Can Complex Adaptive Systems Theory Contribute to Understanding Attachment Injuries in Adult Relationships? A Qualitative Approach

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"Sometimes when you cross a threshold there is no easy way back."

– Walker & Salt, 2006 (p. 58)

"When you talk to people, you develop relationships with them, which determine the subsequent ways that you talk with them and so on…"

– Pincus, 2009 (p. 361)

"You can see some things through the lens of the human eye, other things through the lens of a microscope, others through the lens of a telescope, and still others through the lens of systems theory. Everything seen through each kind of lens is actually there. Each way of seeing allows our knowledge of the wondrous world in which we live to become a little more complete."

– Meadows, 2008 (p. 6)

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Abstract

Researchers have discovered that the world is composed of panarchies of complex adaptive systems. This approach acknowledges the existence of non-linear relationships and emerging patterns among nested systems. Systems exist on varying interacting scales including at the level of the individual, among groups, societies and ecologies. Complexity theorists have identified a four-phased process, the adaptive cycle, which can help us understand how complex adaptive systems change. The adaptive cycle typically involves the system shifting from initial growth, to increased structure and efficiency at the cost of resilience, followed by shock, release, and reorganization. This process has been identified in various types of systems and across disciplines, but complexity theory has not informed understanding of couple dynamics or the processing of attachment injuries. Attachment injuries are critical moments in close relationships that can influence how we view ourselves, others, and the world. In Study 1, 15 community members spoke about their lived experience with attachment injuries. In Study 2, eight participants familiar with complexity theory shared their views on the connections between complexity and couple relationships. The two groups recruited reflect an effort to explore attachment and complexity from two unique angles. The studies were conducted in parallel, rather than sequentially. A qualitative approach was identified as most appropriate since this intersection in research has not been explored. Data analysis was iterative, conceptually- and data-driven, and informed by thematic analysis, in order to identify emerging themes. Study 1 themes were: (a) context of injury, (b) impact of injury, (c) impact on and role of beliefs, (d) attachment processes, and (e) release and reorganization. Study 2 themes included: (a) uncertainty, and (b) perceived positives of adopting a complexity lens. Conceptualizing relationships and attachment as complex systems, directions for future research, and considerations for psychologists, are discussed.

Can Complex Adaptive Systems Theory Contribute to Understanding Attachment Injuries in Adult Relationships? A Qualitative Approach

Attachment experiences, both early and throughout the lifespan, contribute to how we conceptualize ourselves, others and the world. Working models of self and other are dynamic cognitive concepts that develop based on thousands of experiences in significant attachment relationships. Attachment security can vary within and between relationships and over time. How working models and attachment change, or remain more stable, over time has been of great interest since secure attachment and positive working models are associated with positive outcomes.

The evolving nature of attachment and the processing of attachment injuries support the need to acknowledge the complexity involved. This research aimed to explore connections between processing attachment injuries in significant intimate relationships and complexity concepts. We begin with an overview of attachment theory including the development of working models of self and other and the emergence of attachment styles. This is followed by how attachment theory, originally formulated to understand early childhood experiences, has been applied to adult romantic relationships. A discussion of attachment across the lifespan and attachment dynamics follows, prior to outlining what attachment injuries (AI) are and how some authors have written about positive changes that can emerge following these experiences. Select, prominent models of attachment injury resolution, typically derived from couple therapy studies, are then shared. This leads to an exploration of whether adult attachment and the injury resolution process may benefit from the complexity perspective, which specifically acknowledges the existence of changing, interconnected processes.

The attachment section includes a historical overview of attachment models and concepts. This is followed by past and more recent studies in select areas. The researcher acknowledges the attachment literature is vast and that there are likely major findings that have not reviewed and thus, cannot inform

this work. This is no doubt a limitation. Interestingly, it is also a clear example of how a study is constrained by what has been published, what has been read by the researcher, what stood out as significant, and so on.

Complex adaptive system theory, including concepts such as the adaptive cycle, panarchy, and system resilience are then outlined. Systems thinking is introduced and potential applications to attachment injuries and the resolution process are offered. The final section of the Introduction will discuss select complexity research findings, along with some challenges of complexity-informed research. Two large, qualitative interview studies were conducted to examine if the complexity perspective can contribute to understanding adult attachment and attachment injuries. Data analysis was iterative, conceptually- and data-driven, and informed by thematic analysis. This approach is appropriate when a cross-section in research has yet to be explored. A variety of qualitative research approaches, including thematic analysis, have also been used in a number of AI studies conducted to date (Darab, Bahrami, & Etemadi, 2020; Fletcher & MacIntosh, 2018; Mitchell, Wittenborn, Timm, & Blow, 2020; Pelling & Arvay-Buchanan, 2004; Simonič, & Klobučar, 2017).

Attachment

Attachment Theory

Attachment theory is a theory of social development, which describes the origins of patterns of close interpersonal relationships (Ainsworth, Bell, & Stayton, 1971; Ainsworth, Blehar, Waters, & Wall, 1978; Bowlby, 1969, 1973, 1979). Attachment bonds are the emotional ties that bind us with significant others (Johnson, 2003). According to Bowlby (1969) the infant is born with a biologically programmed system, the attachment system. The attachment system is a behavioural and motivational system that facilitates the formation and maintenance of a child's bonds with their primary caregivers (Fraley & Shaver, 2000). It is a homeostatic control system that maintains a balance between attachment (proximity-seeking) and

exploratory behavior, taking account of the accessibility of attachment figures and potential dangers in the environment (Bowlby, 1969). Attachment behaviours tend to be elicited by situations that are perceived as threatening or stressful (Feeney, 2011). In this way, the child maintains a sense of physical and emotional safety. While this system was originally adapted for the ecology of infancy, it continues to influence behaviours, thoughts, and feelings into adulthood (Fraley & Shaver, 2000). Much has been written on issues related to attachment, but a short summary of attachment theory is provided next.

Attachment theory posits that a universal need of people, from the cradle to the grave, is to have a safe emotional connection with one or two others. “Usually these are our parents when we are small and our partners and lovers when we are grown” (Johnson, 2007, p. 9). Bartholomew (1997) reported most of us have a network of attachment bonds, with at least three to five relationships fitting attachment criteria.

Johnson (2003) summarized ten central tenets of attachment theory: (1) attachment is an innate motivating force, (2) secure dependence complements autonomy, (3) attachment offers a *safe haven*; positive attachments can create a *safe haven* that buffers against the effects of stress and uncertainty, providing an optimal context for one’s development, (4) attachment offers a *secure base*, which promotes adaptive learning and updating of working models, (5) mutual emotional accessibility and responsiveness are the building blocks of secure bonds, (6) fear and uncertainty activate attachment needs for comfort and connection, (7) the process of separation distress is predictable and includes angry protest, clinging, depression, despair, and eventual detachment, (8) a finite number of insecure forms of engagement can be identified, typically organized along dimensions of attachment anxiety and avoidance, along with hyperactivated and deactivated strategies, (9) attachment involves working models of self and other, these cognitive schemas can become expectations and biases carried forward into new relationships, and (10) isolation and loss are inherently traumatizing, with some asserting attachment is really a theory of trauma (Atkinson & Zucker, 1997).

Insecure attachment experiences and negative internal working models are presumed to bias relationship functioning and development toward an overemphasis on relatedness (attachment anxiety) or an overemphasis on differentiation (attachment avoidance). Further, attachment theory suggests that healthy personality development occurs in the context of an unfolding relational journey, which requires navigating opposing developmental pressures that include differentiation and relatedness (Lopez & Brennan, 2000). Through early and ongoing experiences, we begin to develop working models of self and other, as well as emerging attachment styles, patterns, or strategies.

Attachment Styles and Working Models

Attachment styles are "self-maintaining patterns of social interaction and emotion regulation strategies" (Shaver & Clark, 1994, p. 119). In infancy they depend on the nature of the interactions with our caregivers. Ainsworth et al. (1971, 1978) identified three attachment patterns in children: *secure, anxious-ambivalent,* and *avoidant*. Bowlby (1969, 1973) hypothesized that many early relationship interactions with primary caregivers eventually lead to generalized expectations about the self, others, and the world. The cognitive representations of these expectations are referred to as *working models* or *internal working models.* These models are suggested to be fundamental to the development of different attachment patterns. They are termed 'working' to highlight that information processing is both responsive and reactive to threats of felt security (Lopez & Brennan, 2000). Although such representations emerge early in development, they continue to evolve in light of attachment-related experiences during childhood and adolescence, and are carried by individuals into adulthood (Bowlby, 1973). This process may be conceptualized as an ongoing construction and reconstruction of views of self, other, and the world.

Bowlby (1973) proposed two complementary models: a *model of self*, concerning one's worth and lovability, and a *model of other*, concerned with how trusting, available and responsive others are.

Throughout one's life, working models are thought to guide and influence how individuals attend to, make sense of, and behave in close relationships (Crowell & Treboux, 1995; Johnson & Whiffen, 1999; Pietromonaco & Feldman Barrett, 2000). Working models include attachment memories, beliefs and expectations, goals and needs, and strategies for reaching attachment goals (Collins & Read, 1994). They are overlearned, abstracted and generalized and may not be fully conscious during the individual's experience of appraisals, expectations of self and other, and relational scripts (Cobb & Davila, 2009; Lopez & Brennan, 2000). The influence of the internal working models may become more prominent when individuals are distressed, fatigued, or ill (Lopez & Brennan, 2000). Mikulincer and Shaver (2007) stated that for both children and adults, stressful situations activate the attachment system and raise concerns about the attachment figure's accessibility.

Kobak (1994) suggested that working models and attachment security cannot be isolated to within the person and as such, decontextualized. He argued that attachment needs to be viewed as a personality and relationship construct in order "to move toward more precise specification and to increase our understanding of continuity and change in attachment functioning" (Kobak, 1994, p. 44). Kobak described an individual's attachment security, at any point in time, as a product of both personality and the current quality of the attachment relationship. While he referred to the context of a single bond between caregiver and child in his article, this may extend to understanding attachment as a product of personality in the context of various attachment relationships at any point in one's life. Originating as a theory to understand early childhood experiences, attachment theory has been applied to adult romantic relationships.

Adult attachment.

Hazan and Shaver (1987) extended Bowlby's attachment theory to the study of adult romantic relationships. They conceptualized romantic love as an attachment process and developed a self-report

procedure to classify adults into three categories. These categories corresponded to the three attachment styles observed in infancy (*secure, avoidant,* and *anxious/ambivalent*) and were thought to continue as relationship styles in adults, in part due to internal working models of self and, what they termed, social life (Hazan & Shaver, 1987).

Bartholomew and colleagues then examined a model of individual differences in adult attachment in which two underlying dimensions, the person's internal model of the self (positive or negative) and the person's internal model of others (positive or negative), were used to define four attachment patterns (*secure, preoccupied, dismissing,* and *fearful*) (Bartholomew, 1990; Bartholomew & Horowitz, 1991; Griffin & Bartholomew, 1994). They examined configurations of attachment ratings (i.e., family ratings, peer ratings, self-report, friend report, and attachment interview), and found support for Bowlby's theory by identifying four attachment styles (Bartholomew & Horowitz, 1991).

Interestingly, these researchers found that the four groups did not differ significantly in terms of length or closeness of friendships, according to the self-report measures of participants and their accompanying friends. This seems to support the notion that an individual may experience insecure connections with family members or partners and more effective, long-term connections with select friends. Bartholomew and Horowitz (1991) found that both groups avoidant of close relationships (i.e., *fearful* and *dismissing*) showed difficulties in becoming close to others, but that the *fearful* style was consistently associated with social insecurity and lack of assertiveness. They discussed how a person's avoidance of intimacy prevents the possibility of establishing close relationships that could potentially update one's working models of others (Bartholomew & Horowitz, 1991). The four attachment patterns are to be conceptualized as prototypic strategies for regulating felt security in close relationships and are depicted in *Table 1* and *Figure 1* below.

		MODEL OF SELF (Dependence)	
		Positive Model of Self (Low Dependence)	**Negative Model of Self (High Dependence)**
MODEL OF OTHER (Avoidance)	**Positive Model of Other (Low Avoidance)**	**SECURE** Comfortable with intimacy and autonomy	**PREOCCUPIED** Preoccupied with relationships
	Negative Model of Other (High Avoidance)	**DISMISSING** Dismissing of intimacy Counter-dependent	**FEARFUL** Fearful of intimacy Socially avoidant

Table 1. Model of adult attachment. (Bartholomew, 1990; Bartholomew & Horowitz, 1991).

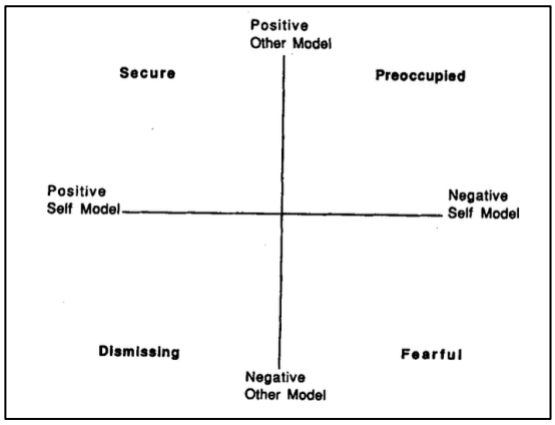

Figure 1. Four-category model of adult attachment. (Griffin & Bartholomew, 1994)

Subsequent to this conceptualization of adult attachment, the four attachment patterns (*secure, preoccupied, dismissing-avoidant,* and *fearful-avoidant)* were proposed to emerge from two underlying dimensions, *anxiety* and *avoidance* (Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000). The *anxiety* dimension reflects the extent to which an individual tends to worry about abandonment and rejection, while the *avoidance* dimension, reflects the extent to which an individual limits intimacy with

others (Brennan, Clark, & Shaver, 1998; Fraley, Waller, & Brennan, 2000). *Figure 2* depicts the two dimensions and the four attachment patterns outlined by Brennan and colleagues. Original connections made between these four attachment styles and working models are discussed next.

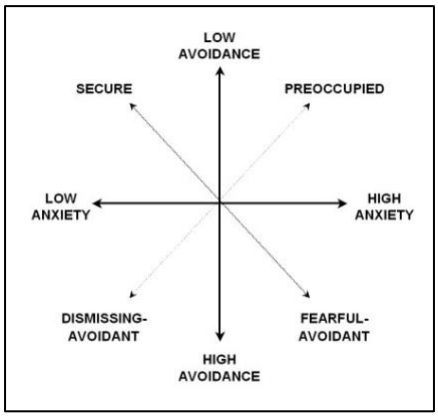

Figure 2. Two fundamental dimensions of adult attachment patterns. (Brennan, Clark, & Shaver, 1998).

A *secure* attachment style is characterized by low levels of attachment anxiety and avoidance. These individuals have positive working models of self as worthy and loveable, while also holding positive models of other, as generally responsive and caring (Brennan et al., 1998). Securely attached individuals have been found to engage in adaptive regulation without chronically hyperactivated or deactivated behavioural strategies (Lopez & Brennan, 2000), such as choosing whether to deal with threats/stress alone or by seeking support from others (Mikulincer & Shaver, 2004). The secure adult has been described as "an adaptive self-organizer of his or her internal perceptions, attributions and affective states" (Lopez & Brennan, 2000, p. 286), and attachment security in adulthood is associated with an increased tolerance for ambiguity, disorder, and unpredictability (Mikulincer, 1997). Secure adults are also less likely to form hasty judgments (Mikulincer, 1997), recognize the need to renegotiate their relationships when necessary (Feeney, 1998), and engage in more constructive conflict resolution with partners including processing betrayal experiences (Mikulincer & Shaver, 2004, 2016).

A *preoccupied* attachment style is characterized by high levels of attachment anxiety and low levels of attachment avoidance (Brennan et al., 1998). These individuals are proposed to view themselves negatively, as unworthy of love, and are preoccupied with getting positive reassurance and acceptance from others. Because of their tendency to display hyperactivated attachment behaviours, such as demanding connection and clinging behaviours, they may experience more rejection and distance in relationships (Johnson, 2003). Anxious attachment is associated with using coercive strategies during conflict resolution (Mikulincer & Shaver, 2004) and anxious people have been found to ruminate more about partner betrayal (Mikulincer & Shaver, 2016).

A *dismissing-avoidant* attachment style is associated with low attachment anxiety and high attachment avoidance. These individuals can have a more positive view of self, as worthy and loveable, but negatively perceive others as needy, clingy, or too dependent (Brennan et al., 1998). They typically also display a discomfort with closeness and intimacy in close relationships, are more withdrawn during relationship conflict resolution, and avoid discussing partner deception or betrayal experiences (Mikulincer & Shaver, 2016). These individuals will also downplay their attachment needs in order to uphold an image of independence, autonomy, and self-reliance (Fraley, Davis, & Shaver, 1998).

Finally, the *fearful-avoidant* attachment style is associated with high attachment anxiety and avoidance. These individuals have been described as possessing negative models of self and other. They desire closeness in relationships, while simultaneously fearing and expecting rejection and pain (Bartholomew, 1990). They may oscillate between insecure anxious and avoidant strategies, such as angry protest followed by distance to protect themselves. This style has been associated with chaotic and traumatic attachments where significant others have been both the source of, and solution to, fear (Johnson, 2002).

Main (1990) described that sensitive, reliable, responsive care promotes the individual's experience of felt security and that early experiences that shape development, influence the attachment strategies we tend to adopt. If the environment is inadequate or unreliable and fosters an insecure bond, the individual is more likely to rely on secondary strategies of hyperactivation (excessive preoccupation with proximity/attachment anxiety) and deactivation (persistent avoidance of closeness/attachment avoidance, or oscillation between the two), rather than primary (or secure) cognitive, affective, and relational strategies. It was theorized that avoidance represents one's behavioural strategy for managing relationships with less than optimal caregivers, and that over time the repeated use of the strategy leads to chronic attachment suppression (Main & Weston, 1981).

An integrated model of attachment-system functioning and dynamics (see *Figure 3*) was proposed by Fraley and Shaver (2000). It describes each attachment strategy's goals, rules for interpersonal behaviour, coping with stress, and implications for self-image, social judgments, mental health, relationship quality, and other behavioural systems. The three components of the model are: (1) monitoring and appraisal of threatening events; responsible for attachment system activation, (2) monitoring and appraisal of attachment-figure availability; responsible for individual differences of attachment security, and psychological correlates and consequences of secure attachment style, and (3) monitoring and appraisal of the viability of proximity seeking; as a way to deal with attachment insecurity. The last component is responsible for individual variations in the use of hyperactivating or deactivating strategies and accounts for the psychological manifestations of attachment anxiety and avoidance (Fraley & Shaver, 2000).

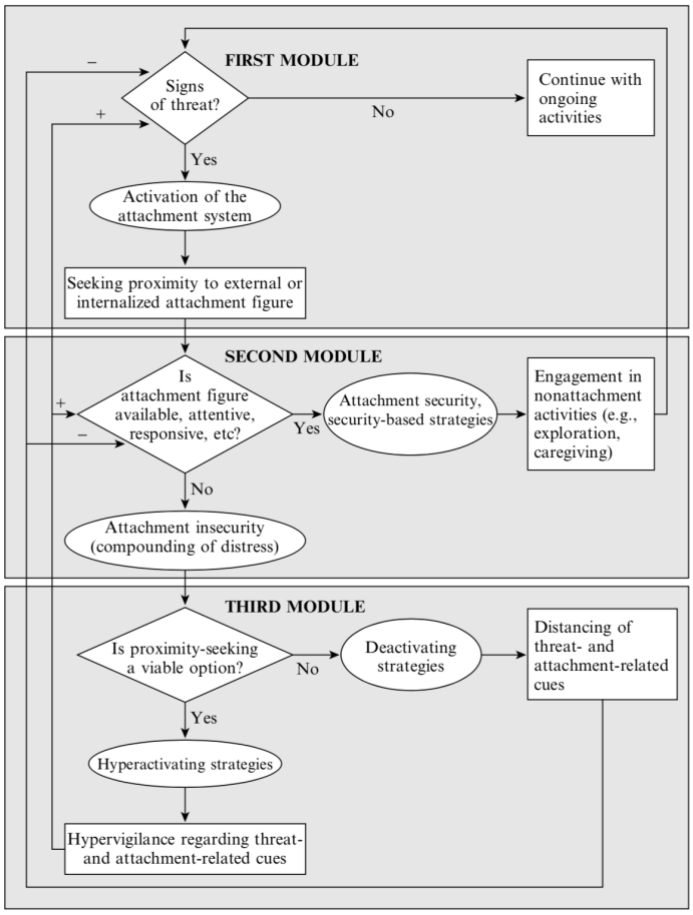

Figure 3. Shaver and Mikulincer's (2002) integrative model of the activation and dynamics of the attachment system.

While the goals of security-based strategies are to form intimate relationships, to build a person's psychological resources, and to broaden their perspectives and capacities, the goal of secondary attachment strategies are to manage attachment-system activation and reduce or eliminate the pain caused by frustrated attempts to connect. Hyperactivating strategies keep the person focused on the search for love and security, by being constantly on alert for threats, separations, and betrayals. Deactivating strategies keep the attachment system in check, with serious consequences for cognitive and emotional openness.

