 2 consisted of all of the SRM factors identified in the principal components analyses related to cause, consequences, timeline, and control; as well as the severity level of the vignettes, since symptom severity comprises the identity domain within the

self-regulation model. The Professional Help coping factor served as the criterion variable. All variables were first centered, and adjusted R^2 are reported for all analyses.

The overall regression model for the entire sample was significant, $R^2 = .31$, $F(14, 300) = 11.05$, $p < .001$ (see Table K1 in Appendix K for a summary of this regression analysis). For the first block, the regression equation was not significant, $R^2 = .01$, $F(4, 310) = 2.14$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .30, *F-change* (10, 300) = 14.24, $p < .001$. In the overall model, five of the SRM factors from the cause, consequence, timeline, and control domains significantly predicted beliefs regarding professional help. For each of the factors, increases in the beliefs were associated with increased perceived helpfulness of professional treatment. The strongest predictor was the consequence domain, particularly expectations regarding vulnerability to further harm. In the cause domain, attributions of stable causes and relationship/work difficulties, were the next strongest predictors. Beliefs regarding the controllability and permanent duration of the condition also contributed significantly to prediction. In the overall model, participants' current depression level based on the DASS Depression subscale also contributed to prediction. Individuals with higher current depression levels were less likely to view professional treatment as helpful. In summary, as expected, findings showed that several components of the self-regulation model were significant predictors of perceived helpfulness of professional treatment for depressive symptoms, accounting for 30% of the total variance within the overall sample.

Further Regression Analyses: Factors Impacting the Prediction of Seeking Professional Treatment

Further regression analyses were conducted to examine whether severity level of the presented symptoms may have an impact on the SRM components in terms of

predicting the perceived helpfulness of professional treatment. Recall that, in the 2 x 4 analyses of variance presented earlier, symptom severity had an effect on several SRM belief domains, indicating that the content of the SRM representation of depressive symptoms differs at low and moderate severity, consistent with the model. Accordingly, the following regression analyses examined whether the predictive utility of the SRM also varies at different severity levels, and thus, focused on clarifying the portion of variance predicted by the SRM *separately* at low and moderate symptom levels.

Block 1 again consisted of the control variables, namely, age, gender, current depression, and general frequency with which individuals have been depressed in the past. All SRM belief factors regarding cause, consequence, duration, and control were entered as predictors in Block 2, and the perceived helpfulness of professional treatment served as the criterion variable. Severity was not entered as a predictor in these regressions, since the goal of these analyses was to examine the predictive utility of the SRM separately *at* each severity level.

For low severity symptoms, the overall regression equation was significant, R^2 = .39, $F(13, 144) = 8.82$, $p < .001$ (see Table K2 in Appendix K for a summary of the overall model). For Block 1, the regression equation was not significant, R^2 = -.01, $F(4, 153) = .82$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .40, *F-change* $(9, 144) = 12.13$, $p < .001$. Four of the SRM factors significantly contributed to the prediction of beliefs regarding the helpfulness of professional treatment. These factors were within the cause, consequence, and timeline domains. For each factor, increases in the beliefs were associated with increased perceived helpfulness of professional treatment. The strongest predictor was in the consequence domain, specifically, the Vulnerability to Further Harm factor, and the second strongest predictor

was in the cause domain, specifically the Relationship/Work Difficulties factor. The consequence domain's Functioning Difficulties factor and the timeline domain's Permanence factor also contributed significantly to prediction.

For moderate severity symptoms, the overall regression model was significant, R^2 = .22, $F(13, 143) = 4.28$, $p < .001$ (see Table K3 in Appendix K for a summary). The regression equation for Block 1 was not significant, $R^2 = .03$, $F(4, 152) = 2.36$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .19, *F-change* $(9, 143) = 4.89$, $p < .001$. Two SRM factors, namely, Stable Attributes (cause) and Length of Duration, contributed to the prediction of beliefs regarding professional treatment for moderate severity symptoms. Greater attributions of stable causes and longer expected duration were associated with a more positive perception of professional treatment.

In summary, the SRM was a significant predictor of perceived helpfulness of professional services at both low and moderate symptom severity levels. However, the SRM was a much stronger predictor when symptom severity was low, accounting for 40% of the variance, which was twice as much as when severity was moderate.

Examining Potential Moderator Effects (Interactions)

Entire sample. A further purpose of Study 1 was to provide a preliminary examination of moderator effects among the various SRM domains using regression analyses. In each analysis, the Professional Help coping factor served as the criterion variable. The first block of predictors consisted of the control variables, the second block consisted of all of the SRM belief factors, and the third block consisted of a specific two-way interaction term (e.g., expected Length of Duration x Control).

The interactions tested among the SRM factors were selected based on conceptual rationales for potential moderator effects. In particular, analyses examined the interaction effects between the control factor and 1) the consequence factor regarding functioning difficulties and 2) the timeline factors related to permanence and length of duration, since the effects of expected functioning difficulties and expected duration of a condition on the perceived helpfulness of professional treatment may be moderated by beliefs regarding the controllability of the condition. Analyses also examined the interaction effects between the Functioning Difficulties consequence factor and the timeline domain, particularly the Cyclical factor and Length of Duration, since the effect of expected consequences may be moderated by beliefs regarding how long the condition will last and whether it is expected to be recurrent. Lastly, analyses examined the interaction between the cause Daily/Physical Stressors factor and the timeline Permanence factor. Since the severity of a condition with this type of cause may be ambiguous, beliefs regarding the permanence of the condition may serve to clarify the severity of a condition, and thus may moderate the effect of daily/physical stress cause attributions on the perceived helpfulness of professional treatment.

Given that the results for the first two blocks for each of the above proposed analyses have already been presented, only the regression-change results due to the interaction terms are presented below. In total, for these six regression analyses, only one significant interaction effect was found, namely between the cause factor regarding daily/physical stress attributions and the timeline factor related to permanence, R^2 *change* = .01, *F-change* (1, 300) = 4.81, $p < .05$. In particular, this interaction effect showed that increases in attributions of stress as a cause were associated with higher perceived helpfulness of professional treatment when individuals believed the condition to be highly

permanent, but were not related to perceptions of professional treatment when the condition was viewed as unlikely to be permanent (see Table K1 in Appendix K for a summary of the interaction results).

Taken together, these analyses indicate very limited support for moderator effects among the SRM domains, as only one interaction was found to be significant and accounted for a very small portion of the variance (1%). However, given that the previous regressions found the SRM domains relate differently at different severity levels, it is possible that interaction effects may also vary at different levels of severity and are masked when examining the sample as a whole. Thus, further analyses were conducted to clarify the moderator effects that may occur separately at low versus moderate levels of symptom severity.

Low and moderate severity conditions. Further analyses separately examined potential moderator effects among the SRM domains when symptom severity was low and when symptom severity was moderate. The blocks were the same as described above, except severity was not entered as a predictor, since these analyses separately examined interactions at low and moderate severity.

At low symptom severity, three interaction effects were significant (see Table K2 in Appendix K for a summary of the interaction results at low severity). There was a significant interaction between the Daily/Physical Stressors cause factor and the Permanence timeline factor, R^2 *change* = .03, *F-change*(1, 143) = 6.37, $p < .05$. Increases in stress-related causal attributions were associated with increases in the perceived helpfulness of professional treatment when individuals believed the condition was likely to be permanent. The two remaining interactions occurred between the consequence factor regarding functioning difficulties and two of the timeline factors, namely 1) the

expected duration of the condition, R^2 *change* = .02, *F-change* (1, 143) = 4.39, $p < .05$; and 2) the cyclical nature of the condition, R^2 *change* = .02, *F-change* (1, 143) = 4.12, $p < .05$. When high negative functioning consequences were expected, increases in the perceived cyclical nature of the condition were associated with views of professional treatment as more helpful. However, when low impact on functioning was expected, stronger perceptions of the condition as cyclical were associated with decreases in the perceived helpfulness of professional treatment. Similarly, as the expected duration of the condition increased, professional treatment was believed to be significantly more helpful when the condition was believed to have a high negative impact on functioning than when low functioning impact was expected.

At moderate symptom severity, one significant interaction occurred, specifically, between the Control factor and the Permanence timeline factor, R^2 *change* = .02, *F-change*(1, 143) = 5.98, $p < .05$. Increases in the expected permanence of the condition were associated with greater increases in the perceived helpfulness of professional treatment when the condition was viewed as highly controllable (see Table K3 in Appendix K for a summary of the interaction results at moderate severity). In summary, as expected, interactions among the SRM domains were found at both low and moderate levels of symptom severity. The nature of the moderation effects differed across symptom severity levels. Although this had not been initially predicted at the start of the study, it is consistent with the previous regression analyses that found that the SRM domains relate differently at low and moderate severity levels in predicting perceived helpfulness of professional treatment.

Discussion

One of the purposes of Study 1 was to examine how the severity of the symptoms and the label used to identify the condition impact individuals' illness representations of depressive symptoms. Study 1 examined the effects of two levels of symptom severity (low and moderate). Given the model's proposal that symptoms play a large role in individuals' illness representation, it was expected that symptom severity would have a significant impact on a wide range of belief domains and would lead to beliefs in other domains that were reflective of a more severe condition. As predicted, symptom severity was found to have an effect on all of the SRM domains, namely cause, consequences, duration, and controllability, as well as on the perceived helpfulness of certain coping strategies. Also as expected, more severe depressive symptoms were associated with a more severe illness representation of the condition. In contrast to low severity, moderate severity symptoms were believed to more likely be due to relationship/work difficulties, result in greater functioning difficulties and vulnerability to further harm, and last for a longer period of time. Moderate severity symptoms were also believed to be less controllable, but, nonetheless, professional treatment was believed to be more helpful for moderate symptoms.

Interestingly, the effect of severity differed across the types of beliefs within some of the domains. In the cause domain, while severity had an effect on beliefs regarding relationship/work difficulties, it had no effect on beliefs regarding stable attributes as the cause of the depressive symptoms. Contrary to prediction, attributions of stable factors were the same for both low and moderate symptoms. With respect to the timeline domain, contrary to predictions, symptom severity had no effect on beliefs regarding the permanent or cyclical nature of the condition. However, severity did have an effect on

the more specific length of time the symptoms were expected to last, with moderate symptoms believed to last longer than low symptoms, as expected. With respect to coping, severity significantly affected the perceived helpfulness of professional treatment, but had no effect on beliefs regarding more informal efforts to cope with the condition, such as seeking social support. Interestingly, for both moderate and low severity symptoms, the relationship/work difficulties factor was the highest rated cause, the condition was believed to more likely be cyclical than permanent, and coping through social support was viewed as more helpful than professional treatment. Thus, while severity had an effect on the degree of beliefs, a general pattern in the illness representation of depressive symptoms seemed to be consistent across severity levels.

Regarding the effect of labels, the self-regulation model proposes that the way in which individuals identify their symptoms (that is, the label used to understand their condition) provides the individual with information regarding the other illness domains (e.g., causes, consequences, duration), and beliefs regarding the helpfulness of various coping strategies (Leventhal et al., 2001). The mental health literacy literature has shown that individuals often interpret depressive symptoms as something other than depression, such as "stress" (Goldney et al., 2001; Lauber et al., 2003). However, few studies have assessed the way in which differences in labels impact individuals' beliefs about the other SRM domains regarding their condition and the helpfulness of strategies for managing the condition, such as seeking professional treatment. Furthermore, studies have not assessed the effect of identifying depressive symptoms as a typical affective experience, rather than a disorder. Lastly, the self-regulation model proposes that using no label to identify a set of symptoms may lead individuals to have an illness representation that is less detailed or clear. Thus, Study 1 assessed the effect of three different labels (depression,

stress, and sad) and no label on beliefs regarding diverse SRM domains and coping. It was predicted that label would have an effect on a wide range of SRM domains, given the model's proposal that label plays a large role in determining individuals' illness representations of a condition. More specifically, it was predicted that the depression label would lead to beliefs indicative of a more severe condition than the stress, sad, or no label.

Study 1 also assessed the interaction effect between symptom severity and the label used to identify a condition. Given the important role that label is believed to play in individuals' illness representations, it was expected that a label that may have a clear illness representation in terms of severity (depression) would be less impacted by the severity of the symptoms than labels such as stress or sad, which are more vague. That is, the depression label may lead individuals to have beliefs of greater severity in other SRM domains regardless of the severity of the symptoms. Thus, it was predicted that symptom severity would have less of an effect on beliefs regarding other SRM domains when a depression label was used than when a stress, sad, or no label was used.

Contrary to prediction, label had a relatively limited effect on beliefs in other SRM domains, affecting only the cause and timeline domains. In particular, relationship/work difficulties were viewed as more likely to be the cause of symptoms labelled as depression rather than stress. In contrast, daily/physical stressors were rated as more likely to be the cause when symptoms were identified as stress rather than depression. The depression label also led individuals to believe the condition would last significantly longer than symptoms that were labelled as normal negative affect. Although these effects are consistent with prediction, the limited number of effects may suggest that label has generally little impact on the SRM beliefs regarding depressive

symptoms. However, an analysis examining the label that participants, themselves, would have used to identify the depressive symptoms indicated that the labels experimentally provided, particularly the stress and sad label conditions, were largely inconsistent with the labels that participants would have used to identify the depressive symptoms. Only the depressed label condition was generally consistent with participants' own labels. Furthermore, although a label was not provided in the no label condition, it is possible that individuals, themselves, generated a label when reading the vignette. Thus, it is unclear the extent to which the results of the no label condition accurately represented the SRM illness representation when no label is used. As such, interpretations of the findings regarding label effects in Study 1 are likely restricted. Examining the extent to which individuals would use a label, and the type of label that they themselves would use, would provide a clearer understanding of the role of labels in illness representations of depressive symptoms. This issue was addressed in Study 2.

Contrary to what was hypothesized, very few significant interactions were found between label and symptom severity. The effect of label was impacted by symptom severity in only one factor of the cause domain, namely daily/physical stressors. In particular, symptom severity had no effect on beliefs regarding this factor as a cause when symptoms were identified as depression, stress, or with no label. However, when the condition was identified as sad, low symptoms were more likely to be attributed to daily/physical stressors than moderate symptoms. This partially supports the prediction that symptom severity would play a larger role when a more vague label is used to identify the condition. However, as with the label results, interpretations of the interaction findings are limited by the considerable differences between the label

provided by the experimenter and the label that was provided by the participants, themselves, to identify the condition.

Regarding symptom severity, Study 1 examined severity at low and moderate levels defined by both the number of symptoms and how long they have lasted. It may also be important to expand this severity level by assessing how individuals interpret depressive symptoms at their onset rather than after a few days or weeks. In addition, it may be valuable to examine factors that lead to changes in individuals' illness representations of a set of symptoms after their initial onset, and that may influence decisions regarding ways of coping with the condition, such as treatment seeking. As an example, the SRM proposes that one such factor is the experience of symptoms for longer than one had expected. This issue was also examined in Study 2.

A second goal of Study 1 was to examine the strength of the SRM in predicting beliefs regarding the helpfulness of coping strategies, particularly seeking professional treatment. As expected, the SRM domains significantly contributed to the prediction of the perceived helpfulness of seeking professional treatment. The SRM accounted for one-third of the variation, which is consistent with previous studies in this area (Aikens et al., 2008; Vanheusden et al., 2009; Wong et al., 2010). Furthermore, each SRM domain contributed significantly to prediction, in particular, beliefs in the consequence domain regarding vulnerability to further harm, beliefs in the cause domain regarding stable attributes and relationship/work difficulties, and beliefs regarding the likely permanence and controllability of the condition.

Study 1 examined a factor that may impact the utility of the SRM in predicting beliefs regarding the helpfulness of professional treatment. Findings showed symptom severity to be one such factor. The SRM was a much stronger predictor of beliefs

regarding professional treatment when the depressive symptoms were low than moderate. When symptoms were moderate, the SRM accounted for approximately 20% of the variation in beliefs regarding professional help. Furthermore, only two SRM domains were predictive, namely, causal beliefs regarding stable attributes and timeline beliefs regarding the specific duration of the condition.

In contrast, when symptoms were low, the SRM accounted for nearly half (approximately 40%) of the variation in beliefs regarding the helpfulness of professional treatment, twice as much as that for moderate symptoms. Furthermore, when symptoms were low, a broader range of SRM domains were predictive of beliefs regarding professional treatment, in particular, two factors in the consequence domain and one factor in the cause and timeline domains. The strongest predictors were consequence beliefs regarding vulnerability to further harm and cause beliefs regarding relationship/work difficulties.

Thus, not only is a wider range of SRM beliefs predictive of low symptoms in comparison to moderate symptoms, but the type of beliefs that are most strongly predictive seem to differ depending on symptom severity. Such differences suggests that, compared to moderate severity, greater information is used at low symptom levels, when there may be more uncertainty regarding the condition, to help clarify the severity level and, in turn, clarify whether seeking professional services is warranted. Furthermore, at different severity levels, different types of information seem to be used in deciding whether professional services may be helpful. At low symptom levels, the information used may be based on clarifying potential future severity (e.g., by considering potential negative consequences). At moderate symptom levels, information clarifying how long the problematic condition will last (e.g., whether the causes are stable) play a greater role

in determining whether professional treatment would be helpful. As such, Study 1 is one of the first studies in the literature to begin to clarify the circumstances that may influence the differential utility of the SRM in predicting coping.

Study 1 also began to assess the extent to which a moderator model may describe interrelationships among the SRM domains, particularly in predicting beliefs regarding coping. There was some limited evidence of moderator effects among the SRM domains. When examining the sample overall, one interaction effect was found, namely between the cause factor related to daily/physical stressors and the timeline domain regarding the permanence of the condition. The finding indicated that, when individuals attribute the condition to daily/physical stressors, professional treatment is more likely to be viewed as helpful the more that the condition is believed to be permanent.

When examining the interactions among low and moderate severity symptoms separately, differential moderator effects occurred. Three moderator effects occurred when severity was low, and one effect when severity was moderate. In particular, when symptoms were of low severity, there was a moderator effect between the cause factor related to daily/physical stressors and the timeline domain related to permanence, similar to that described above. Moderator effects also occurred between negative consequences and the timeline domain regarding 1) the duration and 2) the cyclical nature of the condition. Higher negative consequences were predictive of more positive views of professional treatment when the condition was also expected to have a long initial duration and to be recurrent. It appears that, for low severity symptoms, interrelationships among the SRM domains may be based on trying to clarify the potential ongoing severity of the condition to help determine whether professional treatment may be helpful.

For moderate severity symptoms, a moderator effect occurred between beliefs regarding the permanence and controllability of the condition. As the condition was viewed as more permanent, professional treatment was viewed as more helpful when the condition was also viewed as highly controllable. This suggests that, for moderate severity symptoms, in which the severity and nature of the condition may be clearer, the interrelationships among the SRM domains in predicting treatment seeking may be less related to clarifying whether the condition is a concern, but, instead, may be more related to clarifying whether the condition is manageable.

In summary, there was some evidence that SRM domains may meaningfully inter-relate through a moderator model in decisions regarding coping, although the overall evidence was limited. Few interaction effects were found in each analysis, and, in general, accounted for very small portions of the variance of perceived helpfulness of professional treatment. Nonetheless, given the presence of some moderator effects in Study 1, Study 2 will further examine moderation effects among the SRM domains within a different paradigm to further assess the degree to which the domains may inter-relate in this manner.

Chapter 3

Study 2

Introduction

One goal of Study 2 was to increase our understanding of how individuals interpret the onset of depressive symptoms and decide to seek treatment. In this regard, the SRM not only identifies the domains of a given illness representation, but also describes factors that lead to modifications in individuals' illness representations that, in turn, result in changes in the strategies used to manage the symptoms. The SRM theorizes that, when symptoms occur, individuals attempt to "self-diagnose" whereby they form hypotheses regarding the identity of the problem and the other domains related to its illness representation (Leventhal et al., 2003; Leventhal et al., 2001; Martin et al., 2003). The hypothesized illness representation leads to expectations regarding aspects of the symptoms, in particular, effective strategies to alleviate the symptoms, and how long the symptoms will last. Individuals then engage in these coping strategies and monitor the symptoms. If the individual observes evidence indicating that their original predictions were incorrect, they view their original understanding of the symptoms as inaccurate and in need of modification. This evidence may be, for example, in the form of an increase in symptom number or intensity, unexpected symptom re-occurrence, symptom duration for longer than anticipated, or new knowledge about their symptoms from others. They then reassess the current situation, incorporating the newly learned information regarding the symptoms, and form a new hypothesis regarding the identity of the problem and its corresponding domains (e.g., cause, consequences, etc.).

In this way, the original illness representation of the symptoms at their onset is modified, and the new illness representation, in turn, leads to new beliefs regarding the

strategies that are now needed to try to manage the problem. For example, an individual may interpret the onset of stomach pain as indigestion and expect it to subside 30 minutes after taking an antacid. If, instead of subsiding as expected, the pain becomes worse over the next two days, the individual views this as evidence that their original hypothesis of the stomach pain as indigestion was incorrect. They then re-identify their current symptoms and may interpret the symptoms as an ulcer or stomach cancer, and believe it is necessary to seek professional treatment to manage this problem. Thus, the SRM predicts that a violation of individuals' expectations regarding a condition based on a given illness representation leads to changes in the illness representation and, in turn, changes in the strategies used to manage the condition.

The majority of studies that have examined the SRM in the physical health literature have assessed the content of a given illness representation and how this content relates to coping and outcome. Studies have also assessed how the number of symptoms relate to treatment seeking. However, very few studies have tested the components of the model that identify causes of changes in individuals' illness representation during the "self-diagnosis" phase after the onset of a symptom, and how these changes relate to subsequent changes in coping, such as treatment seeking.

In the physical health literature, there has been some limited work in this regard. Cameron et al. (1993) looked at general predictors of care seeking and found it to be associated with the duration of the symptoms and perceived ineffectiveness of the initial coping strategy. In addition, two studies more closely examined the process of symptom appraisal at the onset of a medical symptom and factors that contributed to the symptom's re-interpretation. Dempsey et al. (1995) found that patients initially interpreted symptoms of a heart attack as a benign problem (e.g., overexertion after a physical

activity), and believed self-treatment would be effective in managing the condition (e.g., being distracted, drinking cold fluids, applying heat pads). Patients reported that, when the symptoms either remained unchanged, re-occurred shortly after subsiding, or intensified despite treatment, they re-identified the problem and believed it to be heart-related. A similar pattern was found by Scott, McGurk, and Grunfeld (2007) in a study of patients with oral cancer. Patients initially identified their symptoms as minor, short-term problems, such as dental issues or mouth ulcers, and were, thus, unconcerned. However, patients reported that they re-interpreted their symptoms and sought treatment after their symptoms worsened or persisted over time. Thus, preliminary evidence in the physical health literature shows support for experiences that the model predicts contribute to changes in one's illness representation and subsequent decisions to seek help.

As in the physical health literature, studies that have examined the SRM in the depression literature have assessed the content of a given illness representation and how this content relates to coping and outcome. However, there has been no work testing the components of the model regarding causes of change in individuals' illness representation during the "self-diagnosis" phase after the onset of depressive symptoms, what specific changes occur, and how these changes relates to subsequent changes in coping, such as treatment seeking. Thus, a further purpose of Study 2 was to apply this change-related aspect of the self-regulation model to depressive symptoms. In particular, Study 2 more closely examined the illness representation formed at the onset of depressive symptoms (i.e., beliefs regarding the identity, causes, consequences, duration, and coping strategies), and how the illness representation may change when an hypothesized aspect of the initial representation is found to be inaccurate. Specifically, Study 2 assessed the effect of symptoms remaining the same for a longer period of time than originally expected. In

this regard, the SRM predicts that changes in the illness representation may occur as a result of a change in the symptoms, such as an increase in the number or intensity of symptoms.

Interestingly, the model also predicts that changes occur when symptoms last longer than expected (even with no change in symptoms). The few studies in the physical health literature that have asked patients what contributed to changes in their understanding of their condition during the "self-diagnosis" phase have looked at these symptom-related causes of change in combination. No study has systematically examined each of these types of symptom-related causes of change separately. As such, Study 2 provides an initial look at the unique effect of one of these causes of change. Specifically, the present study experimentally examined how the duration of symptoms for a longer than expected time period affects individuals' illness representations of depressive symptoms, and examined whether this extended duration is enough to significantly alter illness representations.

To assess the effect of symptom duration, individuals were presented with a vignette describing a set of depressive symptoms and asked to imagine that they were experiencing these symptoms that day. Individuals then completed measures assessing their beliefs regarding the identity, duration, causes, and consequences of the condition, and the coping strategies they would likely use. Following this, individuals were presented with the same vignette again, and asked to imagine that it is now one month past the time that they had expected to feel back to normal and yet they were still experiencing the same set of symptoms. This time frame was based on Cameron et al.'s (1995) findings that individuals with physical symptoms lasting less than one month were more likely to view their condition as stress than individuals who have been experiencing

symptoms for longer than one month. Thus, a one month time period may be considered by individuals to be a possible decision point in changing their understanding of their symptoms. After reading the second vignette, individuals again completed measures assessing their beliefs regarding the identity, duration, causes, and consequences of the condition, and the coping strategies they would likely use.

It was predicated that the duration of depressive symptoms for longer than originally expected would, in general, cause changes in a wide range of SRM domains, and would lead to beliefs reflective of greater severity. With respect to the identity domain, it was hypothesized, based on the model, that individuals would use a label at both symptom onset (Time 1) and after symptoms have lasted longer than expected (Time 2). However, it was predicted that the type of labels used to identify the depressive symptoms after they have lasted longer than expected would be more severe, and closer to depression, than the symptoms at onset. Regarding causes, it was predicted that beliefs about causes at Time 2 would be similar to those reported in the literature. In particular, it was predicted that individuals would view relationship/work difficulties and stable attributes as more likely, and daily/physical stressors and normal changes in mood as less likely, to be a cause of the condition after symptoms have lasted longer than expected, than at their onset. It was also hypothesized that, after lasting longer than expected, individuals would believe the condition would result in more negative and less positive consequences, and to now last significantly longer than originally believed. Regarding coping, it was predicted that symptom duration would lead individuals to be more likely to use professional help and less likely to use self-help based strategies for managing the condition compared to when the symptoms first occurred. It was also expected that

symptom duration would lead individuals to more likely use social support and ruminative strategies for managing the condition.

The current study also further examined the effect of symptom severity on illness representations of depressive symptoms at their onset. In this regard, three separate vignettes were developed describing depressive symptoms at three levels of severity (low, mild, and moderate), defined by the number and type of symptoms. It was predicted that severity would, in general, have an effect on a wide range of SRM domains, and that more severe depressive symptoms would lead to beliefs that are reflective of greater severity. Regarding the identity domain, it was hypothesized, based on the model, that individuals would likely use a label to clarify the nature of the symptoms regardless of their severity. However, with respect to type of label, it was predicted that more severe labels would be used to identify moderate symptoms more so than mild and low, and to identify mild more so than low symptoms. Regarding cause, it was predicted that stable attributes and relationship/work difficulties would be viewed as more likely, and daily/physical stressors and normal changes in mood would be viewed as less likely, to be causes of moderate symptoms than mild and low, and mild more so than low symptoms. It was also hypothesized that individuals would expect moderate, in contrast to mild and low, symptoms to lead to more negative and less positive consequences, and to last significantly longer. This pattern was also expected for mild in contrast to low symptoms. Regarding coping, it was predicted that individuals would be more likely to use professional help for moderate symptoms than for mild and low, and for mild more so than for low symptoms. However, regarding more self-help based styles of coping, it was predicted that individuals would be less likely to use self-help based styles of coping for

moderate symptoms than for mild and low, and for mild less so than for low symptoms. It was expected that social support would be used regardless of symptom severity.

Study 2 also examined whether the effect of symptom duration on illness representations may vary depending on symptom severity. It is possible that symptom duration has more of an effect on illness representations when the symptoms are low or mild, given the possibly greater initial ambiguity of such symptoms; but has little or no effect with moderate symptoms. However, it was predicted that symptom duration would lead to greater changes in illness representation for moderate symptoms than for low or mild, given that moderate symptoms may be interpreted as considerably more severe after lasting longer than expected, compared to low or mild symptoms.

Study 2 also examined in more depth the role of labels in individuals' illness representations. There were several limitations regarding the assessment of labels in Study 1. For example, there was a possibility that the label provided by the experimenter did not quite match the label that the participants would have used themselves, or was not understood by participants as the identity of the symptoms. Furthermore, there was no opportunity to assess whether or not individuals would use a label at all to identify the depressive symptoms. The current study addressed these limitations.

First, Study 2 examined whether or not individuals use a label to identify depressive symptoms at their onset, and the extent to which this is influenced by symptom severity. The study also assessed the extent to which the use of a label changes when the symptom duration is longer than expected, and whether the effect of symptom duration on label use is impacted by symptom severity. Furthermore, the present study examined how the use of a label versus no label impacts on beliefs regarding other SRM

domains about the depressive symptoms, and the coping strategies that would be used to manage the condition.

The present study also assessed the type of label that participants would themselves use to identify the depressive symptoms both at their onset and after having lasted longer than expected. The current study also examined the extent to which the type of label used is impacted by symptom severity, in addition to symptom duration. Furthermore, the present study assessed how differences in the type of label used relate to other beliefs regarding the SRM domains about the condition, including the coping strategies that would likely be used.

Study 1 examined the overall strength of the self-regulation model and the relative strength of the SRM domains in predicting beliefs regarding the helpfulness of seeking professional treatment. In Study 1, the self-regulation model was found to be a significant overall predictor, accounting for 28% of the variance regarding the perceived helpfulness of professional services. Study 2 further assessed the predictive utility of the SRM using a slightly different approach to examine the replicability of the previous findings.

Furthermore, the self-regulation model offers a limited discussion of the ways in which the SRM domains may inter-relate in the prediction of coping. Study 1 examined the possibility that certain SRM domains may moderate the effects of other domains in decisions regarding coping. Support for moderation was modest, since only a relatively small number of effects was found. However, since there was some evidence of meaningful moderation in Study 1, Study 2 further investigated potential moderator effects in somewhat different conditions.

