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The importance of social connectedness: From interpersonal schemas in depression to relationship functioning and well-being

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Abstract

In this article, a program of research is described, that began with a focus on depression. A number of studies have demonstrated that negative self-schemas, particularly for interpersonal content, are well-organized and appear to represent stable vulnerability factors for depression. Fortunately, this negative interpersonal structure is also modifiable through effective treatments (both psychological and pharmacological). An important extension of this research has involved investigating the impact of schemas on interpersonal phenomena (e.g., excessive reassurance seeking) and the formation of schemas about others (e.g., romantic partners). The dyadic partner-schema model, which articulates how self- and partner-schemas impact relationship functioning, is introduced and some empirical findings related to this conceptualization are highlighted. The impact of social connectedness to mental and physical well-being is also described.

Keywords: Depression, Schemas, Cognitive Structure, Interpersonal, Connectedness

Public Significance Statement

What contributes to psychological well-being is not that far removed from what contributes to a life of misery – both are inextricably linked to having or not having social connections. Being connected with others, and how we think about and organize information (memories, beliefs) about ourselves as social beings, contributes importantly to depression and to mental and physical well-being.

The Importance of Social Connectedness: From Interpersonal Schemas in Depression to Relationship Functioning and Well-Being.

I am honoured to be the recipient of the 2020 Canadian Psychological Association Award for Distinguished Contributions to Psychology as a Profession. I would like to begin by thanking some of the collaborators and colleagues who have shaped my thinking and impacted my research and practice over the years: Drs. Aaron Beck, Judy Beck, Keith Dobson, Deborah Dobson, Gene Flessati, Nick Kuiper, Rod Martin, Kerry Mothersill, Andrea Piotrowski, Lena Quilty, Leora Swartzman, and Henny Westra. I would also like to express gratitude to some of the current and former members of the "Breaking Sad Lab," including Dr. Roger Covin, Dr. Lyndsay Evraire, Dr. Paul Frewen, Jennifer Gillies, Dr. Allison Ouimet, Daniel Machado, Dr. Katerina Rnic, Dr. Monica Tomlinson, Dr. Pamela Seeds, and Jesse Wilde.

In this article, I would like to take the reader on a bit of a journey through a program of research that began with a focus on depression. My primary research interests involve cognitive vulnerability to depression, cognitive behavioural therapy (CBT), and how depression can be effectively treated and prevented. More recently, I have also been interested in factors that contribute to living fully (e.g., Dozois, 2018). As it turns out, an interest in living fully is not that far removed from what contributes to a life of misery; as I will argue, both are inextricably linked to social connectedness (cf. Diener et al., 2017; Perlman, in press). By focusing on studies that have examined the self-schema in depression, I hope to demonstrate that the way we organize information about ourselves – particularly in terms of interpersonal content – is an important vulnerability factor for depression. I also argue that both interpersonal connectedness, and how we think about ourselves as social beings, contribute importantly to mental and physical well-being.

This review begins with a brief overview of Beck's cognitive model of depression (see Beck & Dozois, 2011, 2014; Dozois & Beck, 2008, 2012) because this helps to introduce and contextualize the importance of self-schemas. Research is then described which supports the idea that the cognitive structure of interpersonal schemas may be an important vulnerability factor for depression, showing evidence of sensitivity, specificity, and temporal stability. Although vulnerability to depression appears particularly linked to how *interpersonal* information related to self is structured, it may be important for research to extend beyond the *self*-schema to also examine schemas concerning close others. To illustrate this idea, the dyadic partner-schema model (Wilde & Dozois, 2019; Wilde, Gillies, & Dozois, in press) is presented as a framework for examining the interplay between self- and other-schemas in depression and relationship distress.

Beck's Cognitive Model of Depression

Beck proposed a taxonomy of cognition, ranging from "deeper" cognitive structures to more surface-level cognitions (Beck, Rush, Shaw, & Emery, 1979): (1) schemas; (2) information processing and intermediate beliefs; and, (3) automatic thoughts. Conceptually, the depressive schema is the most central of these constructs (Beck & Dozois, 2011; Dozois & Beck, 2008). The depressive self-schema is defined as a well-organized and interconnected negative internal representation of self. Comprised of both content (e.g., core beliefs) and structure (or how that information is organized), the schema is believed to develop through early life experiences and to remain dormant until it is triggered by negative life events such as loss or rejection. Childhood maltreatment, insecure attachment, and other adverse events are some of the early predictors of the development of a negative or maladaptive belief system (Lumley, Dozois, Hennig, & Marsh, 2012; Lumley & Harkness, 2009).