All components and circuits can operate either in parallel or in opposite ways at conscious and unconscious levels, along with numerous proximal, distal, internal and external factors involved in one

person's attachment experience (Fraley & Shaver, 2000). Fraley and Shaver noted that partners reciprocally influence each other, and changes in the attachment dynamics of one partner are likely to have effects throughout the attachment system of the other partner. They suggested doubling the model to understand couple dynamics. They also recommended that more attention be devoted to studying complex connections between partners' attachment dynamics and the ways in which both partners' attachment systems alter the quality of their relationship (Fraley & Shaver, 2000).

Finally, the dynamic-maturational model (DMM) of attachment emphasizes protection of self and one's young and finding a reproductive partner (Crittenden, 1995, 2006). Neurological maturation and experience contribute to the development of self-protective strategies individuals use to regulate attachments. Further, the interactive effects of genetic inheritance, maturational processes, and person-specific experience produce individual differences in strategies for keeping oneself safe (Crittenden, 2006). These patterns of attachment provide a description of interpersonal behaviour and a functional system for diagnosing psychopathology.

Five central ideas underlie the DMM: (1) patterns of attachment are self-protective strategies (Ainsworth, Blehar, Waters, & Wall, 1978), (2) self-protective strategies are learned in interaction with attachment figures, (3) symptoms are functional aspects of a dyadic strategy (e.g., acting out) or consequent to a strategy (e.g., anxiety behaviours), (4) strategies will change when individuals (a) perceive strategies do not fit the context, (b) have alternative responses to engage in, and (c) believe it is safe to behave in alternative ways, and (5) the focus of treatment should be on helping individuals reflect about the conditions surrounding their behaviour, practice new responses in safety, and learn to fit strategy to context in a way that yields safety and comfort (Crittenden, 2006).

This is certainly not an exhaustive review of attachment models and the researcher acknowledges the field continues to advance and expand. Attachment has been assessed in a variety of ways including from

observable behaviour, through interview methods, analysis of narratives, or based on self-reported feelings of trust and connectedness (Ravitz, Maunder, Hunter, Sthankiya, & Lancee, 2010). Since it is intertwined with our development, the next section will present some findings about attachment across the lifespan.

Attachment and Lifespan Development

Crowell, Fraley, and Shaver (2008) found that attachment security increases over the lifetime, while in another study attachment anxiety was highest among younger adults and lowest among middle-aged and older adults (Chopik, Edelstein, & Fraley, 2013). Attachment avoidance in the Chopik and colleagues' study showed less dramatic age differences overall, but was found to be highest among middle-aged adults and lowest among younger and older adults (Chopik, Edelstein, & Fraley, 2013). Partnered individuals reported lower levels of attachment anxiety and avoidance compared to singles, especially in the younger and older adult groups. Women in this sample also endorsed slightly higher scores on a measure of attachment anxiety and avoidance, the Experiences in Close Relationships-Revised (ECR-R; Fraley, Waller, & Brennan, 2000) inventory, compared to men, particularly in younger adulthood (Chopik, Edelstein, & Fraley, 2013). Conversely, Hazan and Shaver (1987) reported no difference between men and women in endorsing the secure, avoidant and anxious-avoidant styles, and Collins and Read (1990) suggested that gender differences in attachment may be related to traditional gender-role stereotypes.

Warber and Emmers-Sommer (2012) surveyed 134 female and 151 male undergraduate students using Bartholomew and Horowitz' (1991) four attachment style model and found that attachment style was not contingent on sex, but that gender differences in attachment were evident. They suggested this could lend support to the argument that socialization of boys and girls from an early age impacts the development of respective attachment styles that persist into adulthood. In their study, gender emerged as

a better than chance predictor of attachment style, suggesting that dimensions of masculinity and femininity are related to attachment style. These researchers concluded that men and women are not biologically predetermined in terms of attachment styles in adult relationships, rather that conditioning is key and that contextual factors should be considered (Warber & Emmers-Sommer, 2012).

In another study of 80 married and widowed men and women aged 60 to 99, Cicirelli (2010) concluded that the nature and identities of attachment figures change as one ages. The attachment figures of aging adults included their adult children, deceased loved ones, and God. While older adults possessed fewer "full-blown" attachments, authors noted a greater variety of attachment figures (Cicirelli, 2010). Widowed individuals in this study also made up a greater proportion of those fitting dismissive attachment styles. If attachment styles and strategies protect our emotional system, the widower's increased avoidance of intimacy and connection may be a way to cope with being alone.

The following findings demonstrate support for stability, change, dimensionality and diversity of attachment styles.

Attachment Dynamics

The *life-stress* or *life-event model of change* (Bowlby, 1969), the *social-cognitive model* of attachment pattern change (Baldwin, Keelan, Fehr, Enns, & Koh-Rangarajoo, 1996), and the *individual-difference model* have all contributed to understanding attachment dynamics. The life-stress model suggests that change in attachment security results in response to significant life events or circumstances. The social-cognitive model focuses on change in attachment security as a result of changing states of mind. The individual-difference model suggests that certain vulnerability factors (e.g., parental psychopathology, personality pathology) can inform why some may be more prone to changes in attachment patterns. Davila and Cobb (2004) discussed the similarities and differences among these models, explained potential reasons for inconsistencies in the research literature, and identified the need

for an integrative model of change (such as the *diathesis-stress model*). They also outlined measurement issues associated with studying attachment changes including that attachment has conscious and unconscious elements, state and trait-like aspects, that categorical and dimensional methods have been developed, and that self-report and interview methods of assessing attachment tap into different aspects of the attachment system and the change process (Davila & Cobb, 2004).

Attachment is a complex, evolving process and literature regarding the stability of attachment patterns reflect this complexity. Zhang and Labouvie-Vief (2004) found that attachment style was relatively stable over a six-year period, but nevertheless characterized by more fluidity than stability, while others found that altering attachment behaviours associated with specific patterns to be extremely difficult (Brennan et al., 1998; Keelan, Dion, & Dion, 1994). Attachment patterns can display substantial continuity over time, particularly when there is continuity in the environment (Davila, Karney, & Bradbury, 1999). Longitudinal studies of adult attachment change indicate that about 30% of individuals report such changes, and that attachment change has been consistently related to changes in the individual's environment (Cobb & Bradbury, 2003).

Scharfe (2003) highlighted the lack of research that examines the stability of attachment patterns in adults who have experienced trauma. Traumatized individuals, particularly those who developed rigid, assimilated beliefs about themselves and others, have the opportunity to disconfirm these beliefs (and potentially experience shifts towards increased attachment security) in the context of healing, couple relationships (Johnson, 2005). Conversely, trauma can be destabilizing such that attachment models of self and other are characterized by instability (Davila, Burge, & Hammen, 1997) and incoherence, and reconfirmed throughout a survivor's life. Integration and reappraisal of trauma memories can be facilitated or hindered by presence or absence of secure attachments, but more studies about how

supportive attachment relationships can provide a basis for re-evaluation and reappraisal of trauma experiences are needed (Mikulincer & Shaver, 2004).

Collins and Read (1994) suggested that adult attachment may be better conceptualized in terms of a network of interconnected models, rather than a singular attachment style and associated working models. People are also thought to possess multiple internal working models that are activated in different circumstances (Cobb & Davila, 2009; Fraley & Brumbaugh, 2004). This leads to questions about how such a network of models self-organizes in an evolving relational context (Kobak, 1994). Hierarchical nested organizations have been suggested such as relationship-specific models (e.g., of mother), nested within domains (e.g., friends, family, partners), nested in an overarching general model (Collins & Read, 1994; Collins, Guichard, Ford, & Feeney, 2004). Mikulincer (1995) described working models as distilled out of thousands of interactions, such that they become expectations and biases carried forward into new relationships. The stability of attachment styles may be maintained by an active process of construction and enactment in social situations (Scharfe & Bartholomew, 1994).

There is evidence for the stability of styles across time (Klohnen & Bera, 1998), as well as other research that has found that adults may endorse more than one attachment style (Overall, Fletcher, & Friesen, 2003) and that attachment styles may be susceptible to change over time (Duemmler & Kobak, 2001). Information from new relationship experiences has the potential to be integrated into existing working models and people can hold multiple working models that operate in different contexts (Cobb & Davila, 2009).

It seems that people are constantly constructing their experience of attachment in interactions with their partners (Johnson & Whiffen, 1999), with individuals being more or less secure depending on current relationship events, the strategies used to deal with difficult relationship experiences, and the meaning or interpretations of events and experiences. Collins and Read (1994) stated that the construction

of attachment realities by habitual ways of regulating emotion and cognition, may be heavily influenced by the past, such as selective attention, memory encoding, inference, and explanation processes. Yet, new information and interactions can also shift and change how individuals construct their attachment experiences, but whether lasting reorganization of models occurs likely varies. Epstein (1980) argued that compelling emotional experiences that are inconsistent with existing models are required to change them and may arise within emotionally significant relationships (e.g., partner or therapist). Changing attachment may be a long-term process in which working models of self and other have to be revised for change to occur (Makinen & Johnson, 2006). Fostering attachment security may require many positive and ongoing experiences in close relationships, and more importantly the meaning individuals derive from these experiences needs to disconfirm existing beliefs (Davila & Cobb, 2004).

Shifts from insecure to secure attachment style are documented, both in the context of therapy and throughout development. A definite theme throughout the attachment literature is that securely attached individuals are better able to navigate and cope with life's ups and downs in effective and proactive ways. Possessing secure attachment from the start of one's life may indeed demonstrate stability, but some researchers have found that attachment security does not necessarily exist across all significant relationships.

Ross and Spinner (2001) found that that the majority of adults rated themselves differently on each of the four dimensions (*secure, anxious/resistant, avoidant,* and *disorganized/controlling*) of the Relationship Questionnaire (RQ) across their various attachment relationships. The authors concluded that adult attachment style orientations are inconsistent across a variety of significant relationships. Additionally, attachment categories across measures do not always correlate, particularly in terms of classifications made across insecure categories. Brennan, Shaver, and Tobey (1991) found that individuals self-reporting as *anxious-ambivalent* according to Hazan and Shaver's system were classified as *fearful-*

avoidant by measures based on the Bartholomew and Horowitz's classification. Bartholomew (1997) emphasized that people do not fit neatly into simple categories. Instead, most show a complex profile across attachment patterns with considerable variation among individuals within best-fitting categories (Bartholomew, 1997).

Fraley (2010) suggested that the principles of attachment theory can be used to derive developmental models that lead to different predictions with respect to the long-term stability of individual differences. He asserted that the stability of individual attachment style differences should be considered an empirical question, rather than an assumption (Fraley, 2010). Fraley also emphasized the need for ongoing investigations into what promotes attachment security and relational well-being, to continue to identify what factors may change attachment style.

Interpersonal experiences and the meaning made about them contribute to the ongoing development and restructuring of working models and attachment styles. Interpersonal experiences are in themselves multifaceted, context and place-based, and evolving, as are processes of interpreting and making meaning of them. They cannot be reduced to simply positive and negative experiences that may foster or hinder attachment security. Rather, experiences in attachment relationships can be revisited, reconstructed, and new and diverse types of meaning can emerge from them over time. The attachment system's apparent ability to organize and reorganize in the context of interpersonal relationships may make complexity theory a particularly applicable lens.

Significant relational experiences termed attachment injuries are discussed next. This concept will be introduced, followed by some findings that challenge and question whether these events are always inherently negative and traumatic in nature. Some prominent perspectives of injury resolution in adult couple relationships follow, prior to a discussion of complexity concepts.

Attachment Injuries

An attachment injury is a psychological trauma or wound characterized by abandonment or a betrayal of trust during a critical moment of need (Johnson, Makinen, & Millikin, 2001; Johnson, 2005). These hurts often occur during times of transition, loss, illness, physical danger, and uncertainty. Attachment injuries can violate the basic assumptions of attachment relationships. They are often followed by a sense of traumatic loss, angry protest, separation distress, contact seeking, depression, despair, and helplessness (Johnson, Makinen, & Millikin, 2001). Decreased personal and sexual confidence, fear of abandonment, damaged self-esteem, and depression have also been reported (Charny & Parnass, 1995; Cano & O'Leary, 2000). Lusterman (1998) described "the common symptoms" of one type of attachment injury, infidelity, to include difficulty falling or staying asleep, irritability or outbursts of anger, difficulty concentrating, excessive vigilance, increased startle response, and physical reactions to reminders of the infidelity that include nausea or shakiness. Further, he noted that for some "every waking moment seems to be absorbed in pondering the wound and even their sleep is severely disturbed" (Lusterman, 1998, p. 13). This fits with Atkinson and Zucker's (1997) assertion that losing or being isolated from an attachment figure can be inherently traumatizing for humans.

Incidents like these can become pivotal moments that define relationships as unsafe, create impasses in any attempt to create trust and closeness, and bring the nature of the whole relationship into question (Halchuk, Makinen, & Johnson, 2010). Bowlby (1988) asserted that theory and research emphasize the centrality of critical events experienced in the context of close relationships, in terms of altering existing working models and individuals' developmental trajectories. Since adult romantic relationships are typically primary attachment relationships in adulthood, events that affect this domain and the nature of the relationship may be particularly relevant for attachment change (Davila & Cobb, 2004). The attachment significance or meaning of an injury, rather than the content of a particular incident, is key to

understanding how it impacts the partners and the couple (Johnson, Makinen, & Millikin, 2001). Halchuk, Makinen, and Johnson (2010) asserted that once couples can resolve attachment injuries and have a mutually accessible and responsive dialogue, the bond between them grows increasingly secure. This sense of emotional security provides a buffer against future stress and relationship distress, allowing them to deal with stressors as a team and continue to strengthen their relationship.

Compound attachment injuries introduce additional layers of complexity as they may involve the offending partner repeatedly injuring their partner or partners hurting each other at different time points (Halchuk, Makinen, & Johnson, 2010; Makinen & Johnson, 2006). These experiences can pose a particular challenge for individuals and couples. While research needs to further explore the distinctions between simple and complex attachment injuries (Pelling & Arvay-Buchanan, 2004), this may be difficult given the subjective and changing nature of attributed meaning and injury significance. These experiences should also be understood and explored in the context of other attachment injuries the individual or couple has experienced in their relationship, and past relationships throughout their development.

To date, AI have been studied by researchers conducting semi-structured interviews with individuals or couples, and then analyzing the data using various qualitative methods including thematic analysis, pattern-matching, phenomenology, and visual analysis (Darab et al. 2020; Pelling & Arvay-Buchanan, 2004; Sayer et al., 2010; Simonič & Klobučar, 2017; Zitzman & Butler, 2009). One recent qualitative study was conducted by Darab et al. (2020) who interviewed 32 Iranian women seeking divorce, about their sexual betrayal experiences. Their thematic analysis resulted in four themes (and respective subthemes) including (1) *sexual relationship* (sexual conflict and divorce, sexual desperate [sic] and inadequacy, and the activation of [sic] sexual relationship to meet the needs of attachment), (2) *emotional effects* (emotional disorders, trauma symptoms, emotional withdrawal/adherence, negative emotions towards oneself, and negative emotion over [sic] the husband), (3) *cognitive effects* (damage to the mental

models of yourself [sic] and the other, disturbance in cognition, negative thoughts about yourself, spouse and relationship [sic]), and (4) *behavioural effects* (communication spying [sic], behavioural withdrawal and nearness, and attacking on[sic] spouse's personality) (Darab et al., 2020).

Another recent qualitative study involved individual interviews with ten couples who stayed together after an affair (Mitchell, Wittenborn, Timm, & Blow, 2020). These researchers used thematic analysis and a deductive approach to find support for five attachment bond dimensions (availability, closeness, communication, dependability, and responsiveness) in their participants' narratives. They concluded that important aspects of the affair recovery process included ongoing communication (particularly outside of the therapeutic context), intentional bids for closeness, and commitment to the healing process, but also found that perceptions of partners' responsiveness varied among participants (from attentive and comforting to distant and unresponsiveness) (Mitchell et al., 2020). Interestingly, 19 of 20 participants in this study reported attending some form of therapy (individual or couple) which may speak to the impact of AI on relationships.

Additionally, a qualitative multiple-case design study explored five stepmothers' relational experiences as attachment injury patterns in their step-couple relationships (Sayre, McCollum, & Spring, 2010). These researchers used descriptive pattern-matching to identify language markers of attachment injury in the women's narratives. Seven categories of AI markers were initially formulated by the researchers based on the attachment literature (irresolvable problems, change of perception about partner, change of heart, betrayal of trust, questionable partner dependency, abandonment, and detachment) but were collapsed into four AI markers due to significant overlap during the analysis. Results were discussed using four AI markers (irresolvable problems, change of belief about partner, abandonment/detachment, and pivotal events) and their descriptors (e.g., irresolvable problems being characterized by extreme language, arguments, and pervasive/chronic problems). Researchers concluded that these four AI

categories showed significant attribution to step-family issues and that the AI framework was useful for conceptualizing and addressing step-couple problems (Sayer et al., 2010).

As an alternative to qualitative approaches, emotionally-focused therapy (EFT) researchers have studied AI using process and outcome measures. EFT AI studies typically involve multiple coders analyzing session recordings across a course of couple therapy (EFT). Data analysis in these studies appears complex and is guided by the interpersonal circumplex model (Leary, 1957). Coders establish the focus (participant speaking about self or other) and quadrant (affiliative, distant, hostile, friendly) for each talk turn, resulting in segment-by-segment coding of partner interactions within and across sessions. (Makinen & Johnson, 2006; Naaman, Pappas, Makinen, Zuccarini, & Johnson-Douglas, 2005; Woldarsky Meneses, & Greenberg, 2011; Zuccarini, Johnson, Dalgleish, & Makinen, 2013). Before further discussing processes of resolution, some authors have written about positive changes that emerge following attachment injury experiences.

Beyond the Trauma Perspective

In the literature, attachment injuries are often analogized to trauma experiences (Gordon & Baucom, 2003; Gordon, Baucom, & Snyder, 2004; Johnson, Makinen, & Millikin, 2001; Pelling & Arvay-Buchanan, 2004). In an interesting report, Scheinkman (2005) challenged those who conceptualize affairs in terms of betrayal traumas. She argued that by traumatizing attachment injuries in research and practice, we are skewing the exploration of the subject. She also pointed out that the 'trauma of betrayal' experience may not be shared by all individuals, cultures, and subcultures, who may not place the same value on monogamy (Scheinkman, 2005). She quoted Lusterman's *Infidelity: A survival guide* to emphasize the diversity among couples responding to injury, "Not everyone who has discovered marital unfaithfulness is equally wounded, nor is every person whose infidelity is discovered equally affected"

(Lusterman as cited in Scheinkman, 2005). Further, Lusterman (1998) noted that we do not know all the reasons why some individuals experience these events as so much more traumatic than others.

In another study, Olsen, Russell, Higgins-Kessler, and Miller (2002) interviewed 13 individuals who had experienced marital infidelity and used qualitative methods to identify a three-stage process of forgiveness (*emotional roller coaster*, *moratorium,* and *trust building*). Similar to other findings (Blow & Hartnett, 2005) Olsen and colleagues (2002) reported that their participants' narratives reflected movement through this process in cyclical patterns. Despite the challenges around disclosing an affair, participants in the Olsen study reported several positive outcomes including closer marital relationships, increased assertiveness, placing higher values on family, improved self-care, and making efforts to communicate more openly (Olsen et al., 2002).

In their qualitative study, Pelling and Arvay-Buchanan (2004) conducted interviews with four heterosexual women who experienced an attachment injury. The injuries in this study varied but the authors nonetheless found emerging themes across the women's lived experiences. The themes included: (a) an asymmetrical caregiving relationship history, (b) male partners responding in an avoidant or nonresponsive way following the attachment injury, (c) irrevocable change taking place following the attachment injury, (d) coping through spirituality and connecting with other supports, (e) attachment injuries being associated with long-term effects, and (f) an impact on the women's sense of self, including increased self-care and personal development behaviours (Pelling & Arvay-Buchanan, 2004).

These findings support that despite the pain and chaos associated with these life experiences, shifts and growth can occur in other parts of the intrapersonal and interpersonal system. An attachment injury seems to have the ability to shift our system away from seeking connection in a current relationship and move that energy towards taking care of the self or getting support from others. These pivotal incidents may lead individuals and couples to release ineffective behavioural patterns, so adaptive new patterns can

emerge. A number of researchers and clinicians have developed models of how the resolution process may unfold post attachment injury and what elements facilitate forgiveness and healing. These models have typically been derived from studies conducted with distressed couples in psychotherapy.

Models of Attachment Injury Resolution and the Context of Psychotherapy

Intrapersonal and interpersonal factors have been discussed in the literature with respect to attachment, couple conflict and resolution processes. A number of studies describe the elements necessary for a couple to effectively process an attachment injury in the context of psychotherapy (Gordon & Baucom, 1998, 1999; Greenberg, Warwar, & Malcolm, 2010; Johnson, Makinen, & Millikin, 2001; Meneses & Greenberg, 2014; Millikin, 2000; Naaman, Pappas, Makinen, Zuccarini, & Johnson-Douglas, 2005; Zuccarini, Johnson, Dalgleish, & Makinen, 2013).