The self-regulation model also suggests that, in other aspects of the model, the domains may interrelate within a mediator framework. In particular, the SRM alludes to one example of a mediator relationship among the SRM domains in its proposal that the label used to identify a given set of symptoms impacts the beliefs regarding the other SRM domains, and thus, in turn, coping (Leventhal et al., 2001; Martin et al., 2003). However, no study has assessed mediator effects of SRM domains on the relationship between labels and use of professional treatment. Similarly, no study has examined whether all or only certain SRM domains, or whether only specific beliefs within a given domain, mediate the relationship between label and coping. Thus, Study 2 provided an initial investigation of these mediation facets of the self-regulation model, with respect to depressive symptoms. In particular, Study 2 examined the extent to which the relationship between the label used to identify a set of symptoms and seeking professional help is mediated by the remaining SRM domains.

Regarding individual differences, the SRM proposes that individuals' past experiences with a condition is a further factor that may impact illness representations of a current condition. Study 2 briefly examined this factor with respect to depression. Although there are several aspects of an individual's history of depression that may be examined in this regard, Study 2 focused on the general frequency of depression in the past. First, Study 2 examined how history of depression relates to the content of SRM belief domains regarding current depressive symptoms. It is possible that individuals who have experienced depression more often in the past are more likely to identify current symptoms as depression, and thus have a more severe illness representation of the current symptoms (e.g., believing that it is more likely to be due to stable causes and have negative consequences). Study 2 also examined the process whereby history of

depression may relate to treatment seeking for current symptoms. In particular, the study examined the model's implicit proposition that the relationship between history of depression and likely use of professional treatment for current symptoms is mediated by the SRM belief domains related to the current condition.

Method

Participants

Ethics approval to conduct the study was first obtained (see Appendix L). Following this, a total of 301 students in an introductory psychology course at the University of Western Ontario participated in this study for course credit. Four cases were excluded due to excessive missing data. Thus, the final sample consisted of 297 students (230 women and 67 men) with a mean age of 18.65 (*SD* = 1.91), and an age range of 17 to 34.

Materials

Vignettes. To manipulate severity level, three vignettes were used in the current study, one describing low depressive symptoms, one describing mild depressive symptoms, and one describing moderate depressive symptoms (see Appendix M). To manipulate time, two versions of these vignettes were created for the current study. In the first set of vignettes, participants were asked to imagine that they were having the experience described in the vignette that day. In the second set of vignettes given later, the same depressive symptomatology was presented. However, participants were asked to imagine that it is now one month past the time that they expected to feel back to normal, and they were <u>still</u> having the experience described in the vignette. Thus, there were four conditions in the current study: three between-subject conditions (severity: moderate, mild, and low) and two within-subject conditions (Time 1 and Time 2).

The vignettes used in the current study were similar to the ones used in Study 1. The severity level of the vignettes was established by varying the number of symptoms presented, the intensity of the symptoms, and the degree of impaired functioning. As in Study 1, to help maximize individuals' representations of depression, it was ensured that the moderate severity vignette included symptoms pertaining to a wide-range of categories, namely, cognitive, affective/anhedonic, hopelessness, behavioural, somatic, motivational, and functional components of depression.

Questionnaires.

SRM-Measure (see Appendix N for a copy of each questionnaire).

SRM-Identity. The items on this part of the SRM questionnaire assessed the labels that individuals would use to identify the experience described in the vignette. The first item asked participants to indicate, on a yes/no scale, whether they would use a label to identify the experience presented in the vignette. If they responded yes, they were then asked to provide, in a free response format, the label that they would use to identify the experience in the vignette.

SRM-Duration. This part of the SRM questionnaire was used to assess individuals' belief regarding the duration of the experience described in the vignette. Participants were asked to indicate how long they would expect the experience in the vignette to last on a scale consisting of nine time ranges, beginning with *Just the rest of today* and ending with *Over 1 Year*. Examples of options in between these end points include *About one week* and *Between 2-3 months*. The number of options in this item was expanded from the version in Study 1.

SRM-Cause. Items on this portion of the SRM questionnaire assessed individuals' beliefs regarding the causes of the experiences described in the vignette. To create this

measure, the SRM-Cause questionnaire used in Study 1 was refined by removing items that either 1) did not load on factors found in factor analyses, or 2) were specific, relatively uncommon events that were found to be highly linked to depression (e.g., death) and may not be considered a typical cause for depressive symptoms experienced on an average day. However, care was taken to ensure that the causes still reflected a broad range of domains. Examples of items that were used include *genetics*, *ending a romantic relationship*, *losing a job*, and *your childhood*. For each item, participants were asked to rate how likely they think the experience in the vignette was caused by the item on a scale of 1 (*Very Unlikely*) to 7 (*Very Likely*).

SRM-Consequence. The items on this part of the SRM questionnaire were developed to assess individuals' beliefs regarding the consequences of the experience described in the vignette. To create this measure, the SRM-Consequences subscale used in Study 1 was refined by selecting items that loaded heavily on factors in factor analyses and reflected a range of domains, namely, academic and interpersonal functioning, self-evaluation, health, and positive responses from others. An example of an item used in this questionnaire is *Difficulties finishing my school assignments*. Participants were asked to rate how likely each item would be a consequence of the experience described in the vignette, on a scale of 1 (*Very Unlikely*) to 7 (*Very Likely*).

SRM-Cope. This portion of the SRM questionnaire was developed to assess how likely individuals were to use various strategies to deal with the experience described in the vignette. In comparison to Study 1, this questionnaire examined a broader range of strategies by combining coping items from two literatures. First, the questionnaire consisted of items from the Brief Coping Orientations to Problems Experienced (Brief COPE; Carver, 1997), which is a shorter version of the original Coping Orientations to

Problems Experienced (COPE; Carver, Scheier, & Weintraub, 1989). The Brief COPE consists of 14 domains of coping (e.g., active coping, emotional support, denial). The current measure was comprised of one item from each of these 14 subscales. Examples of the coping items used include *Get comfort and understanding from someone (e.g., family, friend)* and *Refuse to believe the experience is happening*. The Brief COPE has been found to have good internal reliability and convergent validity (Carver, 1997; Cooper, Katona, & Livingston, 2008; Meyers, 2001). Further support for the psychometric properties of the Brief COPE is derived from the established internal reliability and convergent and discriminant validity of the original COPE from which this measure is developed (Carver et al., 1989; Clark, Bormann, Cropanzano, & James, 1995).

A review of additional coping measures, particularly the Ways of Coping Questionnaire (Folkman & Lazarus, 1988), Response Styles to Depression Questionnaire (Nolen-Hoeksema, 1991), and Depression Coping Questionnaire (Kleinke, Staneski, & Mason, 1982), was conducted. Certain items were selected from these questionnaires that were believed to capture a coping style not assessed by items in the Brief COPE. For example, *Think about how sad I feel* is an item from the Response Styles to Depression Questionnaire that assesses ruminative coping, which is not directly examined in the Brief COPE.

The questionnaire also consisted of items from studies in the mental health literacy literature examining individuals' beliefs regarding specific treatment strategies for depression (e.g., Goldney et al., 2001; Goldney et al., 2002). Example items included *see a family doctor, take prescribed medication*, and *exercise.* Care was taken to select items that did not clearly overlap with those from the Brief COPE. For all items in this

questionnaire, participants were asked to indicate how likely they would use the given strategy to try to deal with the experience described in the vignette, on a scale of 1 (*Very Unlikely*) to 7 (*Very Likely*). In Study 2, the use of these coping strategies to attempt to manage the condition was also considered to be a marker for perceived controllability of the condition.

Depression Anxiety Stress Scale-21 (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a short-form version of the DASS. It consists of 21 items assessing symptoms of depression, anxiety, and stress, forming three subscales, respectively. Only the depression subscale was examined in the present study. For each item, participants are asked to indicate the degree to which they have experienced the given symptom over the past week, on a scale of 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). The DASS-21 has been found to have good internal consistency and validity (Antony et al., 1998; Clara, Cox, & Enns, 2001; Henry & Crawford, 2005). For information regarding participants' current depressive symptomatology, please see Appendix O.

History of Depression Scale. This questionnaire was identical to that used in Study 1. Please see the Method for Study 1 for a detailed description.

Positive Scenario. This questionnaire was identical to that used in Study 1. Please see the Method for Study 1 for a detailed description.

Procedure

Participants were tested in groups of 10-20 people. After reading and signing an informed consent form (see Appendix P), participants received a booklet of vignettes and questionnaires, which randomly placed them in either the low, mild or moderate depression condition. In each condition, participants were asked to read a vignette and

imagine that they were having the experience described in the vignette that day. Next, they were asked to complete the SRM-questionnaires related to the vignette. Then, they were asked to read the same vignette again and imagine that they were still having the experience described in the vignette one month past the time that they had expected to feel back to normal. They then completed the same SRM-Questionnaire, this time with respect to the second vignette. Next, they were asked to complete the individual difference questionnaires with respect to their actual selves, namely the DASS and History of Depression Scale, as well as other questionnaires unrelated to the current study. Finally, participants were given the Positive Scenario and related questions. After completion of the booklet, participants were given a debriefing form that offered further information about the current study (See Appendix Q).

Results

Preliminary Analyses: Specifying the Factors for each SRM Belief Domain

The scales assessing the cause and consequence belief domains and coping strategies each consisted of several items. As such, a Principal Components Analysis with a Varimax rotation was conducted on the items on each scale separately for each level of Time (Time 1 referring to the initial onset of the symptoms and Time 2 referring to one month past the time that individuals expected to feel back to normal). The results from these analyses were used to create a more manageable number of dependent variables for subsequent analyses. Factors were selected based on eigenvalues greater than one. The factors that emerged and the items that loaded on each factor were often generally comparable across Time 1 and 2. In order to compare factors across Time, care was taken to ensure that the items comprising each factor were the same for Time 1 and 2

(see Appendix R for a summary of the decision rules that were used to determine the inclusion of an item on a given factor).

Cause. The Cause scale consisted of 13 items. Factor analyses produced four meaningful causal factors, namely, (1) Stable Attributes (three items; e.g., *genetics*), (2) Relationships and Work Difficulties (three items; e.g., *ending a romantic relationship*), (3) Daily/Physical Stressors (four items; e.g., *being overworked*), and (4) Normal Changes in Mood (one item). These four factors accounted for approximately 60% of the cumulative variance (60% at Time 1 and 63% at Time 2). Table S1 in Appendix S presents all of the cause item loadings on each factor, the variance accounted for by each factor, and the Cronbach alpha for each factor at Time 1 and 2, respectively. The factors were comparable to those in Study 1.

Consequence. The Consequence scale consisted of six items. Factor analyses produced two meaningful consequence factors, namely, (1) Negative Consequences (five items; e.g., *think of myself as weak*) and (2) Positive Responses from Others (one item; *be shown encouragement from others*). These factors accounted for 58% of the cumulative variance at Time 1, and 63% at Time 2 (see Table S2 in Appendix S for further details). Relative to the previous study, the current Negative consequence factor is a combination of Study 1's Vulnerability to Further Harm and Functioning Difficulties consequence factors.

Coping. The Coping scale consisted of 27 items. There was some inconsistency in the results of the factor analysis for this scale across Time 1 and 2, both in terms of the number of factors with eigenvalues greater than one (eight at Time 1 and seven at Time 2) and the items loading on the factors at each time points. Four of these factors were clearer with respect to the item loadings at Time 1 and 2 and conceptually relevant. Thus,

only these four factors were retained, namely, (1) Professional Help (five items; e.g., *see a psychologist*); (2) Social Support (three items; e.g., *get comfort and understanding from someone (family, friend*); (3) Rumination (four items; e.g., *think about how sad I feel*); and (4) Self-Help (e.g., *do something enjoyable*). These factors accounted for 45% of the cumulative variance at Time 1, and 43% at Time 2. Although retaining only four factors involved a loss in cumulative variance accounted, the greater clarity of the factors across Time 1 and 2 was important for comparisons across the two time conditions. Table S3 in Appendix S presents all of the coping item loadings on each factor, the variance accounted for by each factor, and the Cronbach alpha for each factor at Time 1 and 2, respectively. The Professional Help and Social Support factors are generally comparable to Study 1, while the Rumination and Self-Help factors are new.

Effect of Symptom Duration (Time) and Symptom Severity on SRM domains

One purpose of Study 2 was to examine the effect of the duration and severity of the depressive symptoms described in the vignette on the SRM's illness representation. The main dependent measures in Study 2 were beliefs regarding the causes, consequences, and subsequent duration, as well as the coping strategies used to manage the condition, and the identity of the condition. For each factor, a 2 x 3 split-plot analysis of variance was conducted, with time as the within-subjects independent variable, and symptom severity (low, mild, and moderate) as the between-subjects independent variable.

Causes. The means and standard deviations for each of the four cause factors are presented in Table 9. Time had a significant main effect on all four factors, namely, Stable Attributes, $F(1, 294) = 186.26$, $p < .001$; Relationship/Work Difficulties, $F(1, 294) = 41.89$, $p < .001$; Daily/Physical Stressors, $F(1, 294) = 5.05$, $p < .05$; and Normal

Table 9

Means and Standard Deviations for each Cause Factor as a Function of Time and Severity

a) Stable Attributes

	Time				
Severity	Time 1		Time 2		
Low	2.67	(1.21)	3.58	(1.45)	3.13
Mild	3.21	(1.36)	4.06	(1.43)	3.63
Moderate	3.38	(1.36)	4.17	(1.53)	3.78
	3.08		3.93		

b) Relationship & Work Difficulties

	Time				
Severity	Time 1		Time 2		
Low	5.15	(1.25)	4.74	(1.60)	4.95
Mild	5.21	(1.32)	4.82	(1.40)	5.02
Moderate	5.30	(1.22)	4.69	(1.47)	4.99
	5.22		4.75		

c) Daily/Physical Stressors

	Time				
Severity	Time 1		Time 2		
Low	4.59	(0.95)	4.78	(1.13)	4.69
Mild	4.40	(0.99)	4.48	(0.95)	4.44
Moderate	4.32	(1.21)	4.40	(1.27)	4.36
	4.44		4.56		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a cause.

d) Normal Changes in Mood

	Time				
Severity	Time 1		Time 2		
Low	4.17	(1.82)	2.32	(1.35)	3.25
Mild	3.92	(1.67)	2.57	(1.53)	3.25
Moderate	3.64	(1.72)	2.33	(1.33)	2.99
	3.91		2.41		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is perceived to be a cause.

Changes in Mood, $F(1, 294) = 170.88$, $p < .001$, as shown in the bottom rows of Table 9a, b, c, and d, respectively. Time led to a significant increase in attributions of stable features and daily/physical stressors as the cause of the condition, and to a significant decrease in attributions of relationship/work difficulties and normal changes in mood as the cause.

Symptom severity had a significant main effect on the Stable Attributes factor, $F(2, 294) = 6.96$, $p < .01$, as shown in the right most column of Table 9a. Stable features were believed to more likely be the cause of mild and moderate symptoms than low symptoms ($p < .05$ and $p < .01$, respectively). Severity had no main effect on the Relationship/Work Difficulties, Daily/Physical Stressors, or the Normal Changes in Mood cause factors, F's $(2, 294) \leq 2.90$, *ns*. There were no significant interactions, F's $(2, 294) \leq 2.30$, *ns*.

Consequences. The means and standard deviations for each of the two consequence factors (Negative and Positive) are presented in Table 10. Time had a significant main effect on the Negative consequence factor, $F(1, 294) = 214.90$, $p < .001$. As shown in the bottom row of Table 10a, individuals believed that negative consequences were significantly more likely to occur at Time 2 than at Time 1. Time had no main effect on the Positive factor (i.e., on the perceived likelihood of being shown encouragement from others), $F(1, 294) = .57$, *ns*.

Symptom severity had a significant main effect on the Negative consequence factor, $F(2, 294) = 4.08$, $p < .05$. As shown in the right most column of Table 10a, moderate symptoms were believed to more likely result in negative consequences than low symptoms. Severity had no effect on the Positive factor, $F(2, 294) = 1.07$, *ns*. There were also no significant interaction effects, $F(2, 294) \leq 2.18$, *ns*.

Table 10

Means and Standard Deviations for each Consequence Factor as a Function of Time and Severity

a) Negative

	Time				
Severity	Time 1		Time 2		
Low	4.26	(1.22)	5.19	(1.18)	4.73
Mild	4.65	(1.07)	5.38	(1.05)	5.01
Moderate	4.78	(1.05)	5.46	(1.02)	5.12
	4.56		5.34		

b) Positive

	Time				
Severity	Time 1		Time 2		
Low	3.94	(1.66)	3.95	(1.77)	3.95
Mild	4.05	(1.53)	4.01	(1.54)	4.03
Moderate	3.63	(1.54)	3.87	(1.50)	3.75
	3.88		3.94		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a consequence.

Timeline. One item assessed the length of time that individuals expected the condition in the vignette to last. This item consisted of nine response options that were coded on a scale from 1 to 9, with 1 = *Just the rest of today* and 9 = *Over 1 year*. The means and standard deviations for Duration length are presented in Table 11. The ANOVA revealed a significant main effect of Time, $F(1, 294) = 810.95$, $p < .001$, as shown in the bottom row of Table 11. At Time 1, the condition was expected to last between 2-3 days to one week. However, at Time 2, the condition was expected to last approximately 2 months.

Symptom severity also had a significant main effect, $F(2, 294) = 4.98$, $p < .01$. Greater symptom severity led to a significant increase in the expected duration of the condition, as shown in the right most column of Table 11. Low symptoms were expected to last between 1 to 2 weeks, whereas moderate symptoms were expected to last approximately a month. The interaction was not significant, $F(2, 294) = 1.32$, *ns*.

Coping. The means and standard deviations for each of the four coping factors (Professional Help, Social Support, Rumination, and Self-Help) are presented in Table 12. Time had a significant main effect on all four factors. As shown in the bottom rows of Table 12a, b, c, and d, greater time led to a significant increase in the likely use of professional services, $F(1, 294) = 360.91$; social support, $F(1, 294) = 6.93$, $p < .01$; and rumination, $F(1, 294) = 9.23$, $p < .01$; and a decrease in the likely use of self-help coping strategies, $F(1, 294) = 7.07$, $p < .01$.

Symptom severity had a significant main effect on Professional Help $F(2, 294) = 4.44$, $p < .05$, whereby professional help was less likely to be used to manage low symptoms compared to mild and moderate symptom. There were no main effects of

Table 11

Means and Standard Deviations for Expected Duration as a Function of Time and Severity

	Time				
Severity	Time 1		Time 2		
Low	1.91	(1.41)	5.37	(1.83)	3.64
Mild	2.28	(1.94)	5.53	(2.04)	3.91
Moderate	2.86	(2.03)	5.87	(2.05)	4.36
	2.34		5.59		

Note. Response scale ranged from 1 to 9, with higher numbers indicating longer expected duration.

Table 12

Means and Standard Deviations for each Coping Factor as a Function of Time and Severity

a) Professional Help

	Time		
Severity	Time 1	Time 2	
Low	1.63 (1.07)	3.27 (1.68)	2.45
Mild	2.06 (1.36)	3.74 (1.73)	2.90
Moderate	2.19 (1.33)	3.70 (1.66)	2.94
	1.96	3.57	

b) Rumination

	Time		
Severity	Time 1	Time 2	
Low	3.82 (0.99)	4.01 (1.36)	3.91
Mild	3.87 (1.21)	3.98 (1.36)	3.92
Moderate	3.84 (1.22)	4.10 (1.38)	3.97
	3.84	4.03	

c) Social Support

	Time		
Severity	Time 1	Time 2	
Low	4.78 (1.38)	5.09 (1.35)	4.93
Mild	4.91 (1.29)	5.09 (1.36)	5.00
Moderate	4.82 (1.53)	4.96 (1.42)	4.89
	4.84	5.04	

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor would be used to cope.

d) Self-Help

	Time				
Severity	Time 1		Time 2		
Low	4.92	(1.26)	4.80	(1.44)	4.86
Mild	5.11	(1.37)	4.82	(1.54)	4.96
Moderate	4.93	(1.53)	4.74	(1.63)	4.83
	4.98		4.78		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor would be used to cope.

severity on the remaining factors, $F(2, 294) \leq .26$, *ns*, nor significant interactions, $F(2, 294) \leq .53$, *ns*.

Overall Summary of the Time and Symptom Severity Findings

Table 13 presents a summary of the significant main effects of symptom duration and severity, and the interaction effects, for each factor within the cause, consequence, timeline, and coping domains. As expected, symptom duration had a significant effect on all of the SRM belief domains that resulted in a more severe illness representation of the depressive symptoms, despite no further change in the symptoms themselves. Time also had a significant impact on all of the coping factors, leading to an increase in the likely use of professional services, social support, and rumination, and a decrease in the likely use of self-help coping strategies. As expected, symptom severity also had significant effects in the cause, consequence, and timeline SRM domains, as well as the likely use of professional treatment. There were no interaction effects between symptom duration and severity on the SRM belief domains, contrary to what was expected.

Label Use

One of the goals of Study 2 was to examine how the label used to identify depressive symptoms relates to the content of the other SRM belief domains, since the self-regulation model suggests that the label identifying a presenting set of symptoms plays a considerable role in determining other aspects of the illness representation (e.g., beliefs regarding the symptoms' duration, consequences, etc.).

The first step in the label analysis was to determine the degree to which individuals would use a label to identify the experience described in the vignette. Accordingly, participants indicated whether they would use a label at Time 1 and Time 2 using a yes/no response format. The percentages of these responses are presented in

Table 13

Summary of the Significant Main Effects of Symptom Severity and Symptom Duration, and Interaction Effects, for each Factor in each SRM Domain

	Main Effect		
SRM Factor	Symptom Duration	Symptom Severity	Interaction Effect
Cause			
Relationship/work difficulties	✓		
Stable attributes	✓	✓	
Daily/physical stressors	✓		
Normal changes in mood	✓		
Consequences			
Negative	✓	✓	
Positive			
Duration expected	✓	✓	
Coping			
Professional help	✓	✓	
Social Support	✓		
Rumination	✓		
Self-help	✓		

Note: ✓ = significant effect

Table 14. A review of these findings indicates that, overall, people tended to use labels to identify the condition. At Time 1, approximately two-thirds of participants used a label. A chi-square analysis at Time 1 indicated a significant association between label use and symptom severity, $\chi^2(2, N = 296) = 7.59$, $p < .05$. At Time 1, more individuals used a label to identify moderate severity symptoms (77%) than low severity symptoms (59%). At Time 2, there was an even stronger tendency to use a label (nearly 90%). A chi-square analysis indicated that there was no significant association between label use and symptom severity at Time 2, $\chi^2(2, N = 296) = 3.52$, *ns*. Individuals were equally likely to use a label to identify symptoms at all levels of severity at Time 2.

Effects of label use (Yes/No) on other SRM domains. The next step in the label analysis assessed the effect of using a label (yes/no) on individuals' beliefs regarding other SRM domains related to the condition, namely, the causes, consequences, duration, and coping strategies they would use. A two-way analysis of variance was conducted on each SRM belief domain with label use (yes/no) and symptom severity as between-subject independent variables. Time 1 was used due to the very limited variability of label use at Time 2 (since very few individuals did not use a label at that time). Given that the effects for symptom severity on each of the SRM domains have been presented earlier, they will not be repeated here. The means and standard deviations for each factor in the cause and consequence domain, expected duration, and coping domain are presented in Tables 15, 16, 17, and 18, respectively.

Label use had a significant main effect on the cause, consequence, and timeline domains. In particular, individuals who used a label believed the condition was more likely to be due to stable causes, $F(1, 290) = 22.26$, $p < .001$, have negative consequences, $F(1, 290) = 14.05$, $p < .001$, and last for a longer period of time, $F(1, 290) = 17.23$, $p <$

Table 14

Label Use: Percentages of Yes/No Responses as a Function of Time and Severity

	Time 1		Time 2	
Severity	Yes	No	Yes	No
Low	59%	41%	90%	10%
Mild	68%	32%	83%	17%
Moderate	77%	23%	91%	9%
	68%	32%	88%	12%

Table 15

Means and Standard Deviations of Cause Factors as a Function of Label Use and Severity at Time 1

a) Stable Attributes

	Label Use				
Severity	Yes		No		
Low	2.89	(1.40)	2.36	(0.81)	2.67
Mild	3.55	(1.37)	2.51	(1.09)	3.21
Moderate	3.55	(1.35)	2.82	(1.27)	3.38
	3.35		2.52		

b) Relationship/Work Difficulties

	Label Use				
Severity	Yes		No		
Low	5.13	(1.28)	5.17	(1.22)	5.15
Mild	5.39	(1.27)	4.88	(1.41)	5.22
Moderate	5.21	(1.28)	5.59	(0.94)	5.30
	5.25		5.17		

c) Daily/Physical Stressors

	Label Use				
Severity	Yes		No		
Low	4.61	(0.98)	4.57	(0.91)	4.59
Mild	4.49	(1.01)	4.21	(0.95)	4.40
Moderate	4.27	(1.19)	4.48	(1.27)	4.32
	4.44		4.43		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a cause.

d) Normal Changes in Mood

	Label Use				
Severity	Yes		No		
Low	4.22	(1.84)	4.10	(1.81)	4.17
Mild	4.12	(1.59)	3.50	(1.81)	3.92
Moderate	3.51	(1.80)	4.09	(1.34)	3.64
	3.92		3.89		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a cause.

Table 16

Means and Standard Deviations of Consequence Factors as a Function of Label Use and Severity at Time 1

a) Negative

	Label Use				
Severity	Yes		No		
Low	4.42	(1.22)	4.04	(1.20)	4.26
Mild	4.94	(0.92)	4.06	(1.15)	4.65
Moderate	4.85	(1.01)	4.55	(1.16)	4.78
	4.75		4.16		

b) Positive

	Label Use				
Severity	Yes		No		
Low	3.90	(1.78)	4.00	(1.48)	3.94
Mild	4.03	(1.60)	4.03	(1.40)	4.03
Moderate	3.45	(1.49)	4.23	(1.57)	3.63
	3.78		4.06		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor is a consequence.

Table 17

Means and Standard Deviations of Expected Duration as a Function of Label Use and Severity at Time 1

	Label Use				
Severity	Yes		No		
Low	2.10	(1.65)	1.63	(0.92)	1.91
Mild	2.67	(2.18)	1.50	(0.98)	2.29
Moderate	3.14	(2.19)	1.95	(1.05)	2.86
	2.68		1.66		

Note. Response scale ranged from 1 to 9, with higher numbers indicating longer expected duration.

Table 18

Means and Standard Deviations of Coping Factors as a Function of Label Use and Severity at Time 1

a) *Professional Help*

	Label Use				
Severity	Yes		No		
Low	1.68	(1.20)	1.55	(0.85)	1.63
Mild	2.28	(1.50)	1.63	(0.88)	2.07
Moderate	2.38	(1.42)	1.52	(0.63)	2.19
	2.14		1.57		

b) *Rumination*

	Label Use				
Severity	Yes		No		
Low	3.92	(1.04)	3.67	(0.90)	3.82
Mild	4.00	(1.30)	3.63	(0.98)	3.88
Moderate	3.96	(1.24)	3.45	(1.08)	3.84
	3.96		3.61		

c) *Social Support*

	Label Use				
Severity	Yes		No		
Low	4.75	(1.40)	4.82	(1.37)	4.78
Mild	4.95	(1.27)	4.81	(1.35)	4.90
Moderate	4.97	(1.55)	4.32	(1.38)	4.82
	4.90		4.70		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor would be used to cope.

d) Self-Help

	Label Use				
Severity	Yes		No		
Low	4.81	(1.40)	5.07	(1.02)	4.92
Mild	5.04	(1.51)	5.25	(1.07)	5.11
Moderate	4.79	(1.54)	5.41	(1.43)	4.93
	4.88		5.21		

Note. Response scale ranged from 1 to 7, with higher numbers indicating a greater likelihood that the factor would be used to cope.

.001. Individuals who used a label expected the condition to last about 1 week, whereas individuals who did not use a label expected the condition to last about 2 days. Regarding coping, label use had a significant effect on the likely use of professional help, $F(1, 290) = 12.22$, $p < .01$, rumination, $F(1, 290) = 6.59$, $p < .05$, and self-help, $F(1, 290) = 4.24$, $p < .05$. Individuals who used a label were more likely to seek professional help and to ruminate, but less likely to engage in self-help strategies to manage the condition than those who did not use a label. Label use had no main effect on the remaining three cause factors (Relationship/Work Difficulties, Daily/Physical Stressors, and Normal Changes in Mood), $F(1, 290) \leq .06$, *ns*; the Positive consequence factor, $F(1, 290) = 2.13$, *ns*; nor the Social Support coping factor, $F(1, 290) = 1.77$, *ns*. There were also no significant interactions between label use and symptom severity, $F(2, 290) \leq 2.49$, *ns*. In summary, as expected, the illness representation of participants who used no label at all was generally less severe than individuals who used a label. Label use was also related to differences in coping strategies.

Label Name

If participants indicated that, yes, they would use a label to identify the condition described in the vignette, they then provided the label in an open-ended response format. A scale was created to code the labels provided by participants to determine the types of labels (in terms of severity levels) that were used. Codes were established that distinguished increasing severity levels based on a range of criteria that were developed from the differences across the labels. Details regarding the development of the Label Name Scale are presented in Appendix T. Twenty-four codes were created on the scale from 1 (*a normal day to day experience*) to 23 (*severe depression*), with 0 reflecting *no*

label name used by the participant, and each increasing score reflecting an increase in severity (see Table T1 in Appendix T).

Time and symptom severity effects on label name. To examine the extent to which the types of labels that were used by participants changed as a result of time and symptom severity, an analysis of variance was conducted on the label scale scores for those participants that provided labels at both Time 1 and Time 2 (65%). The means and standard deviations of these scores, as a function of time and symptom severity, are presented in Table 19. Time led to a significant increase in the severity of the labels used, $F(1, 191) = 116.60$, $p < .001$, as shown in the bottom row of Table 19. At Time 1, individuals were more likely to identify the condition as a depressive symptom that was more severe than just sadness (e.g., "helplessness", "apathy"). At Time 2, individuals were more likely to identify the condition as closer to depression, but slightly lower in severity than depression in general (e.g., "mild depression"). Symptom severity also had a significant main effect, $F(2, 191) = 10.55$, $p < .001$, whereby low symptoms were identified with less severe labels than mild and moderate symptoms, as shown in the right most column of Table 19. Specifically, low symptoms were identified as approaching a depressed mood; mild symptoms were identified as possibly depression but with some uncertainty, and moderate symptoms were believed to be the beginning of depression. There was no significant interaction, F (2, 191) = 2.57, *ns*. In summary, the labels used to identify the depressive symptoms became significantly more severe both when the level of symptom severity increased and after the symptoms had lasted longer than originally expected.