Once activated, schemas are believed to affect the manner in which information is processed and interpreted. For example, an individual vulnerable to depression may have underlying core beliefs that he or she is profoundly incompetent or unlovable. As long as this belief system remains inactive, depression is not likely. Once this schema is triggered by life stress (e.g., a failure or rejection experience), however, the individual is more likely to engage in information processing biases (e.g., attentional or memory biases toward negative content), exhibit cognitive distortions (e.g., mind-reading, dichotomous thinking; see Covin, Dozois, Ogniewicz, & Seeds, 2011), and experience negative automatic thoughts associated with themes of loss, failure, worthlessness, defectiveness, incompetence and inadequacy (Beck et al., 1979; Dozois & Beck, 2008).

The way in which schema content is organized within the self-system is particularly important in the context of depression (e.g., Dozois & Dobson, 2001a, 2001b). Negative content purportedly spreads more quickly and easily across schema content or "nodes" that are more closely interconnected (e.g., Bower, 1981). Figure 1 depicts this diathesis-stress model and how a stressor (especially one that matches one's core belief system) activates the schema through the spreading of an associative network.

The activation of an individual's self-schema, and ensuing information processing biases, is also evident in more surface-level cognition or what are referred to as automatic thoughts. Such cognitions are labelled "automatic" in part because they are easily accessible and seem to almost spontaneously come to mind. Automatic thoughts are more superficial and proximal to a given situation than are other levels of cognition but functionally related to one's deeper beliefs and schemas (see Dozois & Beck, 2008). As such, automatic thoughts are considered the cognitive by-products of activated schemas.

Conceptually, the cognitive taxonomy operates in a top down fashion (whereby the activation of the schema influences information processing which, in turn, impacts automatic thoughts). Practically, treatment using CBT occurs in a bottom up fashion (i.e., treatment typically begins by helping the client discover and test negative automatic thoughts and moves systematically toward modifying deeper beliefs and schemas).

Considerable early research examined the levels of the cognitive taxonomy that included information processes biases and automatic thoughts, but a dearth of research had been conducted on the most crucial element of Beck's model – the organization of the self-schema. Moreover, a common finding (in the absence of naturalistic or experimental priming) was that the negative thinking, clearly found during a mood-disordered state, improved once depression remitted, suggesting that these variables may function more as episode markers in depression than as vulnerability factors (see Dozois & Dobson, 2001a, for elaboration).

Cognitive Structure as a Vulnerability Factor for Depression

The Psychological Distance Scaling Task (PDST; Dozois & Dobson, 2001a, 2001b) was developed to examine cognitive structure as a putative vulnerability factor in depression. In this task, participants are presented with a grid that is divided into four quadrants on the computer screen or digital device. The x-axis refers to self-descriptiveness and is anchored with the description "Not at all like me" on the left and "Very much like me" on the right. The y-axis pertains to valence and is anchored with the description "Very positive" at the top and "Very negative" at the bottom. Adjectives are displayed in the middle of the grid and, using digital cursor, participants consider both axes, and place each adjective on the grid in terms of where it fits in psychological space for them. After each response, a new grid and new adjective are displayed on the screen, until all adjectives are presented. The X and Y coordinate point for each

adjective is recorded by the computer to compute the interstimulus distance among the positive schematic adjectives and among the negative schematic adjectives using the following formula (in this case, assuming that there are 20 adjectives in each category):

$$\frac{\sqrt{\sum (X_1 - X_2)^2 + (X_1 - X_3)^2 + \cdots + (X_{19} - X_{20})^2 + (Y_1 - Y_2)^2 + (Y_1 - Y_3)^2 + \cdots + (Y_{19} - Y_{20})^2}}{n(n-1)/2}$$

where X is the adjective placement on the self-descriptiveness axis, Y is the adjective placement on the valence axis, and n is the total number of self-descriptive adjectives. As such, the average interstimulus distances for a particular content of self-referent adjectives equals the square root of the mean squared distances of every adjective-adjective combination, divided by the total number of possible distances for that content area (see Dozois & Dobson, 2001b, for additional information concerning the development of this measure). In this task, smaller distances among adjectives are believed to reflect greater interconnectedness or consolidation of self-referent content, whereas larger distance among adjectives is indicative of less interconnectedness or consolidation. The psychometric properties of the PDST have been supported in previous samples of individuals with depression and in individuals without psychiatric difficulties (Crits-Christoph, Gallop, Diehl, Yin, & Gibbons, 2017; Dozois, 2002, 2007; Dozois & Dobson, 2001b).

Sensitivity, Specificity and Stability of the PDST

For a variable to be considered a vulnerability factor, it should demonstrate sensitivity (be present in depressed individuals), specificity (occur more frequently in depressed individuals than in other psychiatric samples) and stability (be present and accessible, although not always accessed). A number of studies have examined the sensitivity, specificity and stability of this construct, providing support that cognitive organization may be an important vulnerability factor

for depression. To illustrate, in the initial investigation using this measure the PDST was presented to individuals with comorbid depression and anxiety, pure depression, pure anxiety and or nonpsychiatric controls (using positive and negative interpersonal content). Our interest was in the sensitivity of cognitive organization but also its specificity to depression. Depressed and anxious groups displayed significantly less interstimulus distance (or more interconnectedness) among the negative adjectives than did nonpsychiatric controls. No significant differences were found between the depressed and anxious groups on negative content. For positive content, both depressed groups showed greater interstimulus distance (less interconnectedness) among adjectives than nonpsychiatric and anxious controls (who did not differ significantly from each other). Although the PDST was sensitive to depression, only cognitive organization for positive content showed specificity. These findings were, however, consistent with the idea that depression and anxiety share features of negative affect but that low positive affect is what seems to be unique to depression (Brown, Chorpita, & Barlow, 1998).