Gordon and Baucom (1998, 1999) proposed a theoretically based three-stage model of forgiveness that integrates cognitive-behavioural and insight-oriented strategies. Their conceptualization of forgiveness is based on the notion that relationship betrayals or injuries represent interpersonal traumas that violate beliefs and assumptions about how the world and others operate. The authors suggest that the forgiveness process is understood as unfolding in three stages (*impact*, *meaning*, and *moving forward*) which parallel recovery from more general trauma events (Gordon, Baucom, & Snyder, 2000). They found that exploring and understanding the context around the injury, tolerating the injured partner's negativity and pain, deferring immediate needs for forgiveness and helping one's partner explore the causes and possible risks of reoccurrence were themes found among resolved couples (Gordon, Baucom, & Snyder, 2000).

In a 2004 study, five of six couples receiving therapy after an affair showed clinically significant changes on forgiveness measures, indicating that the treatment approach was able to shift hurt partners' levels of forgiveness of the affairs in the desired direction (Gordon, Baucom, & Snyder, 2004). Treatment

was conducted by three clinical psychology residents over a course of 24 to 30 sessions. The effect size for the change in marital distress from pre-test to post-test was 0.70 for injured couples, which the researchers noted was significantly greater than the average effect sizes for wait-list controls across marital treatment-outcome studies (Baucom, Hahlweg, & Kuschel, 2003). Gordon et al. (2004) also found that couples showing a less favourable treatment response included one or both partners with individual, emotional, or behavioural difficulties that were independent of the affair. Interestingly, the exclusion criteria for this study included: ongoing affair, affair within less than a year of starting treatment, multiple affairs by both partners, psychoticism, alcohol abuse, or borderline or antisocial personality disorder.

The Couples' Forgiveness Model (Woldarsky Meneses, & Greenberg, 2011) was developed from the task analysis of four couples who forgave, compared to two couples who did not forgive, over the course of emotionally-focused couple therapy (EFT-C). Common processes identified by independent raters to discriminate forgiving couples were: the injuring partner (a) accepting responsibility for the emotional injury nondefensively, (b) expressing shame, (c) offering a heart-felt apology, (d) the injured partner experiencing a shift in their view of the injuring partner, and (e) the injuring partner accepting forgiveness (Woldarsky Meneses, & Greenberg, 2011).

One of the prominent theoretical orientations and therapy models in this area is emotionally-focused therapy (EFT). EFT posits that rigid interactions reflect/ create emotional states and absorbing emotional states reflect/ create rigid interactions or loops (Johnson, 2004). Partners are stuck in habitual ways of dealing with their emotions and engaging with others at key moments. Change needs to involve new experiences and new relationship events that foster attachment security, and emotions are targeted and viewed as agents of change (Johnson, 2004). Johnson and colleagues have outlined a model of healing from an attachment injury that informs their therapy approach, the Attachment Injury Resolution Model (AIRM; Makinen & Johnson, 2006; Millikin, 2000).

The AIRM describes the resolution process involving four phases (*attachment injury marker, differentiation of affect, reengagement,* and *forgiveness and reconciliation*), which are further broken down into eight steps. It is based on EFT-C assumptions about change (Greenberg & Johnson, 1988) and notions of adult love based on attachment theory (Johnson, 2004), and outlines the steps to forgiveness and reconciliation by addressing lingering pain and anger. Makinen and Johnson (2006) suggested that in order to heal, the hurt partner must articulate the injury, including the short and long-term impacts experienced. The injuring partner needs to acknowledge the hurt partner's pain and elaborate on the how the injury occurred in the first place. The hurt partner integrates this information into their narrative, which allows them to further access and share their attachment fears and needs. The injuring partner (ideally) takes responsibility, expresses regret, remorse and vulnerability, and remains attuned, engaged, and accessible throughout the hurt partner's experience of pain. The expression of vulnerability has been found to invite connection (Greenberg & Johnson 1988; Johnson, 2005). According to Makinen and Johnson (2006), the injuring partner's ability to effectively respond to the hurt partner's needs facilitates the repair process and contributes to redefining the relationship as safe.

Empirical studies have found support for resolution models, with the AIRM perhaps receiving the most attention recently – although studies are frequently conducted by the same research team. Makinen and Johnson (2006) used task analysis to verify the AIRM model with 24 couples who received (on average) 13 sessions of EFT. They found that 15 of 24 couples who were identified as resolved post treatment, were significantly more affiliative, achieved deeper levels of experiencing, improved satisfaction, and demonstrated more forgiveness compared to couples identified as unresolved.

Zuccarini et al. (2013) studied the change process using audiotapes of nine resolved and nine unresolved couples in EFT, and concluded that there was support for the validity of AIRM and EFT strategies at each stage of the model. In this study, resolved couples demonstrated deeper engagement

with their inner experience, managed their processing in a more controlled way, and were more interpersonally affiliative, compared to unresolved couples (Zuccarini et al., 2013). In a case study by Naaman et al. (2005), task analysis was used to compare the resolution process of two distressed couples accessing ten EFT sessions. Results showed that the couple who resolved their AI adhered to the model at the outset of therapy, whereas the unresolved couple deviated more from the expected pathway of change.

Finally, Dehghani, Aslani, Amanollahi, and Rajabi (2020) offered EFT to three women who experienced marital infidelity and also found support for the EFT approach (based on the AIRM), while others have discussed how the AIRM model applies to couples where one partner comes out as bisexual (Cannon & Boccone, 2019) or trans-identified (Chapman & Caldwell, 2012). Limits of AIRM studies, acknowledged by AIRM researchers, include generalizability, smaller samples, samples consisting of couples responding to an ad for couple therapy, and the task analytic method's inability to identify causal links among process, resolution, and treatment outcome (Makinen & Johnson, 2006). Further, research on whether AIRM applies to complex AI and conducting large, randomized control studies in this area have been called for (Greenman & Johnson, 2013).

Of course, not all relationships start as a safe haven and not all couples can navigate the process of returning to security, accessibility, and responsiveness. Unresolved couples have been described as stuck in attack-and-blame and defend-and-withdraw cycles, often reactively responding and intellectualizing the hurt or injury. Feelings and experiences of hurt can be invalidated and the response to the injury can lead to further challenges (Pelling & Arvay-Buchanan, 2004). Compound injurious events in a relationship create a dynamic and complex picture, and some injuries may be so potent that they shatter the trust in the relationship and challenge any resolution process (Makinen & Johnson, 2006).

Couples also experience and resolve attachment injuries outside of a clinical context. This may be because the cost of even six to 12 sessions of couple therapy can be out of reach for many and free

community couple services seem to be rather nonexistent. Rusbult, Hannon, Stocker, and Finkel suggested that "forgiveness and reconciliation are not all-or-nothing propositions and that in many instances—particularly among resilient and resourceful partners, and in relationships with strong pre-transgression circumstances—reconciliation can come about even in the wake of relationship-shattering transgressions" (2005, p. 188). It follows that some partners are capable of navigating through, and evolving from, these difficult experiences without professional support.

Lastly, some authors have alleged that attachment theories (Greenberg & Johnson, 1988) and family systems theories (Minuchin, 1974; Minuchin & Nichols, 1993) ignore the complexities of culture and must be understood in terms of their Western psychology roots (Rothbaum, Rosen, Ujiie, & Nobuko, 2002). Rothbaum et al. (2002) cautioned against the application of these theories outside of the cultures they were developed with. Their review encouraged clinicians to avoid pathologizing overly close, or *enmeshed,* mother-child relationships and partners that display *avoidant* and *anxious* attachment styles, since these behavioural patterns may be culturally appropriate (Rothbaum et al., 2002).

Desiring emotional security and resolving attachment injuries may not be meaningful and important to all individuals and couples, particularly across a diversity of cultures. Rothbaum and colleagues conclude that "behaviour needs to be understood as embedded within a larger network of relationships (e.g., extended family, community, ancestors) as well as social institutions (e.g., educational, religious, economic, political) that support a particular experience of closeness" (Rothbaum et al., 2002, p. 336). Many interconnected factors including culture likely contribute to resolving relationships injuries and moving through different intimate relationships over the lifespan.

Attachment and Systems

Marvin and Stewart (1990) reported that "attachment caregiver relations exist within a network of ordered relations and cannot fully be understood except in that context" (p. 63). Sbarra and Hazan (2008)

acknowledged the interconnected nature of attachment, loss, and recovery processes. They believe that when long-term relationships end, many adults lose the person that helps them maintain psychological and physiological homeostasis. These authors reasoned that the homeostatic set point is the experience of felt security and this security must be regained when relationships are shaken or lost. They proposed an integrative framework for understanding how multiple biological and psychological systems are regulated by relationships, dysregulated by separation and loss, and potentially re-regulated through the individual's recovery efforts.

A sense of felt security in a relationship has been linked to better affect regulation (less reactivity, less hyper-arousal, less under-arousal, more acknowledgment), better information processing (flexibility, curiosity, openness, tolerance of ambiguity and uncertainty), better communication (collaborative, meta-communication, disclosures, assertive and empathic), and a sense of self that is more coherent, elaborated, and positive (Collins & Read, 1990; Crowell & Treboux, 1995; Johnson, 2004; Mikulincer, 1995).

Intrapersonal, interpersonal and systemic factors are involved in significant attachments and couple relationships. Still, it has been suggested that the field lacks a fully developed theoretical account of what it means to be attached to another person, the functional mechanisms that maintain adult pair bonding, and how injuries impact this unfolding process (Sbarra & Hazan, 2008). Exploring adult attachment and resolution of injuries over time may benefit from the complexity perspective in order to acknowledge this changing process.

Complexity

Complexity science is a broad term that includes a number of theories such as complex adaptive systems theory (CAS), dynamic systems theory, and chaos theory. There are many ways to consider complexity and to address complex systems, and the framework of complex adaptive systems is but one conceptualization (Brownlee, 2007). Using CAS theory can lead to conceptualization of various processes

that acknowledge change and uncertainty. The attachment system of an individual along with their working models may shift and evolve throughout their life. Similarly, couple relationships are living systems that deal with multiple shocks that change and shape them. While single injuries exist; the diversity, frequency and intensity of attachment injuries can vary across and within relationships, as well as over time. If individuals and couples can be conceptualized as complex systems - which are localized, place-based and context-based - then concepts from complexity may be applicable. The following section will introduce complex adaptive systems theory.

Complex Adaptive Systems

Complex adaptive system theory posits that the universe is full of systems that are complex, evolving, and adapting to their environment. Walker and Salt (2006) describe a CAS as a group of interacting elements forming a complex whole that displays emergent properties. All agents in the CAS network have the freedom to act in unpredictable ways, but their actions are all interconnected (Gunderson & Holling, 2002). Thus, a change in one agent's actions changes the context for other agents, and this interdependency leads to the concept of emergence. In the attachment injury resolution process, how the injuring partner validates or invalidates the injured partner's pain impacts how the healing process will proceed.

CAS exhibit nonlinear dynamics with thresholds, feedback loops, resilience, heterogeneity, and surprises (Liu et al., 2007). Systems shift from one state to another over time (temporal thresholds) and across space (spatial thresholds) (Liu et. al, 2007). Studying the relationships between various human and non-human systems, Liu et al. (2007) suggested that ignoring complexity can result in being surprised by outcomes.

Despite the chaotic and complex nature of systems, patterns do exist and cannot be understood by simply assessing individual parts. In psychology, select variables and their relationships are at times

explored in a linear fashion, which does not fully capture the complexity of couple relationships. When studying attachment injuries, the changing context (Westley, Zimmerman, & Patton, 2007) of the injury and the couple system, may be difficult to consider. At some points in an individual's life a validating or injurious experience may have a large impact on their attachment security and working models, whereas at another point in time the impact may be minimal. This also likely relates to how one makes meaning of these experiences over time, and whether narratives are characterized by coherence and complexity – which is thought to be optimal.

Complexity theory can cope with multi-level causality. "We exist as part of cycles occurring over a range of scales in time and space" (Walker & Salt, 2006, p. 75). Things happen in different ways according to what phase of the cycle the system happens to be in and what interactions are taking place with proximal and distal variables. This position acknowledges that while initial conditions of two systems can be similar, a very minor difference at one point in time can lead to major differences between the systems at a later point in time. This is possible through the various interactions with the context that emanate out from the subtle differences in initial conditions. The adaptive cycle, a key concept in CAS theory, is discussed next.

Adaptive Cycle

The adaptive cycle embraces two opposites: growth/stability and variety (Holling, 2001), and consists of four organizational phases: rapid growth/ exploitation (r), conservation (K), release (Ω), and reorganization (α) (Walker & Salt, 2006). A pictorial representation of the adaptive cycle is shown below.

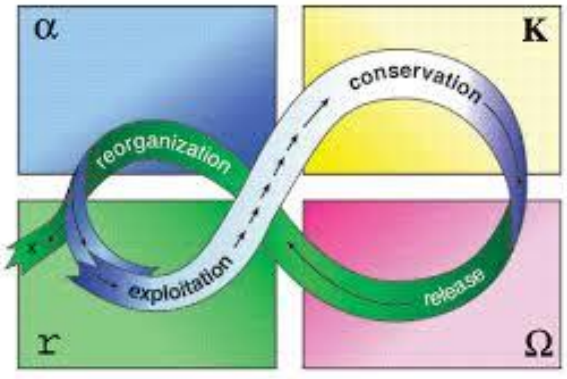

Figure 4. Adaptive cycle. (Holling, 2001).

While each phase is associated with distinct features and dynamics of change, time flows unevenly during the cycle and phases do not always occur in the discussed order (i.e. from growth through to reorganization) (Gunderson & Holling, 2002). Gunderson and Holling also report that "with most swings of the cycle, there is sufficient carryover from cycle to cycle to sustain an ecosystem's possible states" (2002, p. 38). The adaptive cycle should be treated as a metaphor rather than a rigid predetermined path. The implications of this on conducting qualitative and quantitative studies will be discussed in a later section. Nonetheless, it is used to classify systems, order events and explore specific hypotheses (Gunderson & Holling, 2002). What is of interest is whether it can be applied to understanding the stability and change of relational schemas of self and other in relation to processing an attachment injury.

Exploitation or rapid growth takes place early in the cycle, and involves new opportunities and resources. Components at this phase are weakly interconnected. There is an increasing need to bring more structure and order to the initially nearly chaotic growth. A transition from the rapid growth phase to conservation happens slowly. Energy is being stored, resources are accumulating, connections are strengthened and strong internal regulation is being developed (Walker & Salt, 2006). In a couple system, this phase may reflect an increasingly committed relationship with more formalized roles and responsibilities. Growth at this stage is slower and diversity begins to give way to more stabilizing

structures. To a point, this phase may bring efficiency, regulation, and standardization. There is also a growing decline in resilience, because with increasing structure a system is less able to deal with change.

The transition from conservation to the release phase can happen very quickly. Moreover, the longer the conservation phase, the less of a shock is needed to push the system into a chaotic loss of structure (Walker & Salt, 2006). A triggering event or shock releases the tightly organized structure. For individual and couple systems this event may be an attachment injury, a job loss, or a health issue. While this phase may be associated with confusion and a lack of direction, it can also lead to emerging reorganization at the level of the individual, the couple and the couple's network. "Creative destruction is a term now used to describe the disturbances that periodically punctuate the adaptive cycle" (Walker & Salt, 2006, p. 75). Breaking down stability and predictability facilitates the release of resources for innovation and restructuring.

The reorganization phase quickly follows the release phase and may involve the beginning of new rapid growth. In this phase small events may lead to big changes in the system's future direction (Walker & Salt, 2006). It is a time of exploration, anything is possible and the mood is optimistic (Westley, Zimmerman, & Patton, 2007). "Novelty arises in the form of new inventions, creative ideas, and people" (Walker & Salt, 2006, p. 78). This phase is chaotic with no stable equilibrium. Some of the variety of the reorganization phase must be let go of, in order to move to the next phase of the adaptive cycle, exploitation. The end of the reorganization phase and the start of the rapid growth phase can be identified by the appearance of a new attractor or a "new identity" (Walker & Salt, 2006, p.78).

Further, complexity researchers have identified two areas or 'traps' along the adaptive cycle, the rigidity and poverty traps. The *rigidity trap* takes place deep in the conservation phase (Gunderson & Holling, 2002). It occurs when we can only see one way of doing things, hanging onto what we do best, even when it is no longer working. For example, a couple may have so many responsibilities and

involvements and very little shared time, which leaves them vulnerable to the shock of an attachment injury. The *poverty trap* exists between the reorganization and exploitation phases (Gunderson & Holling, 2002). In this trap, the experimentation of the reorganization phase has produced an abundance of ideas or entities in the system, but due to the overabundance, there are not enough resources available to launch any one of those ideas or entities into growth. For example, following an attachment injury each partner may decide to implement changes both at the individual and relational level. Too many changes and ideas and not enough energy in a system may lead to needing to let go and refocus on a few promising directions. Acknowledging that the world is composed of interconnected CAS at various levels, which undergo constant change, is termed *panarchy*.

Panarchy

A panarchy involves CAS that are nested one within the other across space and time (Gunderson & Holling, 2002) such that the parts of a system are themselves a CAS. In other words, it is a term used to describe the interactive dynamics of a nested set of adaptive cycles (Folke et al., 2010). Systems are adaptive, cyclical and evolve on various scales. A pictorial representation of panarchy is provided below.

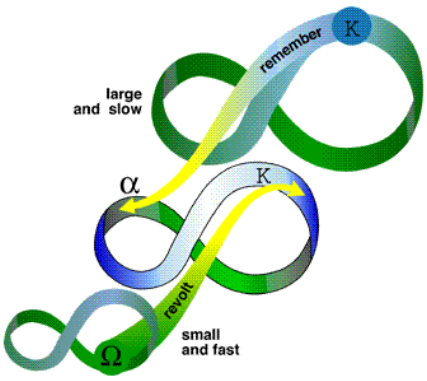

Figure 5. Panarchy (Holling, 2001).

One example of panarchy involves conceptualizing individuals as nested within couple systems, couples within family and peer networks, and these networks nested in larger community and cultural systems. Thus, cultural, community and family levels (positioned on larger scales) influence the

individual partners and the couple (positioned on smaller scales), while individuals' movement through adaptive cycles affect dynamics on the level of the couple, family and community. Unlike ecological maps (Bronfenbrenner, 1986) that locate the individual as nested within larger encompassing systems, panarchy acknowledges the dynamic, interactive, and evolving nature of systems interconnected at various levels.

Systems at different scales go through adaptive cycles at different rates. Scales higher on the panarchy are larger and slower moving, nearly appearing stable at times, while scales on lower levels are smaller and faster moving (Gunderson & Holling, 2002). Scales interact in a myriad of ways and *revolts* can occur, where smaller scales can cascade up and trigger crises on higher scales. For example, a partner who has gone through a period of personal growth and released ineffective beliefs and behaviours may choose to leave a relationship. For the other partner the separation may also trigger a release phase, as they too must go through a period of reorganization on various levels of their life – which will occur through different adaptive phases and speeds. Further, the family and peer relational networks these partners exist within may also be influenced. Gunderson and Holling (2002) note that research tends to mainly focus on fast, local variables (smaller scales) and ignore slow changing, extensive variables and their interactions (larger scales).

Berkes and Folke (2002) write that a system's "memory is in panarchy" (p. 125). This is further illustrated by the concept of *remembering*. Although a system undergoes the reorganization phase post-release, *remembering* acknowledges that this reorganization takes place within some constraining framework that the system operates within. Larger, slower moving scales of the panarchy constrain systems on lower scales in this way. This phenomenon may inform why attachment styles have been found by some to be difficult to change, despite new and positive experiences in relationships. The individual's system may exhibit an element of *remembering*, such as reasons to protect oneself by using

insecure attachment strategies and not enough experiences to tip the individual towards a more secure attachment. Remembering would also allow for individual variation in terms of insecure attachment changes, given that each individual's system would have different dynamics that they are embedded in and interacting with.

Through complexity theory the world is conceptualized as being composed of infinite panarchies that are nested and actively interacting with each other on various levels. In order to understand individual attachment, couple dynamics, and the process of attachment injuries, it may be useful to recognize connections across scales and system levels. While change is a constant, CAS can maintain their identity and function or restructure and take on new ways of behaving. Next, we discuss resilience, a key concept in understanding CAS, their growth and reorganization.

Resilience

Systems have varying degrees of resilience, the capability to retain similar structure, function, and identity in the face of shocks and disturbances (Gunderson & Holling, 2002). The resilience of a system is a changing phenomenon, rather than a fixed equilibrium state. The emphasis here is on the amount of disturbance that can be sustained before a change in system structure occurs. It is also hypothesized that there is likely more than one equilibrium state (Gunderson & Holling, 2002). Fluctuations in resilience can also be understood in terms of the adaptive cycle, such that certain phases are associated with greater (e.g., the reorganization phase) or lower (e.g., deep in the conservation phase) system resilience. Resilience has also been described as a measure of system vulnerability that expands and contracts throughout the adaptive cycle (Gunderson & Holling, 2002).