Table 19

Means and Standard Deviations of Label Scale Scores as a Function of Time and Severity (the portion of the sample who used a Label)

	Time				
Severity	Time 1		Time 2		
Low	12.93	(6.16)	18.02	(3.72)	15.47
Mild	14.76	(5.63)	19.27	(2.64)	17.02
Moderate	16.70	(4.73)	19.74	(2.00)	18.22
	14.80		19.01		

Relationship between label name and other SRM belief domains. To examine how the label relates to differences in other SRM domains and use of coping strategies, correlations were calculated between the Label Name Scale (with 0 reflecting no label name) and the factors in the cause, consequence, and duration domains, as well as coping. As shown in Table 20, at Time 1, more severe labels were associated with higher attributions of stable causes, greater perceived likelihood of negative consequences, and longer expected duration. More severe labels were also associated with a higher likelihood of seeking professional help and rumination, and a lower likelihood of using self-help strategies. At Time 2, a similar pattern emerged.

Correlation analyses were also conducted at each severity level separately to assess whether label name is associated with a different illness representation at low versus higher symptom severity. Table 21 presents these correlations at Time 1 and 2. At Time 1, both at low and higher symptom levels, more severe labels were associated with higher attributions of stable causes and longer expected duration. However, when symptoms were moderate, label name was not related to beliefs about negative consequences. Furthermore, when symptoms were of moderate severity, label names that reflected more severe conditions were associated with lower attributions of relationship/work difficulties as the cause. At Time 2, a similar pattern emerged, although, at Time 2, negative consequence beliefs were related to label name across all severity levels.

While the above analyses examined the sample as a whole, correlational analyses also examined the relationship between label name and the SRM domains after removing the portion of the sample that did not use a label name, and, thus, focusing only on the portion of the sample that used a specific label. This provided a more refined analysis of

Table 20

Correlations between Label Name and SRM Domains as well as Coping at Time 1 and 2 Among the Entire Sample

	Label Name[1]	
	Time 1	Time 2
SRM	*r*	*r*
Cause		
Stable attributes	.40***	.36***
Relationship/work difficulties	.03	-.05
Daily/physical stressors	-.07	-.06
Normal changes in mood	-.06	-.10
Consequences		
Negative	.24***	.31***
Positive	-.11	-.06
Duration expected	.39***	.40***
Coping		
Professional help	.32***	.30***
Rumination	.12*	.19**
Social support	.08	-.07
Self-help	-.12*	-.09

Note: [1] Higher scores on the Label Name Scale correspond with more severe depression related labels, whereas lower scores reflect labels that are suggestive of more normal negative affect.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 21

Correlations between Label Name and SRM Domains at each Severity Level at Time 1 and Time 2 Among the Entire Sample

a) Time 1

	Label Name[1]		
	Low severity	Mild severity	Moderate severity
SRM	*r*	*r*	*r*
Cause			
Stable attributes	.39***	.40***	.31**
Relationship/work difficulties	.04	.22*	-.21*
Daily/physical stressors	.07	-.02	-.15
Normal changes in mood	-.02	.05	-.13
Consequences			
Negative	.21*	.33**	.07
Positive	-.01	-.06	-.23*
Duration expected	.34**	.40***	.32**

b) Time 2

	Label Name[1]		
	Low severity	Mild severity	Moderate severity
SRM	*r*	*r*	*r*
Cause			
Stable attributes	.38***	.36***	.35**
Relationship/work difficulties	.09	-.04	-.22*
Daily/physical stressors	-.08	.00	-.10
Normal changes in mood	-.06	-.19	-.01
Consequences			
Negative	.38***	.28**	.26*
Positive	-.15	.09	-.13
Duration expected	.31**	.44***	.41***

Note: [1] Higher scores on the Label Name Scale correspond with more severe depression related labels, whereas lower scores reflect labels that are suggestive of more normal negative affect.
* $p < .05$. ** $p < .01$. *** $p < .001$.

the relationship between the specific type of label used and the SRM domains. Tables U1 and U2 in Appendix U present the correlations overall and then at each level of symptom severity, respectively. At Time 1, consistent with the pattern of correlations presented earlier, labels that were higher in severity were associated with higher attributions of the Stable cause factor and longer expected duration. However, the Negative consequence factor was not significantly related to the specific type of label name used to identify the condition. At Time 2, the Negative consequence factor was associated with label name only when symptom severity was low.

In summary, as expected, the label used to identify the depressive symptoms was related to beliefs in the SRM domains. In particular, more severe label names were associated with greater attributions of stable causes, greater perceived likelihood of negative consequences, and expectations of longer duration. Interestingly, however, when excluding those individuals who did not use a label, the type of label name used to identify the condition was generally less associated with beliefs regarding negative consequences. This suggests that beliefs regarding negative consequences may be more related to the severity of the symptoms themselves and, in turn, may relate more to whether or not individuals choose to identify the condition at all, rather than to the specific type of label name used.

Predicting Perceived Helpfulness of Professional Treatment

Multiple regression analyses were conducted to examine the utility of the SRM belief domains in predicting the likely use of professional treatment and further assess the extent to which the SRM's predictive utility may differ, depending on such factors as label use and symptom severity. In each regression analysis, the first block consisted of

the participants' age, gender, current level of depression (as assessed by the DASS Depression subscale), and general frequency with which they have been depressed in the past. These variables were entered first to control for the effects of individual differences on subsequent responses. Block 2 consisted of all of the SRM factors identified above related to cause, consequences, and duration, as well as label name. The Professional Help coping factor served as the criterion variable. All variables were first centered, and adjusted R^2 are reported for all analyses.

At Time 1, the first issue addressed was the extent to which the strength of the SRM in predicting treatment use varies depending on whether or not a label is used by individuals to identify the presenting symptoms. This was examined by dividing the sample into two conditions: no label use, consisting of individuals who indicated that they would not use a label, and label use, consisting of individuals who indicated that they would use a label. For the no label use condition (for which label name was not included in the model), the overall regression model was not significant, $R^2 = .00$, $F(11, 83) = 1.02$, *ns* (see Table V1 in Appendix V for a summary of this regression analysis). For the first block, the regression equation was not significant, $F(4, 90) = 1.26$, *ns*, and the addition of the SRM domains did not significantly add to the prediction of the use of professional help, *F-change* $(7, 83) = .89$, *ns*.

However, in the label use condition, the overall model was significant, $R^2 = .34$, $F(12, 187) = 12.27$, $p < .001$ (see Table V2 in Appendix V for a summary of this regression analysis). In Block 1, the regression equation was significant, $R^2 = .04$, $F(4, 195) = 3.24$, $p < .05$. Gender and past depression frequency were significant predictors. Females and individuals who have been depressed frequently in the past were more likely to seek professional treatment. The addition of the SRM factors led to a significant

incremental change in R^2 of .30, *F-change* (8, 187) = 11.73, $p < .001$. Expected duration and the cause factor related to stable attributes were significant predictors. Longer expected duration and greater attributions of stable causes were associated with an increased likelihood of seeking professional service. In the overall model, gender and past frequency of depression were no longer significantly predictive. In summary, when individuals used a label to identify the condition, the SRM was a strong predictor of likely professional treatment use, accounting for 30% of the variance. However, for those individuals who did *not* identify the condition, the SRM domains did not relate to the use of professional services.

At Time 2, analyses did not examine the no label use and label use conditions separately, since nearly the entire sample (88%) used a label. Thus, analyses at Time 2 examined the sample as a whole. Results were comparable to the regression results of the label use sample at Time 1, with the Negative consequence factor also adding to prediction. Greater perceived negative consequences were associated with a higher likelihood of seeking treatment (see Appendix W for more detailed results).

Further Regression Analyses: Symptom Severity as a Factor Impacting the Prediction of Seeking Professional Treatment

Sub-analyses were conducted at Time 1 and 2 to clarify the portion of variance accounted for by the SRM at different levels of symptom severity, since Study 1 indicated that the SRM is differentially predictive at low and higher severity levels. Regression analyses were conducted at each severity condition for Time 1 and 2 separately. First, Time 1 analyses will be presented, which were conducted only for the label use sample, since the SRM was not predictive in the no label use condition.

In the low severity condition at Time 1, the overall regression model was significant, R^2 = .52, F(12, 46) = 6.21, p < .001 (see Table X1 in Appendix X for a summary of this regression analysis). For the first block, the regression equation was not significant, R^2 = .03, F(4, 54) = 1.40, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .49, *F-change* (8, 46) = 7.89, p < .001. Longer expected duration and higher perceived negative consequences were significantly predictive of greater treatment seeking.

In the mild severity condition, the overall regression model was also significant, R^2 = .24, F(12, 54) = 2.71, p < .01 (see Table X2 in Appendix X for a summary of this regression analysis). For Block 1, the regression equation was not significant, R^2 = .04, F(4, 62) = 1.69, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .20, *F-change* (8, 54) = 3.00, p < .01, with the Stable Attributes cause factor as the significant predictor. Increased attributions of stable causes were associated with a greater likelihood of seeking treatment. In the moderate severity condition, the overall regression model was also significantly predictive, R^2 = .33, F(12, 61) = 3.93, p < .001 (see Table X3 in Appendix X for a summary of this regression analysis). For Block 1, the regression equation was not significant, R^2 = .06, F(4, 69) = 2.17, *ns*. The addition of the SRM factors led to a significant increase in R^2 of .27, *F-change* (8, 61) = 4.39, p < .001, with Duration as a significant predictor. Longer expected duration was associated with a greater likelihood of seeking treatment.

Although the SRM was a good predictor across all severity levels, it was a considerably stronger predictor of treatment use when symptom severity was low, accounting for nearly 50% of the variation. For higher levels of symptom severity, its predictive utility was lower, albeit still in the moderate range, generally accounting

between 20-27% of the variance. Overall, this pattern replicates the findings from Study 1.

At Time 2, in the low severity condition, the SRM was still a significant predictor, accounting for 33% of the variance. However, this was a decrease from its predictive utility at Time 1, in which it accounted for nearly 50% of the variation. Thus, as the low severity symptoms increased in severity at Time 2, by virtue of duration, the SRM was less predictive of treatment use in comparison to Time 1. For the mild and moderate severity conditions, the results at Time 2 were very comparable to those at Time 1 (see Appendix Y for detailed results of the regressions at low, mild, and moderate severity at Time 2).

Examining Potential Moderator Effects

Study 2 further examined moderator effects among the various SRM domains using regression analyses. In each analysis, the first block consisted of the control variables, the second block consisted of all of the SRM belief factors and label name, and the third block consisted of a specific two-way interaction term of interest (e.g., Stable Attributes cause factor x Negative consequence factor). The Professional Help coping factor served as the criterion variable.

Analyses examined the interaction effect between the Negative consequence factor and expected Duration, since the effect of expected negative consequences on the likely use of professional treatment may be moderated by how long the condition is expected to last. Analyses also examined the interaction between the Daily/Physical Stressors cause factor and the timeline domain, since the perceived severity of a condition believed to be due to daily/physical stressors may be moderated by the expected duration of the condition. These two interactions replicate analyses examined in Study 1. Current

analyses also explored the interaction between the Relationship/Work cause factor and expected Duration. As with daily/physical stressors as a cause, the severity of a condition due to relationship/work difficulties may be ambiguous, since such causes are generally common. Thus, beliefs regarding the expected duration of the condition may serve to moderate the effect of the Relationship/Work Difficulties cause factor on the likely use of professional help. Analyses also examined the interaction between the Negative consequence factor and the Stable Attributes cause factor, since the effect of expected negative consequences on the likely use of professional treatment may be moderated by the extent to which the condition is believed to be due to stable, ongoing causes.

Since the results for the first two blocks for each analysis have already been presented above, only the regression-change results due to the interaction terms will be presented below. At Time 1 with the label use condition, only one significant interaction was found. This interaction occurred between the cause factor related to relationship/work difficulties and expected duration, R^2 *change* = .01, *F-change* (1, 186) = 4.50, $p < .05$. Increases in attributions of relationship/work difficulties were associated with increases in the likely use of professional treatment, but only when individuals believed the symptoms had a short duration. However, when a long duration was expected, increases in relationship/work difficulty attributions were associated with decreases in the use of professional services (see Table V2 in Appendix V for a summary of the statistics for each of the interactions examined).

At Time 2, one significant interaction occurred, namely, between the cause factor related to daily/physical stressors and expected duration of the condition, R^2 *change* = .01, *F-change*(1, 283) = 4.87, $p < .05$. A similar pattern was found as at Time 1, in that increases in attributions of daily/physical stressors were associated with greater likely use

of professional services when the condition was expected to have a short duration. However, when the condition was expected to have a long duration, seeking professional treatment was less likely (see Table W1 in Appendix W for a summary of the statistics for the interactions examined).

Interactions were also examined at each severity condition at Time 1 and 2 to assess whether potential moderator effects varied depending on symptom severity. At Time 1, there were no significant interactions when the severity conditions were examined separately (see Tables X1, X2, and X3 in Appendix X for a summary of the interactions statistics at each severity level at Time 1). At Time 2, two interactions were significant in the low severity condition, and one in the mild severity condition. No interactions were found at moderate severity (see Tables Y1, Y2, and Y3 in Appendix Y for a summary of the interaction statistics at each severity level at Time 2).

At Time 2, in the low severity condition, a significant interaction occurred between the cause factor related to daily/physical stressors and expected duration of the condition, R^2 *change* = .05, *F-change* (1, 86) = 8.46, $p < .01$. Increases in attributions of daily/physical stressors as the cause were associated with increases in seeking professional treatment when the condition was expected to be short. However, when a long duration was expected, attributions of daily/physical stressors were not predictive of the use of professional services. The second interaction was found between the Stable Attributes cause factor and the Negative consequence factor, R^2 *change* = .03, *F-change* (1, 86) = 5.29, $p < .05$. Increases in stable cause attributions were associated with significantly greater use of professional treatment when high negative consequences were expected, compared to low.

Interestingly, in the mild severity condition at Time 2, a significant interaction was also found between stable causes and negative consequences, R^2 *change* = .11, *F-change* (1, 85) = 13.75, $p < .001$. However, in this condition, as expected negative consequences increased, professional treatment was significantly more likely to be used when low stable cause attributions were made. When stable factors were believed to very likely be the cause, increases in expected negative consequences were associated with decreases in the use of professional services. In summary, certain meaningful interactions among the SRM domains occurred in predicting the likely use of professional treatment. Furthermore, the pattern of the interactions varied across symptom duration and severity.

Multiple Mediation Analyses

Multiple mediation analyses (MMA) were conducted to assess how labels may impact on subsequent SRM domains, and, in turn, affect strategies for managing a condition. Of particular interest is the extent to which the effect of a label on the use of professional help is mediated by the other SRM belief domains, namely, duration, causes, and consequences. Thus, the first analysis examined label name as the predictor variable, use of professional help as the criterion variable, and duration, cause factors, and consequence factors, as the mediating variables. This analysis was conducted at Time 1, since the patterns of findings at Time 2 are confounded with the preceding processes at Time 1.

It has been suggested by Baron and Kenny (1986) that, prior to conducting mediation analyses, the following three conditions first be tested and met (1) the predictor variable is significantly correlated with the criterion variable, (2) the predictor variable is significantly correlated with the mediating variables, and (3) the criterion variable is significantly correlated with the mediating variables. Since label name is significantly

correlated with the use of professional help (as previously reported in Table 20), the first precondition is satisfied. Regarding the second precondition, label name (using the whole sample) was significantly correlated with Duration, Stable causes, and Negative consequences (see Table 20). Regarding the third precondition, Professional Help was significantly correlated with Duration ($r = .50$, $p < .000$), Stable causes ($r = .46$, $p < .001$), and Negative consequences ($r = .36$, $p < .001$). Professional Help was not correlated with the remaining cause factors, namely, Relationship/Work Difficulties ($r = .10$), Daily/Physical Stressors ($r = .02$), and Normal Changes in Mood ($r = -.08$), nor with the Positive Consequence factor ($r = -.08$). Since only Duration, Stable causes, and Negative consequences were significantly related to both label name and use of professional help, and thus fulfilled the related preconditions, only these three variables were entered into the analysis as mediators for Time 1. Participants' age, gender, current depression, and history of depression were controlled for in the analysis.

Multiple mediation analyses were conducted using procedures described by Preacher and Hayes (2008) to test the hypothesis that label name impacts treatment seeking through its effect on other SRM belief domains regarding the condition. This procedure allows for the simultaneous examination and statistical testing of the indirect effect of the predictor variable on the criterion variable through the pathway of each mediator variable, controlling for the effect of the remaining mediators in the model; as well as the direct effect of the predictor variable on the criterion variable, controlling for all of the mediators in the model. These analyses were conducted using Preacher and Hayes' (2008) bootstrap sampling procedures, which uses sampling with replacement to draw a large number of samples (i.e., 1000) from the data set and calculates the path coefficient for each sample. Using the estimates from these 1000 bootstrap samples, the

mean direct and indirect effects and their confidence intervals (CIs) are then determined. These CIs are used to assess if the direct and each indirect effect are statistically significant. For each effect, the 95% CI is examined, and if the value of the CI does not include 0, then the effect is statistically significant at $p < .05$. Similarly, CIs can also be set at 99%, establishing significance levels at $p < .01$ if the CI range does not include 0. All of the variables used in these analyses were centered ($M = 0$, $SD = 1.0$) to facilitate comparisons across variables.

The total effect (c-path) of label name and the mediators on the use of professional help was significant. Thus, the indirect and direct pathways were further examined (see Figure 1). Duration, Stable causes, and Negative consequences all had significant mediating effects. An increase in label severity was associated with an increase in the expected duration, attributions of stable causes, and expected negative consequences, which, in turn, predicted an increase in the likely use of professional help. These pathways are presented in Figure 1.

Social support and self-help were the highest rated coping strategies, suggesting that these strategies are the ones that would most likely be used. However, these strategies were not entered into a multiple mediation analysis because they did not satisfy the conditions required to conduct this analysis. In particular, the Social Support factor was not related to the type of label used to identify the depressive symptoms, and the Self-Help factor was not related to the SRM domains. Thus, mediation analyses were not conducted.

However, the same mediation analysis was also conducted at Time 1 after removing the portion of the sample who did not use a label. This analysis, thus, more

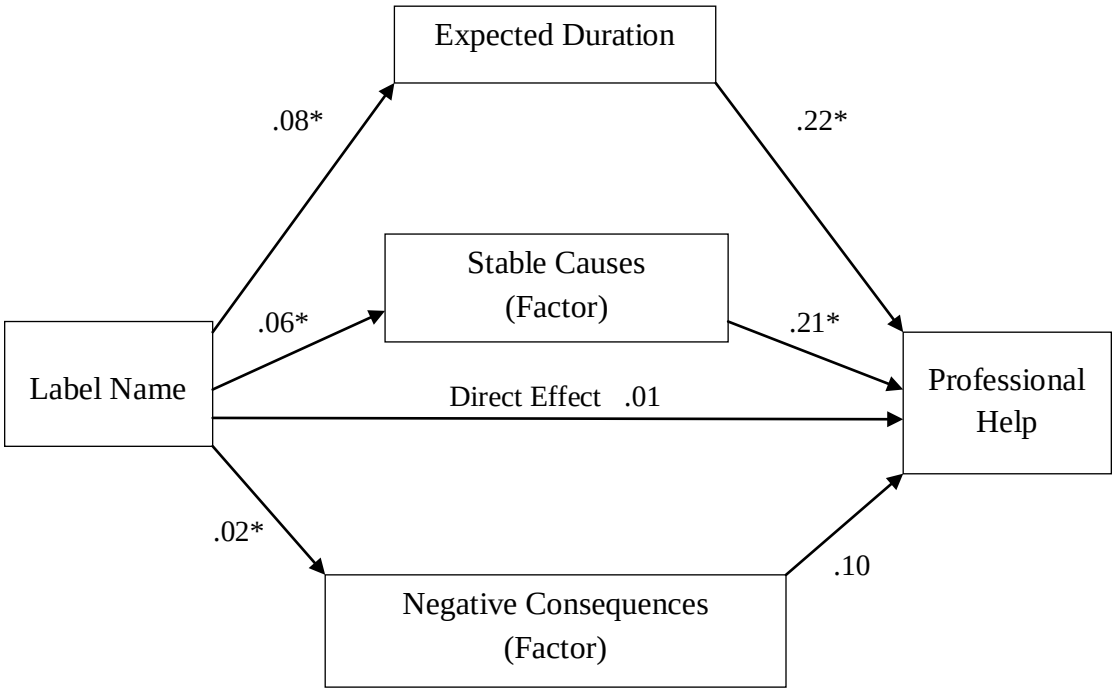

Figure 1. Mediator effects of SRM belief domains on the relationship between label name and the likely use of professional help, controlling for age, gender, current depression, and history of depression.

Note: * $p < .001$.

clearly examined the specific type of label as a predictor variable. Here, only the Stable Attributes cause factor and Duration significantly mediated the relationship between label name and the Professional Help factor. Thus, when examining the specific type of label used, rather than considering whether a label was used at all, Negative consequences did not mediate the relationship between label name and use of professional help (see Appendix Z for more detailed results).

Individual Differences

History of depression. Regarding the general frequency with which individuals have been depressed in the past, 19% of participants indicated *never* having been depressed, while 48% indicated having been depressed *once in a while*. Twenty-three percent reported having *sometimes* been depressed, and 10% had been depressed *often*. Less than 1% indicated having been depressed *all of the time.* This pattern of past depression frequency was consistent across the severity conditions, $\chi^2(8, N = 297) = 6.06$, *ns*. Only 6% of participants had been previously diagnosed with depression. These findings are consistent with those in Study 1.

History of depression and SRM belief domains. Since past experiences with a given condition is a particular individual difference variable that is theoretically relevant to the self-regulation model, correlational analyses examined the relationships between the SRM domains and individuals' self-reported past frequency of depression. As shown in Table 22, at Time 1, frequency of past depression was significantly related to several SRM belief domains, namely, duration, causes, consequences, and label name. At Time 1 (i.e., at symptom onset), individuals with a greater frequency of depression in the past labelled the current condition with a more severe label. They also believed the condition was more likely to be due to stable causes, have a longer duration, and result in more

Table 22

Correlations between SRM Belief Domains and Individuals' Past Frequency of Depression at Time 1 and Time 2

	Past Frequency of Depression	
	Time 1	Time 2
SRM domains	*r*	*r*
Cause		
Stable attributes	.23***	.09
Relationship/work difficulties	.03	-.01
Daily/physical stressors	.05	.04
Normal changes in mood	.01	.00
Consequences		
Negative	.24***	.08
Positive	-.15**	-.15*
Duration	.26***	.24***
Label name	.16**	.06

Note: * $p < .05$. ** $p < .01$. *** $p < .001$.

negative consequences and less encouragement from others. At Time 2, when there was less ambiguity regarding the nature of the condition, history of depression was less related to the SRM belief domains.

Multiple mediation analyses were also used to further examine the inter-relationship between history of depression and the SRM domains in predicting the likely use of professional services. The SRM suggests that individuals' history of experience with a condition impacts the illness representation domains of the current experience of a condition and, in turn, impacts current coping. Thus, of particular interest is the extent to which the relationship between past depression experiences and the likely current use of professional help is mediated by SRM belief domains regarding current symptoms. As such, a multiple mediation analysis examined history of depression (in terms of the frequency with which individuals have been depressed in the past) as the predictor variable, likely use of professional help as the criterion variable, and label name, duration, cause factors, and consequence factors, as the mediating variables. These analyses were conducted at Time 1, since history of depression was predictive of the likely use of professional help at this time ($r = .17$, $p < .01$).

With respect to the three prerequisite conditions, as suggested by Baron and Kenny (1986), history of depression (the predictor variable) was significantly correlated with the use of professional help (the criterion variable). Both history of depression and professional help were significantly correlated with label name, Duration, the Stable Attributes cause factor, and the Negative consequence factor (as presented earlier). Thus, these four variables were entered into the analysis as mediators. Participants' age, gender, and current depression level were entered as control variables.

The total effect (c-path) of history of depression and the mediators on the use of professional help was significant. Thus, the indirect and direct pathways were further examined. As expected, label name, Duration, the Stable Attributes cause factor, and the Negative consequence factor were significant mediators (see Figure 2). More frequent experience with depression in the past was associated with identifying current depressive symptoms with more severe labels, and believing current symptoms were more likely to be due to stable attributes, have a longer duration, and have greater negative consequences, which, in turn, was associated with higher likely use of professional treatment for coping with current symptoms.

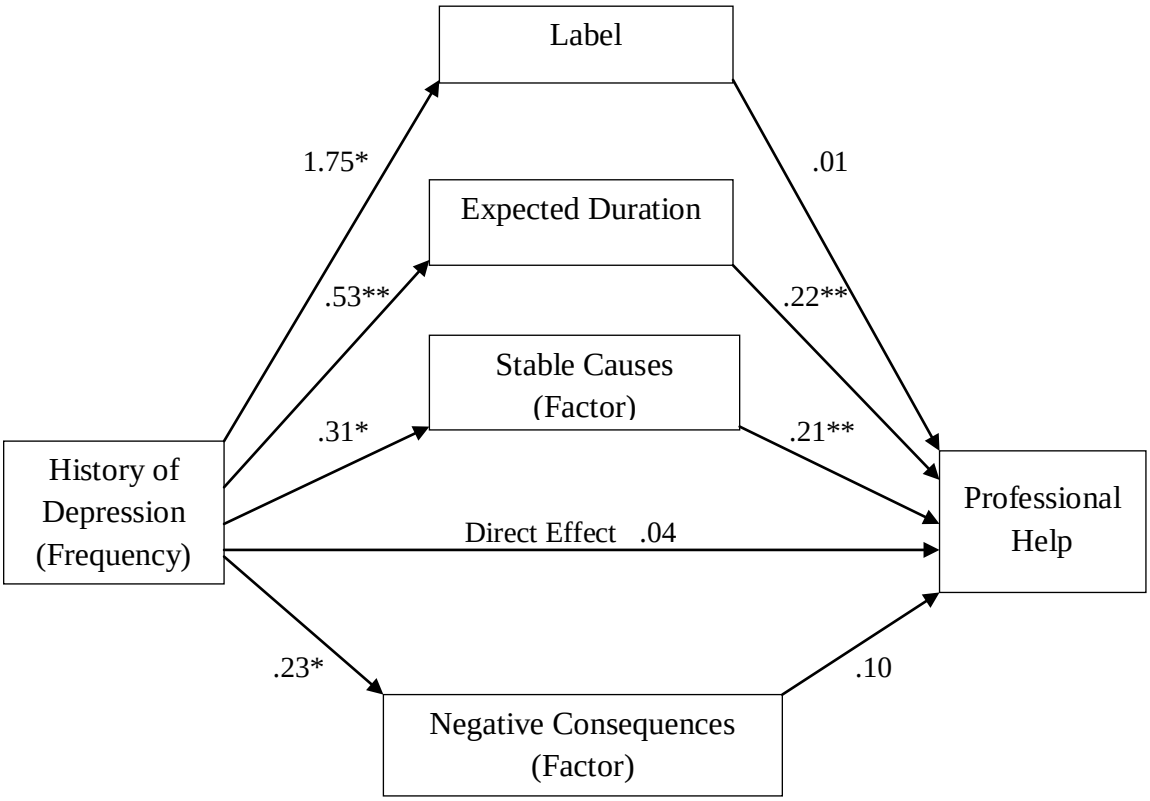

Figure 2. Mediator effects of SRM belief domains on the relationship between history of depression (frequency) and the likely use of professional help, controlling for age, gender, and current depression.

Note: * $p < .01$. ** $p < .001$.

Discussion

Effect of Symptom Duration and Severity on SRM Domains

The self-regulation model (SRM) proposes that, when a symptom occurs, individuals attempt to "self-diagnosis" and form hypotheses regarding various domains of the problem, which are organized into an illness representation of the condition. When there is evidence that an individual's initial understanding of the symptoms is incorrect, individuals modify their illness representation of the condition, and, in turn, the coping strategies used (Leventhal, Diefenbach, & Leventhal, 1992; Leventhal et al., 2003). Yet, no studies have explicitly tested these aspects of the model, and how they relate to depression and treatment seeking. As such, Study 2 provided an initial look at the unique effect of one of these potential causes of change, specifically, the duration of symptoms for longer than originally expected.

As predicted, symptom duration had a significant effect on all of the SRM domains, and coping strategies. After symptoms lasted longer than expected, individuals were more likely to identify the condition with a depression-related label, and believe it was likely to be due to stable attributes or daily stressors and less likely to be due to relationship/work stressors or normal changes in mood. Individuals also believed the condition would have more negative consequences and a longer duration than initially expected. As predicted, symptom duration led individuals to more likely use professional help and social support. Interestingly, however, seeking social support and self-help strategies were more likely to be used to cope with depressive symptoms than professional help, both at symptom onset and after symptoms had lasted for longer than originally expected.

Taken together, these findings support the SRM's proposal that, when individuals' expectations regarding a condition based on a given illness representation are shown to be incorrect, individuals then modify their illness representations, which, in turn, are associated with changes in the strategies used to manage the condition. Furthermore, Study 2 demonstrated that changes in illness representations of a set of symptoms may occur without a change in the actual symptoms themselves.

Study 2 further examined the effect of symptom severity on beliefs regarding depressive symptoms. As expected, higher severity symptoms were identified with a more severe label, and were believed to more likely be caused by stable factors, result in more negative consequences, and have a longer duration. Higher severity symptoms were also more likely to lead to the use of professional help than low symptoms. Other coping strategies, such as seeking social support and self-help strategies were equally likely to be used for low, mild, and moderate symptoms. Interestingly, these other coping strategies, and even a less adaptive strategy, rumination, had higher ratings of likely use than professional help for all levels of symptom severity, including moderate.

Contrary to prediction, there were very limited interaction effects between symptom duration and symptom severity. It was expected that symptom duration would lead to greater changes in illness representations for moderate symptoms than for low or mild, given that moderate symptoms may be interpreted as considerably more severe after lasting longer than expected. However, findings indicate that the effect of symptom duration is similar across all symptom severity levels.

Label Use and Type of Label Name

Given the limitations in the assessment of labels in Study 1, Study 2 examined in more depth the role of labels in individuals' illness representations. As expected, the

majority of individuals in the study used a label. However, contrary to predictions, at symptom onset, a considerable portion of the overall sample (one-third) did not use a label to identify depressive symptoms. At onset, labels were less likely to be used to identify low than moderate symptoms. However, when symptoms lasted longer than originally expected, individuals were more likely to use a label (88%) at all levels of severity.