Dozois & Frewen (2006) tested both interpersonal and achievement content on the PDST in a sample of individuals with depression, persons with social anxiety, general anxiety controls and nonpsychiatric controls. The sample of individuals with social anxiety was also examined separately from a general anxiety control group because of research suggesting that these individuals are similar to depressed individuals in terms of both positive and negative emotionality suggesting that they may share a similar underlying pathogenesis (e.g., Brown et al., 1998). Negative self-structures for interpersonal content were more densely interconnected in individuals with depression and social anxiety compared with both the anxiety controls and nonpsychiatric controls. In addition, both social anxiety and depression were associated with less

interconnected positive self-schemas for both interpersonal and achievement content. These findings provide further support for the specificity of the PDST.

Individuals with clinical depression (Dozois & Dobson, 2001b) or increasing severity of dysphoria (Dozois, 2012; Lumley et al., 2012) show well-interconnected negative content and loosely clustered positive content. This finding has also been demonstrated in child and adolescent samples (Dozois, Eichstedt, Collins, Pheonix, & Harris, 2012; Lumley et al., 2012; Lumley & Harkness, 2009) and in individuals with past depression (e.g., Dozois & Dobson, 2003). In addition, cognitive organization appears to predict depressive symptoms beyond negative schema content (Lumley et al., 2012).

Aside from sensitivity and specificity, another important criterion for a variable to be considered a vulnerability factor is that it demonstrates temporal stability. A sample of females with depression was assessed on the PDST and administered information processing tasks measuring attention to and recall of positive and negative interpersonal information. Participants were retested 6 months later when half of the sample had remained depressed and the other half was remitted (Dozois & Dobson, 2001a). Negative information processing was evident only during episode and shifted significantly once depression improved, suggesting that this variable operates more as a state than as a trait marker. In contrast, negative cognitive organization remained stable across time in those individuals who no longer met diagnostic criteria for major depression. This finding was replicated in a subsequent study which also found that the stability of negative cognitive organization was specific to interpersonal self-referent content (Dozois, 2007).

Demonstration that negative cognition is present in individuals who have remitted from an episode of depression does not necessarily rule out the possibility that it may represent a ‘scar’ of

the disorder rather than a cause. Therefore, the strongest evidence in support of the causal status of maladaptive cognition is to demonstrate that it is present in individuals who have never experienced depression and that it is predictive of the initial onset of a depressive episode. Although this work still needs to be conducted, some related research found that the interaction of cognitive organization and negative life events predicted depression one year later after controlling for initial depressive severity (Seeds & Dozois, 2010).

Together, these studies suggest that when people improve from an episode of depression, their information processing biases become "deactivated" and they begin to produce a more organized positive self-schema. However, the well-organized negative schema structure appears to remain intact – an effect that appears to be especially true regarding the interconnectedness of negative interpersonal content.

Modifiability of Cognitive Structure

The evidence reviewed thus far indicates that negative schema structures may be a stable vulnerability factor for depression. As noted earlier, CBT targets negative cognitions, beginning with automatic thoughts and eventually helping clients to change deeper core beliefs. Myriad clinical trials and numerous meta-analyses indicate that CBT is efficacious for the treatment of depression and the prevention of relapse (see Beck & Dozois, 2011; Dozois & Beck, 2012; Dozois & Bieling, 2010).

We sought to test whether CBT can modify these stable negative interpersonal structures (Dozois et al., 2009). Individuals with major depressive disorder, who received CBT+pharmacotherapy (PT), had significantly less organization for negative interpersonal content and greater cognitive organization for positive interpersonal content following treatment than did those treated with PT alone. When within group analyses were conducted, individuals in

the CBT+PT condition showed significant pre-post changes on negative and positive cognitive organization, whereas those in the PT alone condition failed to exhibit changes in cognitive structure. These findings suggest that depressive schemas can be altered by CBT and highlight a putative mechanism through which this psychological intervention has an added benefit over PT (i.e., by altering deeper cognitive structures, thereby reducing risk for future cognitive reactivity and subsequent relapse). An important caveat, however, is that this study examined only the combination of CBT and PT compared to antidepressant medication alone – it is possible that it was the combination of interventions rather than CBT alone that resulted in this change. Indeed, subsequent research has yielded discrepant findings (e.g., Dozois et al., 2014; Quigley, Dozois, Bagby, Lobo, Ravindran, & Quilty, 2019; Quilty, Dozois, Lobo, Ravindran, & Bagby, 2014). Quilty et al. (2014), for example, reported the results from a study of patients with depression who received CBT or PT. Participants completed the PDST, and a battery of other tests, before, during and after therapy. Positive content became more interconnected and negative content less consolidated over treatment, with no significant between-group differences. These results suggest that enduring cognitive risk factors can be modified with multiple treatment modalities.