Although in psychology we routinely use the term resilience to describe the ability to overcome trauma or other life challenges in effective, adaptive and healthy ways, system resilience in CAS theory captures a different process. Maladaptive and negative systems can be very resilient, such that they

continue to preserve their identity in the face of various disturbances. “Hunger, poverty, environmental degradation, economic instability, unemployment, chronic disease, drug addiction, and war, for example, persist in spite of the analytical ability and technical brilliance that have been directed toward eradicating them. No one deliberately creates those problems, no one wants them to persist, but they persist nonetheless...because they are intrinsically systems problems” (Meadows, 2008, p. 4).

Similarly, an individual’s working model of self can be negative (i.e., believing one is unlovable, unworthy, and inadequate) and resilient to integrating information that would counter this self-belief system. Working models are proposed to be most flexible during formative years, and less changeable as we age, particularly in a context of ongoing insecure experiences (Cobb & Davila, 2009). Further, individuals with insecure models characterized by rigidity (often in most need of revision) can have the most trouble integrating new information into their models due to cognitive biases (Cobb & Davila, 2009). People have also been found to reconstruct their memories to confirm their existing models (Feeney & Cassidy, 2003).

“Resilience is a measure of a system’s ability to survive and persist within a variable environment. The opposite of resilience is brittleness or rigidity” (Meadows, 2008, p. 76). It’s a challenge. We may describe the working model of an individual diagnosed with a personality disorder as entrenched, insecure, or rigid. Yet, it is also a system of beliefs that can continue to survive and persist within a variable environment – making it resilient, even if this it is in a maladaptive direction. It is the researcher’s position that systems that survive and persist, and those that adapt and transform, demonstrate resilience.

A couple can similarly have a relationship characterized by maladaptive behaviours and insecure attachment experiences, but their couple system can nevertheless be resilient to disturbances (e.g., attachment injuries) and continue to exist. Past research has found that relationships between avoidant

men and anxious women were surprisingly stable over a three-year period despite partners reporting low relationship satisfaction (Feeney, 1994; Kirkpatrick & Davis, 1994).

Greater connectedness and diversity of feedback loops of the CAS also contribute to increasing its resilience (Gunderson & Holling, 2002). A resilient system has an effective balance of connection and structure (Westley, Zimmerman, & Patton, 2007). The resilience of a CAS is enhanced when parts of the system are able to undergo releases (Gunderson & Holling, 2002). Systems do not remain at static and stable plateaus of optimal functioning. Gunderson and Holling assert that "the essential requirement is to recognize that conditions are needed that occasionally foster novelty and experimentation" (2002, p. 40). Individuals and couples will always be faced with new experiences, stressors and life transitions that will challenge the existing identity of their systems. While we do not want to abandon our whole set of beliefs about ourselves, our partners, and our relationships at the same time, we may benefit from being flexible and open to changing outdated or ineffective parts of our belief systems. If one holds a strong belief that a good relationship is always characterized by monogamy and infidelity occurs, a person may conclude it was never a good relationship in the first place. Alternatively, being aware of this as one's belief in order to release, reorganize and adopt a new position can be adaptive (e.g., infidelity is a life experience, I can acknowledge the associated pain and grow from it and/or the relationship can be strengthened by it).

Resilience also depends on the modularity and diversity of other systems that the CAS is interconnected with. Diversity refers to the variety of agents in a social-ecological system. The greater the variety available to respond to a shock (e.g., the more intrapersonal strengths, secure attachment experiences, and interpersonal supports), the greater the ability to absorb the shock (Walker & Salt, 2006). Diversity is related to flexibility and the ability to keep options open, while a lack of diversity in turn limits options and reduces a system's capacity to respond to disturbances.

Modularity involves how the parts of a system are linked. Walker and Salt (2006) suggested that when a system is highly connected a shock can travel quickly throughout the whole network. For example, if an attachment injury occurs to a partner who is part of a tight-knit family that holds strong beliefs about not tolerating infidelity in relationships, the event may disrupt the system (e.g., the family may no longer accept the injuring partner at family events, the injured family member may be shamed, criticized or ostracized if they remain in the relationship, or relationships formed between in-laws and grandchildren may be cut off). Conversely, systems can be composed of subgroups of strongly linked subcomponents but loose structure overall, such that the smaller components continue to function despite system disturbances at higher levels. A couple may experience an attachment injury that their families are greatly affected by due to strong cultural and religious beliefs about not tolerating infidelity. Yet, the couple may not have strong ties to their family, so despite the disturbance at a higher level, the couple unit may continue on despite the strong stance of their network.

Systemic interconnections including diversity and modularity may also inform why two individuals who experience early attachment trauma, who identify with an insecure attachment style and predominantly negative working models, can have differing attachment experiences in adult intimate relationships. Key attachment experiences and relationships may allow one person's models to shift and change, while the other continues to formulate their vision of self and others in the same way. The attachment system and couple relationships are live systems that deal with multiple shocks that influence the ways in which they evolve. How we absorb some shocks, while others lead to novel reorganization may account for varying findings in the attachment literature.

A key property of healthy systems is their paradoxical ability to change and remain the same (Westley, Zimmerman, & Patton, 2007). Attachment injury processing is a long-term process where the injury may need to be revisited time and again. Couples may thus benefit from engaging in ongoing

reflection and mindful observation about parts of themselves and their relationships. This type of process has been referred to as standing still (Westley et al., 2007), which involves cultivating a reflective practice, in order to become more aware of the flow of events and the context of the moment. Further, as one acts they must also evaluate the consequences of their actions and make necessary adjustments. "One must learn to live the paradox of action as reflection, and reflection as action (Westley et al., 2007, p. 91).

Standing still may be useful for individuals and couples dealing with attachment injuries because of the value of pausing, listening and nonverbal acknowledgement. Even in the absence of an attachment injury, Baxter and Montgomery (1997) noted that needs for autonomy and connection shift as partners and situations change and must be managed on an ongoing basis. Holling (2001) asserted that 'happy endings' are only stations on a road or on an infinite loop. We need to let go of efforts to maintain a balanced state, instead continuing to consciously accept and embrace ongoing systemic change. While we may not fully change the pattern post attachment injury, we can nudge it if we understand it deeply enough. Complexity concepts may further help us articulate the changes occurring in individual attachment and couple dynamics.

Systems Thinkers, Attachment Injuries and the Resolution Process

Couple systems are fluid, such that multiple attachment injuries may be experienced in the current romantic relationship and other significant attachment relationships. Each person in a couple experiences injuries and engages in attachment injuries to some extent. Each partner will also have a unique attachment relationship history, differing memory reconstructions of that history, and evolving ways of responding to and interpreting injuries, among other differences. How individuals understand themselves in the context of their current and past relationships, as well as their connection to smaller and larger systems, may inform how they navigate relationship difficulties. Individuals who adopt a systems

thinking approach or perceive life from a complexity lens may extend this knowledge to understanding their romantic relationships.

Systems thinking is the tendency to perceive and understand relevant phenomena as complex systems comprised of multiple interacting components, and to thus accept and work with the interconnected, dynamic, and emergent nature of these phenomena (Davis & Stroink, 2015). This type of perspective or way of relating with the world may be advantageous when responding to attachment injuries. Alternatively, it may be that attachment security, emotional intelligence, and the ability to articulate one's experience effectively are more significant for how attachment injuries are processed.

Holding on while letting go, embracing acceptance and change, and possessing the ability to stand still and adapt in a changing world, continue to be emerging themes associated with adaptive thinking, coping and functioning. In their review article on attachment and self-development, Lopez and Brennan (2000) concluded that "the healthy and effective self continually seeks to achieve new integrations and understandings (i.e., coherence) amid life forces that instigate change, disorder, and uncertainty in the course of living" (p. 296). Further, these authors emphasized that when self-development is embedded in a context of secure, intimate relationships, it allows the individual to be on a boundary of stability and change; neither rigidly upholding a particular organization nor indiscriminately surrendering to it (Lopez & Brennan, 2000). The challenge is to conserve the ability to adapt to change, while creating the kind of surprises that give rise to opportunity (Gunderson & Holling, 2002). The next section will discuss select complexity research findings as well as some challenges of complexity-informed research.

Complexity Applications and Select Research Findings

Living systems can be difficult to understand and control because they constitute a moving target (Holland, 1992). Still, constructing models and studies using CAS principles can lead to new formulations and insights. "We cannot follow the traditional experimental path, varying selected variables under

repeated runs while holding most variables fixed, because controlled restarts are not possible with most CAS, and because some CAS operate over long timespans" (Holland, 1995, p. 160). A variety of techniques have been developed to study CAS in biological, psychological, and social studies, including agent-based and network models, time-series analysis, state-space grids, and learning classifier systems (Brownlee, 2007; Pincus & Metten, 2010).

Agent-based and network modeling can be used to model complex social dynamics in which actors in a system are represented as autonomous individuals, including displaying different rules governing behaviour and configurations over time (Hammond, 2015). Utilizing time-series analysis methods in psychological research can assist in understanding how variables at various psychological levels exhibit trends, cyclical patterns, or autocorrelation (i.e., dependence on prior states) (Jebb, Tay, & Huang, 2015). State-space grids are a means of data analysis used in developmental psychology to study two synchronized time series of categorical or ordinal variables; in which the two time series are thought to constitute a dynamic system (Thelen & Smith, 1998). State-space grids have been used to explore change over the course of psychotherapy by identifying exceptions in clients' problematic narratives and themes within these narratives, in order to analyze dynamic relationships between them (Ribeiro, Bento, Salgado, Stiles, & Goncalves, 2011). Gomersall (2018) additionally noted that applied qualitative research can provide insights into how CAS function in real-time, and that qualitative and computer simulation methods inform and complement each other. "The study of CAS is a difficult, exciting task. The returns are likely to be proportionate to the difficulty" (Holland, 2006, p. 8). The following selection of findings provides a glimpse into how CAS has been applied in parts of the psychology literature.

Miller (1999) applied principles of chaos and complexity theories to the psychoanalytic therapy process, conceptualizing the interaction of mental schemas that make up the patient-analyst dyad as a CAS. He argued that like the CAS of the individual, the CAS of the analytic relationship is not a static

entity resting at one point in time, but rather in a constant state of change evolving through contexts and time (Miller, 1999). In this relationship, earlier events in treatment influence later ones by shaping the schemas available for use at subsequent points in time (Miller, 1999). “It is against the background of the relationship history of the analytic dyad that novel ways of interacting and interpreting events between the patient and the analyst are created, understood, and worked through” (Miller, 1999, p. 372).

Although Miller referred to CAS theory there was no reference to specific complexity concepts (e.g., adaptive cycle, panarchy) and his ideas were supported with minimal illustrative case examples. Even so, Miller made interesting parallels between complexity, a patient’s belief systems, and how schematic change may take place within the psychoanalytic process. “The person who induces change and the one who provides a safe haven in which reorganization can take place, the analyst does not know how the patient will change and should not hold expectations of a predetermined, optimal state for the system of the patient to assume on reorganization” (Miller, 1999, p. 374). Miller believed that schemas and larger belief systems are reorganized through the interaction of affective, intellectual, and behavioural elements in the patient-analyst CAS dyad. It seems that the psychoanalytic community has taken notice of complexity literature, although these writings are typically theoretical applications (Feldman, Bovensiepen, Rytovaara, & Carter, 2010; Kilburg, 1997; Palombo, 2013; Moore, 2019).

Partridge (2000) proposed a theoretical model of temperament as a CAS by using approach-withdrawal behaviour as a specific instance of temperament. Developmental contextualism (Lerner, 1998) was used as a guiding theory in determining the system’s structural components, while Kauffman’s (1993) Boolean models of self-organization were adapted to estimate parameter functions. Partridge concluded that approach-withdrawal can be modeled as representing two basins of attraction and that sensitivity to initial conditions should be considered, but that the model needed to be empirically tested and refined.

Considering research from the cognitive sciences and developmental psychology, Varey (2011) discussed the viability of applying panarchy theory to the ecology of human thought, and used the term *psychosystems* (like ecosystems) to refer to complex networks of cognitions. He suggested that human thought tends to follow cyclical patterns (similar to the release phase of the adaptive cycle), that the theory of psychological panarchy is viable, and that human behaviour may be better understood as a CAS (involving emergent dynamics of many interacting components within the individual and environment) (Varey, 2011).

Kerr, Crowe, and Oades (2013) adopted a CAS perspective to serve as a framework to assist individuals who are reconstructing their narratives during mental health recovery. These researchers conducted a narrative literature review and concluded that the process of recovery is a complex phenomenon, involving dynamic interactions among individual characteristics and the environment that may facilitate or impede recovery efforts. Recovery according to these authors involves "individuals redefining themselves in order to create an identity away from being a sick person to one that is striving for a desired quality of life" (Kerr et al., 2013, p. 108). They conceptualized narrative identity reconstruction as a part of the mental health recovery journey that can benefit from a CAS perspective. They recommended narrative coaching techniques that can help an individual create new connections between their stories, identity, and behaviour that have the potential to lead to new options (Kerr et al., 2013).

Randle, Stroink, and Nelson (2015) applied CAS to the study of addiction and relapse. They advanced the notion that addiction can be understood as a CAS, emerging from and being maintained by numerous, interacting controlling variables and moving through adaptive cycles at various levels of panarchy. An adaptive cycle of addiction, a transitory adaptive cycle, and an independent adaptive cycle were outlined, the last of which involves a maintained state of recovery where a person is no longer

influenced and interacting with controlling variables associated with prior addiction. Attachment and attachment experiences (secure and insecure) may similarly be viewed as a human behavioural system that displays emergence and cyclical patterns of stability and change throughout our lives and relationships.

Lastly, Sherblom (2016) proposed that there is a vital difference between self-organizing systems that involve consciousness and those that do not, that psychology is concerned with a different level of complexity than material science and physics, and that there should be a way of making this distinction in psychological and social science studies. For example, Sherblom argued that while non-conscious systems display a radical equality among all the participants or agents (e.g., water molecules heated in a kettle going through predictable sequence and resulting in predictable organization), self-organization in conscious systems is far more unpredictable (e.g., a small number of participants having a disproportional influence on the resulting organization). They suggested that self-organization in a conscious system (a person) can be distinguished as *self-cultivating self-organization* (acknowledging that a person's conscious awareness and self-directed action have an influence on organization) and *self-presenting self-organization* (acknowledging that organization is socially influenced, as is the person, by their culture, time period, and present challenges - such that we behave differently in the same grouping from one time to another) (Sherblom, 2016).

CAS studies continue to build momentum through the mental health and neuroscience (Rock & Cross, 2020; Gomersall, 2018; Saxe et al., 2016; Welsh & Martin, 2013), social and health systems (Chaichanawirote & Higgins, 2013; Drury, 2014; Gomersall, 2018; Lachman, Jayadev, & Rahi, 2014; Resnicow & Page, 2008), chronic pain and illness (Brown, 2009; Martin & Sturmberg, 2009), and organizational psychology (Curseu, 2006; Won Yoon & Johnson, 2008) literatures.

For example, Chaichanawirote and Higgins (2013) examined the diversity of social support networks of a convenience sample of 95 independent living older adults (mean age = 76). They conducted interviews about social support and utilized egocentric network analysis to get participants to describe their networks in terms of: patterns, density, size of positive and negative networks (available and utilized), support need and support satisfaction. In this study, the older adults and their network were considered the CAS and the older adult was considered the chief node of the system or network. The researchers created participant sociograms or depictions of the social support network, two of which are shown below in *Figure 6*, where the participant is on the right of the diagram, with lines designating a link between two nodes. The findings showed that the network boundary of this sample was seven members, average network size was 6.22 members (*SD* = 1.50), positive interaction networks were larger than negative networks, and that participants reported moderate levels of support need (*M* = 2.5, *SD* = 0.7) and high support satisfaction (*M* = *5.9*, *SD* = 1.0).

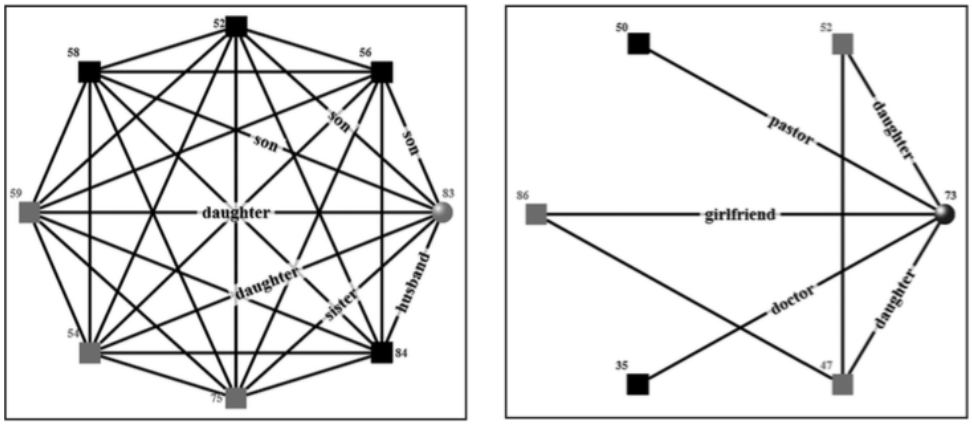

Figure 6. Social networks of an 83-year-old female participant and a 73-year-old male participant (Chaichanawirote & Higgins, 2013).

The findings frequently find support for the added value of conceptualizing the system(s) being studied as a CAS, by acknowledging connections, diversity, and interactions to promote adaptive self-organization, empowerment, and flow (e.g., cultivating an environment of listening to people, enhancing

relationships, and allowing creative ideas to emerge), as well as to offer an integrative framework when a multitude of theories and models exist to explain (different aspects of) a phenomenon (e.g., addiction and relapse). Rock and Cross (2020) go as far as to suggest that viewing mental healthcare and health systems as a complex adaptive (eco) system *is* the way to achieve genuine person-centred care, that translates what works for unique individuals in the real-world (versus for the 'average' person with 'average' needs) (Van Os, Guloksuz, Vijn, Hafkenscheid, & Delespaul, 2019).

CAS theory is a multidisciplinary perspective (versus a singular theory) for understanding how living systems at all levels of panarchy adapt and change. Meadows (2008) asserted that systems thinking is a critical tool in addressing the many environmental, political, social, and economic challenges we face around the world. While CAS theory has been tested empirically using mathematical and computer simulation models in some disciplines, in her book *Thinking in Systems* Meadows wrote that one can go a long way toward "understanding systems without turning to mathematics or computers" (p. 4). Interestingly, Meadows recommended using diagrams and time graphs to understand system trends over time, because words and sentences are inherently linear and logistically ordered (versus systems that happen all at once and are simultaneously connected in many directions). This may speak to the limitations of the current research method (i.e., thematic analysis of one-time retrospective narratives).

Meadows indicated that "everything we think we know about the world is a model, that our models do have a strong congruence with the world, and that our models fall far short of presenting the real world" (p. 191). She also provided a set of guidelines for living in a world of systems: (1) get the beat of the system, (2) expose your mental models to the light of day, (3) honour, respect, and distribute information, (4) use language with care and enrich it with systems concepts, (5) pay attention to what is important, not just what is quantifiable, (6) make feedback policies for feedback systems, (7) go for the good of the whole, (8) listen to the wisdom of the system, (9) locate responsibility within the system, (10)

stay humble – stay a learner, (11) celebrate complexity, (12) expand time horizons, (13) defy the disciplines, (14) expand the boundary of caring, and (15) do not erode the goal of goodness (p. 194). This list is a useful reminder that complexity research studies may not follow the traditional empirical path.

The complexity science perspective has been used to understand the emerging properties of complex, dynamic systems including human cognition and behaviour, social, economic, cultural, ecological, climatic, and geographic aspects of systems, as well as the interactions among them (Brownlee, 2007). It is a multi-disciplinary field and many individual, group, and systemic applications have been explored to date. Studies exploring attachment and couple relationships as complex systems could add to this growing and diverse literature. The next section will outline the general purpose of this research.

General Purpose

The overarching purpose of the current research was to examine if the complexity perspective can contribute to understanding adult attachment and particularly, attachment injuries. To do so, the narratives of individuals with lived experience of attachment injuries, as well as the narratives of those who are familiar with the complexity perspective (local graduate students and faculty), were collected in two separate studies to begin to investigate this cross-section in research. Qualitative analysis of participant narratives has been used in a number of prior AI studies (Darab, Bahrami, & Etemadi, 2020; Fletcher & MacIntosh, 2018; Mitchell, Wittenborn, Timm, & Blow, 2020; Pelling & Arvay-Buchanan, 2004; Simonič, & Klobučar, 2017). More importantly, a qualitative approach is appropriate when an intersection in research has not been explored. The attachment injury construct is still fairly new in the attachment literature and more studies about the changing meaning of these important relationship experiences are needed (Pelling & Arvay-Buchanan, 2004).

The first research objective pertained to how attachment injuries are processed over time and how they impact views of self, others and relationships. While attachment injury studies have often focused on

the perspective of the injured partner, this study aimed to capture the lived experience of those who have caused *and* experienced attachment injuries. Participants in some previous research seem to include females (Darab et al., 2020; Dehgani et al., 2020; Pelling & Arvay-Buchanan, 2006; Sayre et al., 2010; Simonič & Klobučar, 2017) or couples (Makinen & Johnson, 2006; Naaman et al., 2005; Zuccarini et al., 2012), as such there was also an effort to gather men's lived experiences.