Study 2 also assessed how the use of a label, versus no label use, impacts on illness representations. The model predicts that the lack of a label leads to illness representations that are less detailed or clear (Leventhal et al., 2001; Martin et al., 2003). As expected, those who used a label believed the condition was more likely to be caused by stable attributes, lead to more negative consequences, and last for a longer period of time. Furthermore, individuals who used a label were more likely to seek professional help, but were also more likely to use ruminative coping and less likely to cope through self-help strategies. Interestingly, these effects of label use are just as likely to occur for low and mild symptoms as for moderate symptoms. Thus, as predicted by the model, for all symptom severity levels, individuals who do not use a label to identify depressive symptoms have different illness representations, and are likely to use different coping strategies, than individuals who do use a label.

Study 2 also assessed the type of label that participants would themselves use to identify the depressive symptoms. As predicted, individuals used more severe labels after the condition had lasted longer than anticipated, and to identify symptoms of mild and moderate severity than low severity. As further predicted, at the onset of depressive symptoms, individuals were more likely to identify low and mild symptoms as a normal experience, and identify more severe symptoms with a more severe label, such as

depression. However, when depressive symptoms lasted longer than expected, individuals were more likely to identify the condition as related to depression regardless of symptom severity.

Study 2 also assessed how differences in the type of label used to identify the condition relate to differences in other SRM domain beliefs. As expected, conditions that were identified with more severe depressive labels were believed to more likely be due to stable attributes, result in more negative consequences, and have a longer duration. Individuals who used more severe labels were more likely to seek professional help.

Interestingly, when symptoms were of moderate severity, more severe depressive labels were associated with decreased attributions of relationship/work difficulties as the cause of the condition. This suggests that, at high levels of symptom severity, individuals who use more severe depression labels may conceptualize the condition as more likely to be due to long-standing, perhaps more biological causes, rather than a condition that is in reaction to interpersonal or other situational stressors. In contrast, at milder symptom severity levels, interpersonal and work difficulties were believed to likely be the cause of depressive symptoms both when the symptoms were identified as normal negative affect or with more severe depression labels. This suggests that individuals may conceptualize mild severity depression as likely a function of relatively common interpersonal and achievement related difficulties.

When looking at only the portion of the sample who used a label name, a modified pattern emerged in relation to consequence beliefs. More severe labels were still associated with greater attributions of stable causes and longer expected duration across symptom severity levels at both Time 1 and 2. However the associations between type of label and negative consequence beliefs became much less robust. The findings suggest

that beliefs regarding negative consequences of depressive symptoms may be impacted more by the severity level of the symptoms than by the conceptual label used to identify the symptoms. Furthermore, beliefs regarding negative consequences may be involved in the early decision of whether or not to interpret and label the condition, as suggested by the finding that individuals who used a label believed negative consequences were more likely to occur than individuals who did not use a label at all. However, the type of label itself that is then used to identify the condition may be less associated with beliefs regarding the consequences of the condition, or related to certain types of consequences. It is possible that label impacts more abstract or conceptual level consequences, such as stigma, rather than more concrete-level consequences, such as functioning difficulties.

SRM's Utility in Predicting Professional Help-Seeking

In Study 2, the SRM domains significantly predicted one-third of the variation in the likely use of professional services. This is consistent with findings from Study 1. Attributions of stable cause factors and expected duration length were the strongest predictors, along with beliefs regarding negative consequences at Time 2.

Interestingly, at the low symptom severity level, the SRM was even more predictive of professional treatment use, accounting for nearly one-half of the variation at Time 1. At higher levels of symptom severity, although the SRM still accounted for a considerable portion of the variation, its predictive utility was much lower. This pattern is also consistent with Study 1, and further suggests that, at low symptom severity, when there may be more uncertainty regarding the nature of the condition, information within the SRM domains may have a larger role in determining decisions regarding treatment.

Study 2 also found that the SRM's utility in predicting treatment seeking depended on whether a label was used to identify the condition. When no label was used,

the SRM domains were not predictive of the likely use of professional services. Only when a label was used to identify the condition did the SRM domains predict treatment seeking. This finding is consistent with Leventhal's proposal that the process of establishing the identity of a given condition is a central aspect of the self-regulation process, particularly in terms of decisions regarding seeking treatment (Leventhal et al., 2001; Martin et al., 2003).

Moderator Effects among SRM Domains in Predicting Use of Professional Treatment

A limited number of the hypothesized moderator effects were found in Study 2. Results indicated that the effect of expected duration is dependent on beliefs regarding the cause of the condition, particularly those that could be either short- or long-term. Individuals were more likely to seek professional treatment when they attributed the condition to relationship/work difficulties (Time 1) or daily/physical stressors (Time 2) and expected the condition to have a short duration. In such cases, individuals may view the condition as a more acute difficulty and believe that treatment may help with addressing the current, specific stressor. In contrast, when the condition was expected to have a longer duration, individuals were less likely to seek professional help. This may reflect a degree of resignation to the condition. Individuals may minimize the difficulty by viewing the causes as common life experiences that are to be tolerated and cannot be changed, thus perhaps creating a sense of acceptance of, or submission to, the condition.

At low severity at Time 2, there was also a significant moderator effect between beliefs regarding negative consequences and stable causes. In particular, when individuals attributed stable factors as the cause of the condition, professional treatment was more likely to be used if they also expected the condition to have negative

consequences. Interestingly, at mild severity at Time 2, the nature of the moderation effect between these two variables was quite different. That is, when individuals attributed stable factors as the cause of the condition, professional treatment was *less* likely to be used if they also expected the condition to have negative consequences.

It may be that the interrelationships between the stable causes and negative consequences domains in cognitive representations serve a different function in relation to decisions regarding treatment seeking at different severity levels. In particular, when severity is low and the nature of the condition may be unclear, the interrelationships among these factors serve to clarify the severity of the condition and primarily determine the degree to which it is *necessary* to change the condition. In this case, the effect of beliefs regarding stable causes is dependent on the concern raised by the expected negative consequences of the condition. As symptoms become a little more severe, the interrelationships among beliefs regarding stable causes and negative consequences may serve to not only clarify severity and the necessity to change the condition, but also to clarify how *possible* it is to change the condition. In this case, expectations of high negative consequences may increase the perceived need for professional treatment, but high attributions of stable factors as the cause may lead individuals to begin to believe that it is not possible to change the condition. As a result, in such cases, individuals are less likely to seek treatment.

In summary, relatively few significant interactions were evident. As such, evidence of moderation among the SRM domains in predicting use of professional treatment is generally modest. However, findings suggest that certain SRM domains may at times interrelate meaningfully within a moderation model in predicting the likely use of professional treatment.

Mediation

Study 2 also began to examine a different aspect of the self-regulation model in which the SRM domains may inter-relate through a meditation process. In particular, the self-regulation model proposes that the label used to identify a given set of symptoms then impacts beliefs regarding the other SRM domains, and thus, in turn, coping. In a preliminary investigation, Study 2 found support for the proposal that illness representation domains mediate the relationship between the label used to identify a set of symptoms and the use of professional treatment to manage the condition. Specifically, when examining the entire sample, beliefs regarding stable causes, negative consequences, and duration mediated the relationship between the label identifying depressive symptoms and seeking professional help for those symptoms. Individuals who identified depressive symptoms with a more severe label, such as depression, were more likely to believe that the symptoms were due to stable attributes, would result in negative consequences, and would last for a long period of time; and, as such, were more likely to seek professional help to manage the condition.

Interestingly, when removing the portion of the sample that did not use a label at all, and examining only the specific type of label that was used, only stable cause attributions and expected duration were significant mediators, since negative consequence beliefs were not related to the specific type of label used. This suggests that beliefs regarding negative consequences may be considered when determining whether to interpret and use a label at all to identify the condition, but the nature of the consequence beliefs may be determined more by the severity level of the symptoms than the conceptual label used to identify the symptoms.

The SRM also suggests that the illness representation domains of a current condition may mediate the relationship between individuals' history of a condition and the strategies used to manage current symptoms. Study 2 found support for this mediator relationship in the context of depression. In particular, beliefs regarding the label, stable causes, duration, and negative consequences of current depressive symptoms mediated the relationship between history of depression and the likely use of professional treatment for current symptoms. Individuals who had more frequent depressive episodes in the past were more likely to identify (label) current depressive symptoms as a more severe condition, believe the symptoms were due to stable causes, would result in more negative consequences, and would have a longer duration; and, in turn, were more likely to seek professional help. This supports the model's proposition that individuals' history of a given condition may relate to strategies for coping with current symptoms by impacting the illness representation of presenting symptoms.

Chapter 4

General Discussion

A considerable portion of the population struggles with depression. However, many individuals with depression do not seek treatment, or delay in seeking professional services. Thus, it is important to understand the factors that may impact individuals' strategies for managing depression, particularly seeking professional treatment. One such factor is individuals' beliefs about their condition. Previous studies examining individuals' beliefs regarding depression have concentrated on beliefs regarding causes and ways of coping. However, this literature has lacked a general underlying conceptual model through which to organize and understand the impact of these various beliefs. In this regard, the current thesis applied Leventhal's self-regulation model (SRM; Leventhal et al., 1980, 1982, 1984) from the physical health literature as a framework to identify the belief domains that individuals hold regarding depressive symptoms and to understand how these beliefs relate to such issues as treatment seeking.

The SRM proposes that the beliefs comprising individuals' illness representation of a presenting condition play a considerable role in how individuals cope with the condition. Thus, one of the main goals of the current thesis was to examine factors that impact the content of individuals' illness representations of depressive symptoms. The model highlights components of the identity domain of illness representations (i.e., the symptoms and the label used to identify the symptoms) as central aspects of the self-regulation process, since it is proposed to subsequently determine the remaining aspects of the representation. Thus, this thesis examined how variations in the severity of depressive symptoms and the labels used to identify these symptoms affect specific aspects of individuals' cognitive representations and coping.

The thesis also examined how the duration of symptoms for longer than initially expected impacts illness representations of a current condition. This, in particular, served to examine a component of the SRM that highlights individuals' appraisals of their initial illness representations of new symptoms as an important hypothesis-forming process that may result in changes to these representations and subsequent coping in response to evidence that the initial understanding of the condition was inaccurate. The model notes that potentially large or small changes to the representations may occur in this process. However, studies have not examined the actual level of alterations in illness representations that result, particularly when there is no change in the symptoms themselves.

Furthermore, while the self-regulation model offers a comprehensive description of the structure of cognitive representations (i.e., the nature of the domains), it does not offer a clear description of how the domains inter-relate in their prediction of coping, particularly treatment seeking. The thesis, thus, advanced the model by examining possible moderator and mediator effects among the SRM domains. Finally, the study also briefly examined how individual differences in terms of history of depression relate to illness representations of current depressive symptoms and likely treatment use. In addition, the thesis tested a mediation model implicitly suggested by the SRM in which the relationship between individuals' history of depression and likely use of professional treatment for current depressive symptoms is mediated by the illness representation of the current symptoms.

First, regarding the general content of individuals' cognitive representations of depressive symptoms, findings from the present study indicate that individuals primarily attribute symptoms of depression to relationship or work-related difficulties, and expect it

to negatively impact their future functioning. Individuals are more likely to view depressive symptoms as cyclical rather than chronic, and as somewhat controllable. Managing the symptoms through personal efforts, such as seeking social support from family and friends, was believed to be more helpful than seeking professional treatment.

The general content of individuals' cognitive representations of depressive symptoms found in the current thesis is consistent with findings from the few previous studies that have applied the SRM to comprehensively examine individuals' beliefs regarding depression. (e.g., Brown et al., 2001; Brown et al., 2007; Godoy-Izquierdo et al., 2007; Wong et al., 2010). Although understanding individuals' general representations of depressive symptoms is helpful, it is also important to understand factors contributing to variations in these representations. In this regard, the present study assessed the extent to which the severity of symptoms and the label used to identify the symptoms impact individuals' representations of their condition.

Symptom Severity and Label in Relation to SRM Domains

As expected, findings indicate that the severity level of depressive symptoms affects all SRM belief domains and, as such, has a large impact on the illness representation of the condition. Relative to moderate symptoms, low symptoms were believed to less likely be due to stable attributes and less likely to result in negative consequences. Low symptoms were also expected to last for a shorter length of time and were seen as more controllable. Professional treatment was considered less helpful in managing low symptoms.

The relationship between symptom severity and other SRM domains is consistent with previous studies that examined the correlations between the identity component of the SRM, which is typically assessed in terms of the number, or frequency, of symptoms

experienced, with other SRM domains, such as control (which has been negatively related to symptomatology), consequences (which has been positively related to symptomatology), and causal attributions of interpersonal relationships (which has been positively related to symptomatology; Brown et al., 2007; Fortune et al., 2004). Similarly, a meta-analysis of primarily the physical health literature has found severity to be positively related to beliefs regarding detrimental consequences and timeline, and negatively related to beliefs regarding control (Hagger & Orbell, 2003). The effect of the severity of symptoms is also consistent with the theory underlying the self-regulation model, since symptoms, themselves, are viewed as the starting point for the formation of the illness representation, and thus a significant determining factor in the nature of the representations that are developed. However, the current thesis helps to clarify that severity of symptoms has a causal impact on representations, since previous studies have primarily assessed this through correlational means whereby directionality of effects are less certain.

Although findings indicate symptom severity to have a considerable impact on the degree of beliefs comprising individuals' cognitive representations of depressive symptoms, the general pattern in terms of the most prominent beliefs was consistent regardless of severity level. For example, relationship/work difficulties was the highest rated cause for all severity levels, followed by daily/physical stressors. Stable attributes (e.g., genetics, chemical imbalance) figured less prominently as a potential cause, even for moderate symptoms. These findings are consistent with previous work in the depression literature that has found individuals to attribute depression to psychosocial problems (such as the ending of a romantic relationship or failure to achieve; e.g., Jadhav et al., 2001; Kangas, 2001; Kuyken et al., 1992; Pistrang & Barker, 1992; Thwaites et al.,

2004), in contrast to more biologically-based, stable causes. Furthermore, severity had no effect on beliefs regarding the permanent or cyclical nature of the condition. Both low and moderate depressive symptoms were believed to more likely be cyclical rather than permanent. These beliefs may lead individuals to not be very concerned about low depressive symptoms, given that the symptoms are expected to last for a short period of time and not result in highly negative consequences. Furthermore, individuals' understanding of the cyclical nature of depressive symptoms may lead individuals to view even moderate symptoms as not very serious. Individuals who believe that the symptoms, and presumably their negative consequences, are expected to come and go may be more likely to wait for the anticipated periods of symptom remission, and thus may not believe it is important to seek professional help or use other strategies to try to manage the condition.

Furthermore, for all levels of severity, individuals believed that their own personal efforts, such as seeking social support and using self-help strategies, would be more helpful in managing depressive symptoms, and were more likely to be used, than seeking professional treatment. Regardless of the severity of the depressive symptoms at their onset, seeking professional help was least likely to be used to manage the condition, even for moderate symptoms. Furthermore, even after the condition has lasted for longer than originally expected, seeking social support and self-help strategies were still more likely to be used than professional treatment. Thus, the severity of depressive symptoms is not sufficient to lead individuals to seek professional treatment, even though moderate severity leads to significantly higher perceived likelihood of negative consequences and longer duration, which has been found to be predictive of health care use and treatment adherence (Brown et al., 2001; Cameron et al., 1993; Edwards et al., 2007; Hampson et

al., 1990). The majority of these studies, however, did not also examine the use of other coping strategies in contrast to professional treatment seeking. It is possible that, although moderate severity leads individuals to expect their condition to have negative consequences and a long duration, individuals use other strategies to manage their condition before seeking professional help. Thus, it is important to examine further factors that influence individuals' illness representations and coping strategies, and that may play a larger role in individuals' decision to seek professional help for depressive symptoms.

In this regard, the present thesis also examined the effect of label used to identify depressive symptoms. The model suggests that the label is the abstract, or conceptual, component of the identity domain that is matched to a set of symptoms and, in turn, impacts individuals' beliefs about other domains of the condition (e.g., causes, consequences) and the strategies used to manage the condition. The limited number of studies in the depression literature that have examined individuals' beliefs about specific aspects of depression (e.g., causes) or have begun to apply the SRM to depression, have either provided individuals with only the label depression, or have used samples of individuals who have recently been diagnosed with depression (e.g., Brown et al., 2007; Vollmann et al., 2010). Thus, studies have not examined the extent to which individuals use a label, themselves, to identify depressive symptoms, or how variations in the label differentially relate to the SRM domains. Wright et al. (2007) provides support for the importance of accurate labelling of depressive symptoms as depression, rather than other mental health-related problems, to the likely use of professional services. The current thesis expands on this by clarifying how label relates to beliefs in other SRM domains

and demonstrating a mediator model that helps to clarify the way through which label relates to decisions regarding seeking professional treatment.

First, the current thesis examined the extent to which individuals use a label at all to identify depressive symptoms, and the effect of symptom severity and duration on label use. Most individuals use a label. However, a considerable portion (30%) do not use a label to identify depressive symptoms at their onset. After symptoms have lasted longer than originally expected, the majority of individuals tend to use a label, and, in particular, tend to use more depression-related labels, even when there has been no change in the symptoms themselves.

The SRM proposes that individuals match a set of symptoms to a label based on either one's own previous experience with a condition (i.e., a specific schema) or a general prototype of a condition. It is unclear whether, at symptom onset, individuals do not use a label because they do not consider such symptoms to be severe (and, therefore, are not concerned enough to attempt to identify the condition), or if individuals do not have either a specific episode-based schema or a general prototype that matches the symptoms currently experienced. The finding that many individuals who did not use a label at symptom onset used one after symptoms lasted longer than expected suggests that, for some individuals, the duration of symptoms is a central component of either their episodic memory of a past depressive episode, or their general prototype of a depression-related condition. That is, for some individuals, the duration of symptoms may be used in differentiating between depressive symptoms that they consider to be part of normal affective experience and symptoms that reflect a more serious condition that needs to be interpreted and addressed.

Consistent with the self-regulation model, findings suggest that label use is differentially related to beliefs in other SRM domains, and to the likely use of certain coping strategies. In particular, individuals who do not use a label tend to hold less severe beliefs within other SRM domains, and thus have a less severe overall illness representation of the condition. Furthermore, individuals who do not use a label are less likely to seek professional treatment. This less severe illness representation among individuals who did not use a label occurred even when symptoms were of moderate severity. This supports the model's proposition that an important factor in determining the content of an illness representation is the matching of the symptoms to a specific label, rather than simply experiencing the symptoms themselves.

The thesis further examined the importance of label by assessing how the type of label that is used relates to differences in individuals' SRM beliefs regarding the condition. In general, findings suggest that, in contrast to labels that are within the spectrum of normal affective experience, individuals who match the symptoms with a more severe label believe the condition is more likely to be due to stable causes, have a longer duration, and result in more negative consequences. Individuals who identify depressive symptoms as within the spectrum of normal affective experience are less likely to seek professional help. Thus, as predicted, findings suggest that individuals differ in how they identify the same set of symptoms, and, in turn, differ in how they manage their symptoms, particularly in terms of seeking professional help.

Interestingly, when symptoms are at lower severity levels, attributions of relationship/work difficulties are not related to the type of label used, and are believed to likely be the cause of the condition regardless of whether depressive symptoms were identified as normal affective experiences or labelled specifically as depression. There

was some indication that, when symptoms are mild, depression-related labels are actually associated with higher attributions of relationship/work difficulties as the cause. However, when symptoms are moderate, individuals who match the symptoms to a more severe label believe that relationship/work difficulties are less likely to be the cause than individuals who match the same symptoms to a less severe label. This suggests that, at higher symptom levels, individuals who use a label reflecting a more serious condition view the condition as unlikely to be due to situational problems and more likely to be due to a more stable, underlying cause. This begins to demonstrate differences in the illness representations of depression that individuals view as a response to normal situational stressors and depression as a more serious condition.

However, it remains unclear in what way individuals interpret moderate symptoms that occur in conjunction with interpersonal/work-related stressors (that is, as a response to a stressor or as a more serious condition). Although the model proposes that the identity (the symptoms and label) of a condition impacts beliefs about other SRM domains, such as causes, the model also suggests that one of the factors impacting the label used to identify a set of symptoms are the circumstances in which the symptoms occur. The model proposes that individuals attribute symptoms to stress when their onset coincides with the experience of a situational difficulty (stress-illness rule; Leventhal and Diefenbach, 1991), which has been empirically demonstrated (Cameron et al., 1995). This suggests that, if individuals experience interpersonal or work-related difficulties in conjunction with depressive symptoms, they may view these situational difficulties to be the cause of the condition. Since such causes are not associated with more severe depression labels, individuals may thus interpret the symptoms as a less severe condition. Thus, further work is needed to clarify the extent to which the severity of the symptoms

or other factors, such as situational circumstances as perceived cause, play a larger role in the interpretation and subsequent illness representation of the condition.

A further interesting finding occurred when examining how the SRM domains relate to specific types of labels that are used. Individuals who used a label in general believed the condition was more likely to result in negative consequences than individuals who did not use a label at all to identify the condition. However, when considering only those individuals who used a specific label, the severity of the type of label name was not associated with beliefs regarding negative consequences. This suggests that individuals may consider whether the symptoms will result in negative consequences as a way to determine whether the condition warrants interpreting, labelling, and regulating. Thus, beliefs regarding negative consequences may be more a function of the severity of the symptoms than the abstract information generated by the label used to identify the condition. It is also possible that beliefs about different types of negative consequences are differentially impacted by label and symptom severity. In particular, beliefs regarding more concrete aspects of negative consequences (e.g., functioning difficulties) may be impacted more by symptom severity (i.e., the concrete, experiential aspect of the identity domain), while negative consequence beliefs that are more semantic, or cognitive oriented, such as stigma, may be influenced more by the abstract, conceptual information that is associated with a label. Further work is needed to examine this using more refined measures of the various types of negative consequences, such as a more refined measure of stigma-related beliefs.

Although labels suggesting a more severe condition are associated with a greater likelihood of seeking professional help overall, findings suggest that individuals are more likely to use other strategies for coping with the condition. Even at the onset of moderate

symptoms, which the majority of individuals identified as depression, seeking social support and self-help strategies were more likely to be used to cope with the condition than professional services. Thus, while identifying depressive symptoms as depression may increase the likely use of professional treatment, the label may not be sufficient to make this strategy the most likely way of managing the condition. As such, it is important to examine further factors that may impact individuals' decisions to seek treatment.

In this regard, the thesis also examined how the duration of symptoms for longer than originally expected impacts individuals' beliefs regarding depressive symptoms. Findings indicated that symptom duration has a large effect on illness representations, and, particularly, leads individuals to form more severe illness representations of the condition than they had originally formed at symptom onset. Specifically, symptom duration results in a change in the type of label used, and leads individuals to believe the condition will result in more negative consequences and last considerably longer than originally expected. Furthermore, symptom duration leads individuals to more likely attribute the condition to stable causes and daily/physical stressors, and less to relationship/work difficulties.

Regarding coping, the duration of symptoms for longer than expected increases the likelihood of individuals using professional help. However, findings suggest that other coping strategies are likely to be used first, both at the onset of the symptoms and after the condition had lasted for longer than originally expected. As such, it is important to examine additional components of the model that may help clarify the factors that play a role in individuals' decision to seek professional treatment. For example, the model also proposes that individuals have emotional reactions to symptoms or to a specific

condition, and the way in which individuals cope with these emotions may impact the way in which they try manage their condition in general. Further examination of this component of the model may help to clarify the extent to which individuals' emotional reactions to symptoms impact their decisions to seek professional help.

Inter-relationships Among SRM Domains in the Prediction of Treatment Seeking

This thesis examined the self-regulation model's utility in predicting aspects of coping with depressive symptoms, particularly beliefs regarding the helpfulness of seeking professional treatment and the likely use of professional services. In addition, the current thesis expanded this area of study by also examining how the predictive utility of the SRM may vary in different conditions, particularly those related to the interpretation phase of the self-regulation process. Given the importance placed by the model on the symptoms and label use components comprising the identity domain, the study examined whether the predictive utility of the SRM may differ depending on the severity level of the symptoms, or depending on whether a label is used to identify the condition. This is different from how these factors have been examined in the past. For example, previous studies have assessed whether severity, as a part of the cognitive representation, is itself predictive of various facets of coping, such as treatment seeking and adherence (e.g., Aikens et al., 2008; Frostholm et al., 2005). In contrast, the current thesis examined how the overall utility of the SRM in predicting coping may differ at different levels of symptom severity.

Furthermore, the self-regulation model offers little discussion regarding how the domains within a cognitive representation may interrelate in the process of deciding how to cope (e.g., whether to seek treatment). Although past studies have examined inter-correlations among the SRM domains in general (e.g., Brown et al., 2007; Hagger &

Orbell, 2003), no previous study has attempted to clarify how the SRM domains may inter-relate, such as through a moderator model, in the process of deciding how to cope with a current condition. In this regard, this thesis began to examine the extent to which there are moderator effects among the SRM domains in relation to treatment seeking, and also whether moderator effects may differ depending on such factors as symptom severity.

The present thesis found the self-regulation model, overall, to be a good predictor of beliefs regarding the helpfulness of professional treatment and the likely use of professional services. The model generally accounted for 30% of the variation, consistent with previous studies in this area (Aikens et al., 2008; Vanheusden et al., 2009; Wong et al., 2010). However, the SRM was differentially predictive across severity levels. The SRM was a much stronger predictor when severity was low, accounting for twice as much variation in the perceived helpfulness and likely use of professional services in comparison to when severity was moderate. Furthermore, the belief domains were differentially predictive at low and moderate symptom severity. Beliefs in the consequence and duration domains were primarily predictive when severity was low, whereas, at higher severity, beliefs related to stable causes and duration length were more predictive. In addition, different moderator effects occurred at each severity level. When severity was low, moderator effects occurred primarily between beliefs regarding the timeline of the condition and negative consequences, as well attributions of daily/physical stressors as the cause. As severity increased, moderator effects occurred between beliefs about stable causes of the condition and negative consequences, as well as between beliefs about controllability and timeline.

Such variation between severity levels may reflect different processes occurring at different points in the self-regulation process. In the initial stage of symptom development, that is, when symptoms are low, the self-regulation process may be guided more by information clarifying the actual or potential increase in severity of the condition to determine whether professional treatment is needed. Thus, information from the various belief domains may play a particularly larger role to help determine the risk of the current symptoms. However, for moderate symptoms, the severity, or seriousness of the condition, may be more clearly established. Here, the focus may be on information related to whether the condition is manageable. Furthermore, relative to low severity, the smaller proportion of variance accounted for by the SRM when symptoms are moderate suggests that, at higher severity levels, other factors in addition to the SRM domains play a larger role in determining treatment seeking. Such factors may include levels of shame regarding the difficulty, family support, etc.

Regarding label use, the current thesis found the utility of the SRM in predicting treatment seeking to be highly dependent on whether or not individuals use a label to identify the presenting condition. The SRM was a good predictor when individuals used a label. However, when individuals did not use a label, the SRM was not predictive of whether or not individuals seek treatment. Thus, not only does label use (versus no label use) result in differences in the cognitive representation of a condition itself, as indicated in other portions of the study, but findings also suggest that, when no label is used, beliefs within the SRM domains are not involved in the self-regulation process in terms of whether or not to seek treatment. Although previous studies have found no label use to be associated with less treatment seeking (Cameron et al., 1993), the current thesis is the

first to demonstrate that, when no label is used, the SRM domains themselves are not used in decisions regarding whether to seek professional services.

This is consistent with the model, which suggests that, when individuals do not use a label to identify presenting symptoms, the cognitive representation of the condition may be left unclear and incoherent. The symptoms are essentially un-interpreted and more likely to be disregarded, resulting in less motivation to determine whether certain management procedures would be helpful (Martin et al., 2003). The model proposes certain reasons that symptoms may not be labelled and matched to a condition. As the model notes, it is possible that certain symptom levels may not be considered serious, and thus are more likely to be disregarded rather than further interpreted and regulated. This is certainly true for low severity symptoms. However, even when symptoms were of moderate severity, 25% of individuals would not have used any label at all at symptom onset. It may be helpful to clarify factors that influence whether individuals begin the process of interpreting symptoms at onset. For example, it is possible that the tendency to avoid symptom appraisal may be part of a general tendency of certain individuals to disregard and not attend to presenting difficulties, which thus precludes subsequent self-regulation decision-making processes.

Findings also suggest that the SRM domains may inter-relate differently (particularly with respect to moderation) across the phases of the self-regulation process in general. In particular, in the initial self-regulation stage in which individuals try to identify a condition, they may have greater uncertainty regarding the nature of the condition (e.g., particularly when symptoms are low). Thus, the focus may remain more on clarifying the label and elaborating the cognitive representation to help determine whether certain coping strategies are needed. As such, the SRM domains play a larger

role at this stage and interrelate in a manner that helps with this clarification. The focus may remain more on this earlier self-regulation stage until the cognitive representation is confirmed, either by one's self or another. When a label and representation have been more clearly established, the focus may turn more towards determining, not only whether coping strategies would be needed, but whether coping strategies would be effective in managing the condition. At this stage, it seems the SRM domains interrelate in a manner to help determine this, but the domains in the cognitive representation, overall, seem to play a comparatively lesser role at this stage. At this point, other factors may begin to play a larger role in the likely use of professional treatment, such as the cognitive representation of the treatments, etc.

As noted above, the current thesis also began to explore possible moderator relationships among the cognitive representation domains in the prediction of treatment seeking. The SRM, itself, offers little discussion as to whether such interrelationships exist. As a preliminary investigation, the current thesis examined patterns of moderator effects that may serve to clarify the severity of the condition or the manageability of the condition. Evidence of such moderator patterns emerged and differed depending on the severity level of the condition. First, moderator effects that clarify the severity of the condition occurred particularly at low symptom severity in which there may be more ambiguity regarding the nature of the condition. As an example, findings suggest that the effect of beliefs about negative consequences (particularly related to functioning) on the likely use of professional help is moderated by beliefs regarding the duration of the condition. Second, moderator effects that may serve to clarify the manageability of the condition emerged at higher levels of severity, and when the nature of the condition is clearer. In this regard, beliefs regarding the duration of the condition are moderated by

beliefs regarding the controllability of the condition, such that expectations of a longer duration lead to an increased likelihood of seeking professional help if individuals also believe the condition is controllable. Thus, findings suggest that the SRM domains may inter-relate differently at different points in the self-regulation process.