Summary of Self-Schema Structure Findings

Cognitive organization shows sensitivity and specificity to depression and temporal stability. Cognitive organization also shows sensitivity to treatment change. However, a common theme that emerged in this program of research is that the way *interpersonal information* about self is organized is a particularly stable vulnerability factor for depression. The idea that interpersonal core beliefs are important to psychopathology is not a new idea – attachment theories, for instance, have for decades discussed the development of internal working models (e.g., Bowlby, 1973). However, this was the first time that interpersonal schema structure – the

organization of interpersonal cognitions – has been shown to represent a particular vulnerability for depression. The good news, as well, is that we can modify these deeper beliefs, not only through CBT, but also with evidence-based pharmacological interventions. These findings also speak to the importance of social connections and our beliefs about relationships and who we are as social beings (Diener et al., 2017; Dozois, 2018). We are biologically and cognitively wired to be loved, to love, and to belong. As such, it is logical that the manner in which we organize social-related information in self-schema structures effects depression.

The Impact of Self-Schemas on Interpersonal Functioning

Given the importance of interpersonal schemas, a recent line of my research has focused on how the content and structure of these interpersonal schemas impact stress generation and interpersonal behaviors in depression (Dobson, Quigley, & Dozois, 2014; Dozois & Rnic, 2015; Evaire & Dozois, 2011, 2014; Wilde & Dozois, 2018, 2019; Wilde, Gillies, & Dozois, in press). For example, several studies have demonstrated that core beliefs related to abandonment (and anxious attachment) are associated with excessive reassurance seeking (ERS; e.g., Evraire & Dozois, 2011, 2014; Evraire, Ludmer, & Dozois, 2014). ERS is the "relatively stable tendency to excessively and persistently seek assurances from others that one is lovable and worthy, regardless of whether such assurance has already been provided" (Joiner, Metalsky, Katz, & Beach, 1999, p. 270). ERS can negatively impact close relationships, corroborate negative beliefs about self-worth and interpersonal relationships in individuals with depression, and increase depressive symptomatology. We have also found that maladaptive interpersonal

schemas and behaviour predict the generation of negative interpersonal life events and, in turn, subsequent depressive symptoms (Dozois & Rnic, 2017).

Partner Schemas

Relationship difficulties are common in depression and represent both a risk factor and consequence of the disorder (Whisman, 2013). Relationship problems are associated with numerous negative outcomes for individuals with depression, including increased risk of relapse (Jacobson et al., 1993) and poorer response to psychological and pharmacological interventions (e.g., Quilty, Mainland, McBride, & Bagby, 2013; Bromberger, Wisner, & Hanusa, 1994). A more comprehensive understanding of these risk factors, and the interface between cognitive and interpersonal models of depression, may be obtained by extending research beyond the *self*-schema to also examine schemas concerning close others. Wilde and Dozois (2019) recently developed the dyadic partner-schema model to account for relationship distress in depression (also see Wilde et al., in press). Five main hypotheses are advanced in this model (indicated by "H#"; see Figure 2):

- H1: Partner-schemas are key contributors to ongoing cognitions and behaviours toward romantic partners.
- H2: Depressive behaviours occur within a dyadic context.
- H3: Dysfunctional dyadic interactions impact present and future relationship distress and depression.
- H4: There is a reciprocal relationship between distress and depression.
- H5: Self- and partner-schema structures become consolidated over time as a result of negative partner interactions.

The central axiom of this model is that, in addition to self-schemas, highly organized negative partner-schema structures contribute to biased cognitions (e.g., attributions) about one's romantic partner, which subsequently lead to maladaptive behavioral responses toward that partner. These processes set the stage for dysfunctional interpersonal processes by eliciting negative responses from romantic partners and perpetuating negative dyadic interactions. These

ongoing maladaptive interactions and cognitive processes (e.g., activation of schemas and attributions) contribute to depression and relationship dissatisfaction and further reinforce and consolidate highly organized, negative self- and partner-schema structures. For instance, Wilde and Dozois (2018) found that partner-schemas predicted relationship quality and one's attributions about the relationship over and above self-schemas (whereas self-schemas predicted depression more than did partner-schemas). Although some empirical support exists for this model, we are just beginning to test its various components and predictions, and further validation research is needed.