A second research objective of Study 1 was to determine whether participants described the injury experience in a manner that is consistent with what the adaptive cycle would suggest. For example, is an injury described as a shock that leads to reorganization or retention of their views over time? Since attachment injuries do not occur in a vacuum, the aim was to explore the perceived role of others and other attachment injuries on the processing of attachment injury experiences. Studies focusing on complex or multiple injuries are also lacking in the literature, thus participants were invited to describe additional within and/or cross relationship AI incidents.

The overall objective of Study 2 was to invite local individuals who are familiar with complexity theory (graduate students and faculty) to share how they view the interconnection between adult attachment and complexity. While this local sample provided their initial impressions and insights, future research conducted with a more expert sample of complexity researchers will be beneficial in order to corroborate and/or challenge their perspectives. Together the studies reflect an initial effort to explore attachment and complexity in two separate ways.

Study 1

Purpose

The leading questions of the first qualitative study were as follows: (1) what is the lived experience of individuals who have experienced and engaged in an attachment injury, in a past or current intimate relationship, in terms of the impact of the attachment injury on view of self, other, and relationships? (2)

does this impact and meaning change over time? and (3) what is the role of other people and other attachment injuries that are present in the context of each of these experiences? Of particular interest was whether complexity concepts and principles would be evident in participant narratives, as recognized by the primary researcher using a qualitative approach.

Method

Participants. Participants for Study 1 were primarily recruited from Lakehead University and the Thunder Bay community. One participant residing in British Columbia viewed the recruitment poster online and participated by phone. Recruitment strategies included posters (see Appendix I), local newspaper advertisements, social media, word of mouth, and email list serves. Participants contacted the researcher to express interest in participating.

Participants met the following inclusion criteria: (a) 18 years of age or older, (b) able to discuss an attachment injury they experienced in a significant intimate relationship (past or current), and/or (c) able to discuss an attachment injury they have engaged in, or caused, within a significant intimate relationship (past or current).

The aim was to interview 10 to 15 individuals to gather a diversity of perspectives. The qualitative research literature suggests that data collection should continue until narratives reach saturation - when new themes have ceased to emerge from the collected narratives and categories have been fully developed (Strauss & Corbin, 1998). Narratives reached saturation and the unique experiences of individual participants were also noted. This study was approved by the Lakehead University Research Ethics Board prior to commencing participant recruitment.

Participant demographics. Fifteen participants (eight identified as female, seven identified as male) participated in Study 1, ranging from 21 to 70 years of age (M = 40.8, SD = 15.9). In terms of sexual orientation, 13 participants identified as heterosexual and two identified as bisexual. Five of the

participants reported they were currently in a relationship, with one of the five being involved in a polyamorous relationship. Nine participants reported they were single, with one of these participants being single and widowed. One participant reported uncertainty about his relationship status after his partner moved out of town and was responding to him inconsistently. Participants were asked to rate their satisfaction about their current relationship status on a scale of 0 to 7 (with 0 being 'very dissatisfied' and 7 being 'very satisfied). Ratings ranged from 0 to 7 (M = 4.3, SD = 2.2). The number of lifetime significant couple relationships, according to the participants' interpretations of the term 'significant' ranged from one to eight (M = 3.7, SD = 1.7).

Participants responded to the question about their cultural identity in a variety of ways, including referring to specific ethnic backgrounds, religious affiliations, and even subcultures (e.g., nerd culture). Overall, 13 participants identified their culture to be Canadian, including two who referenced Indigenous heritage and one who reported mixed cultural background. One participant identified as Mexican and one as Asian. Two of the 15 participants shared their religious affiliations (Christian, Catholic).

Research process. All participants received the Letter to Potential Participants (see Appendix A) by email once they contacted the researcher. The primary researcher (KA) completed both parts of the research process: (a) an initial contact to assess eligibility and (b) a research interview. All in-person interviews were conducted in private rooms at the Lakehead University library, with the exception of two which were held at the researcher's former workplace. Each research session began with an informed consent discussion followed by the participant signing a written consent form (see Appendix C). The one to two-hour research interview was open-ended, semi-structured and audio recorded for transcribing purposes (see Appendix F for Interview Script – Study 1). A number of qualitative AI studies have employed a similar approach (Darab et al., 2020; Mitchell et al., 2020; Pelling & Arvay-Buchanan, 2006; Sayre et al., 2010), although some researchers have included follow-up interviews with participants to

discuss emerging themes – which is a limitation of the current study. All participants were provided with a closing letter (see Appendix H) that outlined counselling supports as well as contact information for the researcher and her supervisor. Each participant was offered a thank you card and a $5.00 Tim Hortons coffee card for their participation.

Study 2

Purpose

Individuals who study, work, and/ or conduct research from a complexity perspective vary in terms of their professional and personal backgrounds and the disciplines they work in (e.g., geography, law, natural resources, health science, social work, psychology and economics). Local individuals familiar with complexity were approached to gain initial insights about how complexity may apply to attachment and couple systems. Since complexity concepts including CAS theory have never been applied to adult attachment and the processing of attachment injuries, it was important to begin to gather others' narratives on the topic.

Method

Participants. Participants for Study 2 were recruited from Lakehead University. Recruitment strategies included social media, word of mouth, and through email contacts. Inclusion criteria for this study were the following: (a) participants needed to be familiar with the complexity perspective in their studies, work and/or research, and (b) participants must have been in at least one significant intimate relationship (past or current). Familiarity with attachment theory may have been another useful inclusion criterion. While this should certainly be considered for future studies, the overarching goal of this research was to ask community members about AI experiences and individuals familiar with complexity about the perceived application to relationships; in a manner that was not leading. That being said, psychology participants were familiar with attachment theory and one of three faculty participants also

referenced it. This study was approved by the Lakehead University Research Ethics Board prior to commencing participant recruitment.

Participant demographics. Eight individuals (four faculty and four graduate students) participated in Study 2. Two faculty and three graduate students identified as female, while the remaining participants identified as male. Participants ranged in age from 25 to 60 (M = 36.75, SD = 12.6). Two participants identified they were married, two were in common-law relationships, two were dating, and two identified as single. All student participants were studying psychology at a graduate level and were affiliated with the lab of the supervising researcher; the benefits and challenges that this sampling presented will be addressed further in the Discussion section. All faculty were from non-psychology disciplines.

Research process. All participants received the Letter to Potential Participants (see Appendix B) by email. The research process involved: (a) an initial contact to assess eligibility and (b) a research interview. All interviews were conducted on the Lakehead University campus, with the exception of two which were completed by phone. Informed consent was reviewed and a written form was signed by the participant (see Appendix C). The research interview was open-ended, semi-structured (see Interview Script – Study 2 in Appendix G) and audio recorded. Participants were asked about: (a) their history with complexity, (b) their understanding of CAS and the adaptive cycle (participants were provided with a diagram, see Appendix I), (c) whether complexity or systems thinking informs their intimate relationships, (d) whether they consider attachment and couple relationships to be CAS, and (e) whether CAS theory and the adaptive cycle could inform the processing of attachment injuries for individuals and couples (provided with definition and examples of AI, see Appendix D). Each participant was offered a thank you card and a $5.00 Tim Hortons coffee card for their participation.

Qualitative Research Process and Analysis

Study Concept and Design

The same qualitative research process was followed for both studies. The idea for this study emerged from the lack of research that examined couples as complex adaptive systems. The potentially reorganizing property of attachment injuries was of interest, particularly whether emerging patterns could be observed in participant narratives. A qualitative, exploratory approach was identified as most appropriate because the intersection of attachment and complexity has not been researched. Qualitative methods are also consistent with approaches used in past AI studies. Study design, including participants and method, along with guiding and interview questions were developed. Research questions informed the interview questions and data analysis, which again, is consistent with past research (Anfara, Brown, & Mangione, 2002; Sayre et al., 2010). Proposed interview questions were reviewed with two colleagues to gather feedback about question clarity, open-endedness (versus leading), and overall flow of each interview script. A number of research process issues were considered including acknowledging the researcher in the research, approach to transcribing and member checking, and one versus multiple coders.

Acknowledging the Researcher in the Research

Although qualitative research philosophies differ, most emphasize the importance of the observer's perceptions and interpretations by openly acknowledging the researcher's influence in arriving at conclusions and endorsing subjective research approaches. Banister and colleagues asserted that qualitative research is "the interpretative study of a specific issue in which the researcher is central to the sense that is made" including (a) attempts to capture the sense of the phenomena, (b) explore, elaborate and systematize the significant parts of identified phenomena, and (c) illuminate representations of meaning of a delimited issue (Banister, Burman, Parker, Taylor, & Tindall, 1994, p. 2). Interviewing as a

qualitative research method emphasizes the reflexivity between the researcher, the participant and the topic, where each influences the other in cyclical and interdependent ways. Additionally, Golden (2003) reminds us that the focus of qualitative research is not on revealing generalizable truths or searching for cause-effect relationships, but instead on exploration and description.

The researcher approached all parts of the research process with openness, while accepting that all inquiry is laden with values (Mertens, 2003). As has been explicitly noted in other qualitative research (e.g., Pelling & Arvay-Buchanan, 2004), this researcher's subjectivity was not suspended but rather incorporated into the whole research process and analysis. The primary researcher is a middle-aged woman who has been educated in Ontario, Canada, and (like many) has lived experience with attachment injuries in couple relationships. She holds her own views about attachment injuries, couple relationships, and introductory knowledge about complexity.

She first became interested in attachment and couple relationships during her undergraduate studies, including how we can shift from insecure to secure attachment patterns, how couples adapt to challenges, and how trauma, mental health, and attachment experiences intersect. In addition to her clinical training, she worked as a counselor in the Violence Against Women (VAW) sector for a number of years. She believes relationships can be empowering and hindering, but overall that we are always evolving, adapting, and learning from our relational experiences.

The researcher's personal and professional identity, perspectives, and social context, among other factors, unquestionably interact with all aspects of this research process (in conscious and unconscious ways). For example, she believes attachment injuries, adverse experiences including trauma, and mental health and substance use difficulties in relationship networks, are more common than not – even if not directly at the individual level. She also believes that attachment and complexity perspectives offer valuable ways of understanding relationships and systems. Another researcher may approach this work

with differing views about interpersonal systems and arrive at different conclusions. The findings cannot be fully decontextualized and do not claim to be generalizable beyond her analysis of these samples.

The researcher has previously used thematic analysis for her undergraduate thesis research and more recently attended a qualitative research conference and workshop. Her familiarity with complexity theory and research has been acquired through completion of a multidisciplinary complexity seminar, reading introductory literature, and discussing complexity concepts and their applications with school colleagues and the supervising researcher. This research was conducted in Thunder Bay, Ontario between 2016 and 2019.

Transcribing and Member Checking

Interviews were transcribed and reviewed along with the audio. Study participants and anyone they referenced were assigned pseudonyms along with additional efforts to deidentify the data (e.g., locations in Thunder Bay). Participants were offered the option of member checking (reviewing the transcript for accuracy); a process that increases reliability and validity of the data and decreases the potential influence of researcher bias (Hill, Thompson & Williams, 1997). Twelve of fifteen Study 1 participants and four of eight Study 2 participants consented to member checking. All recorded, collected and transcribed data for both studies are being stored in a locked research lab on the Lakehead University campus for five years.

One Coder

The primary researcher was the main coder and data analyst. She spent many hours transcribing, reviewing, and analyzing the data. Similarly, in the Sayre et al. (2010) AI study with five stepmothers, the first author conducted and coded all five interviews. While the second author did cross-code sections of *some* of the transcripts to verify themes, and both authors discussed findings to arrive at final AI markers (Sayre et al., 2010), it could be argued that the supervising researcher of this study offered similar support

and verification. An iterative approach was followed (i.e., moving in and stepping back from the data; immersion in recordings and transcripts; review of several rounds of coded data).

Ezzy (2002) recommended several strategies for lone researchers to assess the trustworthiness of his or her accounts: (1) initial coding while transcribing interview data, (2) keeping research notes throughout the process, and (3) member checking. Consultation and supervision were utilized throughout the research process. While lack of multiple coders and inter-rater reliability in qualitative research can be a disadvantage, the idea that qualitative research needs to be quantified (i.e., including interrater reliability) in order to be perceived as legitimate has also been raised (Levitt et al., 2018). Additionally, research and interview question development, coding rubrics, and theme identification conducted by multiple coder teams can still, in some cases, be influenced by the lead researcher or the researcher with the most investment or influence (Levitt et al., 2018). NVivo 12 qualitative software was used to facilitate coding, organizing and searching the data.

Approach to Qualitative Analysis

Recruitment and data collection (interviews) for Study 1 and 2 were conducted in parallel, rather than sequentially – where one study informs the other. Data analysis was iterative, conceptually- and data-driven, and informed by thematic analysis. As has been noted, a number of AI studies have previously used qualitative approaches, including thematic analysis (Darab et al., 2020; Fletcher & MacIntosh, 2018; Mitchell et al., 2020; Pelling & Arvay-Buchanan, 2004; Simonič, & Klobučar, 2017). Similar to past studies, data analysis was conducted at the level of the individual, but participants were clearly considering questions in a relational context (Sayre et al., 2010).

The first step involved getting familiar with the narratives. This was followed by initial open coding that consisted of coding lines, segments, and paragraphs of transcripts in order to capture interview content. Data under each code were then printed for pen and pencil review. Coded segments were

reviewed for consistency and adherence to the definition of the code (e.g., 'Mental health' is actually related to participants talking about mental health). Initial codes were grouped into categories according to their similarities. The number of participants and references under each code was considered for theme generation, and observations about dominant theme(s) in a single transcript were also noted (e.g., Study 1 participant, Ken, described longing for meaningful experiences and connections throughout his interview).

In an effort to step back, the primary researcher returned to a review all audio recordings, organizing notes and main ideas in Microsoft Word and Excel tables for further review. Returning to the taped interviews allowed the researcher to once again be immersed in participant narratives, return to the experiences she had while conducting the interviews, and in some cases, hear new details of the stories. The researcher then reflected on the findings from all parts of the coding and analytic process to date (audio recordings, transcripts, iterations of coding), in order to refine and finalize emerging themes and subthemes, along with participant quotes that best demonstrated them (Strauss & Corbin, 1998; McCabe, 2007). In a final step, a report was produced and a detailed description of the data set has been provided. A similar approach was undertaken in the Darab et al. (2020) study, with the exception of two authors of three authors acting as coders and analysts – which is a limitation of the current research.

Results

Study 1

An overview of the experienced and engaged in attachment injuries described by participants is provided, followed by the five themes that emerged from the analysis: (a) context of injury, (b) impact of injury, (c) impact on and role of beliefs, (d) attachment processes, and (e) release and reorganization. Some phrases throughout the Results section are **bolded** to highlight significant parts of the passages (e.g., ways of coping, beliefs about self). The five themes progress from a more

descriptive nature with themes 1 and 2 which provide a sense of the context surrounding the AI and its impacts on the person, to more dynamic and process-oriented themes 3 to 5. The discussion section that follows builds on these themes with further analysis of the dynamic process of experiencing and responding to AI that emerges from these themes to address Study 1 research objectives. Themes and subthemes are listed in Table 2 (p. 65).

Experienced Attachment Injuries

Participants described a variety of emotional injuries that they experienced in current and/or past couple relationships, primarily involving infidelity, but also related to addiction, financial issues, changes in life direction, lack of support surrounding health issues, emotional disconnection and distancing, and experiences of abuse. These aspects of injuries were not distinct, rather they were interconnected and for some, compounded over time. Some participants identified red flags that they noticed throughout the relationship that became clearer over time, and/or provided context to their experiences in hindsight. At times, participants spoke about red flags they noticed in themselves (e.g., pulling away in a relationship over time), or those their partners or ex-partners likely perceived. Despite red flags, some participants still expressed shock and surprise about the details or extent of the injuring event(s). Portions of participant narratives are provided below to introduce their stories to the reader. It should be noted that this by no means captures the complex context that these experiences existed within in participants' lives. (15 participants, 82 references)

Andrea

- *I went to get him. He got in my car and said, "Um, I need to tell you that I have a drug addiction. I'm addicted to pain pills… the addiction is so bad that I have been taking the car in the middle of night" … So, he was taking my car in the middle of the night and driving downtown to try and find pills at bars… he had cashed all of the RRSPs he had… we maintained our own accounts, but we had a joint account… he would put his $350 in and then he would take $700 out, so the mortgage bounced a few times.*

Ken

- *That's what I was looking for… like, "I'm just kind of gonna do whatever for two years and then I'll go travel with her". But I think she had other ideas. I think she wanted to travel with her friends. She wanted to do… other things and it kept getting to the point where I wanted to do all these things with her and she wanted to do all these things… not necessarily with me.*

Mark

- *…my first serious relationship… about three months into dating this girl… she cheated on me… I was in high school… I thought I was in love. So, I stuck around, and it messed with me every single day. Uh… that she'd gone out and done something like that to break my trust… … They [friends] called me, not … two, three days into the trip and told me that…she had… given oral sex to somebody... was making out with all these people in the club and had sex with somebody else, so… [she] walked back to her hotel room… she fucking started bragging to everybody [other students on the trip] about what she had done.*

Hugo

- *…she cheated on me after three years of relationship… and she never admitted that she cheated… she only… she started to cry every time we started to talk about it. That's something that bothered me a lot. And… after we broke up… ah… she didn't tell me about it… it was like she was cheating on me again… so probably twice.*

- *The first one I was with her…suddenly she got a call and I saw her [get] really nervous and white, like she saw a ghost and… after that I realized… something was wrong. And she told me, "It's the mother of my ex" … so I took the phone and then the mother was really angry because my ex-girlfriend sent some SMS to one phone and that phone was from the father of the ex-boy… and the mother thought that the husband was cheating on her. So, they had a really big fight and then the guy realized the fight was because of him and my ex-girlfriend.*

Olivia

- *I have children and I moved in with my boyfriend and I thought that um, intimacy and emotional support would increase once we were in a more intimate situation, living together… but it was the opposite that happened. He found the change really stressful and he… really shut everyone [participant and her children] out.*

- *Yeah, it wasn't over time… it was really like crash and burn (laughs)… I moved in and there and then we were in a … physical proximity… daily… but there was less relationship. Even though there was more proximity…*

- *It was just a total closeout… like he would come home from work and then he would go outside… and spend time outside… looking at his Facebook and then he would come inside and not talk to anyone. Very overtly not speak to anyone.*

- *Yeah, across the board. We didn't do anything anymore. We used to go for walks after dinner, even with the kids, before we moved in there… and then we didn't anymore… and there was no longer any physical intimacy… he stopped coming to the kids' hockey games…*

Nancy

- *I was in another car accident… and he was away at a course … he came back… knew that I had had an accident… he rushed in the door and out again to go to his choir practice… so meanwhile I'm going, "What the heck?" … And then the next morning like, [participant] "No really this is a problem for me and I'm starting to get seriously depressed". [partner] "Oh, I wish I could help you, but I don't have the time." So that to me was an extreme... hurt… because I was in need and I was able to ask for help and the person who was supposed to be caring about me – really the most, at home – um, was just like, "I'm sorry, I got other things to do". (laughs)… [This was in] 2015…*

Brenda

- *I… discovered that my partner had been using a dating app called Tinder behind my back to… not necessarily to meet other people, um… I, I believe him when he says that he never actually met anybody… but he felt as though our relationship was… doomed to fail and he was looking for attention and affection and um… I… this is not the first time it had happened, but for me it was the last straw…*

David

- *... so, I caught my wife in an, in an affair. And the manner in which I found… I caught my wife in an affair was I found… that she and her… other person… were, were filming themselves having sex and putting it on the Internet. I was… it was the home computer and she had failed to delete the browser history… I figured I couldn't just sit there for a couple of hours… so I packed the kids up and I went and confronted her…*

Eldon

- *... the last time when she replied to me that she went to uh… Mexico for some… project… I just blamed her immediately, cause it's like, for consecutively four weeks I didn't get any news or reply from her… so I'm a little bit concerned… and … um…somehow I feel like uh… she doesn't care about me at all … (short laugh)… she keeps saying that she doesn't have her phone with her… so I'm a little bit concerned if she's lying or… maybe uh… find some other excuses …*

Francine

- *Like… I'm a pretty reasonable human being… had you like broken up with me… before you started texting my best friend for a month and then banging her on our anniversary and then secretly dating her for two months…*

Grace

- *… it was in my marriage… there were a number of events, but the first that comes to mind was probably when my son and I was… (clears throat) on unemployment insurance cause I had mat leave … we lived in the country and I had to go to town and asked my spouse for $20 to put gas in my car and he told me … (laughs) his exact words were, "The beam stands alone," which he implied meaning that I'm on my own and he's not there to help me… So, that was pretty early on.*

Helen

- *It seemed the longer we lived together, the worse she thought of me. At least that was the message that I was getting… she was very unhappy at work… she was looking at possibly moving… and I think that she decided that the only thing holding her back was me (crying)… Basically she said [in a letter], "I'm giving you a month… I've cancelled all the credit cards" … you know, all that kind of stuff… very matter of fact, business like, letter…*

Ian

- *…what happened for me is my wife said, "Your diabetes is not my diabetes" … I have 140 photos of things like Persians being brought home… and her excuse was that, "You're a grown man. This should not be a problem for you."*

Justine

- *So, I sent him that [text] and a week later… I connected to Wi-Fi and I seen that his WhatsApp completely disappeared… he got a new number… no response, no nothing… But just total ignoration… I don't know if he's consciously or subconsciously trying to hurt me, but like… silent treatment… is torture when it comes to someone you love… its absolute torture.*

Larry

- *Uh… she was just never there. If anything happened, like if I lost my… if I was unemployed she would run away. When I got a job, she'd come back, and you know… when I was, when I was unemployed, "I wasn't bathing and I wasn't taking care of myself…" As soon as I got a job, "Oh, he looks so good and oh…" you know, it was just… as long as there was money there… she was there, you know. No matter what I did… she just pulled away, so.*

Engaged in Attachment Injuries

To a lesser extent than experienced attachment injuries, five participants spoke about causing emotional hurt(s) to a past and/or current partner(s). Participants typically provided context or rationale for their actions, at times citing distance in the relationship or other challenges as contributing factors (e.g., partner's unmanaged mental health or substance use). Three participants alluded to their partners or ex-partners being hurt, but did not identify specifically causing an injury (e.g., ex-partner felt a lack of a support). Three other participants questioned whether their actions may have constituted injuries to their ex-partners.