A third interesting pattern that emerged suggested that moderator effects may also result in acquiescing to a problem. For example, evidence suggested that, at the onset of depressive symptoms, the relationship between attributing the condition to relationship/work difficulties and seeking professional help is moderated by beliefs regarding the duration of the condition. When the condition is expected to have a short duration, individuals are more likely to seek professional services the more they believe the difficulty is due to relationship/work stressors, suggesting that, in such a situation, individuals may view the condition as an acute difficulty and believe that professional services may help with addressing the current, specific stressor. However, when the condition is expected to have a longer duration, then the more individuals attribute the condition to relationship or work difficulties, the less likely they are to seek treatment. This may create a view of the symptoms as an experience to be tolerated and accepted as a function of common life difficulties, and which, thus, cannot be changed, resulting in a sense of submission to the condition or defeat.

Similarly, evidence suggested that, when a mild level of symptoms has lasted longer than originally expected, greater expectations of negative consequences are associated with a greater likelihood of seeking professional treatment if individuals believe the condition is not likely to be due to stable attributes. However, individuals are significantly less likely to seek professional services the more that they attribute the symptoms to stable underlying causes. This suggests that, although beliefs regarding

negative consequences may serve to clarify the severity of mild depressive symptoms, greater attributions of underlying stable causes may contribute to a sense of hopelessness about change, and lead individuals to experience a sense of resignation to the condition.

Thus, in summary, the thesis found evidence of certain patterns of meaningful moderator relationships among the SRM domains. However, it should be noted that several of the interactions accounted for small portions of the variance of the perceived helpfulness and likely use of professional treatment, thus suggesting that moderation effects may be modest. Further work is needed to replicate these interaction patterns and clarify whether more complex interrelationships among the SRM domains exist and are more predictive (e.g., three-way interactions).

The current thesis also examined the possibility that, in other facets of the self-regulation model, a mediator relationship among the SRM domains exists. In this regard, the present thesis examined the SRM's implicit proposition that the way in which an individual labels, or identifies, a given set of symptoms determines the illness representation that is formed, and, in turn, impacts decisions regarding management of the condition. Findings suggest that stable causes, negative consequences, and length of duration mediate the relationship between label and professional help-seeking. However, there was also evidence that beliefs regarding negative consequences may be related more to the severity of the symptoms and may play a role in individuals' identification of the condition, rather than mediate the relationship between label and the likely use of professional treatment. Further work is needed to clarify this issue. However, in general, the findings provide preliminary support for the model's proposition that the label used to identify a set of symptoms impacts individuals' beliefs regarding other domains of the symptoms, particularly more abstract, conceptual based beliefs (i.e., causes and duration),

in contrast to perhaps more concrete, experiential based beliefs (e.g., consequences related to functioning), and in turn, impacts the strategies used to manage the condition.

Individual Differences

The thesis also briefly examined a particular individual difference variable, namely, individuals' history of depression, in relation to SRM beliefs regarding current depressive symptoms and the strategies likely to be used to cope with the condition. The model identifies individuals' history with a given condition as a factor on which one's interpretation of current similar symptoms is partly based. In particular, the SRM suggests that individuals may match symptoms to past illness episodes and use this as part of the basis from which to interpret and understand current symptoms. Findings from the thesis support the model's proposition that past experiences with depression relate to the content of the SRM domains of current depressive symptoms, particularly at the onset of the symptoms. After symptoms have lasted longer than expected, history of depression seems to be less related to SRM domains. Thus, findings suggest that, at symptom onset, when there may be a certain degree of ambiguity regarding the nature of the condition, history of depression may play a considerable role in determining individuals' illness representation of current symptoms. However, after symptoms have lasted longer than expected, and, in turn, may be less ambiguous, individuals seem to have a more similar pattern of beliefs of the depressive symptoms independent of their personal past experiences of the condition. Thus, in situations in which the nature of the condition may be clearer, individuals may be matching the symptoms to a more general prototype of the condition rather than to a schema of specific past episodes. However, certain elements of past personal experiences, such as lack of support from others, may still be prominent features of the representation of the current condition.

The thesis also examined an element of the process by which past experience with a condition may relate to current strategies for coping with the condition. In particular, the thesis examined the extent to which the relationship between individuals' history of depression and their likely use of professional treatment for current symptoms is mediated by SRM belief domains regarding current depressive symptoms. Findings indicate beliefs regarding the identity (label), stable attributes, negative consequences, and duration to be significant mediators in this regard. This supports the SRM's implicit proposition that past episodes of a condition may relate to strategies for coping with a current condition by impacting the illness representation of current symptoms. However, it is noted that interpretations from this analysis may be restricted due to the methodological limitations of the study's design in assessing this particular aspect of the model, since this particular mediation model was not the primary goal of the study. In particular, the primary purpose of the study required that participants be asked questions assessing their history of depression after they provided information about their SRM domain beliefs regarding the current depressive symptoms. Nonetheless, the results of this mediation analysis are conceptually in accordance with the model's theory regarding factors that may impact current illness representations of a condition which, in turn, impact coping.

Evaluation of the Model

The present thesis found support for several aspects of the self-regulation model with respect to depressive symptoms. First, consistent with the model, symptom severity was found to have a large effect on individuals' illness representations of depressive symptoms.

Also consistent with the model, findings indicate that the majority of individuals use a label to identify depressive symptoms, and label use is differentially related to

beliefs in SRM domains. In particular, individuals who do not use a label have illness representations of symptoms that are, in general, less severe than the illness representations of individuals who do use a label. As the model suggests, there are various possible reasons for the lack of label use and the associated milder illness representations, including individuals not being concerned enough about the condition to attempt to identify it, or not having had enough experience or knowledge of the symptoms to be able to identify the condition. A third possibility is that the symptoms alone are not sufficient for some individuals to identify the condition, and, for these individuals, other factors play an important role in identifying the condition, such as the duration or resulting consequences of the symptoms. Thus, it is possible that some individuals delay identifying symptoms until they gather further information, such as how long it is lasting and the impact it is having on other areas of their lives. The present thesis showed that some individuals use the duration of symptoms as information to determine the identity of a set of symptoms. Thus, the thesis empirically demonstrated that individuals differ in which aspects of a condition are central to their prototype or episodic memory of a condition. Further work is needed to clarify how certain aspects may become more prominent features of an illness representation that may impact interpretations of a given set of symptoms.

Support for the overall model was also found through the study of how the duration of symptoms for longer than originally expected affects illness representations and coping. Consistent with the model, findings indicate that individuals, in general, tend to form an illness representation of symptoms at their onset, resulting in expectations about aspects of the symptoms, such as how long they will last. When the expectations

are not met, individuals interpret this as evidence that their original understanding of the condition was inaccurate, and thus modify their illness representation of the symptoms.

The current thesis found that, regardless of the symptoms' severity level, the duration of symptoms for longer than originally expected is sufficient to lead to considerable changes in individuals' illness representations. No change in the symptoms themselves (e.g., in intensity or number) is required. This supports the model's proposal that individuals' *beliefs* regarding a set of symptoms are important to aspects of individuals' self-regulation. For example, beliefs regarding the duration of depressive symptoms impact the length of time that individuals wait to assess the effectiveness of their current coping strategies and determine whether they need to re-interpret their symptoms and modify their ways of managing the condition, such as by seeking professional help.

Regarding the predictive utility of the SRM, findings support the model's proposition that illness representation belief domains help to predict the likely use of professional services. However, findings in the current thesis suggest that the level of predictive utility may vary depending on aspects of the identity domains, such as the severity of the symptoms. Although the SRM was predictive at all levels of symptom severity, the results indicate that cognitive representation beliefs are more strongly related to views of professional treatment as helpful when depressive symptoms are mild. This may reflect the importance of the beliefs regarding the illness in determining whether to seek treatment at the early stages of the condition when there may be greater uncertainty regarding the specific nature of the condition. However, at higher levels of depressive symptoms, when the nature of the condition may be clearer, beliefs comprising the treatment representation and other aspects of the SRM model (e.g., the emotional

representations) may play a larger role in predicting the likely use of professional services than beliefs regarding the illness itself. This suggests that research examining the predictive utility of various aspects of the SRM may benefit from considering the phase of the self-regulation process in which the SRM beliefs are examined.

Regarding particular limitations of the model, although the SRM helps to clarify the content domains of illness representations that are predictive of coping, it does not discuss the inter-relationships among the belief domains in decisions regarding coping. The thesis advanced this aspect of the model by examining moderator and mediator relationships between the belief domains and beliefs related to seeking professional treatment. There was evidence of meaningful moderator effects among the SRM domains in relation to treatment seeking. Although support for moderation was generally modest, the findings, overall, demonstrate that there exists a dynamic inter-play among the SRM domains when deciding how to cope. The findings began to identify certain inter-relationships among the SRM domains that may impact decisions regarding whether to seek treatment. Further work is needed to examine the generalizability of certain moderator effects and to clarify the conditions in which moderator inter-relationships may be more prominent.

The present thesis also began to examine a mediator relationship among the SRM domains in predicting coping, and provides preliminary support for the model's proposition that the label used to identify a set of symptoms impacts individuals' beliefs regarding other domains of the condition, and in turn, impacts the strategies used to manage the condition. However, the model also notes that aspects of the illness representation, such as causes of a condition, may impact the label. Indeed, the present study found that duration of a condition can have an impact on the label and other SRM

belief domains of the illness representation of the condition. Thus, the model is unclear regarding the process by which individuals formulate their illness representation for a given set of symptoms that, in turn, is believed to impact individuals' coping strategies, such as seeking professional help. In particular, it is unclear whether individuals identify symptoms with a label that then triggers a given illness representation and provides the individual with information about the other domains of the condition, or whether information about other domains such as perceived causes and expected consequences determine how an individual identifies (i.e., labels) a condition. Furthermore, the model is unclear about the factors underlying individual differences in terms of which SRM domains may be more central to identifying a given condition and thus impacting the interpretation of the symptoms.

Relation to Previous Literature

Few previous studies have examined how individuals interpret depressive symptoms, and no study has examined how differences in the way in which individuals identify depressive symptoms impact individuals' illness representations and coping. Previous studies in the mental health literacy literature have provided individuals with a vignette of depressive symptoms and asked them to label the condition. A considerable portion of individuals did not label the condition depression (Goldney et al., 2001; Goldney et al., 2002; Jorm et al., 1997). However, these past studies did not examine how the label that individuals used impacted their beliefs regarding the condition or how these individuals would manage their condition. Furthermore, no previous study has clarified the extent to which individuals use a label at all to identify depressive symptoms, or the impact of not using a label on illness representations. The present thesis has thus expanded the previous literature by showing that, although the majority of individuals use

a label, a considerable portion do not use a label to identify depressive symptoms at their onset, and have illness representations that are less severe than individuals who do use a label. In addition, the present thesis has shown that the type of label used to identify depressive symptoms at their onset impacts individuals' beliefs about other aspects of the illness representation, namely beliefs about the duration, consequences, and causes of the condition, and the likely use of professional help. This is consistent with the few studies in the physical health literature that have found that the ways in which individuals identify their symptoms impact the strategies they use to manage their condition (Dempsey et al., 1995; Scott et al., 2007).

Such findings suggest the importance of understanding the factors that influence how individuals interpret depressive symptoms. One such factor is likely the types of symptoms that individuals associate with depression. Few studies have examined individuals' beliefs regarding the symptoms of depression. A study in the mental health literature examined what college students believe to be the main symptoms of depression. Depressed mood, reduced energy, and a pessimistic outlook were believed to be the primary characteristics of depression, with disturbed sleep and distress-agitation viewed as additional symptoms (Lauber et al., 2005). Studies applying the SRM to depression have found that individuals who are currently depressed most often describe depressed mood and anhedonia as characteristic of their depression, and also frequently reported fatigue, sleep disturbance, worthlessness, and difficulties with concentration (Brown et al., 2001; Brown et al., 2007).

The present thesis also contributes to the understanding of the symptoms that individuals associate with depression and factors that influence interpretations of depressive symptoms. In the present thesis, the low depressive symptom condition

consisted of the main symptoms of depression (depressed mood and anhedonia, as well as reduced energy). While 30% of individuals identified these symptoms as depression at onset, 70% of individuals did not. Furthermore, in conditions in which a wider range of depressive symptoms were added to these main symptoms, such as difficulties sleeping and concentrating and feelings of worthlessness, 66% of individuals identified these symptoms as depression. Thus, for some individuals, the primary criteria of a major depressive episode is sufficient for them to identify their condition as depression. Other individuals associate depression with a larger array of symptoms. However, a considerable portion of individuals (over 30%) do not identify even a wide range of depressive symptoms as depression. When symptoms last for longer than expected, however, individuals who did not initially identify the symptoms as depression do identify the condition as depression at that time. Even the majority of individuals who were provided with only the main symptoms, and did not identify the symptoms as depression at onset, labelled the condition as depression after the symptoms lasted longer than expected.

These findings suggest that, for some individuals, their identity of depression centers strongly around the main symptoms of a depressive episode. However, for other individuals, their identity of depression is only partly based on symptoms, even when these symptoms consist of a wide range of issues. For these individuals, the duration of the symptoms is a strong component of their understanding of depression, and play a large role in their interpretation of depressive symptoms. These findings enhance our understanding of the factors that are central to individuals' cognitive representation of depression and are, thus, central to how individuals identify depressive symptoms.

Coping strategies such as seeking social support and self-help are still most likely to be used, which is consistent with previous studies in the depression and physical health literature that have found such strategies to be amongst the most common (Angermeyer et al., 2001; Hagger & Orbell, 2003; Rippere, 1976, 1977). Nonetheless, the duration of symptoms increases the likely use of seeking professional help. However, the reason as to why this is the case remains unclear. In the present thesis, symptom duration was found to lead individuals to expect more negative consequences and a longer duration than originally anticipated at symptom onset. Thus, individuals may view the condition as more serious. However, studies have found conflicting findings regarding the relationship between beliefs about negative consequences and duration, and seeking professional help. While some studies have found expected negative consequences and longer duration to be positively associated with professional help-seeking (Edwards et al., 2007; Frostholm et al., 2005), other studies have shown that individuals who expect their condition to last for a long period of time and to result in more negative consequences are more likely to use avoidant and passive coping strategies, rather than active problem-solving strategies such as seeking professional treatment (Hagger & Orbell, 2003; Heijmans, 1998). Thus, it is important to clarify further factors that impact how individuals cope with depressive symptoms, and what leads individuals to decide to shift from an avoidant coping strategy to seeking professional help.

Lastly, the majority of previous studies examining the SRM in the physical health and depression literature have focused on the content of the illness representations, but very few have examined factors that lead to changes in individuals' illness representation of a set of symptoms after their initial onset. The present study adds to the current literature by demonstrating that symptom duration is sufficient to result in considerable

changes in illness representations of depressive symptoms, and the likely use of professional help. No change in the number or intensity of the symptoms is required. As noted previously, this demonstrates the importance of individuals' beliefs regarding a condition, since such beliefs impact individuals' decision regarding when to assess the effectiveness of their current coping strategy and potentially change their strategy to seeking professional help.

Practical Implications

Findings from the present study help to inform the type of psychoeducation programs regarding depression that may be useful to provide to individuals to help them interpret and manage depressive symptoms. Findings suggest that individuals differ in how they identify the same set of depressive symptoms. While some individuals may identify the condition as depression, others may identify the symptoms as part of normal experiences of negative affect. However, this difference in the labelling of depressive symptoms leads individuals to have different beliefs that are predictive of seeking professional help. Thus, psychoeducation programs that help individuals to recognize depressive symptoms as depression would help to increase the likelihood of individuals seeking professional treatment.

Although beliefs about stable causes are predictive of seeking professional treatment, individuals are generally most likely to attribute depressive symptoms to relationship/work difficulties, regardless of whether they label the symptoms as depression or as a more normal experience. Thus, it is important for psychoeducation programs to help individuals to understand that even depressive symptoms due to common interpersonal or achievement-related difficulties may still warrant professional treatment. Furthermore, current findings indicate that, at the onset of even moderate

symptoms identified as depression, professional help is still the less likely strategy to be used to manage the condition. Thus, it is important for psychoeducation programs to encourage individuals to recognize that other coping strategies may not be sufficient in managing their condition, especially if they are experiencing moderate level symptoms. As such, it is important to help individuals become aware of the coping strategies that they typically use, the pros and cons of such strategies, and to recognize that such strategies may not be effective.

The current findings have shown that individuals' beliefs regarding the expected duration of depressive symptoms may play a considerable role in determining when individuals evaluate their interpretation of their symptoms and decide whether they need to reassess their understanding and management of their symptoms. Thus, it may be helpful for psychoeducation programs to provide information on the expected duration of depression so that individuals re-evaluate their condition within an appropriate time-frame, rather than waiting too long to determine that their current coping strategies have been ineffective. In addition, individuals' view of depressive symptoms as cyclical may lead individuals to simply wait until their condition remits. Thus, it is important to help individuals understand the potential negative impact of waiting until their symptoms subside, and the importance of seeking professional help soon after symptom onset.

Limitations and Future Research

The present thesis examined the *likely use* of various strategies for coping with depressive symptoms. However, it did not clarify whether or not individuals would, indeed, use a specific coping strategy. While it is presumed that likely use is correlated with actual use, there may be some distinction, and there may be certain factors that impact individuals' decisions to actually use a given coping strategy. Furthermore, while

a given strategy may be identified as less likely to be used than another strategy, it is still possible that both strategies would still be used to some extent. Thus, it may be helpful for future research to use a methodology that clarifies how such factors as label and symptom duration affect the actual use of a range of coping strategies, including seeking professional treatment.

The present study also did not explicitly assess individuals' perceptions of the effectiveness of their coping strategies. Although it is presumed that individuals use strategies that they believe will be effective in managing their symptoms, there is some evidence in the literature to suggest that individuals may use coping strategies that they do not believe are highly useful in improving their symptoms (Brown et al., 2001). Thus, it may be helpful to examine the perceived effectiveness of the strategies used and the specific reasons as to why individuals choose to use certain strategies. Interventions may then be directed at these specific reasons for selecting certain coping strategies, rather than simply focusing on informing individuals that their strategies are less effective than they believe.

A further limitation includes the use of a university sample who is likely more educated about depressive symptoms than the general public. Examining factors that impact how depressive symptoms are interpreted among a more general population would be beneficial. Also with respect to methodology, Study 2 attempted to examine the self-regulation process of forming hypotheses regarding a current condition and helpful coping strategies, re-assessing the accuracy of their hypotheses, and modifying one's understanding of the condition in light of information that is inconsistent with one's initial illness representation. The study would have benefitted from adding components that may help to more clearly reflect and test the self-regulation process, such as

explicitly asking individuals to imagine that they had engaged in their strategy for managing the condition and, upon appraising whether the strategy was helpful in reducing the symptoms, found, in contrast, that the symptoms had lasted for longer than expected. In this way, the study would have more explicitly incorporated the self-regulation elements of setting goals, developing and engaging in strategies to achieve those goals, and assessing one's progress. Thus, changes to the illness representations after symptoms have lasted longer than originally expected could be more clearly interpreted as a function of the self-regulation process. However, the study offers an experimental examination of the ways in which individuals' illness representations change after individuals are presented with information that is inconsistent with their initial expectations of the condition and implicitly indicative of the lack of progress toward the goal of managing the given condition.

In general, the study of the process of self-regulation was limited by a vignette based methodology, since it is difficult to know the extent to which individuals fully imagined themselves having the experience described in the vignette. Furthermore, vignettes may not reflect the nuances of an actual experience of depression symptoms, and do not capture the process involved in the interpretation and management of symptoms as they develop. The dynamic nature of the self-regulation process as it unfolds in actual life may be better understood through longitudinal, diary-based methodologies. Such designs would help further describe individuals' interpretations of depressive symptoms at onset and over time, the illness representations at various points of the development of depressive symptoms, the strategies that are used to manage the symptoms, and factors that impact the point at which individuals' decide to seek professional help.

Regarding statistical limitations, it is noted that the numerous analyses that were conducted in the current thesis could result in an inflated Type I error rate. Since several aspects of the current studies were generally exploratory (e.g., moderator effects), greater value was placed on identifying significant results rather than limiting findings by correcting for statistical error. Nonetheless, the elevated Type I error rate of the current studies should be noted and suggests the importance of replication of the present findings in the future. Examining the effect sizes related to the severity, duration, and label findings from the analyses of variance would also help to clarify how strongly these factors impact on SRM domains.

It is also important for future studies to examine the factors or circumstances that impact on individuals' decision to seek professional help. This may include the dynamic inter-relationships among the various SRM domains, both in terms of impacting the content of the illness representation and in decisions regarding coping. For example, it may be helpful to assess the extent to which SRM domains are considered in a specific order and whether those domains that are considered first subsequently impact beliefs in other domains. For example, it is possible that individuals identify a set of symptoms with a label. They may then consider the expected duration of the condition, and subsequently assess the degree of negative consequences that would occur as a result of the symptoms lasting for that period of time. Research further examining the potential moderator relationships among the SRM domains in predicting coping may also be useful in clarifying how the SRM information is organized and processed when deciding whether to seek treatment.

It is also important to examine how additional components of the model impact on individuals' illness representations and decisions to seek professional services. For

example, it may be helpful to clarify the ways in which specific aspects of individuals' history of depression relate to, and impact, the illness representation of their current symptoms. Also, the model proposes that individuals often experience emotions in response to their understanding of a set of symptoms, and how individuals cope with these emotional reactions may influence how they attempt to manage their symptoms (Leventhal et al., 2001; Leventhal et al., 2003). It would be helpful to further examine how individuals feel about having depressive symptoms, how they attempt to cope with these feelings, and the impact of this on their cognitive representation of the condition. For example, some individuals may interpret depressive symptoms to mean that they are not capable of coping with difficulties, which may lead them to feel shame and anger with themselves. These individuals may thus deny their symptoms and their need for help to avoid these emotions. Similarly, it may be sad, disappointing, and frightening for some individuals to recognize and accept that there are problems in their interpersonal relationships that may be causing their depressive symptoms. They may thus deny these difficulties, and not consider these difficulties to be a cause of their depressive symptoms. In this regard, it would be helpful for research to examine how individuals interpret and respond to depressive symptoms when they deny the cause of their problem. It is possible that denying such causes lead individuals to become confused as to the nature of the symptoms. They may, thus, be less likely to identify the symptoms with a specific label, resulting in an illness representation that is less severe than the reality of the condition, and thus decreasing the likelihood that these individuals will seek professional treatment. Further examination of individuals' emotional responses to their beliefs regarding depressive symptoms (e.g., causes, consequences) and the ways in which individuals cope with these emotional responses may help to clarify factors that impact individuals'

interpretation of depressive symptoms when they occur and how they attempt to manage these symptoms.

Overall, the self-regulation model provides a useful framework from which to understand individuals' beliefs regarding depressive symptoms. The model also helps to identify factors that may impact how individuals interpret and try to cope with their depressive symptoms, and factors that may lead to changes in individuals' illness representation and methods of managing their condition. Understanding such factors can help inform and enhance the psychoeducation programs provided to individuals regarding depressive symptoms, and, in turn, improve the likelihood that individuals will seek and adhere to appropriate professional treatment.

References

Aalto-Setala, T., Marttunen, M., Tullio-Henriksson, A., Poikolainen, K., & Lonnqvist, J. (2002). Psychiatric treatment seeking and psychosocial impairment among young adults with depression. *Journal of Affective Disorders, 70*, 35-47.

Aikens, J. E., Nease, D. E., & Klinkman, M. S. (2008). Explaining patients' beliefs about the necessity and harmfulness of antidepressants. *Annals of Family Medicine, 6*, 23-29.

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes, 50*, 179-211.

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. New Jersey: Prentice Hall.

American Psychiatric Association (2000). Diagnostic and statistical manual of mental disorders (4th ed., Text Revision). Washington, DC: American Psychiatric Association.

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

Angermeyer, M. C., Matschinger, H., & Riedel-Heller, S. G. (2001). What to do about mental disorder: Help-seeking recommendations of the lay public. *Acta Psychiatrica Scandinavica, 103*, 220-225.

Arnow, B. A., Blasey, C., Manber, R., Constantino, M. J., Markowitz, J. C., Klein, D. N., ... Rush, A. J. (2007). Dropouts versus completers among chronically depressed outpatients. *Journal of Affective Disorders, 97*, 197-202.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173-1182.

Baumann, L., Cameron, L. D., Zimmerman, R., & Leventhal, H. (1989). Illness representations and matching labels with symptoms. *Health Psychology, 8*, 449-469.

Becker, M. H. (1974). The health belief model and sick role behaviour. *Health*

Education Monographs, 2, 409-419.

Beckham, E. E., & Leber, W. R. (Eds.). (1995). *Handbook of depression* (2nd ed.). New York: Guilford Press.

Brewer, N. T., Chapman, G. B., Brownlee, S., & Leventhal, E. A. (2002). Cholesterol control, medication adherence, and illness cognition. *British Journal of Health Psychology, 7*, 433-447.

Broadbent, E., Kydd, R., Sanders, D., & Vanderpyl, J. (2008). Unmet needs and treatment seeking in high users of mental health services: The role of illness perceptions. *Australian and New Zealand Journal of Psychiatry, 42*, 147-153.

Brown, C., Battista, D. R., Bruehlman, R., Sereika, S., Thase, M., & Dunbar-Jacob, J. (2005). Beliefs about antidepressant medications in primary care patients. *Medical Care, 43*, 1203-1207.

Brown, C., Battista, D. R., Sereika, S. M., Bruehlman, R. D., Dunbar-Jacob, J., & Thase, M. E. (2007). Primary care patients' personal illness models for depression: Relationship to coping behavior and functional disability. *General Hospital Psychiatry, 29*, 492-500.

Brown, T. A., Chorpita, B. F., Korotitsch, W., & Barlow, D. H. (1997). Psychometric properties of the Depression Anxiety Stress Scales (DASS) in clinical samples. *Behaviour Research and Therapy, 35*, 79-89.

Brown, C., Dunbar-Jacob, J., Palenchar, D. R., Kelleher, K. J., Bruehlman, R. D., Sereika, S., & Thase, M. E. (2001). Primary care patients' personal illness models for depression: A preliminary investigation. *Family Practice, 18*, 314-320.

Cabassa, L. J., & Zayas, L. H. (2007). Latino immigrants' intentions to seek depression care. *American Journal of Orthopsychiatry, 77*, 231-242.

Cameron, L., Leventhal, E. A., & Leventhal, H. (1993). Symptom representation and affect as determinants of care seeking in a community-dwelling, adult sample population. *Health Psychology, 12*, 171-179.

Cameron, L., Leventhal, E. A., & Leventhal, H. (1995). Seeking medical care in response to symptoms and life stress. *Psychosomatic Medicine, 57*, 37-47.

Carver, C. S. (1997). You want to measure coping but your protocol's too long:

Consider the Brief COPE. *International Journal of Behavioral Medicine, 4*, 92-100.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology, 56*, 267-283.

Christiana, J. M., Gilman, S. E., Guardino, M., Mickelson, K., Morselli, P. L., Olfson, M., Kessler, R. C. (2000). Duration between onset and time of obtaining initial treatment among people with anxiety and mood disorders: An international survey of members of mental health and patient advocate groups. *Psychological Medicine, 30,* 693-703.

Cirakoglu, O. C., Kokdemir, D., & Demirutku, K. (2003). Lay theories of causes of and cures for depression in a Turkish university sample. *Social Behavior and Personality, 31*, 795-806.

Clara, I. P., Cox, B. J., & Enns, M. W. (2001). Confirmatory factor analysis of the Depression-Anxiety-Stress Scales in depressed and anxious patients. *Journal of Psychopathology and Behavioral Assessment, 23*, 61-67.

Clark, K. K., Bormann, C. A., Cropanzano, R. S., & James, K. (1995). Validation evidence for three coping measures. *Journal of Personality Assessment, 65*, 434-455.

Cooper. A., Lloyd, G., Weinman, J., & Jackson, G. (1999). Why patients do not attend cardiac rehabilitation: Role of intentions and illness beliefs. *Heart, 82*, 234-236.

Cooper, C., Katona, C., & Livingston, G. (2008). Validity and reliability of the Brief COPE in carers of people with dementia: the LASER-AD Study. *Journal of Nervous and Mental Disease, 196*, 838-843.

Davies, R. M., Sieber, K. O., & Hunt, S. L. (1994). Age-cohort differences in treating symptoms of mental illness: A process approach. *Psychology and Aging, 9*, 446-453.

Dempsey, S., Dracup, K., & Moser, D. (1995). Women's decision to seek care for symptoms of acute myocardial infarction. *Heart & Lung, 24*, 444-456.

Detweiler-Bedell, J. B., Detweiler-Bedell, B., Hazlett, A., & Friedman, M. A. (2008).

The effect of diagnosis and perceived reward on perceptions of depressive symptoms and social support. *Journal of Social and Clinical Psychology, 27*, 1-35.

Duncan, B. L., Miller, S. D., & Sparks, J. A. (2004). *The heroic client: A revolutionary way to improve effectiveness through client-directed, outcome-informed therapy*. San Francisco, CA: Jossey-Bass.

Edwards, S., Tinning, L., Brown, J. S. L., Boardman, J., & Weinman, J. (2007). Reluctance to seek help and the perception of anxiety and depression in the United Kingdom. *The Journal of Nervous and Mental Disease, 195*, 258-261.

Folkman, S., & Lazarus, R. S. (1980). *Manual for the Ways of Coping Questionnaire*. Palo Alto, CA: Consulting Psychologists Press.

Fortune, G., Barrowclough, C., & Lobban, F. (2004). Illness representations in depression. *The British Journal of Clinical Psychology, 43*, 347-364.

Frostholm, L., Fink, P., Christensen, K. S., Toft, T., Oernboel, E., Olesen, F., & Weinman, J. (2005). The patients' illness perceptions and the use of primary health care. *Psychosomatic Medicine, 67*, 997-1005.

Furnham, A., Pereira, E., & Rawles, R. (2001). Lay theories of psychotherapy: Perceptions of the efficacy of different "cures" for specific disorders. *Psychology, Health, and Medicine, 6*, 77-84.

Galbaud du Fort, G., Newman, S. C., Boothroyd, L. J., & Bland, R. C. (1999). Treatment seeking for depression: Role of depressive symptoms and comorbid psychiatric diagnoses. *Journal of Affective Disorders, 52*, 31-40.