Connectedness and Well-Being

In addition to the impact of interpersonal schemas on depression and relationship distress, we also know that social connectedness is crucial for our mental health and well-being (Diener et al., 2017) and that loneliness, social isolation, and living alone is related to poor mental health (Perlman, in press) and dramatically associated with increased risk of mortality (Holt-Lunstad et al., 2015). Indeed, we are already seeing the negative effects of social isolation and physical distancing measures on mental health during the COVID-19 pandemic in Canada (e.g., Dozois & Mental Health Research Canada, in press).

Social isolation and loneliness have become such a problem in our modern society that in January 2018, the United Kingdom government appointed a Minister of Loneliness. A twelve-month investigation into the prevalence of loneliness in the U.K. revealed that nine million individuals suffer from loneliness: fourteen per cent of the population! Loneliness is also a significant problem in Canada (arguably, we need a similar Minister in our country). According to an Angus Reid (2019) poll, 35% of Canadians indicate that they are often or always alone, and 48% report feeling somewhat or very lonely. Research is needed to test the impact of social

disconnection on the development of cognitive structures and whether interventions aimed at increasing social connectedness can modify negative interpersonal cognitions and prevent the onset of depression.

Conclusion

In this article, I have tried to demonstrate that interpersonal schemas are important in depression. Research was described that the cognitive organization of interpersonal content demonstrates sensitivity, specificity and stability in depression. I also presented some data that, although a stable cognitive vulnerability factor for depression, interpersonal schema structures are treatable. Some work on the role that negative interpersonal schema structures play on interpersonal behaviors and relationship functioning was also discussed, and a recent conceptual model (the dyadic partner-schema model) that emphasizes the importance of both self- and partner-schemas in depression and relationship distress was outlined. Finally, the importance of connectedness and the ramifications of social isolation on psychological and physical well-being was highlighted.

Although research in cognitive and interpersonal vulnerability to depression has been conducted for a long time this research has, for the most part, been siloed. The research literature needs more integration of these conceptual models and empirical research that helps us to understand how interpersonal self- and other-schemas impact depression, relationships, and psychological well-being. For example, longitudinal research could examine how self- and partner-schemas become increasingly consolidated over the duration of a relationship and impact relationship satisfaction/distress, future attributions about one's partner, and depressive symptomatology. Studies that test the interface of various interpersonal (e.g., anxious attachment, ERS, social avoidance; see Dobson et al., 2014) and cognitive risk factors for

depression may also enhance our knowledge base regarding the etiology of depression. Psychotherapy outcome studies that assess both self- and partner-schemas in CBT may also help us to better understand the mechanisms of treatment change and develop strategies that further enhance treatment outcome.

References

Angus Reid Institute. (2019, June). A Portrait of social isolation and loneliness in Canada today. Retrieved on July 15, 2020 from https://cnpea.ca/images/2019.06.14_loneliness-and-social-isolation-in_canada_angusreid.pdf

Beck, A. T., & Dozois, D. J. A. (2014). Cognitive theory and therapy: Past, present and future. In S. Bloch, S. A. Green, & J. Holmes (Eds.), *Psychiatry – past, present and prospect* (pp. 366-382). Oxford, England: Oxford University Press.

Beck, A. T., & Dozois, D. J. A. (2011). Cognitive therapy: Current status and future directions. *Annual Review of Medicine, 62,* 397-409.

Beck, A.T., Rush, A.J., Shaw, B.F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford.

Bower, G. H. (1981). Mood and memory. *American Psychologist, 36*, 129-148.

Bowlby, J. (1973). *Attachment and loss: Vol. 2. Separation: Anxiety and anger*. New York: Basic Books.

Bromberger, J. T., Wisner, K. L., & Hanusa, B. H. (1994). Marital support and remission of treated depression: A prospective pilot study of mothers of infants and toddlers. Journal of Nervous & Mental Disease, 182, 40–44.

Brown, T.A., Chorpita, B.F., Barlow, D.H., 1998. Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. *Journal of Abnormal Psychology*, *107*, 179–192.

Clark, D. A., Beck, A. T., & Alford, B. A. (1999). *Scientific foundations of cognitive theory and therapy of depression*. New York: Wiley.

Covin, R., Dozois, D. J. A., Ogniewicz, A., & Seeds, P. M. (2011). Measuring cognitive errors: Initial development of the Cognitive Distortions Scale (CDS). *International Journal of Cognitive Therapy, 4*, 297-322.

Crits-Christoph, P., Gallop, R., Diehl, C. K., Yin, S., & Gibbons, M. B. C. (2017). Mechanisms of change in cognitive therapy for major depressive disorder in the community mental health setting. *Journal of Consulting and Clinical Psychology, 85*, 550-561.

Diener, E., Heintzelman, S. J., Kushlev, K., Tay, L., Wirtz, D., Lutes, L. D., et al. (2017). Findings all psychologists should know from the new science on subjective well-being. *Canadian Psychology, 58*, 87-104.

Dobson, K. S., Quigley, L., & Dozois, D. J. A. (2014). Towards an integration of interpersonal risk models of depression and cognitive-behavior therapy. *Australian Psychologist, 49*, 328–336.