Grace questioned whether her lack of thoughtful gift giving may have been experienced as an injury. Olivia spoke about learning (once the relationship had ended) that her ex-partner was

significantly impacted by her not revealing information about where she worked. Olivia extrapolated from this experience that this may have reaffirmed and reinforced her ex-partner's existing views of women as untrustworthy, particularly given his history of experienced infidelity. Francine questioned whether separating from an ex-partner was her engaging in an AI, given his expectations and hopes that they would get married, but concluded that she was young and entitled to being single. Four participants denied causing injuries, with two emphasizing their beliefs about commitment and opposing infidelity. (12 participants, 58 references)

At times it seemed as though participants who had engaged in attachment injuries had a hard time sharing the story without providing justification, causes, or reasons for their actions: This of course makes sense. It can be difficult to fully own our actions and their impact, without providing context to the listener that would allow for increased empathy and compassion towards the sharer. What is interesting is that in a later passage Justine describes that her ex-partner "deserved to know the truth". Individuals may feel the need to confess parts or all of what has occurred, but struggle to not add explanations about their behaviour that could be perceived as invalidating or incomplete accountability; thereby posing potential barriers to the healing process.

Andrea

- *And like he would text me at work like, "I'm going to drive my car into a rock cliff". Like he [ex-partner] would be at emergency, that he's having a heart attack. We'd be driving around emergency rooms at night. One night I came home and he was lying in about an inch and a half of water in the bathtub, he was almost blue. He said, "I was thinking we should go to the show" ... finally I said, "I can't handle this anymore, you gotta move back to your sister's place" right…* ***I knew I was acting outside of that relationship, right. And… and I knew that would hurt him, but it was like I needed emotional survival, right****… **But, I didn't take my relationship lightly. But there were times that I needed, I needed to feel that someone wanted me. Like wanted me as a woman, wanted me… just wanted me**, right.*

Brenda

- *But like I know for him [ex-partner] … uh… and we still, we still talk about it, we still go for coffee, we still hang out. There have been times… where… um… he'll be… having a difficult time in a relationship and he'll make a joke, he's like, "Oh, I guess I have you to thank for that, ha ha ha"* ***and I'm like, "Yeah, remember that time I broke your heart. Yeah, let's***

keep bringing that one up, that's great".

Ken

- *… at some point I kind of stopped saying, "I love you" and she [ex-partner] started to notice and it became a thing and then there was a point where I did say it… and like she perked up right away… and I felt so bad because I did love her… I just didn't love her in that way anymore and I didn't want a romantic relationship anymore… near the end of the, the relationship um… I did um… kind of go out with another girl and kiss another girl.*

- *I gave her all the flags to say that I wanted to spend my life with her [ex-partner] and wanted to like… get engaged and be married and have kids and all the other stuff… like before we left for Thunder Bay, we had this big party and everyone thought it was like, like, like a proposal. (laughs) … she probably had her hopes up … I felt really bad when I heard people saying, "We thought it was gonna be a proposal or something." (laughs)*

Larry

- *Sadly, I ended up sleeping with one of her [ex-partner's] best friends (laughs) …* ***And I figured … at that point… I was at the end of … the relationship****… and for some reason she was like, "Nobody on this planet will ever have you again." Two days later I was in bed with her best friend.*

- *And when things went bad I just… we were living in Southern Ontario… I just packed my stuff and walked out. I didn't tell her [ex-partner #2] I was leaving. I just wasn't gonna deal with the fighting… the severe mood changes… and I walked out… gone… like no word.*

Justine

- *… in my mind I was like, "He knew I wasn't ready for the relationship. I had to go off and be on my own for a little bit and we weren't really serious.* ***He never had that talk with me like, "Oh, we're official". Like he was so… avoidant.*** *I didn't know what was going on…* ***so I took off and I ended up hooking up with someone down there. To try to get him out of my system****… like you know, like you know… that … I, I didn't like the feeling… … Um…* ***I'm just gonna hurt him before he has a chance to hurt me that way when he hurts me, I don't have a right to be angry.*** *So, I ended up hooking up with some dude that I met at the beach. Like I … in my mind at this point I didn't … I didn't know if it was lust or love, so I was like,* ***"Ok, if I hook up with someone then… I'll prove to myself that I don't really love him. Cause if I really loved him, I wouldn't do that."*** *But that's not true at all.*

Mark

- *… the first relationship.* ***The girl cheated on me, I cheated on her… when I came to university… I was still so hurt over it… I never got ah… I guess the closure I wanted because she would never be straight up with me.*** *So, instead I decided that when I come off to university here,* ***I'm eighteen hours up north, this is gonna be my trip in first year****… it was something that I felt really guilty about and felt like it was something that she [ex-partner] should have known. But um … after we had broken up … she asked me if I had slept with anyone … and that's when I told her …* ***I gave her the name of every girl that I slept with while I was dating her, but I acted as if I slept with them after we had broken up.***

Table 2. Study 1 Themes and subthemes.

Theme 1: Context of injury
1.1 Within relationships
1.2 Early relationships
1.3 Adult relationships
1.4 Abuse in relationships
Theme 2: Impact of injury
2.1 Emotional and interpersonal impact
2.1.1 Anger
2.1.2 Guilt and regret
2.2 Mental health and substance use
2.3 Coping
2.3.1. Therapy
2.4 Learning experiences and growth
Theme 3: Impact on and role of beliefs
3.1 Self
3.2 Relationships
3.3 Gendered beliefs
Theme 4: Attachment processes
4.1 Primal panic
4.2 Pursue-withdraw dynamics
4.3 Isolation
Theme 5: Release and reorganization
5.1 Fear and avoidance of releases
5.2 Turning points

Theme 1: Context of injury

In *Theme 1: Context of injury,* participants described engaging in and experiencing attachment injuries in a context of compound and historical experiences with prior injuries, including trauma. This theme includes four subthemes reflecting participants' experiences with AI within the same relationship, in earlier relationships, in other adult relationships, and for some, in the context of abuse. Narratives clearly demonstrated that participants' experiences with AI were always contextual,

emerging and evolving from complex social-relational histories and their current relationship networks. This theme describes different types of AI, but more importantly emphasizes the contextual nature of these experiences.

1.1 Within relationships. Participants frequently described numerous experienced injuries occurring throughout the relationship(s) that was/were the focus of the interview. At times compound injuries involved more of the same (e.g., continuing to text other people) whereas others described more diversity in terms of experienced hurts over time (e.g., infidelity, disinterest in marriage, impact of substance use on family system and finances). Remaining in relationships over time (e.g., months, years) despite AI experiences was regularly reported. (14 participants, 86 references)

Andrea

- *Many years after I said to him, well maybe two years after, "I just want to know did you cheat on me?" And he said, "Only when I was drinking," ... which was all the time…*

- *I was getting ready on Christmas morning and he said, "I want to spend the rest of my life with you." I was stunned… it was a little tiny ring. It didn't matter though… so we went and told my parents… and then suddenly it was, "I don't wanna make plans. We've got lots of time" ... and then it became, "I'll never get married. I don't want to get married." So, I said to him, "I would like you to take this ring out of the house, like that probably is one of the cruelest things you've ever done."*

- *And he would black out and then the next day he didn't know where I was because he… he you know, like kicked me out of the truck and said, "Walk home" and it was the middle of the night… it was awful…*

Larry (experienced AI)

- *No matter what I did… she pulled away… [How long was the relationship?] about five years… [Did this occur repeatedly?] Yeah.*

- *…it turned out that she was a hooker. I didn't know about this. She was a drug addict. She completely hid that from me as well.*

Larry (engaged in AI)

- *I pretty much only talked to her [ex-partner #2] if she asked a direct question… that I didn't think would start an argument… we didn't go anywhere together… if I could help it… I wouldn't leave the house with her… spent as much time as I could away from her… just planning my next move to leave, like where I was gonna go, how much money I had left… And then once everything fell into line, I just walked out.*

Francine

- *… and there was messages from this girl and it was just stuff like, "Aw, I wish you could come over." "Yeah, well you know, Francine's gonna be home and I just… I wish she wasn't coming home and I could hang out with you right now." And I see this kind of shit and it was… that was the one on the top! So, I close that one. And then there was more… with other girls. At this point, he's [ex-partner #2] left it logged in. This wasn't anything I went seeking. I click further back, his emails logged in and open. (laughs) He has a Plenty of Fish account… with hundreds of messages in his email.*

David

- *… when I still thought there was some sort of reconciliation… so off to the bedroom we went … and afterwards she [ex-wife] said, "Well, I'm going out…" and she was out for quite a while and then came home… I confronted her the next day, "Did you go to Mike's [individual David's ex-wife started having an affair with] house after you were with me?" and she said, "Yeah" … she said basically that she was comparing… that was probably my worst, my worst … day … of the whole… affair… of the whole situation… I didn't take that very well.*

Brenda

- *… it was something that he really held onto, which then affected our relationship… when… he kind of wanted a little bit of revenge, as it were, um in times when I needed him, he would be out with someone else… … Looking back on it was very strange, because it should have been, at what point do we look at this and say, "Clearly this isn't working, we should just not"… um… and then, then we didn't do that, we were together for four years and… yeah... it just became … kind of habit, "Ok, who's turn is it now… to hurt the other person." And like, we did it to each other through, like really hard times in our lives, um… and through times that no, no reasonable person ever would do it to… to anybody else, but we… just kept going.*

Grace

- *…but I remember there was one time when my son wasn't sleeping well … I said, "Can you just watch him, I just really need a break" and he said, "You're a parent now, you don't get a break." So that was my first like, "Ok, I'm in this on my own" and um… then after that he had started um… there was no … physical cheating, but there was a lot of emotional infidelity in terms of him connecting with this woman and lying about it and hiding it from me… and it went on for a number of years… but he never acknowledged that it wasn't… it wasn't ok.*

- *And I found evidence that he had been sending really intimate pictures to a girl across the country and so I contacted her… (exhale) … and she … I called her actually… (laughs)… she indicated that he had created this entire story about who he was and that he was serving in the army overseas and um… it was just mind blowing but anyways … so we got into a huge fight about that (clears throat) … but um…we had two kids so I said, "Ok… he didn't physically do anything so let's just resume where we left off and try to get back on track." We never really did cause I don't think I ever really let go of it, cause he claims that this… (laughs)… even saying it makes me laugh. His story was that his friend used his email to*

contact this girl and was communicating through his email, cause he couldn't use his own, cause his ex-wife was checking his email.

1.2 Early relationships. Some participants specifically acknowledged the impact that early relationships (most often familial) had on their mental health, sense of emotional security, and their ability to trust in close relationships. Grace for example described a process wherein abuse and negative experiences were normalized throughout her upbringing, such that her ex-relationship seemed like an improvement from what she previously lived through – although she also described her first long-term relationship as healthy and supportive in comparison to her second, which was the focus of the interview.

The following describe interpersonal experiences in participants' early lives and/or capture challenges experienced in their family networks, or initial conditions that participants adapt to and from. Attachment experiences are indeed an evolution from birth to death, and even beyond for those surviving the individual and the relationship. (11 participants, 49 references of participants' developmental experiences; 10 participants, 72 references about domestic violence or controlling behaviours some of which occurred during upbringing; 15 participants, 382 references to participants' networks including references upbringing)

Justine

- *… they're **not responsive**, they're **emotionally unavailable**… **types who are similar to my father**.*

Nancy

- *His two parents are still together and they're very dedicated to family. **My two parents… my mother had to leave my father because of violence, so there's extreme family violence.** So, I would say that **that was my first relationship violation**, would have been living in that… … and **I've been abandoned in very major ways earlier in my life**… … Um… my family is better … than it used to be, but I grew up really not trusting them.*

Grace

- ***I have a pretty dysfunctional upbringing**… so um… I think that's why I tolerated what I tolerated was because in my… when I grew up… I saw a lot of… not the same but um… in fact, my relationship was better, which I think is why I justified staying was cause it wasn't as bad as what I saw when I was a kid… **My stepdad growing up was… awful** and I just don't want that to be the story my kids have.*

Mark

- *… like **I've always had trust issues. Just cause of the way I was brought up.** I was raised ah with… **a lot of discipline**. Ah… **parents were distant, always.** Ah… was put through quite a bit of stuff. Mom kicked me out when I was 17… um… so, it was just not a stable place to be… ah… So, getting out of there was one of the healthiest things I could have done for my mental state.*

Larry

- *I still talk to my… well my dentist is actually my Big Brother when I was growing up… he like joined the Big Brothers organization at the same time I did **when my father left**. And… I've known him for … over forty years … somewhere in there. So, like… literally my entire life.*

Hugo, explicitly disconnected the association between his family relationships and his relationship with his ex-partner.

Hugo

- *I have never been really attached to my family in that, in that way … so I don't think that my relationship with my ex-partner had something meaningful with my relationship with family.*

Olivia and Andrea described how their upbringing - particularly their perceptions of their parents' relationship functioning - resulted in naivety about unhealthy relationships, or being overly optimistic and hopeful that the relationship will improve over time, respectively. Note, Olivia states "I didn't know how to pick that out." While Olivia reported a positive upbringing, at another point in the interview she alluded to her mother experiencing abuse in the relationship with Olivia's father prior to leaving the relationship – although she may be referencing that her upbringing following this was a "nice environment." The numerous seemingly contrasting or inconsistent parts of her narrative, may in fact be quite understandable when we consider the disorganizing impact of trauma (Olivia disclosed developing PTSD from an abusive relationship). Dynamics such as hoping for change, normalization of adversity, tolerating, and self-other comparison can be noted.

Olivia

- *Yeah. And I was really naïve … like I guess just growing up in such a nice environment … like my parents were conservative and Christian. I had no exposure to anything like that and like I said they were pretty functional and really good communicators … so I had no experience of anything different... I didn't know how to pick that out, in an interaction or anything.*

Andrea

- *I came through my own family, when I was a child growing up, watching my parents in a very happy marriage. And just kept thinking if I hang on long enough, this will work, right. Don't walk away… And I came from a very affectionate family. My mom and dad were very affectionate. Very sexually active…*

1.3 Adult relationships. Emotional hurts were also commonly experienced by participants in their adult couple relationships and interpersonal networks. Previous experiences of infidelity, partner substance use, and other relationship hurts and disappointments were described. Some participants also spoke about distance, emotional disconnection, and lack of support in other adult relationships, such as those with family or friends. This indicates that our attachment networks are not static, rather while experiencing AI in current relationships, we can also be experiencing them or engaging in them in other parts of our relational worlds. (12 participants, 46 references related to other attachment injuries; 14 participants, 62 references about experiences in other romantic relationships)

David

- *Well… (exhale)… I guess… up until my ex-wife…* ***up and including my ex-wife, every girl that I had dated… I found… was cheating on me****. So, it just… was you know… huh… I guess the, the, everything kept getting, every instance just got bigger… and … but ya… …. I don't know… I don't know how to really explain how I felt about that… but* ***it was just one more*** *… uh…* ***one more… cheating person*** [core belief about other] *… and uh… this one [ex-wife cheating] just happened to be … bigger and more substantial.*

Helen

- *I had* ***one relationship with an alcoholic****… who wouldn't admit he was an alcoholic. Um… I had* ***another relationship*** *with a person who's a …* ***turned out later that was married*** *(laughs) and wasn't saying anything about it.*

Larry

- *You know I've held people up when they were faltering… as soon as I'm starting to fall, its like, "Whoa, whoa… get away from me". Yeah…* ***it always seemed like with a lot of my relationships as soon as the bad starts in, they run. So now, I run****.* [withdrawing move; abandoning before one can be abandoned, as in the past]

- *Well…* ***my family. We're not close.*** *Like we're really… not that close. I live with my baby sister and I couldn't tell you the last person she dated. I… I barely know the father of her daughter. (laughs) I'm met him a few times… like* ***we're not a close family****. And my friends well … like the ones that know me, know me and like me. The ones that don't know me, we don't talk.*

In contrast, when asked if he has ever experienced an attachment injury in any other relationship besides his previous marriage, Ian denied this experience.

Ian

- *No… ah… hmmm… my…* ***the relationships I have with other people is often that I help them****.* ***I don't have friends that can cope with this.*** *Ah… they do know parts of the story.*

1.4 Abuse in relationships. Abusive and controlling behaviours were frequently described by participants, some in terms of early experiences and some in the context of adult attachments, including the relationship(s) they were primarily discussing. Patterns of rage, hostility, name calling, and verbal attacks were conveyed by some participants as either things they had felt or recollections of their ex-partners' reactions. The researcher found herself wondering where extreme emotional dysregulation associated with the threat of losing one's significant other and the right to voice hurts about the impact of AI end, and emotional abuse, intimidation, and other domestic violence behaviours begin. Some participants described patterns of abusive behaviour (e.g., by ex-partner) that appeared entrenched, ongoing and evolving, whereas others described abusive behaviour more specifically related to the AI incident(s). It was also evident that strong feelings and harsh words lingered for some, even many years after relationships ended – speaking to the powerful and ongoing impact of these experiences. (10 participants, 72 references)

Francine

- *I actually met and he became my boyfriend very quickly and also broke up with him very quickly cause I was 18, but um… Phil just ahhh… I deleted* ***all the emails*** *like a long time ago, but* ***they were nasty ones****.* ***Calling me a whore****. Saying I led him on. He, he firmly believed that I'd been cheating on him for years. Um… just,* ***just scary sounding stuff… just calling me mean things…*** *[How long it went on for?]* ***… Months.***

Larry

- *Or…* ***she broke the door one day****… I locked it. She literally… put her foot through the door because I locked her out. "How dare I."*

Mark

- ***I saw her as a used-up whore that I would never want to marry or take further with***

***anything**, but I kept her around because it was secure, it was safe…*

Nancy

- *And I've learned from other people that **that was his** [father's] **habit… to do with women who got pregnant with him… was like throw them on the floor and kick them in the back**… … then **when I was young, my mother sent me to live with him**… where **I was living pretty much in isolation and terror for two years**. **I was assaulted** and **I was … really, really insulted…** and I felt really trapped and I wasn't able to communicate with my family. And this was abroad. So, I was like across an ocean by myself.*

Olivia

- *… and the **counsellor actually used the words "emotionally abusive"** and that was pretty much where it just … it all went off the rails again.*

- *My ex-husband was really… a messed up individual and he was… **he stalked me for many years**… and so, I didn't tell anyone where I worked… or the names of people I worked with… and I worked only places where there was security and cameras and stuff… he was really abusive. Yeah, he turned out to be a really sick person. Um… **it came to a crisis point where my life was actually in danger** and I had to leave. Yeah, so **I had to take the kids and leave.***

Brenda

- *… and that kind of really made me realize it and I had seen an article about **gas lighting*** [i.e., to manipulate someone by psychological means into questioning and doubting their own experience] *and what that was… **and that's exactly what he was doing**. Kind of making me like doubt my own … mind…*

Ian

- *Um... my… **I've had appointments cancelled at the cancer clinic by my wife**… **It's just not a betrayal of a relationship**, it's abusive, **it's hugely abusive.***

- ***My father-in-law shot my mother-in-law**… **ah, dead**… jail is one of those places where you can be killed easily… And I thought because my wife was not thinking clearly [viewing wife as experiencing longstanding depression], I thought it would be very important to get him out on bail … and he had to live with us … and it turned out that he lived with us for twenty months… the two people he saw first were my daughter and myself. We couldn't figure out why my mother-in-law had been killed…*

Ian's father-in-law fatally shot his mother-in-law in the context of reportedly being blamed and shamed by her about their grandchild getting injured. When Ian's father-in-law stated he was going upstairs to kill himself due to the distress of being accused of causing the grandson's injury, Ian's mother-in-law allegedly told him to "bring the gun down so that [she] could watch." Ian's father-in-law then walked upstairs, returned with a gun, and killed his partner. He then proceeded to sit in the home for

many hours until police arrived. They were both elderly. Ian portrayed their relationship as a system that wore his father-in-law down emotionally and psychologically over time, while being clear about not condoning his actions. In the following passage, Ian speaks about how he does not want "history to repeat itself"; not remaining in a toxic relationship that could evolve to such tragic events.