Godoy-Izquierdo, D., Lopez-Chicheri, I., Lopez-Torrecillas, F., Velez, M, & Godoy, J. F. (2007). Contents of lay illness models dimensions for physical and mental diseases and implications for health professionals. *Patient Education and Counselling, 67*, 196-213.

Goldney, R. D., Fisher, L. J., & Wilson, D. H. (2001). Mental health literacy: An impediment to the optimum treatment of major depression in the community. *Journal of Affective Disorders, 64*, 277-284.

Goldney, R. D., Fisher, L. J., Wilson, D. H., & Cheok, F. (2002). Mental health literacy

of those with major depression and suicidal ideation: An impediment to help seeking. *Suicide and Life-Threatening Behavior, 32*, 394-403.

Hagger, M. S., & Orbell, S. (2003). A meta-analytic review of the common-sense model of illness representation. *Psychology and Health, 18*, 141-184.

Hampson, S. E., Glasgow, R. E., & Toobert, D. J. (1990). Personal models of diabetes and their relations to self-care activities. *Health Psychology, 9*, 632-646.

Hampson, S. E., Glasgow, R. E., & Zeiss, A. M. (1994). Personal models of osteoarthritis and their relation to self-management activities and quality of life. *Journal of Behavioral Medicine, 17*, 143-158.

Heijmans, M. (1998). Coping and adaptive outcome in chronic fatigue syndrome: Importance of illness cognitions. *Journal of Psychosomatic Research, 45*, 39-51.

Henry, J. D., & Crawford, J. R. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British Journal of Clinical Psychology, 44*, 227-239.

Hetherington, J., & Stoppard, J. (2002). The theme of 'disconnection' in adolescent girls' understanding of depression. *Journal of Adolescence, 25*, 619-629.

Holliday, J., Wall, E., Treasure, J., & Weinman, J. (2005). Perceptions of illness in individuals with anorexia nervosa: A comparison with lay men and women. *International Journal of Eating Disorders, 37*, 50-56.

Horwath, E., Johnson, J., Klerman, G. L., & Weissman, M. M. (1994). What are the public health implications of subclinical depressive symptoms? *Psychiatric Quarterly, 65*, 323-337.

Indiana Consortium for Mental Health Services Research (1996). *Americans' views of mental health and illness at century's end: Continuity and change*. Retrieved from http://www.indiana.edu/~icmhsr/amerview1.pdf

Jadhav, S., Weiss, M. G., & Littlewood, R. (2001). Cultural experience of depression among white Britons in London. *Anthropology & Medicine, 8*, 47-69.

Jorm, A. F., Korten, A. E., Jacomb, P. A., Christensen, H., Rodgers, B., & Pollitt, P. (1997). "Mental health literacy": A survey of the public's ability to recognize mental disorders and their beliefs about the effectiveness of treatment. *The Medical Journal of Australia, 166*, 182-186.

Judd, L. L., Akiskal., H. S., Zeller, P. J., Paulus, M., Leon, A. C., Maser, J. D., ... Keller, M. B. (2000). Psychosocial disability during the long-term course of unipolar major depressive disorder. *Archives of General Psychiatry, 57*, 375-380.

Kangas, I. (2001). Making sense of depression: Perceptions of melancholia in lay narratives. *Health, 5*, 76-92.

Kelly, M. A. R., Sereika, S. M., Battista, D. R., & Brown, C. (2007). The relationship between beliefs about depression and coping strategies: Gender differences. *British Journal of Clinical Psychology, 46*, 315-332.

Kemp, S. Morley, S., & Anderson, E. (1999). Coping with epilepsy: Do illness representations play a role? *British Journal of Clinical Psychology, 38*, 43-58.

Kessler, R. C., Berglund, P., Demler, O., Jin, R., Merikangas, K. R., & Walters, E. E. (2005). Lifetime prevalence and age of onset distributions of DSM-IV disorders in the National Comorbidity Survey replication. *Archives of General Psychiatry, 62*, 593-602.

Kessing, L. V., Hansen, H. V., Demyttenaere, K., & Bech, P. (2005). Depressive and bipolar disorders: Patients' attitudes towards depression and antidepressants. *Psychological Medicine, 35*, 1205-1213.

Kirk, L., Haaga, D. A., Solomon, A., & Brody, C. (2000). Perceptions of depression among never-depressed and recovered-depressed people. *Cognitive Therapy and Research, 24*, 585-594.

Kleinke, C. L., Staneski, R. A., & Mason, J. K. (1982). Sex differences in coping with depression. *Sex Roles, 8*, 877-889.

Kuyken, W., Brewin, C. R., Power, M. J., & Furnham, A. (1992). Causal beliefs about depression in depressed patients, clinical psychologists, and lay persons. *British Journal of Medical Psychology, 65*, 257-268.

Lambert, M. J. (1992). Implications of outcome research for psychotherapy integration. In J. C. Norcross & M. R. Goldstein (Eds.), *Handbook of psychotherapy integration* (pp. 94-129). New York: Basic Books.

Lau, R. R., Bernard, T. M., & Hartman, K. A. (1989). Further explorations of common-sense representations of common illnesses. *Health Psychology, 8*, 195-219.

Lau, R. R., & Hartman, K. A. (1983). Common sense representation of common

illnesses. *Health Psychology, 2*, 167-185.

Lauber, C., Ajdacic-Gross, V., Fritschi, N., Stulz, N., & Rossler, W. (2005). Mental health literacy in an educational elite – an online survey among university students. *BioMed Central Public Health, 5*, 1-9.

Lauber, C., Nordt, C., Falcato, L., & Rossler, W. (2001). Lay recommendations on how to treat mental disorders. *Social Psychiatry and Psychiatric Epidemiology, 36*, 553-556.

Lauber, C., Nordt, C., Falcato, L., & Rossler, W. (2003). Do people recognize mental illness? Factors influencing mental health literacy. *European Archives of Psychiatry and Clinical Neuroscience, 253*, 248-251.

Leahy, R. L. (2003). *Roadblocks in cognitive-behavioral therapy*. New York: The Guilford Press.

Leventhal, H., Brissette, I., & Leventhal, E. A. (2003). The common-sense model of self-regulation of health and illness. In L. D. Cameron & H. Leventhal (Eds.), *The self-regulation of health and illness behaviour* (pp. 42-65). New York: Routledge.

Leventhal, H., & Diefenbach, M. (1991). The active side of illness cognition. In J. A. Skelton & R. T. Coryle (Eds.), *Mental representation in health and illness* (pp. 247-272). New York: Springer-Verlag.

Leventhal, H., Diefenbach, M., & Leventhal, E. A. (1992). Illness cognitions: Using common sense to understand treatment adherence and affect cognition interactions. *Cognitive Therapy and Research, 16*, 143-163.

Leventhal, H., Leventhal, E., & Cameron, L. (2001). Representations, procedures, and affect in illness self-regulation: A perceptual-cognitive model. In A. Baum, T. A. Revenson, & J. E. Singer (Eds.), *Handbook of health psychology* (pp. 19-47). Mahwah, NJ: Lawrence Erlbaum Associates.

Leventhal, H., Meyer, D., & Nerenz, D. (1980). The common sense representation of illness danger. In S. Rachman (Ed.), *Medical psychology: Vol II* (pp. 7-30). New York: Pergamon Press.

Leventhal, H., Nerenz, D., & Steele, D. F. (1984). Illness representations and coping with health threats. In A. Baum & J. Singer (Eds.), *A handbook of psychology and health* (pp. 219-252). New Jersey: Erlbaum.

Leventhal, H., Nerenz, D., & Strauss, A. (1982). Self-regulation and the mechanisms for symptom appraisal. In D. Mechanic (Ed.), *Monograph series in psychosocial epidemiology 3: Symptoms, illness behavior, and help-seeking* (pp. 55-86). New York: Neale Watson.

Lobban, F., Barrowclough, C., & Jones, S. (2003). A review of the role of illness models in severe mental illness. *Clinical Psychology Review, 23*, 171-196.

Lobban, F., Barrowclough, C., & Jones, S. (2004). The impact of beliefs about mental health problems and coping on outcome in schizophrenia. *Psychological Medicine, 34*, 1165-1176.

Lobban, F., Barrowclough, C., & Jones, S. (2005). Assessing cognitive representations of mental health problems: The Illness Perception Questionnaire for schizophrenia. *The British Journal of Clinical Psychology, 44*, 147-162.

Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales*. Sydney: The Psychology Foundation of Australia.

Martin, R., Rothrock, N., Leventhal, H., & Leventhal, E. (2003). Commonsense models of illness: Implications for symptom perception and health-related behaviours. In J. Suls & K. A. Wallston (Eds.), *Social psychological foundations of health and lllness* (pp. 199-225). Malden, MA: Blackwell Publishing.

Meyer, D., Leventhal, H., & Gutmann, M. (1985). Common-sense models of illness: The example of hypertension. *Health Psychology, 4*, 115-135.

Meyer, B. (2001) Coping with severe mental illness: Relations of the Brief COPE with symptoms, functioning, and well-being. *Journal of Psychopathology and Behavioral Assessment, 23*, 265-277.

Mitchell, A. J. (2006). High medication discontinuation rates in psychiatry: How often is it understandable? *Journal of Clinical Psychopharmacology, 26*, 109-112.

Moss-Morris, R., Petrie, K. J., & Weinman, J. (1996). Functioning in chronic fatigue syndrome: Do illness perceptions play a regulatory role? *British Journal of Health Psychology, 1*, 15-25.

Moss-Morris, R., Weinman, J., Petrie, K. J., Horne, R., Cameron, L. D., & Buick, D. (2002). The revised Illness Perception Questionnaire (IPQ-R). *Psychology and Health, 17*, 1-16.

Nolen-Hoeksema, S. (1991). Responses to depression and their effects on the duration of depressed mood. *Journal of Abnormal Psychology, 100*, 569-582.

Olfson, M., Mojtabai, R., Sampson, N., Hwang, I., Druss, B., Wang, P., ... Kessler, R. C. (2009). Dropout from outpatient mental health care in the United States. *Psychiatric Services, 60*, 898-907.

O'Mahen, H. A., Flynn, H. A., Chermack, S., & Marcus, S. (2009). Illness perceptions associated with perinatal depression treatment use. *Archives of Women's Mental Health, 12*, 447-450.

Petrie, K. J., Weinman, J., Sharpe, N., & Buckley, J. (1996). Role of patients' view of their illness in predicting return to work and functioning after myocardial infarction: Longitudinal study. *British Medical Journal, 312*, 1191-1194.

Pistrang, N., & Barker, C. (1992). Clients' beliefs about psychological problems. *Counselling Psychology Quarterly, 5*, 325-336.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*, 879-891.

Priest, R. G., Vize, C., Roberts, A., Roberts, M., & Tylee, A. (1996). Lay people's attitudes to treatment of depression: Results of opinion poll for Defeat Depression Campaign just before its launch. *British Medical Journal, 313*, 858-859.

Prochaska, J. O., & DiClemente, C. C. (1984). *The transtheoretical approach: Crossing boundaries of therapy*. Illinois: Dow Jones Irwin.

Riedel-Heller, S. G., Matschinger, H., & Angermeyer, M. C. (2005). Mental disorders – who and what might help: Help-seeking and treatment preference of the lay public. *Social Psychiatry and Psychiatric Epidemiology, 40*, 167-174.

Rippere, V. (1976). Antidepressive behaviour: A preliminary report. *Behavior Research and Therapy, 14*, 289-299.

Rippere, V. (1977). What's the thing to do when you're feeling depressed? *Behavior Research and Therapy, 15*, 185-191.

Rippere, V. (1979). Scaling the helpfulness of antidepressive activities. *Behavior Research and Therapy, 17*, 439-449.

Rutter, C. L., & Rutter, D. R. (2002). Illness representation, coping, and outcome in

irritable bowel syndrome (IBS). *British Journal of Health Psychology, 7*, 377-391.

Scharloo, M., Kaptein, A. A., Weinman, J., Hazes, J. M., Willems, L. N. A., Bergman, W., & Rooijmans, H. G. M. (1998). Illness perceptions, coping, and functioning in patients with rheumatoid arthritis, chronic obstructive pulmonary disease, and psoriasis. *Journal of Psychosomatic Research, 44*, 573-585.

Scott, S. E., McGurk, M., & Grunfeld, E. A. (2007). The process of symptom appraisal: Cognitive and emotional responses to detecting potentially malignant oral symptoms. *Journal of Psychosomatic Research, 62*, 621-630.

Stafford, L., Jackson, H. J., & Berk, M. (2008). Illness beliefs about heart disease and adherence to secondary prevention regimens. *Psychosomatic Medicine, 70*, 942-948.

Stockford, K., Turner, H., & Cooper, M. J. (2007). Metacognition in anorexia nervosa, dieting, and non-dieting controls: A preliminary investigation. *British Journal of Clinical Psychology, 46*, 113-117.

Thwaites, R., Dagnan, D., Huey, D., & Addis, M. E. (2004). The Reasons for Depression Questionnaire (RFD): UK standardization for clinical and non-clinical populations. *Psychology and Psychotherapy, 77*, 363-374.

Thompson, A., Hunt, C., & Issakidis, C. (2004). Why wait? Reasons for delay and prompts to seek help for mental health problems in an Australian clinical sample. *Social Psychiatry and Psychiatric Epidemiology, 39*, 810-817.

Vanheusden, K., van der Ende, J., Mulder, C. L., van Lenthe, F. J., Verhulst, F. C., & Mackenbach, J. P. (2009). Beliefs about mental health problems and help-seeking behavior in Dutch young adults. *Social Psychiatry and Psychiatric Epidemiology, 44*, 239-246.

Vollman, M., Scharloo, M., Salewski, C., Dienst, A., Schonauer, K., Renner, B. (2010). Illness representations of depression and perceptions of the helpfulness of social support: Comparing depressed and never-depressed persons. *Journal of Affective Disorders, 125*, 213-220.

Wang, P. S., Berglund, P., Olfson, M., Pincus, H. A., Wells, K. B., & Kessler, R. C.

(2005). Failure and delay in initial treatment contact after first onset of mental disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry, 62*, 603-613.

Weinman, J., Petrie, K., Moss-Morris, R., & Horne, R. (1996). The Illness Perception Questionnaire: A new method for assessing the cognitive representation of illness. *Psychology and Health, 11*, 431-445.

Williams, B., & Healy, D. (2001). Perceptions of illness causation among new referrals to a community mental health team: "Explanatory model" or "exploratory map"? *Social Science and Medicine, 53*, 465-476.

Wong, Y. J., Tran, K., Kim, S., Van Horn Kerne, V., & Calfa, N. (2010). Asian Americans' lay beliefs about depression and professional help seeking. *Journal of Clinical Psychology, 66*, 317-332.

Wright, A., Jorm, A. F., Harris, M. G., & McGorry, P. D. (2007). What's in a name? Is accurate recognition and labelling of mental disorders by young people associated with better help-seeking and treatment preferences? *Social Psychiatry and Psychiatric Epidemiology, 42*, 244-250.

Appendix A

Study 1: Ethics Approval

Department of Psychology The University of Western Ontario
Room 7418 Social Sciences Centre,
London, ON, Canada N6A 5C1
Telephone: (519) 661-2067Fax: (519) 661-3961

Use of Human Subjects - Ethics Approval Notice

Review Number	06 12 03	Approval Date	06 12 18
Principal Investigator	Nick Kuiper/Catherine Leite	End Date	07 04 30
Protocol Title	Beliefs about mental health and well-being		
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: http://www.uwo.ca/research/ethics/)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:
a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2006-2007 PREB are: Mike Atkinson, Bertram Gawronski, Rick Goffin, and Jim Olson

CC: UWO Office of Research Ethics

This is an official document. Please retain the original in your files

Appendix B

Study 1: Severity Vignettes

Low

Please imagine that you are having the following experience:

You are <u>depressed</u> right now.* For the past few days, you have been less interested in doing things that you used to enjoy. You haven't felt like talking with your friends as often as you normally do, and feel like you have a little less energy than usual. For the past few days, you have been feeling sad. However, you still find it easy to get out of bed, and you are able to complete all the things that you need to do, such as grocery shopping, and going to school. You are still able to concentrate, and sleep well nearly every night.

Moderate

Please imagine that you are having the following experience:

You are <u>depressed</u> right now.* For the past two weeks, you have been less interested in doing things that you used to enjoy, and don't get as much pleasure out of life. You have found it hard to concentrate and have struggled to make decisions. You have been sometimes thinking that you are a failure and that everyone else is better than you. You feel tired, and have had trouble sleeping. Moreover, for the past two weeks, you have been feeling sad and sometimes cry. You have less energy than usual, and sometimes find it difficult to get out of bed. You haven't felt like talking, and haven't gone out with your friends and family as often as you used to. There are some days when you struggle to complete your daily tasks, such as grocery shopping or going to school.

**For the three other label conditions, the label given was "stress," "sad," or no label at all.*

Appendix C

Study 1: SRM Measure

Please continue to imagine that you are having the experience described in the scenario. For each item below, please circle the number that indicates how likely you think the circumstance could have **caused** the experience.

	Very Unlikely			Moderately Likely			Very Likely
a) a virus, germ, or bacteria	1	2	3	4	5	6	7
b) a traumatic experience	1	2	3	4	5	6	7
c) ending a romantic relationship	1	2	3	4	5	6	7
d) diet or eating habits	1	2	3	4	5	6	7
e) family or other relationship problems	1	2	3	4	5	6	7
f) genetics	1	2	3	4	5	6	7
g) personality	1	2	3	4	5	6	7
h) the death of a loved one	1	2	3	4	5	6	7
i) losing a job	1	2	3	4	5	6	7
j) taking illegal drugs	1	2	3	4	5	6	7
k) being overworked	1	2	3	4	5	6	7
l) your childhood	1	2	3	4	5	6	7
m) lack of sleep	1	2	3	4	5	6	7
n) chemical imbalance in the brain	1	2	3	4	5	6	7
o) lack of friends or people who care about you	1	2	3	4	5	6	7
p) normal changes in your mood	1	2	3	4	5	6	7

Please continue to imagine that you are having the experience described in the scenario. Using the following scale, please circle the number that indicates how likely you think each item would be a **consequence** of the experience.

Very Unlikely			Moderately Likely			Very Likely

a) have difficulties performing day to day tasks

1 2 3 4 5 6 7

b) be seen by others as weak

1 2 3 4 5 6 7

c) have difficulties with my school assignments

1 2 3 4 5 6 7

d) think of myself as weak

1 2 3 4 5 6 7

f) be shown encouragement from others

1 2 3 4 5 6 7

g) have difficulty interacting with others

1 2 3 4 5 6 7

h) think of myself as a failure

1 2 3 4 5 6 7

i) be more susceptible to physical illnesses

1 2 3 4 5 6 7

j) be viewed by others as a failure

1 2 3 4 5 6 7

k) view myself as a worthwhile person

1 2 3 4 5 6 7

l) find that others don't want to spend much time with me

1 2 3 4 5 6 7

m) be more susceptible to mental illnesses

1 2 3 4 5 6 7

Please continue to imagine that you are having the experience described in the scenario.

Very Unlikely			Moderately Likely			Very Likely

That experience would:

a). be worse at some times **and** better at other times

1	2	3	4	5	6	7

b). completely go away over time

1	2	3	4	5	6	7

c). last for the rest of your life

1	2	3	4	5	6	7

Please continue to imagine that you are having the experience described in the scenario. How long do you think that experience would last? Please check the box that best reflects your answer.

□	□	□	□	□	□	□
Less than 1 Hour	2-3 Days	About 1 Week	2-3 Weeks	2-3 Months	6 Months	1 Year or Longer

Please continue to imagine that you are having the experience described in the scenario. Using the following scale, please rate the extent to which you agree with each statement.

Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
1	2	3	4	5

1) That experience would be controllable.

1 2 3 4 5

2) Nothing I do would affect that experience.

1 2 3 4 5

3) There is a lot I could do to control that experience.

1 2 3 4 5

Use the following scale to indicate how helpful you think each of the following would be in managing the experience that was described.

Very Unhelpful			Moderately Helpful			Very Helpful
1	2	3	4	5	6	7

1) Seeing a family physician.

1 2 3 4 5 6 7

2) Seeing a counsellor or social worker.

1 2 3 4 5 6 7

3) Talking with friends/family about that experience.

1 2 3 4 5 6 7

4) Seeing a psychiatrist.

1 2 3 4 5 6 7

6) Seeing a psychologist.

1 2 3 4 5 6 7

7) Using your own efforts to work through that experience.

1 2 3 4 5 6 7

Appendix D

History of Depression Scale

1) How often have you been depressed?

Never	Once in a while	Sometimes	Often	All of the time
1	2	3	4	5

*If you answered 2 or higher to this question, please continue on to item 2)

If you answered 1 to this question, please go to item 6)

2) Below are different experiences that individuals may have when they are depressed. Please answer each item with respect to the time(s) when you were depressed.

When you were depressed:

a) how sad did you feel?

Not at all		Moderately		Very
1	2	3	4	5

b) to what extent did you lose interest in things you used to enjoy?

Not at all		Moderately		Very much
1	2	3	4	5

c) how much trouble did you have with sleep?

None at all		Moderate		A lot
1	2	3	4	5

d) to what extent did you have less energy than usual?

Not at all		Moderately		A lot
1	2	3	4	5

e) to what extent did you criticize yourself and feel worthless?

Not at all		Moderately		A lot
1	2	3	4	5

f) how much trouble did you have concentrating?

None at all		Moderate		A lot
1	2	3	4	5

g) to what extent did you have difficulties getting things done?

Not at all		Moderately		A lot
1	2	3	4	5

h) how much did your appetite change?

Not at all		Moderately		A lot
1	2	3	4	5

i) Please describe <u>any other experiences</u> you had while you were depressed.

_____

3) When you were depressed, how long did it usually last? Please check the box that best reflects your answer.

□	□	□	□	□	□	□
Less than 1 Hour	2-3 Days	About 1 Week	2-3 Weeks	2-3 Months	6 Months	1 Year or Longer

4) Have you ever been officially diagnosed with depression? Yes _____ No _____

If Yes, when? _____

By who? (Please circle):

Family doctor
Psychiatrist
Psychologist
Nurse
Social Worker
Other _____ (please explain)

5) How many different times have you had depression? _____

6) Have you ever known anyone with depression? Yes ____ No _____

* If yes, please go on to a, b, & c below.

If no, please go on to the next page.

a) How much contact did you have with this person while they were depressed? (If you have known more than one person with depression, please answer based on the person with whom you had the most contact.)

None		A Moderate Amount		A Lot
1	2	3	4	5

b) When this person was depressed, how long did it usually last? Please check the box that best reflects your answer.

□	□	□	□	□	□	□
Less than 1 Hour	2-3 Days	About 1 Week	2-3 Weeks	2-3 Months	6 Months	1 Year or Longer

c) Was this person ever officially diagnosed with depression?

Yes ____ No ____

Appendix E

Study 1: Participants' Current Depressive Symptomatology and History of Depression

Current Depressive Symptomatology

Due to a printing error, only the first 30 items of the DASS were included in the study. Of the 14 items of the Depression subscale, participants completed eight. It was determined that seven of these items may still offer an adequate measure of participants' depressive symptomatology. A short-form version of the DASS, namely the DASS-21 (Lovibond & Lovibond, 1995), consists of a seven-item Depression subscale (one item from each of the smaller subscale symptom domains). The DASS-21 has been found to have good psychometric properties (Antony et al., 1998; Clara, Cox, & Enns, 2001; Henry & Crawford, 2005). Four of these items were among the items completed in the current study. Three of the other four items completed in the study were selected to create a seven item scale, paralleling the DASS-21. The seven items used to create the subscale of depressive symptomatology in the present study have been found to have strong factor loadings on the full DASS Depression subscale, ranging from .57 to .90, with the majority within the .70 - .80's range. In addition, the seven items included an item from each of the depression symptom domains of the DASS and DASS-21. Scores on this subscale were multiplied by two, consistent with scoring of the DASS-21.

The majority of participants' scores (64%) were within the normal range. Ten percent of participants had mild depressive symptoms, and 15% had symptoms in the moderate range. Seven percent and five percent of participants had scores in the severe and extremely severe range, respectively. Chi-square analyses indicated that this pattern of participants' level of depressive symptomatology did not differ across the label

conditions, $\chi^2(12, N = 315) = 12.13$, *ns*, nor across the severity conditions, $\chi^2(4, N = 315) = 1.54$, *ns*. Furthermore, the pattern was similar across the label conditions at both the low and moderate severity conditions, $\chi^2(12, N = 158) = 9.27$, *ns*; $\chi^2(12, N = 157) = 9.43$, *ns*, respectively.

History of Depression

Regarding the general frequency with which individuals have been depressed in the past, 18% of participants indicated *never* having been depressed, while the majority of participants (46%) indicated having been depressed *once in a while*. Twenty-one percent reported having *sometimes* been depressed, and 13% had been depressed *often*. Only 2% indicated having been depressed *all of the time*. This pattern of past depression frequency was consistent across the label conditions, $\chi^2(12, N = 315) = 9.92$, *ns*; and severity conditions, $\chi^2(4, N = 315) = .31$, *ns*. Only 8% of participants had been previously diagnosed with depression.

Appendix F

Positive Scenario

Please imagine that you experience the following situation.

Imagine that you are taking an important course which is required for your academic program. Because of the importance of this course, you want to do well on the upcoming midterm exam, which is worth 40% of your overall mark. Two weeks after the exam, the instructor announces that a list of exam grades for every student in the class has now been posted (according to student number). The instructor also announces that the average grade for this exam was 68%.

Now, imagine that you find out that **your actual grade on this exam was 87%.**

Instructions: Please re-read the above situation, and then take about 30 seconds to imagine that you are experiencing this situation. As you answer the following sets of questions, please keep this imagined situation in mind. Use the following scale to answer the questions below.

Not at all			Somewhat			Very much so
1	2	3	4	5	6	7

How much would you think that your grade was due to:

a). your hard work in preparing for the exam

1	2	3	4	5	6	7

b). the professor bell curving the marks

1	2	3	4	5	6	7

c). the professor making it an easy exam

1	2	3	4	5	6	7

d). your intelligence

1	2	3	4	5	6	7

e). support from family and friends

1	2	3	4	5	6	7

Appendix G

Study 1: Informed Consent

LETTER OF INFORMATION

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

In this study, we are interested in examining individuals' beliefs regarding various aspects of mental health, and the way in which these beliefs relate to well-being. You will be asked to complete a booklet of questionnaires. Within the booklet, you will be presented with a scenario and asked to imagine that you are having the experiences described in the scenario. You will then be asked to answer a set of questionnaires pertaining to this scenario. You will also be asked to complete an additional set of questionnaires not related to the scenario.

This study will take less than 60 minutes to complete, and you will receive one research credit for your participation. There are no known physical or psychological risks associated with this study. Your responses will be used for research purposes only and will be kept entirely confidential. You may withdraw from this study at any point in time, for any reason, without loss of credit. Furthermore, you have the right to omit any specific question without penalty. Upon completion of the booklet, you will be provided with a debriefing form offering further information pertaining to the study. Please feel free to contact the researchers with any questions or concerns that you may have in regards to this study.

INFORMED CONSENT

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

I, _____, have read and understood the Letter of Information, have had the nature of the study explained to me, and hereby agree to participate in the study described above. All questions have been answered to my satisfaction.

Signature _____ Date _____

_____
Experimenter's signature

Appendix H

Study 1: Debriefing Form

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

The purpose of this study was to examine individuals' knowledge and beliefs about various aspects of mental health, particularly with respect to depression. The mental health literacy literature has recognized that the general person's knowledge and beliefs about mental health conditions are important to their interpretation and management of a given set of symptoms. However, little work has been done examining people's knowledge and beliefs about depression. In particular, there has been little work examining how individuals' knowledge and beliefs about depression relate to their interpretation of depressive symptoms. This is important, since different interpretations of depressive symptoms may lead to different ways of coping with these symptoms. For example, an individual experiencing depressive symptoms who identifies their condition as the normal "blues" may try to manage their symptoms by talking with a friend; whereas an individual who identifies their depressive symptoms as clinical depression may try to manage their symptoms by going to a doctor. In the physical health domain, the Self-Regulation Model (SRM) describes the types of beliefs that individuals hold about a given illness and the way in which these beliefs influence individuals' interpretation, identification, and management of their symptoms. In particular, the SRM proposes that individuals hold beliefs about the causes, consequences, timeline, control, and identity associated with a given illness. The current study is amongst the first to apply the SRM to mental health, particularly depression.

This study also examined the extent to which individuals' beliefs about depression may differ, depending on the severity level of the depressive symptoms, the presence of a label identifying the depressive symptoms, and the type of label used. The study also examined the relationship between individuals' beliefs about depression and well-being. As such, you were presented with a scenario and asked to imagine that you have depressive symptoms. Some participants were presented with the symptoms alone; whereas other participants received the symptoms and a label identifying the condition. You were then asked to answer questions regarding what you believe to be the causes, consequences, timeline, control, and identity associated with the condition described in the scenario. You also answered questionnaires measuring various components of psychological well-being. The information you provided will contribute to our understanding of individuals' interpretation and identification of depressive symptoms.

We would like to thank you very much for your participation in this study. If you are interested in this topic, you are encouraged to take a look at the references that are listed below. Also, please feel free to ask us any further questions that you have pertaining to this research. If you have any questions about your rights as a research participant, you should contact the Director of the Office of Research Ethics at ethics@uwo.ca or 661-3036. If you are feeling distressed, or depressed, and feel that you would like to talk with someone, please go to the Student Development Center's Psychological Counselling Services, Room 235 located in SDC, UCC Room 210 (phone # 519-661-3031).

REFERENCES

Fortune, G., Barrowclough, C., & Lobban, F. (2004). Illness representations in depression. *The British Journal of Clinical Psychology, 43,* 347-364.

Leventhal, H., Brissette, I., & Leventhal, E. A. (2003). The common-sense model of self-regulation of health and illness. In L. D. Cameron & H. Leventhal (Eds.), *The self-regulation of health and illness behaviour* (pp. 42-65). New York: Routledge.

Lobban, F., Barrowclough, C., & Jones, S. (2003). A review of the role of illness models in severe mental illness. *Clinical Psychology Review, 23*, 171-196.