Dozois, D. J. A. (2018). Presidential address – Not the years in your life, but the life in your years: Lessons from Canadian psychology on living fully. *Canadian Psychology, 59*,107-119.

Dozois, D.J.A. (2002). Cognitive organization of self-schematic content in nondysphoric, mildly dysphoric, and moderately-severely dysphoric individuals. *Cognitive Therapy Research, 26*, 417–429.

Dozois, D. J. A. (2007). Stability of negative self-structures: A longitudinal comparison of depressed, remitted, and nonpsychiatric controls. *Journal of Clinical Psychology, 63*, 319-338.

Dozois, D. J. A., & Beck, A. T. (2012). Cognitive therapy. In J. D. Herbert & E. M. Forman (Eds.), *Acceptance and mindfulness in cognitive behavioral therapy: Understanding and applying the new therapies* (pp. 26-56). New York: Wiley.

Dozois, D. J. A., & Beck, A. T. (2008). Cognitive schemas, beliefs and assumptions. In K. S. Dobson & D. J. A. Dozois (Eds.), *Risk factors in depression* (pp. 121-143). Oxford, England: Elsevier/Academic Press.

Dozois, D. J. A., & Bieling, P. J. (2010). Cognitive therapy for depression. In S. Hofmann & M. A. Reinecke (Eds.), *Cognitive-behavior therapy with adults: A guide to empirically-informed assessment and intervention* (pp. 1-17). Cambridge, UK: Cambridge University Press.

Dozois, D. J. A., Bieling, P. J., Evraire, L. E., Patelis-Siotis, I., Hoar, L., Chudzik, S., McCabe, K., Westra, H. A. (2014). Changes in core beliefs (early maladaptive schemas) and self-representation in cognitive therapy and pharmacotherapy for depression. *International Journal of Cognitive Therapy, 7*, 217-234.

Dozois, D. J. A., Bieling, P. J., Patelis-Siotis, I., Hoar, L., Chudzik, S., McCabe, K., & Westra, H. A. (2009). Changes in self-schema structure in cognitive therapy for major depressive disorder: A randomized clinical trial. *Journal of Consulting and Clinical Psychology, 77*, 1078-1088.

Dozois, D.J.A., Dobson, K.S. (2001a). A longitudinal investigation of information processing and cognitive organization in clinical depression: stability of schematic interconnectedness. *Journal of Consulting and Clinical Psychology, 69,* 914–925.

Dozois, D.J.A., Dobson, K.S. (2001b). Information processing and cognitive organization in unipolar depression: specificity and comorbidity issues. *Journal of Abnormal Psychology, 110*, 236–246.

Dozois, D. J. A., Eichstedt, J. A., Collins, K. A., Phoenix, E., & Harris, K. (2012). Core beliefs, self-perception, and cognitive organization in depressed adolescents. *International Journal of Cognitive Therapy, 5*, 99-112.

Dozois, D. J. A., & Frewen, P. A. (2006). Specificity of cognitive structure in depression and social phobia: A comparison of interpersonal and achievement content. *Journal of Affective Disorders, 90*, 101–109.

Dozois, D. J. A. & Mental Health Research Canada (in press). Anxiety and depression in Canada during the COVID-19 pandemic: A national survey. *Canadian Psychology*.

Dozois, D. J. A., & Rnic, K. (2017, July). *The generation of interpersonal stress and responses to rejection in depression*. Paper presented at the European Congress of Psychology, Amsterdam, Netherlands.

Dozois, D. J. A., & Rnic, K. (2015). Core beliefs and self-schematic structure in depression. *Current Opinion in Psychology, 4*, 98-103.

Evraire, L. E., & Dozois, D. J. A. (2014). If it be love indeed tell me how much: Early core beliefs associated with excessive reassurance seeking in depression. *Canadian Journal of Behavioural Science, 46*, 1-8.

Evraire, L. E. & Dozois, D. J. A. (2011). An integrative model of excessive reassurance seeking and negative feedback seeking in the development and maintenance of depression. Clinical Psychology Review, 31, 1291-1303.

Evraire, L. E., Ludmer, J. A., & Dozois, D. J. A. (2014). The influence of priming attachment styles on excessive reassurance seeking and negative feedback seeking in depression. *Journal of Social and Clinical Psychology, 33*, 295-318.

Jacobson, N. S., Fruzzetti, A. E., Dobson, K., Whisman, M., & Hops, H. (1993). Couple therapy as a treatment for depression II: The effects of relationship quality and therapy on depressive relapse. *Journal of Consulting and Clinical Psychology, 61*, 516–519.

Joiner, T. E., Jr., Metalsky, G. I., Katz, J., & Beach, S. R. H. (1999). Depression and excessive reassurance seeking. *Psychological Inquiry, 10*, 269-278.