Ian

- *Well and I pointed out to her [Ian's mother who was questioning him leaving his marriage] that, "I guess one of the things that could happen is that you know… after you're dead and I've done sixty years with… my wife… I can shoot her perhaps and get ten years for manslaughter after that" … And I don't think that's a really good way of dealing with this because my father-in-law … did say, "Ahh… your mother-in-law, your mother-in-law is evil." He used the words evil … I, I don't want to have history repeat itself.*

Grace

- *… if I said anything to him [ex-husband]* ***… that would make me vulnerable, he would exploit it later****… any kind of stressor I could never go to him… nor could I go to him with any kind of excitement… I did a ten-mile race… and he refused to bring the kids to watch me … because he figured I wasn't gonna finish because I didn't train hard enough… anyways.*

- *… the things that eroded my* ***self-esteem… he would frequently call me a bad mom. He would not support in any way at all.*** *All of our finances were completely separate. In fact, it got to the point where* ***I was paying for almost everything*** *and I hadn't realized that… And the* ***crazy making*** *that would happen when he was confronted about something… he certainly wasn't physically abusive… but the* ***emotional manipulation*** *and the… um… **passive aggressive controlling**… um … it's led me to where I'm terrified to get in a relationship and probably won't for a long time… … it terrifies me because it's just… I don't want to bring anyone into my kids' lives that's gonna be potentially harmful…*

- ***The house never felt like mine****, even through the course of our relationship.* ***I was never allowed to have things out****, if I hung… if I had more than two jackets on the hook, one of them would get put away, but he would have six jackets up there… same with boots and shoes…* ***I couldn't really be at home in my own home.***

In the following passage, Larry struggles to make sense of how he ended up being identified as the one with rage issues in need of anger management programming. He reasons that his ex-partner needed to adopt the role of a victim and he ended up being the scapegoat. He both states that his word "isn't much" and "it might be important," and that he "wants to have his say" and "others should listen" – statements

which could potentially inform his core beliefs about himself (e.g., "I'm unimportant") and others (e.g., "Others can't disrespect me" or the more hard-hitting, "Others don't respect me").

Larry

- *Yeah. What they… what her, her counsellors… and I ended up in anger management. I was like "This is … I'm not… I'm not… in the rage." You know, I can see the humor in everything. I can see the bright side of everything… I do not think that my behaviour… was what's making her rage. She just … needed that to make herself feel better… I just happened to be the victim of it.*

Before he arrives at this spot in the narrative, he discloses that "a lot of times" he still thinks about whether they [ex-partner and her counsellors] could have been right [about his behaviour in the relationship].

Larry

- *I suggested we move back here… and she ran away… and went and moved into a, a women's shelter… You know… um… a lot of times I still think that… ah… they could be right, and I wasn't doing anything wrong, in my mind, wrong… I wanted to have my say… my say isn't much… but when I say it I think people should listen because it might be important.*

Silent treatment, being ignored and ghosting (i.e., ending a personal relationship with someone by suddenly and without explanation withdrawing from all communication) was experienced as emotional abuse by one participant. Justine refers to being ghosted as "torture," when committed by someone you love. Her comments here echo previous findings that emotional injuries or hurts in attachment relationships can be associated with post trauma effects.

Justine

- *… the reason it's pretty painful is that* ***I didn't even get a response back*** [ghosting]*... like he just went... that's what he does,* ***the silent treatment****. And I told him, "That's abusive.* ***That's emotionally abusive****… My dad's been doing that to me my whole life. I don't know if I can take it from another man." He's never said anything abusive to me…* ***the only abusive thing… was the silent treatment****… Yeah, the ignoring me… which kills.* ***It's worse than getting hit… it's a very horrible form of abuse.***

Here, Ian wonders about the prevalence of violence against men by women in couple relationships. He shares that he and his current partner want the researcher to understand "that it can happen both ways."

Larry emphasizes his right to leave given that his ex-partner "just wanted to scream about everything" – an ongoing relationship experience he referred to in parts of his interview as emotional abuse.

Ian

- *… in my guy mind… and go "Who would ever do that?" I can come up with a reason how this happened, but you know it's gotta be more prevalent the other way [violence by women against men in couple relationships] … it's so easy for that to happen and I think, in some way, our society would allow [that] to happen…. I spoke to [current partner] about it and her only point was, "Make sure she [the researcher] understands that it can happen both ways." … "Well of course she's going to" right. Yeah.*

Larry

- *I was entitled to leave. You know… it wasn't, it wasn't gonna be what I thought it was gonna be. She just… she wasn't interested in talking about anything… she just wanted to scream about everything.*

Theme 2: Impact of injury

Theme 2: Impact of injury demonstrates that impacts are multiple rather than singular, and that they unfold over time; with some occurring in the acute phase and others being experienced over subsequent weeks, months, and even years. Certainly, some participants described hurtful experiences continuing post separation. Emotional, cognitive, behavioural, and interpersonal impacts were described by participants, with some being more hard-hitting (e.g., negative changes in terms of mental health and substance use) while others more transformative and evident of human adaptability (e.g., learning experiences).

2.1 Emotional and interpersonal impact. Participants clearly articulated the emotional, psychological, and interpersonal impact of AI experiences, particularly in terms of their ability to trust. Difficulties trusting were described as a long-term process that for some generalized to other relationships. Conversely, trust was not impacted by one relational event but often involved an ongoing cascade of trust breaches and hurts. Nancy identified what changed and stayed the same in her relationship, while Brenda referenced periods of effective relationship functioning interspersed with times of increased difficulty and relationship strain. Francine described decreased trust in others, pulling away,

and electing to keep this observed shift to herself. (10 participants, 79 references regarding impact of AI on self; 15 participants, 155 references regarding emotions)

Nancy

- *Well the thing that was most different is that we would not sleep together.* ***I would sleep in a separate room and I would try not to come home.*** *Because it's his house … and I feel more comfortable there now … but* ***at that time I felt less comfortable there and I would just not feel like it was home****. So, I would try … I would avoid being home … and I would sleep by myself and …* ***what would remain the same was the friendship things*** *… the things I would do for a neighbour or a roommate … would, would still happen.*

Brenda

- *… in between these incidents, we had been very happy … and it was just …* ***surrounding these incidents, we hated each other****, and we didn't want to be around each other and we couldn't sort out why. Now it's a lot easier to talk about things and just say, "Here's how I'm feeling, can we discuss this," or … even can you just say, "No, that's not what's happening, you don't have anything to worry about" …*

Francine

- *I find* ***I'm less trusting****… cause you know if…* ***friends for 15 years*** *[can do something like this]* ***… I tend not to trust others****…* ***I tend to close people out****… I don't socialize as much… I've definitely shrank like my circle… [Did it impact trust with close others you already trusted?] Yes… [Do they know? Have you told them?] They don't know that I don't trust them.*

David described that for one year he was in a "survival mode," a term again suggestive of one going through an adverse or traumatic event. A time "so fraught with change and uncertainty" could also be understood as David moving through a release phase. Mark was frank about the long-term impact of the AI experience.

David

- *Umm … well the first year … was just* ***so fraught with change and uncertainty*** *as to what was going on … um, like I say that first year was just survival mode …*

Mark

- *…* ***I haven't talked to her in years.*** *Blocked her off of everything, so I still have thoughts about her… and I think you know, "How can you do that to somebody."* ***Cause it still does fuck with me on a daily basis…***

Eldon identified the impact of his partner not responding in a few hard-hitting words.

Eldon

- *Uh… uh… uh, ah… uh… at most extent, I think **I feel very lonely now**… hehe*

2.1.1 Anger. A number of participants spoke about the role of anger in the context of AI experiences. They identified anger as an unhealthy, unwanted, and unhelpful emotion and emphasized that it was not part of their identity.

Andrea

- *So, you want to forgive because you want to get back to the love part, right. **I don't want to stay in the anger part**, I mean… **anger's not healthy**. **I don't like it. I've never been an angry person**. I don't like being there. When I got angry, I recovered pretty quickly…*

Ken

- ***I'm not the type of person to be angry**, so my frustrations kind of just linger and like… **I don't ever express anger, or very rarely do**… **I've only really found myself … feeling real anger… like the last couple of weeks** [following separation] and it's difficult because I've never really experienced that before.*

Mark

- ***I try not to lose my cool very … easily**… but when my buddy called me [informing Mark about his ex-partner cheating] I started yelling. I was so fucking angry… And I never get mad or angry at anybody, but I was just filled with so much hate… so much hatred… that I didn't even want to look at her some days … like I was just disgusted.*

2.1.2 Guilt and regret. A few participants expressed feelings of guilt and regret at the time events occurred as well as to date. Interestingly, Ken's ex-partner observed that in addition to feeling guilty he also seemed excited about connecting with someone new; an interpretation that he confirms during the interview.

Ken

- *So, um… I could see that that could really dig into her [ex-partner] and really … hurt her… I just kept pulling back* [withdraw] *from the relationship and I could see that it was really hurting her and ahhh **looking back right now I feel really guilty about it… because she was my best friend. I didn't want to do that to her…** … she had kind of said she didn't think I was just feeling guilty… maybe proud about it [hooking up with a different person] … or excited that I had something new… I think she was a little right. I don't like admitting that… but I had something new and exciting for the first time in a long time.*

Mark

- *Sort of… **it was something that I felt really guilty about and felt like it was something that she should have known**. But um… after we had broken up … she asked me if I had slept with anybody… and that's when I told her… I said, I gave her the name of every girl that I slept with while I was dating her, but I acted as if I slept with them after we had broken up.*

Francine

- *After Steve and I broke up, I actually finally sent him [previous ex-partner] an email and **apologized about how callously I treated him because I… knew how he felt… finally.***

Justine

- *Like the love was still there… **so after the hookup I just felt totally guilty** and I was like, "Oh my god, what have I done? I've just like… like what have I done?" Like you know what I mean and somehow, he knew… **maybe because I was acting guilty**.*

2.2 Mental health and substance use. A number of participants discussed mental health and substance use in their AI stories, typically in terms of the impact on mental health, coping with substance use, and/or AI experiences exacerbating pre-existing mental health and/or substance use concerns. Brenda's narrative allows us to step into the experience of significant psychological distress she felt at the time. Olivia described the re-evoking of post-traumatic stress symptomatology in a new relationship. Others spoke about already struggling with mental health and substance use due to historical trauma and trying to have a relationship within this context. Some participants' empathy and patience for their ex-partners' mental health and/or addiction struggles wore thin over time. The reader may also pick up on the disorganization some participants describe (David: I didn't know which way was up; Francine: things were thrown… I was like a tsunami); comments that sound like they capture release and later reorganization phases. (7 participants, 36 references to mental health; 6 participants, 21 references regarding substance use)

Brenda

- *So, I decided that … um, you know that I was having no more of it … ah, when I found out we got into a huge argument, umm … because of my own mental health issues, **I had ended up, I was threatening to commit suicide** … I, um … locked myself in the bathroom, which my partner then broke down the bathroom door, had called the police, and that was going on …* [release] *um … I called my friend, and then I called my mom, and my mother had said, "You know, it's time to come back to Thunder Bay for a bit …"* [reorganization]

David

- *Oh, **I was a mess**… **I didn't know which way was up*** [release]… *… just **had to kick into autopilot**, you know, going to work… and just doing, doing whatever I could get through, **I dropped 40 pounds in three months**… **that first year was just survival mode**… … I mostly just keep chugging along and doing the best I can with the hand that's been dealt to me and … some **days I feel a little bitter and sometimes I feel a little bit depressed… but by in large I'm … I'm doing alright…*** [reorganization]

Olivia

- *… the nature of every experience is different… the feeling was the same … which I think is why my mental health really deteriorated over the course of this relationship … because like I said, I had a really bad marriage some time ago … and yeah, I was involved with someone that was really abusive … and now this felt like a lot, in the same way. And **I had been dealing really intensively with PTSD for five years after that relationship ended… and I felt … a lot of those symptoms came back … before we** [Olivia and her children] **left.***

Francine

- *Um… so I went out and got rip roaring drunk and had sex with my friend John. I missed work. There was **rampant alcoholism** and like I was **disruptive and angry and bitter**, and **things were thrown and destroyed**. Like it was … I was a tsunami.* [release]

Justine

- *No, a year and something after that happened. And I was not in a good state of mind. **I … just slowly became an alcoholic**… right before I met him, **I had slowly started … becoming like… alcoholic abuser, substance abuser**. And so, yeah… I met him at a really messed up time in my life …* [release and disorganization occurring over a longer time period]

Helen

- *But people with Asperger's are veerrry self-involved. They don't have a sense of um… empathy...*

Larry

- *I thought we had a good foundation… um… I thought we were gonna… we were engaged. I thought we were gonna go places.* [conservation] *And then… **she … went into a bottle of beer**. And I … wanted to move on… you know, go to South America and **she wanted to go to the Beer Store**.* [release]

Ian

- *Now there were some times where that did happen and as we got to the event, I remember one day... it was in the end of the night of course. It was rather important and um… as we got close to the date… the time we were gonna leave… we had to be there for five... and at four o'clock she said, "I'm not… I just don't feel good about this." Again, **depression being the excuse**… … **I always thought that it was … just her depression**. It didn't have anything to do with me… of course it's kind of embarrassing to talk about it now, but … again, not at the time. I don't think it was a self-thing…*

- *… **it could be depression in me… it could be depression in what this is all about**. And of course, I think that… it's easy for her to then look at things that are external to her and blame those… she's Eastern European, she was not born in Canada either… and the particular country… when you Google this up, they are only second to Sierra Leone in blaming other people for the condition that they economically are in… … That tends to be one of their… bylines, in fact even countries in that area they, they tend to be infected by this because immediately they'll say things like…ah… "Well it's not my fault."*

- *… so many people do need a scapegoat [belief about others], so I think that I viewed it that way… that in her depression she needs to find something external to blame and something to work with. So, I was that I suppose… … I did reflect upon all the alternative hypotheses I went through, essentially for my life… and **I realized at that point in time that Occam's razor says that the easiest solution is that my wife is just like that… malevolent** … I think **I should've been more open to the idea that maybe she doesn't… love me and care for me.** I, I think **in some sort of sick way she may actually think that she does care for me. It's just … the sickness that's in her.*** [release of belief of ex-wife as depressed and reorganized to belief about her malevolence]

2.3 Coping. Coping strategies varied across participants. Some gravitated towards more professional supports, while others described intrapersonal ways of coping. Many found strength in their networks, particularly networks of friends and select family members. Some described efforts to repair the relationship. David begins this section by describing how he coped with the shock by trying to "salvage some kind of existence." His narrative conveys that despite his deep hurt, he continued to think of his daughters' and his ex-partner's best interests. He described one novel coping method that others did not, namely researching atypical living arrangements that would allow for effective financial management and co-parenting, and likely connection. It should also be noted that David's brief narrative includes a number of ways of coping. This is reflective of the narratives overall. Coping was an ongoing process such that participants coped each day, in a number of ways, and in various ways over time.

The researcher tends to conceptualize ways of coping in terms of the function the behaviour serves in the short- and long-term. She understands why coping strategies are classified as adaptive/maladaptive, positive/negative, or functional/dysfunctional, but tends to acknowledge an array of strategies as efforts to

regulate one's experience (e.g., relieve distress). As a result, various ways of coping are included. (15 participants, 221 references about coping; 9 participants, 64 references regarding therapy)

David

- *I was kind of grabbing onto… what kind of compromise could… possibly like… you know, we went to counselling. I went to* ***personal counselling****. We went to* ***couple counselling*** *and uh… you know* ***my underlying motivation at the time… she didn't have a permanent job****… she's a teacher and getting a teaching position in Thunder Bay is pretty tough, especially when you're not from here… and she was still working on her Masters and I was just… I had no concept of how we were going to live and raise a couple of kids uh… on one income, trying to be in two households… and* ***I thought, "What, like what can we salvage, and what kind of an existence****…" … and* ***I read all kinds of stuff on the internet****… about people that have… adopted…* ***atypical… living arrangements****.*

Here Eldon speaks about ongoing efforts to reach out to his girlfriend despite the changes he has noticed in the relationship since she moved away for work.

Eldon

- *…* ***still like every week, I send her a message*** *to ask her if she stays fine and uh … if she needs some… uh… some help or … when I can meet her… …* ***I worry a little bit*** *because during weekdays* ***she says she's busy, that's uh… it's understandable****… but usually uh…* ***I make phone calls or send messages during weekends*** *and uh… I know her schedule and uh… I know that she goes to the gym very often… and uh, so um… I don't expect her to like, reply immediately uh… after she receives my message and uh… but uh… she keeps saying that she doesn't have her phone with her… so I'm a little bit concerned if she's lying or … maybe uh… find some other excuses or …*

Here Mark provides additional details about the motions he went through to cope with his ex-partner's betrayal once he moved. He also alludes to the idea of rebound relationships, or "jumping into it" despite acknowledging it was "pretty unhealthy." Interestingly, upon closer review, Mark seems to be describing a dark conservation phase in which he is trapped in the relationship and begins coping in ways that are in contrast to his values. Further, he described finally releasing from this pattern but getting into another relationship that was not serving him and being left with negative self-beliefs, in addition to a negative view of how he thought others viewed him. At the time of interview, he seemed to be in yet another release and reorganization phase, but one focused on taking more time for himself, and seeking more

security, stability, as well as less risk and vulnerability – the latter of which can be limiting, which he acknowledges.

Mark

- *But after that like I just noticed **I started getting gaps in my memory**. Like, it was **consuming all of my thought process**. I wasn't able to connect with others as well. That put a large strain on the relationship. And since **I wasn't able to connect with other people, it felt like I trapped myself in that relationship.** Um… (clears throat) … give it a year or so and then… ah… and it really ate away at me… So, **to justify staying with her, after what she had done, I turned into a bit of a monster myself.** I came up here, my first year in university, and **I started sleeping around too.** Cheating on her. And I actually hated myself for doing that. It hurt worse than what she did to me and ultimately, that relationship… kind of failed. **Got out of that.** About a month later, **I met the next girl that I would date for two years which was pretty unhealthy, but I jumped into it.***

Couples differ in terms of the ways they tried to re-establish trust following experiences of infidelity. Some participants described changes in their behaviour including searching their partners' phones and other investigative actions. While shared accounts, access to passwords, and reviews of social media may be well-intentioned and understandable efforts to move forward, they also seem to have the potential of becoming barriers to trust and sources of resentment in the relationship. Along these lines, Cobb and Davila (2009) noted that in attempts to restore felt security "partners may engage in strategies that are ultimately maladaptive and further threaten the relationship" (p. 221). Participants described getting stuck in patterns of checking, hypervigilance, and insecurity, as well as how it impacted their view of self over time.

Andrea

- ***I began to check his pockets, looking for receipts, looking for, I was trying to find, I thought was he having an affair?** I wasn't certain what was happening. I just know that he was often, gone, but then would come back later at night, or would come back… And I couldn't figure out what it was. So that day I said to him… um, like and **I developed a set of behaviours** that, **that… frankly, terrified me**, like that, you know, **I was checking everything and trying to check his phone**…*

Brenda

- *… **it turned into, every time he turned his back, I wanted to go through his phone** and I, um, I was at, you know **I would call his friends and say like, "What's he doing?"** … it was concerning… and looking back on it, it's… not a healthy… way to be… but **I hundred***

percent changed… how I was acting in our relationship*… especially, as I began to trust him less and less… if he had to stay at work a little longer or … suddenly going out with his friend… there was just all these things that I started like, "Well, is he actually doing that?" … yeah, that really affected us that way…*

Grace

- *… so,* ***he had gone away and I checked his email****…which is a violation of someone's privacy, but … I had found our visa [bill] with a charge of a dating website on it so I felt justified in doing that.*

Mark

- *There would be sketchy things on her phone. Because of course I got…* ***I got like pretty overprotective after that point****… like* ***I didn't even like her texting other guys after she'd had done that to me. So, I like always kept an eye out for that****. I felt terrible that I had to watch someone like a hawk. I'm not somebody's goddamn babysitter. Like, I'm an adult. Like, I should just trust you and that should be what it is at the end of the day because we're not monsters.*

On the contrary, Hugo specifically told his ex-partner that despite her cheating on him he would continue to respect her privacy.

Hugo

- *No, actually …* ***I told her never to… to give me the password of her email account for example, or messenger at that time****. Or she … I told her, "I don't want to look your cell phone.* ***Your cell phone is your privacy****. I don't care." Even, even after she cheated on me, I … I kept that.*

A perhaps subtler intrapersonal way of coping, here Helen reaffirms to herself that she did nothing wrong in the relationship. She also references that her ex-partner adopted a victim role in order to get attention from others.

Helen

- *I think she was enjoying the attention that she was getting from being the victim… quite honestly, if I wanna say it that way. Um…* ***and that's how I … um… justify to make myself that we didn't … that I didn't do anything wrong.***

Nancy described the ways her partner coped after the "initial shock" of his divorce (wall of self-protection) and her experience of not feeling fully at home in his home. She then spoke about her own way of coping and the need for self-protection.