Appendix I

Study 1: Principal Components Analysis Summary Tables

Table I1

Study 1: Principal Components Analysis of SRM Cause Items: Factor Loadings, Variance Accounted for, and Cronbach's Alphas

	Factors		
	1	2	3
Item	Relationship/Work Difficulties	Stable Attributes	Daily/Physical Stressors
The death of a loved one	**.83**	.13	-.04
Ending a romantic relationship	**.75**	.11	.19
A traumatic experience	**.73**	.15	-.13
Family or other relationship problems	**.63**	.19	.26
Losing a job	**.58**	.22	.32
Genetics	.10	**.74**	.06
Childhood	.20	**.71**	-.01
Personality	-.13	**.71**	.01
Lack of friends or people who care	.27	**.58**	.06
Chemical imbalance in the brain	.25	**.54**	.17
Being overworked	.22	.04	**.70**
Lack of sleep	.12	-.07	**.68**
Diet or eating habits	.04	.31	**.58**
Virus	.10	-.10	.13
Taking illegal drugs	.25	.51	.25
Normal changes in mood	-.39	.26	.51
Percentage of Variance Accounted for	26%	12%	10%
Cronbach's Alpha	.80	.73	.52

Table I2

Study 1: Principal Components Analysis of SRM Consequence Items: Factor Loadings, Variance Accounted for, and Cronbach's Alphas

	Factors		
	1	2	3
Item	Vulnerability to Further Harm	Functioning Difficulties	Positive Responses
Be more susceptible to mental illnesses	**.75**	.03	.01
Be viewed by others as a failure	**.70**	.18	-.06
Find that others don't want to spend much time with me	**.62**	.15	-.17
Be more susceptible to physical illnesses	**.58**	.20	.27
Be seen by others as weak	**.53**	.34	-.01
Have difficulty performing day to day tasks	.15	**.83**	.08
Have difficulty with my school assignments	.18	**.83**	.08
View myself as a worthwhile person	.06	-.24	**.72**
Be shown encouragement from others	-.11	.22	**.73**
Think of myself as weak	.42	.55	-.29
Have difficulty interacting with others	.52	.42	-.15
Think of myself as a failure	.48	.57	-.34
Percentage of Variance Accounted for	35%	11%	10%
Cronbach's Alpha	.71	.79	.32

Table I3

Study 1: Principal Components Analysis of SRM Timeline Items: Factor Loadings, Variance Accounted for, and Cronbach's Alphas

	Factors	
	1	2
Item	Permanence	Cyclical
Completely go away over time	**-.84**	-.08
Last for the rest of your life	**.85**	-.05
Worse at some times and better at other times	.02	**.99**
Percentage of Variance Accounted for	48%	33%
Cronbach's Alpha	.59	

Table I4

Study 1: Principal Components Analysis of SRM Coping Items: Factor Loadings, Variance Accounted for, and Cronbach's Alphas

	Factors	
	1	2
Item	Professional Help	Personal Efforts
Psychiatrist	**.91**	-.11
Counsellor/social worker	**.87**	.06
Psychologist	**.88**	-.13
Family physician	**.77**	.01
Talking with friends/family about that experience	.20	**.84**
Using your own efforts to work through that experience	-.31	**.68**
Percentage of Variance Accounted for	52%	20%
Cronbach's Alpha	.89	.29

Appendix J

Study 1: Analysis of Labels Provided by Participants

The label congruency analysis involved writing down all of the labels provided by the participants and grouping them into categories. Labels were placed into the same category if they used the same wording (e.g., “depression”), or were worded differently but referred to the same concept (e.g., “a mild non-prolonged depressive episode” was placed in the mild depression category). Many of the participants’ labels used the same wording, which was then used as the name of the category (e.g., “stress”). A total of 16 categories of labels were created.

Depression
Mild Depression
Depressive Symptom (specifically related to depression, e.g., “hopelessness”)
Stress
Sad (including labels suggesting normal negative affect, e.g., “the blues”, “in a slump”)
Anxiety
Unhappy
School work/job problems
Post traumatic stress disorder/trauma
Upset
Relationship/social problems
Ending a romantic relationship
Death of a loved one/grief
Boredom
Physical condition
Difficult situation

Appendix K

Study 1: Multiple Regression Analyses with SRM Belief Domains Predicting Perceived Helpfulness of Professional Treatment

Table K1

Whole Sample

Criterion	*F*	*df*	*Adj* R^2	Predictors	β	*t*
Professional Treatment						
Model 1	2.14	(4, 310)	.01	Age	.04	.75
				Gender	.13	2.26*
				DASS – Depression	-.07	-.91
				History of depression	.10	1.41
Model 2	11.05***	(14, 300)	.31	Age	.02	.49
				Gender	.05	1.00
				DASS – Depression	-.14	-2.29*
				History of depression	.06	.94
				SRM		
				Cause		
				Relationship/work difficulties	.19	3.40**
				Stable attributes	.21	3.37**
				Daily/physical stressors	-.10	-1.84
				Consequence		
				Vulnerability to further harm	.26	4.30***
				Functioning difficulties	.10	1.60
				Time		
				Permanence	.12	2.08*
				Cyclical	-.07	-1.35
				Length of duration	.08	1.38
				Control	.12	2.33*
				Severity	-.02	-.40
	F-change	*df*	Δ*Adj* R^2			
Model 3[1]	.00	(1, 299)	.00	Control x Consequence Functioning	.00	.07
	3.55	(1, 299)	.01	Control x Permanence	.09	1.88
	.13	(1, 299)	.00	Control x Duration	.02	.36
	2.97	(1, 299)	.00	Consequence Functioning x Duration	.08	1.73
	3.47	(1, 299)	.01	Consequence Functioning x Cyclical	.09	1.86
	4.89*	(1, 299)	.01	Cause Daily/physical stressors x Permanence	.11	2.21*

Note: [1] Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table K2

Low Severity Sample

Criterion	*F*	*df*	*Adj* R^2	Predictors	*β*	*t*
Professional Treatment						
Model 1	.82	(4, 153)	-.01	Age	-.01	-.12
				Gender	.04	.53
				DASS – Depression	-.04	-.41
				History of Depression	.16	1.55
Model 2	8.82***	(13, 144)	.39	Age	.02	.32
				Gender	.01	.11
				DASS – Depression	-.20	-2.36*
				History of depression	.13	1.58
				SRM		
				Cause		
				Relationship/work difficulties	.23	3.20**
				Stable attributes	.15	1.87
				Daily/physical stressors	-.10	-1.43
				Consequence		
				Vulnerability to further harm	.35	4.43***
				Functioning difficulties	.18	2.43*
				Time		
				Permanence	.16	2.16*
				Cyclical	-.13	-1.94
				Length of duration	.01	.18
				Control	.10	1.44
	F-change	*df*	*ΔAdj* R^2			
Model 3[1]	2.06	(1, 143)	.01	Control x Consequence Functioning	-.09	-1.43
	.15	(1, 143)	.00	Control x Permanence	-.03	-.39
	1.89	(1, 143)	.01	Control x Duration	-.09	-1.37
	4.39*	(1, 143)	.02	Consequence Functioning x Duration	.13	2.09*
	4.12*	(1, 143)	.02	Consequence Functioning x Cyclical	.13	2.03*
	6.37*	(1, 143)	.03	Cause Daily/physical stressors x Permanence	.17	2.52*

Note: [1] Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table K3

Moderate Severity Sample

Criterion	*F*	*df*	*Adj* R^2	Predictors	*β*	*t*
Professional Treatment						
Model 1	2.36	(4, 152)	.03	Age	.10	1.20
				Gender	.22	2.74
				DASS – Depression	-.09	.25
				History of depression	.03	-.86
Model 2	4.28***	(13, 143)	.22	Age	.08	1.07
				Gender	.12	1.47
				DASS – Depression	-.09	-.93
				History of depression	-.05	-.45
				SRM		
				Cause		
				Relationship/work difficulties	.13	1.43
				Stable attributes	.31	3.07**
				Daily/physical stressors	-.07	-.82
				Consequence		
				Vulnerability to further harm	.16	1.77
				Functioning difficulties	-.11	-1.29
				Time		
				Permanence	.06	.69
				Cyclical	.01	.15
				Length of duration	.21	2.43*
				Control	.14	1.63
	F-change	*df*	*ΔAdj* R^2			
Model 3[1]	.56	(1, 142)	-.01	Control x Consequence Functioning	.06	.75
	5.98*	(1, 142)	.02	Control x Permanence	.18	2.45*
	2.43	(1, 142)	.00	Control x Duration	.11	1.56
	.32	(1, 142)	-.01	Consequence Functioning x Duration	.04	.57
	.92	(1, 142)	.00	Consequence Functioning x Cyclical	-.07	-.96
	.34	(1, 142)	-.01	Cause Daily/physical stressors x Permanence	.05	.59

Note: [1] Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Appendix L

Study 2: Ethics Approval

Department of Psychology The University of Western Ontario
Room 7418 Social Sciences Centre,
London, ON, Canada N6A 5C1
Telephone: (519) 661-2067Fax: (519) 661-3961

Use of Human Subjects - Ethics Approval Notice

Review Number	07 11 09	Approval Date	07 11 26
Principal Investigator	Nick Kuiper/Catherine Leite	End Date	08 04 30
Protocol Title	Depression and mental health literacy: Coping strategies and decisions to seek help		
Sponsor	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: http://www.uwo.ca/research/ethics/)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:
a) changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
b) all adverse and unexpected experiences or events that are both serious and unexpected;
c) new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.

Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2007-2008 PREB are: Mike Atkinson, David Dozois, Bill Fisher and Matthew Maxwell-Smith

CC: UWO Office of Research Ethics

This is an official document. Please retain the original in your files

Appendix M

Study 2: Severity Vignettes

*Time 1**

Low

Today, you are feeling sad, and you are not as interested in doing things that you used to enjoy. You don't feel like talking with your friends as often as you normally do, and you have a little less energy than usual.

Mild

Today, you are feeling sad, and you are less interested in doing things that you used to enjoy. You don't feel like talking with your friends and family as often as you normally do, and you have less energy than usual. You are having a bit of difficulty concentrating on things. You had some trouble falling asleep last night, and you had some difficulty getting out of bed this morning. You had plans to go out with your friends tonight, but you cancel, and intend to stay home.

Moderate

Today, you are feeling sad, and you are less interested in doing things that you used to enjoy. You don't feel like talking with friends or family as often as you normally do. You have less energy than usual, and you are having difficulties concentrating. You had trouble falling asleep last night, and you found it hard to get out of bed this morning. You are not getting as much pleasure out of things that you use to enjoy. You had plans to go out with your friends tonight, but you cancel them and intend to stay home. Today, you sometimes think that you are a failure, and that others are better than you. You're struggling to complete your daily tasks, such as grocery shopping or going to school.

**At Time 2, the same vignettes were used.*

Appendix N

Study 2: SRM Measure

1) Would you use a label to identify what this experience is?

Yes ____ No____

a) If yes, what label would you use?

_____

2) If you did nothing about it, how long would you now expect this experience to last?

Please put a tick on the line next to your response.

Just the rest of today _____

For the next 2-3 days _____

About one week _____

About 2-3 weeks _____

Between 1-2 months _____

Between 2-3 months _____

Between 3-6 months _____

Between 6 months to 1 Year _____

Over 1 Year _____

3) Please indicate how likely you now think each item below may have **caused** you to have this experience. Please use the following scale, and write the number on the line next to the item.

Very Unlikely			Moderately Likely			Very Likely
1	2	3	4	5	6	7

a) Relationship problems (with friends, family, etc.) _____

b) Chemical imbalance in the brain _____

c) Diet or eating habits _____

d) Not doing well in school _____

e) Genetics _____

f) Lack of sleep _____

g) Being overworked _____

h) Personality _____

i) Ending a romantic relationship _____

j) Losing a job _____

k) Your childhood _____

l) Lack of friends or people who care about you _____

m) Normal changes in your mood _____

4) Please continue to imagine that you are having the experience described in the most recent scenario. For each item below, write the number that indicates how likely you think each item would now be a **consequence** of the experience. Please use the following scale.

Very Unlikely			Moderately Likely			Very Likely
1	2	3	4	5	6	7

a) Have difficulties finishing my school assignments _____

b) Find that others don't want to spend much time with me _____

c) Think of myself as weak _____

d) Have difficulties interacting with others _____

e) Be more susceptible to physical illnesses _____

f) Be shown encouragement from others _____

6) Please continue to imagine that you are having the experience described in the most recent scenario. What would you now do about it? For each of the items below, rate **how likely you would now use that strategy** to try to deal with the experience described in the scenario.

Very Unlikely			Moderately Likely			Very Likely
1	2	3	4	5	6	7

1) Take action to try to make that experience better. _____

2) Ignore that experience. _____

3) Think hard about what steps to take to deal with that experience. _____

4) Look for something good in what is happening. _____

5) Learn to live with that experience. _____

6) Make jokes about that experience. _____

7) Get comfort and understanding from someone (e.g., family, friend). _____

8) Try to get advice or help from friends/family about what to do. _____

9) Do something to think about that experience less, such as going to the movies, watching TV, reading, daydreaming, sleeping or shopping. _____

10) Refuse to believe that experience is happening. _____

11) Say things to let my negative feelings escape. _____

12) Use alcohol or other drugs to make myself feel better. _____

13) Give up trying to deal with it. _____

14) Blame myself for having that experience. _____

15) See a psychiatrist. _____

16) Do something enjoyable. _____

17) Try to keep my feelings to myself. _____

18) Spend time alone. _____

19) Take prescribed medication. _____

20) See a psychologist. _____

21) Exercise. _____

22) See a counsellor. _____

23) Think about how sad I feel. _____

24) Get a massage. _____

25) See a family doctor. _____

26) Read a self-help book. _____

27) Do meditation/yoga. _____

Appendix O

Study 2: Participants' Current Depressive Symptomatology

The majority of participants' scores (65%) were within the normal range. Fifteen percent of participants had mild depressive symptoms, and 10% had symptoms in the moderate range. Six percent and four percent of participants had scores in the severe and extremely severe range, respectively. These findings are similar to those found in Study 1. A chi-square analysis indicated that this pattern of depressive symptomatology level was consistent across the severity conditions, $\chi^2(8, N = 297) = 13.31$, *ns*.

Appendix P

Study 2: Informed Consent

LETTER OF INFORMATION

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

In this study, we are interested in examining individuals' beliefs regarding various aspects of mental health, and the way in which these beliefs relate to well-being. You will be asked to complete a booklet of questionnaires. Within the booklet, you will be presented with two scenarios and asked to imagine that you are having the experiences described in each scenario. You will then be asked to answer a set of questionnaires pertaining to these scenarios. You will also be asked to complete an additional set of questionnaires not related to these scenarios.

This study will take less than 60 minutes to complete, and you will receive one research credit for your participation. There are no known physical or psychological risks associated with this study. Your responses will be used for research purposes only and will be kept entirely confidential. You may withdraw from this study at any point in time, for any reason, without loss of credit. Furthermore, you have the right to omit any specific question without penalty. Upon completion of the booklet, you will be provided with a debriefing form offering further information pertaining to the study. Please feel free to contact the researchers with any questions or concerns that you may have in regards to this study.

INFORMED CONSENT

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

I, _____, have read and understood the Letter of Information, have had the nature of the study explained to me, and hereby agree to participate in the study described above. All questions have been answered to my satisfaction.

Signature _____ Date _____

_____
Experimenter's signature

Appendix Q

Study 2: Debriefing Form

BELIEFS ABOUT MENTAL HEALTH AND WELL-BEING

The purpose of this study was to examine individuals' beliefs about various aspects of mental health, particularly with respect to depression. The mental health literacy literature has recognized that individuals' identification and beliefs about mental health conditions play an important role in their management of a given set of symptoms. However, little work has been done examining the factors that influence the way in which individuals identify and attempt to manage depressive symptoms. In the physical health domain, the Self-Regulation Model (SRM) proposes that individuals have an implicit cognitive representation of an illness that consists of beliefs regarding various domains of the illness, including the identity of the illness (its label and symptoms), causes, consequences, duration, and ways of managing the illness. The model proposes that individuals' identification of their condition influences their beliefs regarding the other domains, such as the duration, and the strategies for coping with the condition. The model also proposes that, if aspects of the condition change and are no longer consistent with the beliefs associated with the condition, the individual attempts to re-identify the condition. This may lead to different beliefs regarding various domains of the condition, including strategies for coping with the symptoms. The current study is one of the first to use the Self-Regulation Model to identify factors that may influence individuals' identification and management of depressive symptoms.

In particular, the current study examined the effect of symptom duration on individuals' identification of depressive symptoms, beliefs regarding the other SRM domains, and strategies used to cope with these symptoms. The study also examined the extent to which the effect of symptom duration is dependent on symptom severity. Lastly, the study examined the relationship between beliefs about depressive symptoms and well-being. As such, you were asked to read a scenario and to imagine that you were currently experiencing depressive symptoms. You were then asked to answer questions regarding what you believe to be the identity, duration, causes, and consequences of the condition described in the scenario, as well as ways that you would try to cope with the condition. You were then asked to imagine that it was a month past the time that you expected to feel back to normal and you were still experiencing the symptoms described in the scenario. You were then asked to indicate what you now believed to be the identity, duration, causes, and consequences of the condition in the scenario, as well as how you would now cope with that condition. You also answered questionnaires measuring various components of psychological well-being. The information you provided will contribute to our understanding of factors that influence individuals' identification and management of depressive symptoms.

We would like to thank you very much for your participation in this study. If you are interested in this topic, you are encouraged to take a look at the references that are listed below. Also, please feel free to ask us any further questions that you have pertaining to this research. If you have any questions about your rights as a research participant, you should contact the Director of the Office of Research Ethics at ethics@uwo.ca or 661-3036. If you are feeling distressed, or depressed, and feel that you would like to talk with someone, please go to the

Student Development Center's Psychological Counselling Services, Room 235 located in SDC, UCC Room 210 (phone # 519-661-3031).

REFERENCES

Fortune, G., Barrowclough, C., & Lobban, F. (2004). Illness representations in depression. *The British Journal of Clinical Psychology, 43*, 347-364.

Leventhal, H., Brissette, I., & Leventhal, E. A. (2003). The common-sense model of self-regulation of health and illness. In L. D. Cameron & H. Leventhal (Eds.), *The self-regulation of health and illness behaviour* (pp. 42-65). New York: Routledge.

Lobban, F., Barrowclough, C., & Jones, S. (2003). A review of the role of illness models in severe mental illness. *Clinical Psychology Review, 23*, 171-196.

Appendix R

Study 2: Decision Rules for Developing Consistent Factors Across Time 1 and 2 from Principal Components Analyses

An item was included in a given factor if

A) At Time 1 and 2, its factor loading was higher than .4 on the given factor and less than .35 on the remaining factors.

    a. At Time 1, it also loaded on a remaining factor, but, at Time 2, it clearly loaded on the given factor.

    b. At Time 2 it also loaded on a remaining factor, but it correlated with other items on the given factor.

B) It did not load on the given factor at Time 1, but at Time 2 the item loaded very highly on the given factor, is conceptually central to the factor, and, at Time 1, was correlated with the other items on the factor.

An item was not included if it loaded on a given factor at Time 1 but, at Time 2, it clearly loaded on a different factor.

Appendix S

Study 2: Principal Components Analysis Summary Tables

Table S1

Principal Components Analysis of SRM Cause Items at Time 1and 2: Factor Loadings, Variance Accounted for, and Cronbach's Alphas.

a) Time 1	Factors			
	1	2	3	4
Item	Stable Attributes	Relationship/Work Difficulties	Daily/Physical Stressors	Normal Changes
Chemical imbalance in the brain	**.80**	-.03	.03	-.05
Genetics	**.74**	.04	.06	-.01
Childhood	**.73**	.20	.03	.10
Ending a romantic relationship	.09	**.86**	-.05	.02
Losing a job	.13	**.83**	.05	.16
Relationship problems (with family, friends, etc.)	.11	**.59**	.13	-.29
Lack of sleep	-.07	-.07	**.72**	.38
Diet or eating habits	.25	-.10	**.67**	-.14
Being overworked	-.07	.16	**.67**	.45
Not doing well in school	.04	.35	**.62**	-.21
Normal changes in mood	.06	-.05	.11	**.73**
Lack of friends or people who care about you	.62	.38	.10	.14
Personality	.51	.05	-.09	.52
Percentage of Variance Accounted	24%	14%	13%	8%
Cronbach's Alpha	.71	.71	.63	

b) Time 2

	Factors			
	1	2	3	4
Item	Stable Attributes	Relationship/Work difficulties	Daily/physical Stressors	Normal changes
Chemical imbalance in the brain	**.85**	-.12	-.06	.00
Genetics	**.84**	-.05	-.07	.13
Childhood	**.55**	.23	.00	.45
Ending a romantic relationship	-.07	**.89**	.06	.03
Losing a job	.16	**.78**	.17	.02
Relationship problems (with family, friends, etc.)	-.18	**.73**	.13	.21
Lack of sleep	-.03	-.02	**.82**	.19
Diet or eating habits	.42	.00	**.54**	.06
Being overworked	-.07	.17	**.77**	.06
Not doing well in school	-.16	.28	**.66**	-.07
Normal changes in mood	-.20	.02	.17	**.71**
Lack of friends or people who care about you	.30	.33	.04	.61
Personality	.35	-.03	.01	.70
Percentage of Variance Accounted	24%	20%	12%	8%
Cronbach's Alpha	.72	.78	.67	

Table S2

Study 2: Principal Components Analysis of SRM Consequence Items at Time 1 and 2: Factor Loadings, Variance Accounted for, and Cronbach's Alphas.

a) Time 1	Factors	
	1	2
Item	Negative	Positive
Think of myself as weak	**.80**	.07
Have difficulty interacting with others	**.80**	.03
Find that others don't want to spend much time with me	**.77**	-.30
Be more susceptible to physical illnesses	**.52**	.43
Have difficulty finishing my school assignments	**.50**	.05
Be shown encouragement from others	-.07	**.90**
Percentage of Variance Accounted for	40%	18%
Cronbach's Alpha	.72	

b) Time 2	Factors	
	1	2
Item	Negative	Positive
Think of myself as weak	**.76**	.10
Have difficulty interacting with others	**.84**	-.06
Find that others don't want to spend much time with me	**.83**	-.12
Be more susceptible to physical illnesses	**.67**	.18
Have difficulty finishing my school assignments	**.58**	-.05
Be shown encouragement from others	.00	**.98**
Percentage of Variance Accounted for	46%	17%
Cronbach's Alpha	.78	

Table S3

Study 2: Principal Components Analysis of SRM Coping Items at Time 1 and 2: Factor Loadings, Variance Accounted for, and Cronbach's Alphas.

a) Time 1	Factors			
	1	2	3	4
Item	Professional Help	Rumination	Social Support	Self-Help
See a psychologist	**.90**	.06	.07	.00
See a psychiatrist	**.87**	.09	.09	.01
Take medication	**.80**	.16	-.10	.02
See a counsellor	**.76**	.00	.07	.05
See a family doctor	**.75**	-.10	.11	.01
Blame myself	.16	**.63**	.05	-.23
Think about how sad I feel	.05	**.63**	.10	-.33
Look for something good in what is happening	-.05	**-.68**	-.05	-.06
Spend time alone	-.22	**.48**	-.32	-.22
Get comfort & understanding	.04	.04	**.87**	.05
Get advice or help from family or friends	.06	.04	**.86**	.10
Keep my feelings to myself	-.10	.27	**-.62**	.09
Exercise	.03	-.05	-.03	**.82**
Do something enjoyable	.02	-.32	.17	**.73**
Percentage of Variance Accounted for	18%	13%	8%	6%
Cronbach's Alpha	.90	.61	.76	.67
Take action to make it better	.09	-.28	.10	.34
Ignore	.02	-.03	-.16	-.02
Think about steps to deal with it	.18	-.10	.11	.04
Make jokes about it	-.11	-.04	-.04	.25
Do things to think less (e.g., watch tv)	-.03	-.13	.26	.15
Refuse to believe it	.07	.10	-.04	-.09
Say things to let negative feelings out	-.03	.24	.00	.00
Use alcohol or drugs	.09	.37	-.20	.12
Give up dealing with it	.11	.57	-.24	-.06

Get a massage	.28	-.11	.14	.20
Read a self-help book	.46	-.11	-.05	-.17
Meditation/yoga	.17	.09	.01	.24

b) Time 2

	Factors			
	1	2	3	4
Item	Professional Help	Rumination	Social Support	Self-Help
See a psychologist	**.85**	.03	.03	-.02
See a psychiatrist	**.89**	.03	.01	-.01
Take medication	**.78**	.05	-.16	-.07
See a counsellor	**.73**	.00	.17	-.10
See a family doctor	**.78**	-.05	.11	.02
Blame myself	.06	**.69**	-.04	-.14
Think about how sad I feel	.17	**.73**	.04	-.32
Spend time alone	-.03	**.72**	-.18	-.01
Look for something good in what is happening	-.05	**-.24**	.06	.59
Get comfort & understanding	.05	-.15	**.89**	.16
Get advice or help from family or friends	.05	-.16	**.89**	.11
Keep my feelings to myself	-.16	.62	**.40**	.19
Exercise	.00	-.20	.05	**.35**
Do something enjoyable	.02	-.30	.19	**.66**
Percentage of Variance Accounted for	23%	10%	4%	6%
Cronbach's Alpha	.88	.73	.78	.65
Take action to make it better	.07	-.06	.13	.27
Ignore	.03	.20	-.14	.16
Think about steps to deal with it	.19	.06	.26	.20
Make jokes about it	-.03	-.01	.02	.69
Do things to think less (e.g., watch tv)	-.14	.19	.21	.07
Refuse to believe it	-.09	.32	-.07	.05
Say things to let negative feelings out	-.02	.11	.09	.10
Use alcohol or drugs	.09	.24	-.17	-.12
Give up dealing with it	.07	.39	-.14	-.09

Get a massage	.25	-.16	.00	.18
Read a self-help book	.29	-.04	.09	-.18
Meditation/yoga	.11	.00	.06	.09

Appendix T

Study 2: Development of the Label Name Scale

The first step in creating this scale involved writing down all of the labels provided by the participants, and organizing them into severity levels from low to high. Codes were established that distinguished increasing severity levels based on a range of criteria that were developed from the differences across the labels. The main criteria used to distinguish the codes were whether the label referred to normal emotional experiences (e.g., "everyday life"), a very transient mood/emotional experience (e.g., "having a down day"), an experience that may lead to depressive symptoms but no mention of symptoms (e.g., "not doing well in school"), emotions that may relate to depression but not exclusively (e.g., "upset"), emotions that clearly relate to the affective symptom of depression but still within the realm of normal emotions (e.g., "feeling sad," "having the blues"), experiences that relate more clearly to depressive symptoms (e.g., "hopelessness," "apathy"), and reference to depression as a mood state (i.e., "depressed").

Furthermore, the codes distinguished between depression labels that differentiated the depression in terms of time (e.g., "start of depression" versus "long-term depression") and severity (e.g., "mild depression" versus "clinical depression"). Using this process, 23 codes were created on the scale from 1 (*a normal day to day experience*) to 23 (*severe depression*), with each increasing score reflecting an increase in severity (see Table T1). Each score was associated with a descriptor and a rule, such as the ones described above, that guided the decision of whether to code a given label with that number. For example, a score of 3 was given if the label referred to a transient mood/emotion state, a score of 19 was given if the label referred to depression but also had a qualifier indicating slightly lower severity than depression in general (referring primarily to labels of "mild depression"), and a score of 20 was given if the label just stated depression. To assess inter-rater reliability of the scale, 45 labels provided by participants were selected in such a way as to reflect the range of the label codes. Four current or former psychology graduate students were given these 45 labels and the coding scale with the decision rules describing when each code should be given to a label. Inter-rater reliability of the scale was found to be high (Intraclass correlation coefficient = .98).

To examine the extent to which the label scale reasonably categorized the labels provided by the participants, two extreme label groups were formed. The low score group (normal experience) consisted of all participants with label scores of 12 or less. These labels refer to normal and/or transient experiences (e.g., “feeling sad,” “tired,” “bad mood,” “a bad day”). The second group (depression) consisted of all participants with label scores of 16 or higher. These labels clearly refer to depression. Individuals with scores in the middle of the label scale were not included in these analyses.

Table T2 of this appendix presents the percentage of the sample in each of these two extreme label groups in each severity condition at Time 1 and Time 2. It was hypothesized that, if the label scale reasonably categorized the labels, then the percentage of individuals in the depression label group would increase as symptom severity increased, particularly at Time 1, and increase at Time 2. The reverse would be expected for the normal experience group. Inspection of the table shows that, as expected, at Time 1, depression label use was higher as the severity of the symptoms increased. At Time 2, the majority of individuals used a depression-related label regardless of the symptom severity condition.