Lumley, M. N., Dozois, D. J. A., Hennig, K., & Marsh, A. (2012). Cognitive organization, perceptions of parenting and depression symptoms in early adolescence. *Cognitive Therapy and Research, 36*, 300-310.

Lumley, M. N., & Harkness, K. L. (2009). Childhood maltreatment and depressotypic cognitive organization. *Cognitive Therapy and Research, 33*, 511-522.

Perlman, D. (in press). Attachment loneliness: From academic pariah to the U.K.'s appointment of a Minister of Loneliness. In P. Graf & D. J. A. Dozois (Eds.), *Handbook on the state of the art in applied psychology*. New York: Wiley.

Quigley, L., Dozois. D. J. A., Bagby, R. M., Lobo, D. S. S., Ravindran, L., & Quilty, L. C. (2019). Cognitive change in cognitive behavioural therapy versus pharmacotherapy for adult depression: A longitudinal mediation analysis. *Psychological Medicine, 49*, 2626-2634.

Quilty, L. C., Dozois, D. J. A., Lobo, D. S. S., Ravindran, L. N., & Bagby, R. M. (2014). Cognitive structure and processing over pharmacotherapy vs. cognitive behavioural therapy for depression. *International Journal of Cognitive Therapy, 7*, 235-250.

Quilty, L. C., Mainland, B. J., McBride, C., & Bagby, R. M. (2013). Interpersonal problems and impacts: Further evidence for the role of interpersonal functioning in treatment outcome in major depressive disorder. *Journal of Affective Disorders, 150*, 393–400.

Seeds, P. M., & Dozois, D. J. A. (2010). Prospective evaluation of a cognitive vulnerability-stress model for depression: The interaction of schema self-structures and negative life events. *Journal of Clinical Psychology, 66*, 1307–1323.

Wilde, J., & Dozois, D. J. A. (2019). A conceptual integration of interpersonal theory and cognitive-behavioral models of depression: Delineating the pathway from partner-schemas to relationship distress and depression. *Clinical Psychology Review, 70*, 13-25.

Wilde, J., & Dozois, D. J. A. (2018). It's not me, it's you: Self- and partner-schemas, depressive symptoms, and relationship quality. *Journal of Social and Clinical Psychology, 37*, 356-380.

Wilde, J., Gillies, J. & Dozois, D. J. A. (in press). Cognitive and interpersonal contributors to relationship distress and depression: A review of the dyadic partner-schema model. In V. R. Preedy, C. Martin, L. A. Hunter, V. Patel, & R. Rajendram (Eds.), *The neuroscience of depression: Cell biology, neurology, behaviour and diet*. Oxford, England: Elsevier.

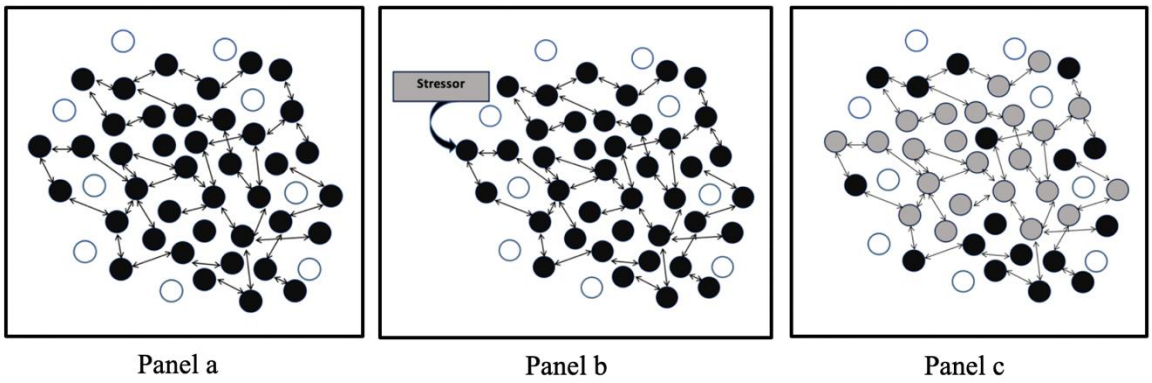

Figure 1. Hypothetical depiction of the activation of depressotypic schema structure following stress.

Note. ● = Negative core beliefs/memories; ○ = positive core beliefs/memories; ◍ = activated beliefs

Depressed individuals tend to show less distances (or greater interconnectedness) among negative core beliefs, memories, and self-referent information and greater distances (less interconnectedness) among positive core beliefs and self-referent information (panel a). Nondepressed individuals tend to demonstrate the opposite pattern of clustering. A stressor activates a core-belief or memory within the self-structure (panel b). Given the interconnection among negative core beliefs and memories, the activation of negative content spreads throughout the self-system, making negative thoughts and memories more readily accessible and available (depicted as grey circles in panel c), thereby influencing information processing (e.g., attention biases, memory biases) and increasing the frequency of negative automatic thoughts.

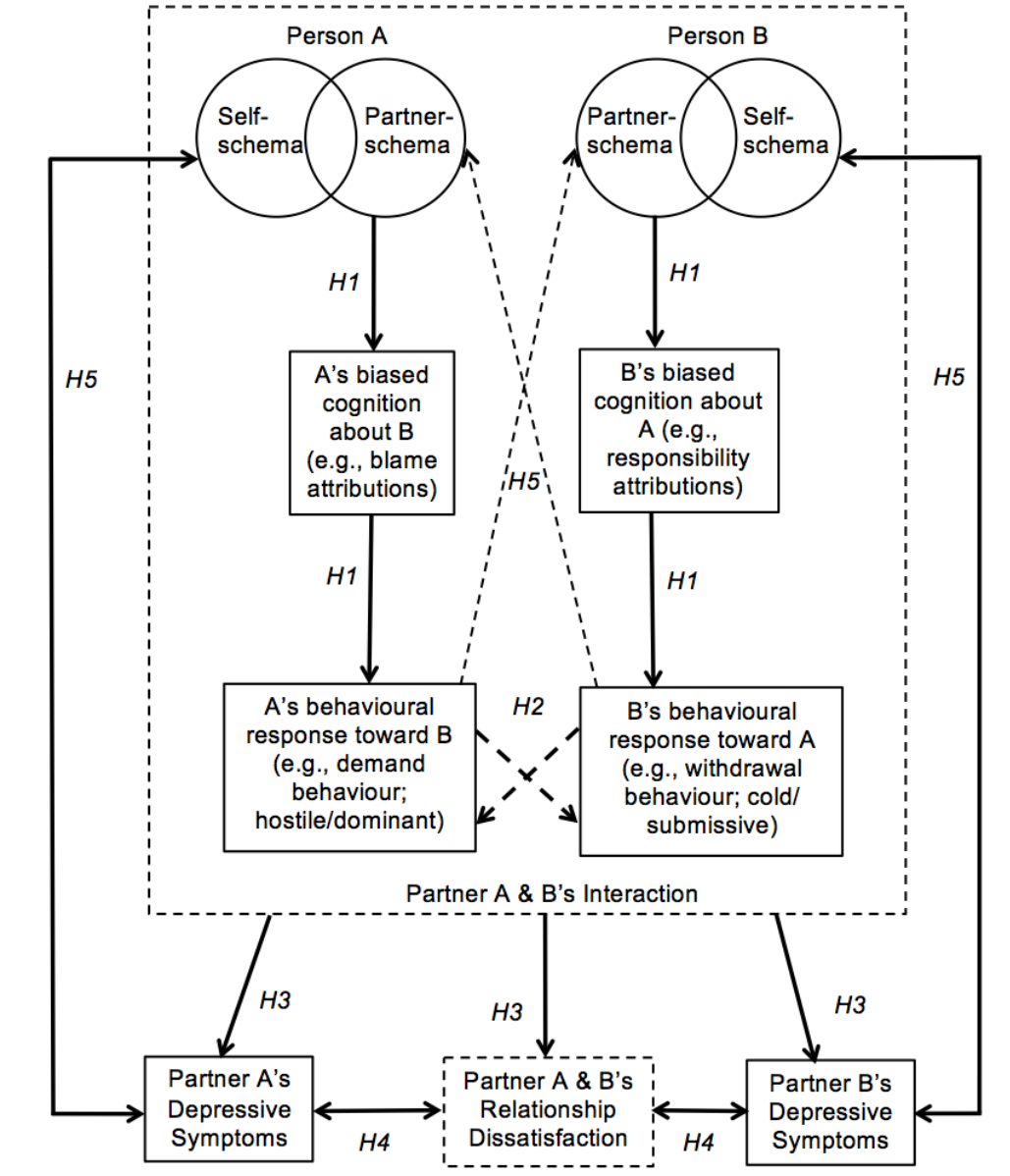

Figure 2: The dyadic partner-schema model.

Note: This theoretical framework that depicts a cyclical pathway from partner-schema structures to depressive symptoms and relationship dissatisfaction. Dashed lines in the figure represent processes occurring at the dyadic level (e.g., variables affecting both individuals as a unit). Solid lines represent intraindividual processes occurring within one individual. The key assertions of this model can be summarized in 5 main processes: (1) Partner-schemas are central contributors to in vivo cognitions and behaviours toward romantic partners; (2) depressive behaviours occur within a dyadic context; (3) dysfunctional dyadic interactions contribute to relationship distress and depression concurrently and longitudinally; (4) relationship distress and depression are mutually reinforcing; (5) the processes in this model reinforce underlying self- and partner-schema structures, thereby contributing to a cyclical process. From "A dyadic partner-schema model of relationship distress and depression: Conceptual integration of interpersonal theory and

cognitive-behavioural models," by J. L. Wilde and D. J. A. Dozois, 2019, *Clinical Psychology Review*, 70, p. 15. Copyright 2019 by Elsevier.