Table T1

Study 2: Label Name Coding Scale

Code	Descriptor/Coding Rule
23	There's a qualifier for the depression label that indicates that the condition is more severe overall (e.g., *suicidal depression, severe depression*)
22	There's a qualifier for depression that indicates that the condition has reached clinical levels (i.e., suggesting it is now a disorder with considerable impairment (e.g., *clinical depression, mood disorder*)
21	There's a qualifier for depression that indicates that the condition will last longer than depression in general (e.g., *chronic depression, prolonged depression*)
20	Depression in general
19	There is a qualifier for depression to indicate that the condition is at a slightly lower severity than depression in general (e.g., *mild depression, short-term depression*)
18	There is a qualifier for depression that indicates that the condition has just begun to reach the level of depression (e.g., *start of depression, beginning of depression)*
17	There is a qualifier for depression that indicates that the condition has almost reached the perceived minimum requirement for depression but overlaps in symptomatology with other conditions enough to be unsure of the identity of the condition (e.g., *maybe sign of depression, possible form of depression*)
16	It refers to the presence of several depressive symptoms with an emphasis on the mood component (and may reflect a degree of impairment). However, it suggests that the condition may be more of a state than a diagnosable illness/syndrome (i.e., "am" vs "have;" e.g., *depressed, mildly depressed)*
15	It's associated with the absence of emotion or interest (a depressive symptom), and thus may suggest a withdrawal from life. May be more severe than individual emotional symptoms of depression because, if one does not experience emotion or interest, one may be less likely to try to identify a specific problem and try to cope/problem-solve to rectify the condition. Considered less severe than #16 because may not necessarily involve other depressive symptoms (e.g., *apathy, spiritless*)
14	It's associated with helplessness. Considered less severe than #15 because the person may still be more likely to identify the specific problem. However, it's considered more severe than other emotional symptoms of depression because the person may feel they have no control over the problem. Thus, they may be unlikely to try to change it and, as a result, the condition may last longer or eventually increase in severity (e.g., *helplessness, inability to improve situation or life*)
13	It's an underlying internal vulnerability to depressive symptoms (e.g., negative self-concept). Considered less severe than the absence of emotion/interest or helplessness because it does not necessarily indicate difficulty with coping to try to rectify the situation. Considered more severe than

emotional symptoms, since emotional symptoms may reflect normal experiences (i.e., part of the normal emotion/mood spectrum; e.g., *low self-esteem, worthlessness*)

12 It refers to the most common emotional/mood symptom associated with depression (e.g., *sad, sadness)*

11 It refers to an interpersonal experience that can be connected with the most common emotional symptom of depression (e.g., l*oneliness, hermit*)

10 It refers to an emotion that may include the most common emotional/mood symptom associated with depression, but may also include other emotions not directly related to depression (e.g., *upset, emotional distress*)

9 It's an emotion associated with being overwhelmed, which may lead to depressive symptoms, but depends heavily on how the person responds to the situation/problem. It involves a greater likelihood that the person will try to find resources to deal with the problem. It's also more likely to be associated with a relatively transient problem (e.g., *stress*)

8 It's an external (situational) experience that may lead to depressive symptoms, but not necessarily (i.e., it depends heavily on a wide range of factors, e.g., *negative experience, bad experience*)

7 It's a physical condition that may reflect a temporary condition/problem (e.g., *tired, fatigue*)

6 It's a recognition that the condition is out of the ordinary, but there is uncertainty about the nature of the problem (e.g., *something's wrong, confused*)

5 It refers to a personality trait/dimension (e.g, *introverted*)

4 It refers to a possibly normal emotional/cognitive response to coping with difficult situations for a period of time (e.g., *annoyed with the world, wear and tear – need a break*)

3 It refers to a transient mood/emotion state (lasting for short periods of time; e.g., *a bad day, a down day*)

2 It refers to reflection on one's life and self (e.g., *self-reflection*)

1 It suggests the condition is seen as a normal day to day experience (e.g., *everyday life*)

0 No label was used by the participant to identify the condition.

Table T2

Percentage of Participants in the Normal Experiences and Depression Label Groups as a Function of Time and Symptom Severity

	Time 1		Time 2		
Severity	Normal	Depression	Normal	Depression	Severe Depression
Low	25%	30%	6%	81%	6%
Mild	23%	43%	3%	79%	14%
Moderate	10%	66%	0%	89%	17%

Note: Percentages were calculated separately for each severity level.

Appendix U

Study 2: Correlations between Label Name and SRM Domains Among Label Use Sample

Table U1

Correlations between Label Name and SRM Domains at Time 1 and 2 Among Label Use Sample

	Label Name[1]	
	Time 1	Time 2
SRM	*r*	*r*
Cause		
Stable attributes	.33***	.27***
Relationship/work difficulties	.02	-.11
Daily/physical stressors	-.15*	-.14*
Normal changes in mood	-.15*	.01
Consequences		
Negative	.09	.17**
Positive	-.09	-.08
Duration expected	.34***	.29***
Coping		
Professional help	.28***	.21**
Rumination	.00	.02
Social support	.05	-.07
Self-help	-.06	.03

Note: [1] Higher scores on the Label Name Scale correspond with more severe depression related labels, whereas lower scores reflect labels that are suggestive of more normal negative affect.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Table U2

Correlations between Label Name and SRM Domains at Each Severity Level Among Label Use Sample at Time 1 and 2

a) Time 1	Label Name[1]		
	Low severity	Mild severity	Moderate severity
SRM	*r*	*r*	*r*
Cause			
Stable attributes	.42**	.24*	.27**
Relationship/work difficulties	.10	.16	-.22
Daily/physical stressors	.13	-.27*	-.20
Normal changes in mood	-.11	-.21	-.01
Consequences			
Negative	.19	.03	-.10
Positive	.03	-.12	-.10
Duration expected	.38**	.33**	.23*

b) Time 2	Label Name[1]		
	Low severity	Mild severity	Moderate severity
SRM	*r*	*r*	*r*
Cause			
Stable attributes	.26*	.19	.25*
Relationship/work difficulties	-.12	.06	-.23*
Daily/physical stressors	-.16	-.07	-.07
Normal changes in mood	-.04	-.01	.06
Consequences			
Negative	.28**	.00	.06
Positive	-.09	-.03	-.12
Duration expected	.27*	.22*	.36**

Note: [1] Higher scores on the Label Name Scale correspond with more severe depression related labels, whereas lower scores reflect labels that are suggestive of more normal negative affect.
* $p < .05$. ** $p < .01$. *** $p < .001$.

Appendix V

Study 2: Multiple Regression Analyses with SRM Belief Domains Predicting Likely Use of Professional Treatment: No Label Use and Label Use Samples at Time 1

Table V1

Time 1: No Label Use Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	1.26	(4, 90)	.01	Age	.07	.72
				Gender	.05	.48
				DASS – Depression	.02	.20
				History of depression	.20	1.69
Model 2	1.02	(11, 83)	.00	Age	.07	.71
				Gender	.12	.98
				DASS – Depression	-.02	-.17
				History of depression	.17	1.32
				SRM		
				Cause		
				Stable attributes	.16	1.25
				Relationship/work difficulties	-.09	-.73
				Daily/physical stressors	.06	.52
				Normal changes in mood	-.13	-1.05
				Consequence		
				Negative	.18	1.29
				Positive	-.02	-.19
				Duration	-.12	-.97

Table V2

Time 1: Label Use Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	3.24*	(4, 195)	.04	Age	.05	.65
				Gender	.19	2.71**
				DASS – Depression	-.06	-.67
				History of depression	.17	2.04*
Model 2	9.38***	(12, 187)	.34	Age	-.02	-.33
				Gender	.06	.99
				DASS – Depression	-.04	-.63
				History of depression	-.01	-.15
				SRM		
				Cause		
				Stable attributes	.24	3.26**
				Relationship/work difficulties	-.02	-.38
				Daily/physical stressors	.02	.35
				Normal changes in mood	-.04	-.68
				Consequence		
				Negative	.13	1.78
				Positive	-.03	-.42
				Duration	.34	4.58***
				Label name	.10	1.46
	F-change	*df*	Δ*Adj* R^2			
Model 3[1]	.00	(1, 186)	.00	Consequence – Negative x Duration expected	.00	-.01
	4.50*	(1, 186)	.01	Cause – Relationship/work difficulties x Duration expected	-.14	-2.12*
	.19	(1, 186)	-.01	Cause – Daily/physical stressors x Duration expected	.03	.44
	1.33	(1, 186)	.00	Cause – Stable attributes x Consequence – Negative	.08	1.15

Note: [1] Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Appendix W

Study 2: Multiple Regression Analyses with SRM Belief Domains Predicting Likely Use of Professional Treatment at Time 2.

At Time 2, analyses did not examine the no label use and label use conditions separately, since nearly the entire sample (88%) used a label. Thus, analyses at Time 2 first examined the sample as a whole. The overall regression model was significant, R^2 = .28, $F(12, 283) = 10.68$, $p < .001$ (see Table W1 in this appendix for a summary of the regression model). For the first block (consisting of participants' age, gender, current level of depression, and general frequency with which they have been depressed in the past), the regression equation was not significant, $R^2 = .00$, $F(4, 291) = .90$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .28, *F-change*$(8, 283) = 15.39$, $p < .001$. The Stable Attributes cause factor ($\beta = .33$), the Negative consequence factor ($\beta = .16$), and Duration length ($\beta = .18$) were the significant predictors.

Table W1

Multiple Regression Analysis with Self-Regulation Model Belief Domains Predicting Likely Use of Professional Treatment: Time 2

Criterion	*F*	*df*	*AdjR²*	Predictors	*β*	*t*
Professional Help Factor						
Model 1	.90	(4, 291)	.00	Age	.04	.67
				Gender	.09	1.55
				DASS – Depression	-.05	-.67
				History of depression	.00	-.04
Model 2	10.68***	(12, 283)	.28	Age	.05	.97
				Gender	-.04	-.77
				DASS – Depression	-.09	-1.48
				History of depression	-.06	-1.04
				SRM		
				Cause		
				Stable attributes	.33	5.26***
				Relationship/work difficulties	-.06	-1.07
				Daily/physical stressors	.03	.58
				Normal changes in mood	-.05	-.94
				Consequence		
				Negative	.16	2.42*
				Positive	.03	.62
				Duration	.18	2.71**
				Label name	.07	1.26
	F-change	*df*	*ΔAdj R²*			
Model 3[1]	.03	(1, 282)	.00	Consequence – Negative x Duration expected	-.01	-.18
	.09	(1, 282)	.00	Cause – Relationship/work difficulties x Duration expected	-.02	-.29
	4.43*	(1, 282)	.01	Cause – Daily/physical stressors x Duration expected	-.11	-2.10
	1.08	(1, 282)	.00	Cause – Stable attributes x Consequence – Negative	-.06	-1.04

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Appendix X

Study 2: Multiple Regression Analyses with SRM Belief Domains Predicting Likely Use of Professional Treatment at each Severity Level at Time 1

Table X1

Time 1: Low Severity Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	1.40	(4, 54)	.03	Age	-.02	-.17
				Gender	.21	1.61
				DASS – Depression	.09	.57
				History of depression	-.25	-1.63
Model 2	6.21***	(12, 46)	.52	Age	.07	.65
				Gender	.00	-.01
				DASS – Depression	-.25	-2.02
				History of depression	-.09	-.72
				SRM		
				Cause		
				Stable attributes	.00	.01
				Relationship/work difficulties	-.12	-1.19
				Daily/physical stressors	-.01	-.04
				Normal changes in mood	.11	1.12
				Consequence		
				Negative	.25	2.27*
				Positive	-.04	-.37
				Duration	.62	4.76***
				Label name	.09	.81
	F-change	*df*	Δ*Adj* *R*^{2}			
Model 3[1]	1.15	(1, 45)	.00	Consequence – Negative x Duration expected	.14	1.07
	.14	(1, 45)	-.01	Cause – Relationship/work difficulties x Duration expected	-.04	-.37
	.46	(1, 45)	-.01	Cause – Daily/physical stressors x Duration expected	.09	.68
	.21	(1, 45)	-.01	Cause – Stable attributes x Consequence – Negative	.05	.46

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table X2

Time 1: Mild Severity Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	1.69	(4, 62)	.04	Age	.20	1.61
				Gender	.08	.68
				DASS – Depression	.03	.23
				History of depression	.21	1.53
Model 2	2.71**	(12, 54)	.24	Age	.11	.93
				Gender	.04	.32
				DASS – Depression	-.03	-.21
				History of depression	.14	1.06
				SRM		
				Cause		
				Stable attributes	.32	2.16*
				Relationship/work difficulties	.09	.67
				Daily/physical stressors	-.01	-.04
				Normal changes in mood	-.17	-1.21
				Consequence		
				Negative	.07	.48
				Positive	-.10	-.85
				Duration	.08	.53
				Label name	.11	.86
	F-change	*df*	*ΔAdj R*^{2}			
Model 3[1]	2.26	(1, 53)	.01	Consequence – Negative x Duration expected	-.22	-1.50
	1.73	(1, 53)	.01	Cause – Relationship/work difficulties x Duration expected	-.18	-1.32
	.87	(1, 53)	.00	Cause – Daily/physical stressors x Duration expected	.11	.93
	.08	(1, 53)	-.02	Cause – Stable attributes x Consequence – Negative	-.04	-.29

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table X3

Time 1: Moderate Severity Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	2.17	(4, 69)	.06	Age	-.16	-1.33
				Gender	.21	1.81
				DASS – Depression	-.03	-.19
				History of depression	.26	1.60
Model 2	3.93***	(12, 61)	.33	Age	-.20	-1.73
				Gender	.08	.81
				DASS – Depression	-.04	-.30
				History of depression	.14	.89
				SRM		
				Cause		
				Stable attributes	.17	1.39
				Relationship/work difficulties	-.13	-1.10
				Daily/physical stressors	.16	1.34
				Normal changes in mood	-.17	-1.53
				Consequence		
				Negative	.13	1.02
				Positive	.16	1.52
				Duration	.37	2.95**
				Label name	.09	.82
	F-change	*df*	Δ*Adj* R^2			
Model 3[1]	1.11	(1, 60)	.00	Consequence – Negative x Duration expected	.14	1.05
	.19	(1, 60)	-.01	Cause – Relationship/work difficulties x Duration expected	-.05	-.44
	.02	(1, 60)	-.02	Cause – Daily/physical stressors x Duration expected	-.02	-.14
	.13	(1, 60)	-.01	Cause – Stable attributes x Consequence – Negative	.04	.36

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Appendix Y

Study 2: Multiple Regression Analyses with SRM Belief Domains Predicting Likely Use of Professional Treatment at each Severity Level at Time 2.

In the low severity condition at Time 2, the overall model was significant, R^2 = .42, $F(12, 87) = 7.05$, $p < .001$ (see Table Y1 in this appendix for a summary of the model). The regression equation was significant for the first block, $R^2 = .09$, $F(4, 95) = 3.33$, $p < .05$. Individuals' current depression level was a significant predictor ($\beta = -.26$). The addition of the SRM factors led to a significant incremental change in R^2 of .33, *F-change* (8, 87) = 7.93, $p < .001$. Two factors in the cause domain, namely the Stable Attributes ($\beta = .30$) and the Relationship/Work Difficulties ($\beta = -.24$) factors, were significant predictors. The cause factor attributing symptoms to normal mood changes approached significance ($\beta = -.17$, p = .05), as did the Negative consequence factor (β = .22, p = .052).

In the mild severity condition at Time 2, the overall regression model was significant, $R^2 = .19$, $F(12, 86) = 2.95$, $p < .01$ (see Table Y2 in this appendix for a summary of the model). For the first block, the regression equation was not significant, $R^2 = -.02$, $F(4, 94) = .47$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .21, *F-change* (8, 86) = 4.13, $p < .001$. The Stable Attributes cause factor ($\beta = .37$) was the significant predictor of seeking professional treatment.

In the moderate severity condition, the overall regression model was significant, $R^2 = .24$, $F(12, 83) = 3.50$, $p < .001$ (see Table Y3 in this appendix for a summary of the model). For the first block, the regression equation was not significant, $R^2 = -.03$, $F(4, 91) = .21$, *ns*. The addition of the SRM factors led to a significant incremental change in R^2 of .27, *F-change* (8, 83) = 5.10, $p < .001$. In this condition, expected Duration (β = .30) was the significant predictor of seeking professional help.

Table Y1

Multiple Regression Analysis with Self-Regulation Model Belief Domains Predicting Likely Use of Professional Treatment: Time 2 Low Severity Sample

Criterion	*F*	*df*	*AdjR²*	Predictors	*β*	*t*
Professional Help Factor						
Model 1	3.33*	(4, 95)	.09	Age	-.10	-.99
				Gender	.18	1.85
				DASS – Depression	-.26	-2.31*
				History of depression	-.03	-.31
Model 2	7.05***	(12, 87)	.42	Age	.01	.12
				Gender	.06	.66
				DASS – Depression	-.23	-2.29*
				History of depression	-.10	-1.05
				SRM		
				Cause		
				Stable attributes	.30	3.13**
				Relationship/work difficulties	-.24	-2.68**
				Daily/physical stressors	.12	1.34
				Normal changes in mood	-.17	-1.98
				Consequence		
				Negative	.22	1.97
				Positive	.03	.34
				Duration	.09	.88
				Label name	.16	1.79
	F-change	*df*	*ΔAdj R²*			
Model 3[1]	.01	(1, 86)	.00	Consequence – Negative x Duration expected	-.01	-.11
	1.44	(1, 86)	.01	Cause – Relationship/work difficulties x Duration expected	-.10	-1.20
	8.46**	(1, 86)	.05	Cause – Daily/physical stressors x Duration expected	-.23	-2.91**
	5.29*	(1, 86)	.03	Cause – Stable attributes x Consequence – Negative	.20	2.30*

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table Y2

Multiple Regression Analysis with Self-Regulation Model Belief Domains Predicting Likely Use of Professional Treatment: Time 2 Mild Severity Sample

Criterion	*F*	*df*	*AdjR*^{2}	Predictors	*β*	*t*
Professional Help Factor						
Model 1	.47	(4, 94)	-.02	Age	.11	1.05
				Gender	.03	.32
				DASS – Depression	.05	.42
				History of depression	.04	.38
Model 2	2.95**	(12, 86)	.19	Age	.09	.94
				Gender	-.07	-.69
				DASS – Depression	-.02	-.17
				History of depression	.05	.46
				SRM		
				Cause		
				Stable attributes	.37	3.18**
				Relationship/work difficulties	.02	.18
				Daily/physical stressors	-.15	-1.41
				Normal changes in mood	.08	.76
				Consequence		
				Negative	.05	.43
				Positive	.13	1.27
				Duration	.17	1.32
				Label name	.05	.49
	F-change	*df*	*ΔAdj R*^{2}			
Model 3[1]	.30	(1, 85)	.00	Consequence – Negative x Duration expected	-.06	-.55
	.07	(1, 85)	-.01	Cause – Relationship/work difficulties x Duration expected	.03	.27
	1.80	(1, 85)	.01	Cause – Daily/physical stressors x Duration expected	-.13	-1.34
	13.75***	(1, 85)	.11	Cause – Stable attributes x Consequences – Negative	-.37	-3.71***

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Table Y3

Multiple Regression Analysis with Self-Regulation Model Belief Domains Predicting Likely Use of Professional Treatment: Time 2 Moderate Severity Sample

Criterion	*F*	*df*	*AdjR²*	Predictors	*β*	*t*
Professional Help Factor						
Model 1	.21	(4, 91)	-.03	Age	.04	.40
				Gender	.04	.36
				DASS – Depression	.11	.82
				History of depression	-.08	-.58
Model 2	3.50***	(12, 83)	.24	Age	.02	.15
				Gender	-.07	-.73
				DASS – Depression	.09	.68
				History of depression	-.18	-1.35
				SRM		
				Cause		
				Stable attributes	.19	1.69
				Relationship/work difficulties	.03	.22
				Daily/physical stressors	.09	.82
				Normal changes in mood	-.10	-.97
				Consequence		
				Negative	.21	1.88
				Positive	.03	.33
				Duration	.30	2.58*
				Label name	.09	.88
	F-change	*df*	*ΔAdj R²*			
Model 3[1]	.43	(1, 82)	-.01	Consequence – Negative x Duration expected	.07	.65
	.00	(1, 82)	-.01	Cause – Relationship/work difficulties x Duration expected	.00	-.01
	.44	(1, 82)	.00	Cause – Daily/physical stressors x Duration expected	-.07	-.66
	.94	(1, 82)	.00	Cause – Stable attributes x Consequence – Negative	.10	.97

Note: [1]Each interaction analysis presented in Model 3 is a separate analysis, and includes the variables presented in Model 2.

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

Appendix Z

Study 2: Multiple Mediation Analysis at Time 1 Among Label Use Sample

A multiple mediation analysis was conducted at Time 1 after removing the portion of the sample who did not use a label name. In this sample, label name was significantly correlated with seeking professional help (the criterion variable; $r = .28$, $p < .001$), thus fulfilling the first precondition of mediation analyses. Only the Stable Attributes cause factor and Duration satisfied the second and third preconditions (association with both label name; $r = .33$, $p < .001$, and $r = .34$, $p < .001$; and Professional Help; $r = .47$, $p < .001$, and $r = .53$, $p < .001$, respectively) and, thus, were entered as mediators in the analysis. Age, gender, current depression, and participants' history of depression were entered as control variables. The total effect (c-path) of label name and mediators on the use of professional help was significant. Thus, the indirect and direct pathways were further examined. Here, only the Stable Attributes cause factor and Duration significantly mediated the relationship between label name and use of professional help (see Figure Z1). Increases in label severity were associated with greater attributions of stable causes and longer expected duration, which, in turn, were associated with greater likely use of professional services.

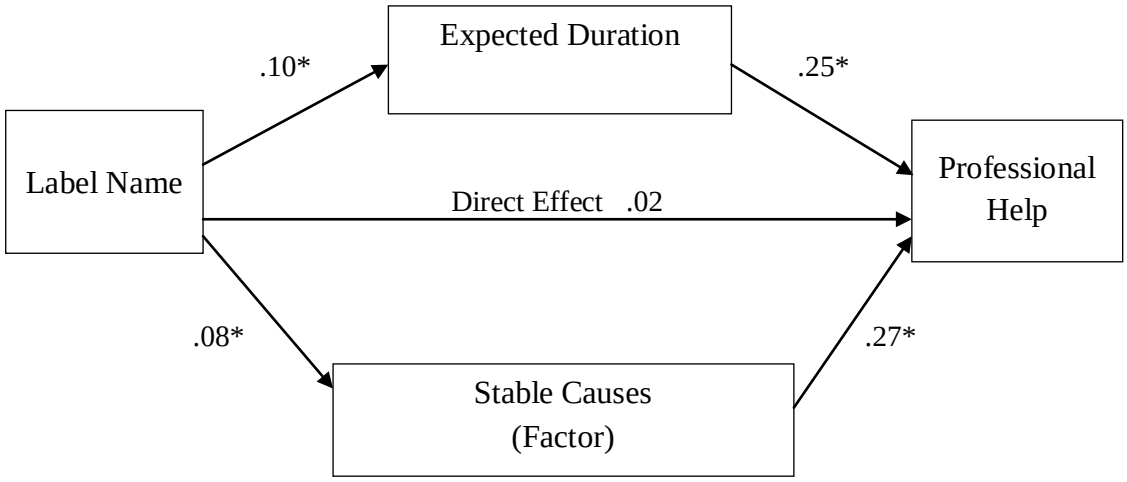

Figure Z1. Mediator effects of SRM belief dimensions on the relationship between label name and the likely use of professional help among the label use sample, controlling for age, gender, current depression, and history of depression.

Note: * $p < .001$.

Catherine Leite

Curriculum Vitae

Education

2012 **Ph.D., Clinical Psychology**
University of Western Ontario, London, Ontario
Advisor: Dr. Nicholas Kuiper
Dissertation: A self-regulation model of depression: Content of cognitive representations and prediction of treatment seeking

2010 **The Ottawa Hospital Predoctoral Internship Program, Clinical Psychology**
Ottawa, Ontario
CPA accredited program
Directors: Dr. Kerri Ritchie and Dr. Charles Leclerc

2004 **Master of Arts, Clinical Psychology**
University of Western Ontario, London, Ontario
Advisor: Dr. Nicholas Kuiper
Thesis: Implicit theories of sense of humor: A multidimensional approach

2002 **Bachelor of Arts, Honours, Psychology**
University of Western Ontario, London, Ontario
Advisor: Dr. Nicholas Kuiper
Thesis: Self-esteem, self-schema content, and self-worth contingencies

Publications and Presentations

Publications

Tasca, G. A., Foot, M., **Leite, C**., Maxwell, H., Balfour, L., & Bissada, H. (in press). Interpersonal processes in group psychodynamic-interpersonal psychotherapy and group cognitive behavioral therapy: A systematic case study of two groups. *Psychotherapy*.

Kuiper, N. A.**,** Kirsh, G., & **Leite, C**. (in press). Reactions to humorous comments and implicit theories of humor styles. Europe's Journal of Psychology: Special Issue on Humor Research in Personality and Social Psychology. www.ejop.org

Kuiper, N. A. & **Leite, C**. (2010). Personality impressions associated with four distinct humor styles. *Scandinavian Journal of Psychology, 51*, 115-122.

Leite, C., & Kuiper, N. A. (2008). Client uncertainty and the process of change in psychotherapy: The impact of individual differences in self-concept clarity and intolerance of uncertainty. *Journal of Contemporary Psychotherapy, 38*, 55-64.

(Winner of the Wilfred Quaytman Award for Creative Innovations in Psychotherapy).

Leite, C., & Kuiper, N. A. (2008). Positive and negative self-worth beliefs and evaluative standards. *Europe's Journal of Psychology*. Electronic journal, article web address: http://www.ejop.org/archives/2008/05/positive_and_ne.html.

Kuiper, N. A., Grimshaw, M., **Leite, C.,** & Kirsh, G. (2004). Humor is not always the best medicine: Specific components of sense of humor and psychological well-being. *Humor: International Journal of Humor Research, 17,* 135-168.

Presentations

Leite, C., & Kuiper, N. A. (2011, June). *Applying the self-regulation model to depression: Factors related to illness representations and treatment seeking.* Poster presented at the annual convention of the Canadian Psychological Association, Toronto, Ontario.

Tasca, G. A., Foot, M., **Leite, C.,** Maxwell, H., Balfour, L., & Bissada, H. (2011, June). *Group cognitive behavioral and group psychodynamic psychotherapists and their patients engage in differing interpersonal processes. A structural analysis of social behavior of two group therapy cases*. Paper presented at the annual meeting of the Society for Psychotherapy Research, Bern, Switzerland.

Leite, C., & Kuiper, N. A. (2007, June). *Implicit theories of sense of humor: Perceived frequency and co-occurrence of four humor styles*. Poster presented at the annual convention of the Canadian Psychological Association, Ottawa, Ontario.

Leite, C., & Kuiper, N. A. (2005, June). *Comparing the utility of two different self-worth models in predicting psychological well-being*. Poster presented at the annual convention of the Canadian Psychological Association, Montreal, Quebec.

Leite, C., & Kuiper, N. A. (2005, June). *Differential effects of four sense of humor styles on person perception*. Poster presented at the annual convention of the Canadian Psychological Association, Montreal, Quebec.

Leite, C., & Kuiper, N. A. (2003, June). *Predicting multidimensional self-esteem from self-schema content and self-worth beliefs*. Poster presented at the annual convention of the Canadian Psychological Association, Hamilton, Ontario.

Clinical Talks

Leite, C., & Foot, M. (2010, June). *Interpersonal process in group cognitive-behavioral and group psychodynamic-interpersonal psychotherapy: An evidence based case study*. Presented for the Department of Psychology, The Ottawa Hospital, Ontario.

Kowal, J., & **Leite, C**. (2010, April). *Psychological approaches to chronic pain management.* Presented for the Department of Anesthesiology, University of Ottawa, Ontario.

Leite, C. (2006, March). *Consultation within the context of depression management for older adults in long-term care*. Presentation for the Department of Clinical Psychology, University of Western Ontario, London, Ontario.

Teaching and Research

2002 to 2008 **Teaching Assistant, University of Western Ontario, London, Ontario**

- Psychology 280E Research Methods in Psychology

2007 **Teaching Assistant, University of Western Ontario, London, Ontario**

- Psychology 140 Child Development

2007 **Co-supervisor of an Undergraduate Honours Thesis, University of Western Ontario, London, Ontario**

- Co-supervisor: Dr. Nicholas Kuiper

2001 **Research Assistant, London Health Sciences Centre, London, Ontario**

- Supervisor: Dr. Henny Westra

Applied Research

2005 to 2006 **Veterans Care Program, St. Joseph's Health Care, London, Ontario**

- Applied Research Practicum: Program Development
- Initiated the development of a program for primary prevention of depression among a geriatric population in a long-term care facility.
- Supervisor: Dr. Maggie Gibson

Clinical Experience

September 2009 – August 2010 **Psychology Resident, The Ottawa Hospital Predoctoral Internship Program in Clinical Psychology (CPA Accredited)**
Ottawa, Ontario

- **Eating Disorders Rotation** (September 2009 – November 2010)
  - *Supervisors*: Dr. Natasha Demidenko and Dr. George Tasca
- **Shared Mental Health Care (SHARE) Rotation** (November 2009 – February 2010)
  - *Supervisor*: Dr. Pamela Cooper
- **Psychiatry Assessment Minor Rotation** (November 2009 – February 2010)
  - Supervisor: Dr. Ivan Valdivia

- **Chronic Pain Rotation** (March 2010 – May 2010)
  - *Supervisor*: Dr. John Kowal
- **Musculoskeletal Rotation** (June 2010 – August 2010)
  - *Supervisor*: Ms. Josie Marino, Psychological Associate

Practicum Experience

May 2007-June 2009	**Adult Ambulatory Mental Health Services, London Health Sciences Center** London, Ontario *Supervisor*: Dr. Elizabeth Werth, C. Psych.
January 2008-December 2008	**Behavioral Medicine Service, London Health Sciences Centre** London, Ontario *Supervisor*: Dr. Felicia Otchet, C. Psych.
June 2007-June 2008	**Cardiac Rehabilitation and Secondary Prevention Program, London Health Sciences Centre** London, Ontario *Supervisor*: Dr. Peter Prior, C. Psych.
January 2006-December 2006	**Specialized Adult London, Regional Mental Health Care** London, Ontario *Supervisor*: Dr. Stephanie Dubois, C. Psych.
September 2005-January 2006	**Mood Disorders Unit, Regional Mental Health Care,** London, Ontario *Supervisor*: Dr. Mustaq Khan
September 2005-August 2006	**Private Practice, London, Ontario** *Supervisor*: Dr. Judith Schachter
September 2004-August 2005	**Student Development Centre, University of Western Ontario** London, Ontario *Supervisor*: Dr. Gail Hutchinson
January 2004-April 2004	**Geriatric Unit, Regional Mental Health Care** London, Ontario *Supervisor*: Dr. Ed Black
January 2004-April 2004	**Child and Adolescent Centre, London Health Sciences Center,** London, Ontario *Supervisor*: Dr. Vicky Wolfe

Academic Awards

Date	Award	Institution	Value
2002 to 2008	International Graduate Student Scholarship	University of Western Ontario	$7,000
2002 to 2008	Western Graduate Research Scholarship	University of Western Ontario	Up to $8,000
2008	Health Professional Student Research Award	Canadian Institute of Health Research	$1,962
2007	Wilfred Quaytman Award – For Creative Innovations in the Field of Psychotherapy	Journal of Contemporary Psychotherapy	$500
2007	Health Professional Student Research Award	Canadian Institute of Health Research	$2,289
2006 to 2007	Graduate Thesis Research Award	University of Western Ontario	$700
2006	Health Professional Student Research Award	Canadian Institute of Health Research	$3,924
2004, 2007, 2008	Graduate Student Teaching Award Nomination	University of Western Ontario	n/a

Professional Affiliations

Canadian Psychological Association	Student Member, Clinical Section
London Regional Psychological Association	Student Member

Professional Activities

July 2008	Reviewer, *Psychology and Psychotherapy: Theory, Research, and Practice*
2006 - 2008	Student member, Private practice consultation group: monthly group meetings of clinicians for consultation regarding complex clinical cases, London, Ontario
2002 - 2003	Graduate student representative, Workload and Resource Planning Committee, University of Western Ontario, Psychology Department