Nancy

- *I think it went from* ***him having a huge um… wall up because of the trauma of his divorce****. Because it happened all the sudden* [shock and release] *because he wasn't listening to her, basically, for twenty-three years* [conservation phase]. *And then* ***he felt abandoned and shocked, he was completely shocked****. And so, like even… still … I'm moved into his house… he doesn't like for me to move things too much… you know.* ***He didn't give me too much space when I moved in****. Um… sometimes I wonder why I even persist because he was so … self-protective.*

- *And* ***I just hold back and um*** [withdraw]… *observe I guess…* ***observe*** *and* ***see what happens*** *and* ***try to make communication more open****…* ***I'll make attempts to talk and explain and express myself*** [approach]…*but I still… I have to protect myself.*

Conversely from tuning in to one's needs, Larry described coping through tuning out or distracting by working long hours. He shared that he is presently working long hours and expressed uncertainty about what difficulties may be bothering him.

Larry

- ***The more upset I am, the more I work****. And I'll tell you* ***I'm working 14 hours a day****, give or take now.* ***So, I'm upset about something I just haven't figured out what it is.*** *(laughs) It'll eventually come to me. You know, I might be ready to move on to a new relationship… don't know.* ***I'm not gonna pay attention to it for right now****… just making money.*

Ian described how instrumental reviewing old journals was in fully coming to the realization that his marriage was no longer serving him, and that difficulties in the relationship spanned over many years, rather than his ex-wife's assertion that the relationship is ending due to a single event (i.e., Ian meeting someone new).

Ian

- ***For a while one of the things I thought would help me deal with her depression was to journalize things.*** *So, I found these journals… and one of them was in 2005. So,* ***I found… things that I had written that I'd forgotten****. And I thought, "Even in 2005 I knew a lot of this stuff. Why didn't I see this in a clearer light?" So, she said that uh … my wife said this has all just happened and she's surprised by that. So,* ***I just photocopied off my… the summer of 2005 where events and things that I'd said to her and things that she had done were very clear.*** *She also wanted to leave… … So anyway, um …* ***that journal helped me understand that this was truly a process*** *and when* ***I gave it to her she didn't want to read it****. When she talks about certain events and I'm trying to say that it is a process that we've gone through, so you can hardly blame any particular event.*

Brenda and Mark described the behavioural changes they noticed themselves doing to manage and cope with engaging in infidelity, again finding themselves repeating patterns.

Brenda

- *I… **started being a lot more**… ah… kind of like… **deceptive**, I **always made sure there was a password on my phone**, and **I had it with me**, and everything like that…*

Mark

- *I just **kept my relationship status hidden on Facebook**. I … **changed all my privacy settings so that like select people could see select pictures**… but like nobody else could view them like from the outside… I was pretty fucking devious with it. Not proud of it. Um… so I had a **web of lies**. **Wrote them all down so I could never forget them, and I memorized them down to a 'T'.***

2.3.1 Therapy. Several participants spoke about the role of individual and couple therapy services, and to a lesser extent group services and alternative therapies, in their coping process. They described gains, insights, and limits of therapy experiences in relation to growth and change at individual and couple levels. (9 participants, 64 references regarding therapy)

Nancy

- *… we tried counselling… we went to **three different counsellors**… the first one had us breaking up, and then the second one was reasonable… and then the third one… was a man… [Nancy describing similarities between her partner and the third counsellor that she believed contributed to their positive therapeutic alliance] … Tom would ask me, "How did I feel?" … all the while Tom is making facial expressions that reflect that he hears me… and then Ned would… **suddenly the light would come on… Why it had to go through a third party that was also male… I, I don't understand. But it worked. And now we seem to be doing really well. So, that's good.***

David

- *I mean, this kind of came to a head, we were in a **counselling** session and you know… it was probably the… fifth session… mid-winter sometime… and I don't even remember how the conversation turned there… but the… counsellor asked her, quite pointedly… she said, "You're still having this relationship with this other guy?" and she said, "Oh yeah" … right from that point… the entire natur-, I mean we continued to go to counselling, but the nature of the counselling shifted from trying to reconcile the marriage to how do we … move forward with co-parenting and you, know… coexisting.*

Olivia

- *… **he even went so far as to get a counsellor**… and suggest that we go to meet with this counsellor… and I did the one time… like the counselling session just seemed to be something*

where he wanted to fix something that was wrong with me, as opposed to fixing the relationship or acknowledging that there was anything on his end…

Larry

- *We… **we ended up in counselling, couples counselling**… and I thought it was going to be where we could share, and I could talk and explain my side… Oh, no, no, no, no. She got to explain her side… and it turns out that she was the victim… and I was the abuser… and **I ended up in anger management**. I was like, "This is … I'm not… I'm not… in the rage" … I do not think that my behaviour … was what's making her rage. She just… she needed that… to make herself feel better… I just happened to be the victim of it.*

Helen and Nancy both identified a preference for professional over informal supports to process difficult relationship experiences.

Helen

- *I'm not one of those [people that talk to their friends about relationship issues]. I, **I read**. You know… **I think.** I **might go and speak with a professional**. Whether it's **either a lawyer or counsellor** or somebody. I'm not a, a … **I'm not a leaner**. (laughs) I don't, I don't find that I … in fact **I actually don't like having to talk about it** … cause I always feel like, "Well the other person's not here to talk about their point of view. I'm just giving you my point of view."*

Nancy

- ***I did talk to a couple good friends. But I just thought that I was a broken record and that they were getting bored**. So, it didn't seem that useful… in fact it was probably not helpful to my other friendships um… the thing that helped most was… **going to the counselling**…*

One participant spoke about benefitting from alternative therapies. Yoga, meditation and other self-practices were identified by a few participants as well (e.g., Nancy, Justine).

Andrea

- *My sister, like I said, my sister does quite a bit of energy me-… she does a lot of **energy work**, I don't know if you've ever heard of it… So there have been times when I'm losing my mind and I tell my sister and she balances me from a distance*. [Andrea also spoke about meeting with a chiropractor who offers **Reiki**.]

2.4 Learning experiences. A number of participants spoke about learning from their mistakes and described AI experiences as character building. Their narratives were characterized by more awareness of red flags, having longer checklists to think about in terms of partner compatibility, and bringing skills and cautions from one relationship to the next – again, speaking to the evolution of attachment experiences.

This may reflect that we enter into our early relationships more openly, and narrow down over time depending on our experiences. Self-reflection, making changes in their lives, adapting, and trying new activities were discussed. The researcher elected to include a variety of learning experiences in this section, as oppose to only positive learning experiences. Her position is that we are immersed in an ongoing learning process throughout our lives and relationships. For example, in the passage below Mark acknowledges the benefits and risks associated with him opening up in a relationship. He refers to his post-AI self as "a lot more logical and cut throat" and pulling himself away for self-protection. He seems to contrast logical and emotional parts of himself; reasoning that by being more logical he is less emotionally vulnerable. Adapting to be "more cut throat" again reminds the researcher of the trauma-like language used to describe AI experiences (e.g., I was gutted. It felt like torture. Emotional wounds. State of shock. It cauterizes so that you're immune to it.). (13 participants, 70 references about learning experiences and reflections)

Mark

- *Definitely a lot more of…* ***a lot of character building came out of it****. Not too happy with the result of it but* ***it's made me a lot more logical and cut throat****… and* ***realized that the things that I do and don't need in my life****. Which I mean, can be a good thing.* ***Don't open yourself up to as much risk… which means you don't have as much reward in the end, but you don't get hurt as much… which is nice.***

Andrea identified making specific changes from one relationship to the next along with coming to new insights about herself in her most recent relationship – a process of changes and self-reflections that spanned years of her life.

Andrea

- ***The next time when I was with someone, I thought, common-law, you keep what you bring into the relationship, I'm not doing that again****. I am… this time I am* ***not putting the house in anybody's name****… … Like number one,* ***I like to make the decisions****.* ***I like to be in control*** *and* ***sometimes you have to figure out how to let that go a little bit****. And that I think is the biggest thing that I'm* ***learning from the partner that I'm kind of with now****… … So, it has totally been a unique experience for me, um, which has led me to* ***a lot of things that I wouldn't have done before like cooking classes, learning how to sail… like lots of different things.***

- *Cause it's easy to talk about everything that's been done to you. But then sometimes it's hard to say, to say, maybe,* ***"How did I contribute to that, a little bit."*** *Like* ***I'm not owning it like a victim****, because I'm not a victim and* ***I certainly didn't deserve the shit that came from that addiction****. But, by the same token I think to myself, I could have pulled out of that [versus being stuck in it] a lot sooner. You could have done this, you could have… so* ***there's lessons from that for me, if I listen to them.***

David described trying to avoid excessive suffering immediately after the AI and "setting the bar really high" over time in terms of future relationships – which has remained the case for several years since his divorce.

David

- *And so, I, I, I, that was the one bit of … I don't know…* ***sanity, that I grabbed onto right off the, right off the bat****, you know. The recognition that whatever I did…* ***"Don't, don't do anything to make your own situation worse"*** *right… … … I guess, the other thing is that* ***I've… set the bar really high*** *… and I figure if I'm going to get invested in a relationship again… I better learn from my mistakes (laughs) and find the right one* [relationship belief].

Olivia shared insights about the survival skills she developed in an abusive relationship and their impact on other relationships (impact on trust and isolation). She noted the hard work that has gone into shifting from a space of isolation and disconnection, to increased connection and trust in relationships (e.g., with family and friends). She also indicated that this process was still underway, namely that while connection with friends and family had been reclaimed and strengthened, she was not ready to approach another dating relationship at the time of interview.

Olivia

- *…* ***a lot of things that I learned in my relationship with my husband that were good survival skills for that time and place… but they were really damaging to my relationships with people besides him*** *… like the not sharing where I worked for example, you know… and just like all kinds of things that you don't share because it's not safe with someone like that.* ***I didn't share anything with my friends or family*** *and… that left me really isolated. So, although not sharing was a good thing in the context of that relationship.* ***It wasn't in all the relationships I have with other people… and learning to be able to share and trust… and experience the safety that actually existed in those relationships… that was a really hard thing*** *… and yeah, not telling people where I work… so that my ex-husband doesn't find out. That's something I still do … it's a survival thing, but it hurts people… like Jim [ex-partner] in that context. It was a really big deal … that really hurt him.*

Brenda provided examples of couple system changes. Namely, more authentic and open communication with her partner about emotional difficulties following their AI experiences. Further, she spoke about an ongoing process of both of them needing to actively foster this atmosphere of communication and authenticity in their relationship.

Brenda

- *It's, it's something that um… it's made me want…you know* ***… instead of say-… doing that whole, you know, "What's wrong?" "Nothing," it's like, "This is how I feel, even if you think it's stupid, or silly, or ridiculous. I'm gonna tell you… because then you have an opportunity to discuss it with me and… diffuse it,"*** *rather than just sit there and hold onto it and hopefully they'll read my mind one day and we'll get it all sorted out, but uh… yeah, that …* ***that was a big shift****…*

Grace's words convey some of the meaning that she has made out of her experience. The belief "you reap what you sow" seems to convey self-blame and may also be informed by the participant's faith or religious beliefs (i.e., Fate exists in life). While Grace had been separated for a number of years, it was evident that this self-blame belief maintained its resiliency and believability.

Grace

- ***I guess you reap what you sow****. I had started seeing him… while he was in another relationship with a woman, so…* ***I kind of see my situation right now as fate****,* ***for that decision…***

Not all participants had fully made meaning out of their relationship experiences. Larry reported re-examining his role in having two "bad relationships" but concluded that he is "missing something… there's a block there." Conversely, Justine articulated specific connections she has made about herself in the context of her relationships and history, through a variety of ways (e.g., reflection, reading articles, elsewhere references therapy and group programming). It is clear that meaning making following AI and relationship experiences is not a one-time event, rather these are experiences that we revisit and continue to make sense of – at times, over months and years.

Larry

- ***Learning experience um… hopefully can help me grow****. I think I need to get the chip off my shoulder though first uh… (laughs)* ***Two, really bad relationships that I thought were gonna***

> ***go someplace****… and so it makes me …* ***it just makes me question my ability to judge another person****… And* ***it also makes me start to think… "****What I am doing wrong?"* ***There has to be something I'm doing wrong… to end up… looking down the barrel of the same gun twice****, you know. The, the…* ***they can't be all at fau****lt… so I… I do examine them… I examine the good times, the bad times… and try to figure out what I did wrong. And* ***I'm missing something, you know. (laughs) There's a block there and I can't see it.***

Justine

- ***Cause when I lost my true love … I… was forced to look at myself*** *and say like, "Where did I go wrong? What did I do wrong?" and I started to see… all the mistakes I made and it was* ***a really hard process but ultimately it helped me grow as a person****, because* ***I started questioning like, "Why does my partner not want to get close to me?"*** *And it's like, "Oh, because I do behaviours and actions that push them away!" And then its like, "Why do I do those behaviours and actions that push them away? Oh, because I have" … you start …* ***you just start digging and the answers start coming****. And* ***you start realizing, "Ok, I have… I have a deep fear of abandonment"*** *and* ***you start reading articles online****… and then everything starts making sense and then you… you're like, "Ok, well* ***if I want to have a good relationship I have to work on my issues****." … … If you believe in that or … or… maybe not even in that spiritual terms… but* ***it has like helped heal me and clean me out and helped me see things****… so now, when I meet someone else … I will know how to properly cherish and care for the relationship because of what I went through with him. Because it's like I've already gone through the extreme anguish of losing someone I loved… because of my own insecurities and my own … you know, self-sabotaging behaviours and* ***it's like he taught me… so much about myself… like indirectly****… he wasn't… consciously trying to teach me.*

Theme 3: Impact on and role of beliefs

Core self and other beliefs are key concepts in the attachment and psychology literatures, and were certainly weaved throughout participant narratives. *Theme 3: Impact on and role of beliefs* is composed of three subthemes: self-beliefs, relationship beliefs, and participant beliefs about men and women, or what the researcher has labeled gendered beliefs. While these subthemes were identified and selected for inclusion below, it should be noted that beliefs about various people and issues dominated narratives (e.g., beliefs regarding the future; family; infidelity itself; emotions) and could be the sole focus of future qualitative analyses using this data. Belief systems themselves are not separated in cognitive silos, but rather are evolving, interconnected, and multifaceted. They exist in complex networks of feedback loops and are not fully captured by the fragments of participants' narratives presented below.

3.1 Self. Participants were easily able to identify how their view of self was impacted by interpersonal injuries, both historical and recent. They referenced core beliefs and spoke about how messages from close others were internalized. Of course, changes or reinforcement of participant self-beliefs cannot be attributed to only AI experiences as they cannot be isolated from each participant's rich history and evolving life context. (15 participants, 215 references regarding view of or beliefs about self).

Nancy

- *I've had like numerous friends that I was good friends with that I couldn't see that I could have developed a … and they were nice boys who liked me that I just… I couldn't see it… I thought,* ***"If you liked me… in that way, something was messed up with you."*** *And I… and* ***I just stayed away from people*** *like… I … just how I concluded… I mean,* ***like my father used to tell me I was ugly like, so…*** (laughs)

Francine

- *And it brought up a lot of that … hurt and* ***"Why aren't I good enough?"*** *and ugh…*

Andrea

- *… and then* ***I… you say to yourself, "The choices that you make in men."*** *But they're …* ***they're good men that are kind… they just brought with them… such damage.*** *And you know, you're finding yourself, like totally unprepared for that right. And what do I do with that. And how do I go about that. And what happens with that now, right. It's ah… it's… it's totally interesting eh.*

Brenda

- *… I had been in a relationship for about a year, when I was in high school and* ***I was a very secure person… um the anxiety hadn't really developed into what it is today, so I was just … content****… … I… um, didn't have a lot, I've never had the best self-esteem, in my life, and then to find out that someone I care so deeply about…****from my perspective, kind of saw me as disposable, or um replaceable****, so easily, was really… difficult…and* ***that kind of rocked the way I was viewing myself in that moment****…*

Mark offered that he became his ex-partner in order to cope with the pain of her infidelity, but spoke about the distress and suffering this way of coping resulted in. He reflected that he "hated himself" and "felt sick" about who he had become – referring to himself as "a monster" at one point in the interview. From a complexity perspective, coping this way during this period of reorganization could be viewed as Mark tipping into an alternative basin of attraction as a result of state variables, other agents, and his own emotions, but ultimately inconsistent with his values and deeper views of self.

Mark

- *Like I said … that was like the number one thing that really hurt me is when she did that … **the only thing I like hated worse than this is when I did it to her** … **because it changed who I was as a person…** … **and that's how I justified staying with her… is becoming her**. And I hated it yeah… no… like, I couldn't believe that I myself stooped down to that level of low. And **I hated myself for that**. It was one thing to hate her for what she did to me… but it was a whole other thing that I was putting myself through this… **becoming somebody that I didn't want to be… just to get even… and that made me sick.***

Grace reflects on her past relationship and in this passage concludes that "it got as bad as it did, because of who I am." Throughout the interview Grace tended to engage in self-blame, which the primary researcher reacted to and empathized with. She felt the need to validate Grace's suffering more so than that of other participants, as she appeared to be doing the best she could, with the best intentions (especially for her children), while navigating an ongoing, difficult relationship.

Grace

- *Um… I think… and this is the part I have to work on for me. **I think it got as bad as it did…because of who I am.** And I'm not saying that to blame myself … what I mean is, um…I let a lot of stuff go… and I didn't address a lot of things, that I think if I had put the brakes on early on, our relationship might have been different, um … because I just kept coming back and there was no real consequence to his behaviour … to our relationship.*

Karin

- *It also sounds like you've been trying to do the best you can and the way he [ex-partner] has framed it [Grace's reasons for moving out] to them [their children] has made it a lot worse… you've endured a lot in the relationship and you're entitled to not be in it.*

Grace

- *Yup. That's exactly it in a nut shell.*

3.2 Relationships. Participants described longstanding beliefs about relationships and changes in beliefs following significant experiences including AI. Similar to beliefs about themselves, relationship beliefs cannot be decontextualized from participants' complex lives and histories and attributed only to AI experiences. At the same time, some participants perceived and attributed changes in their view of relationships as directly connected to AI incidents. Beliefs about commitment, monogamy, consent, and infidelity were referenced. (14 participants, 133 references about view of or beliefs about relationships)

Nancy

- ***I thought… violence happened in every family and that the people who said it didn't were lying****… … I was kind of already in the space where I didn't count that much anyway. And* ***that my desire to be monogamous in a relationship was antiquated****… out of step with peers…* ***I felt that I should be expected to be more cool, and … open to people doing whatever they want. But I don't function like****… I'm not like that so, I just… I… yeah,* ***I can't accept it****… that… um, but I gotta say that around the same time I met someone else who said, "Well I have these other women" … well he was completely upfront about it. So, I just went, "Well, then I have a choice don't I"… and if they… if he's upfront with them, then they have a choice. So, that should be… that's, that's different… … you know,* ***I honour and friendship more than the romantic bit, like I think that the friendship is the most important part of a relationship and I've always been that way since I was young.*** *So, ah… you can't just like be lying to people… if they're your friends, like... (laughs)*

Helen spoke about her beliefs related to "making a commitment" and needing to "stick with it."

Helen

- *… if the two people can't come… to… really deep um, understanding of each other…like actually seeing … the other … in themselves… even though they're different… I used to always say, even with my other relationships, if you don't have respect…* ***if you don't respect me or I don't respect you, you, the entity that's you, not the you that you're presenting, or at your job or wherever … this isn't going to work.*** *You either…* ***you have to trust me, or I have to trust you … and respect is part of trust.*** *If that's not there then… stop struggling.*

- *… this isn't really … uh, satisfying, you know … to either one of us um … but the thing is that at the beginning we'd made a commitment … cause she was from a broken home … I wasn't, but I thought,* ***"Things work themselves out over time and so we just need to sort of stick with it" …*** *Um, and it could have worked… except that she was… still… I think she was … ten years younger than I am and I think she was still hoping* ***for that… romantic … ah, you know… uh… loving high****… Um. (laughs)* ***Life isn't always about that.*** *And I had come to terms with that, but… uh, I don't think she had, yet.*

Justine

- *And then so…* ***a lot of the times your first love … will be soo much like your dad****… because that's what you associate love with … and that's nature's corky, ironic way of helping you heal your issues. Your ancestral issues, cause you've inherited it … not only directly, but in your DNA, and your brain and neurology and all that, like* ***it's nature's way of like giving you a chance to like heal… the dysfunctional ways of not only your parents, but their parents… cause they have inherited that… so imagine what you're inheriting down the ancestral line.*** *And, and … the,* ***the game changers in this world are the people who are like, "I'm gonna end the intergenerational patterns."*** *Cause we inherit relationship styles. Do you want to have the exact same relationship your mom and dad did? I don't. Most people don't.*

David

- *And I suppose, likewise, I lavished the other person … with lots of attention and one thing and another… but, but that can only last for so long, and then real life catches up, right…* ***I guess once the honeymoon is over then… then the real you doesn't shine through.*** *(laughing) I don't know if act is the right word, because you're not consciously acting, but in a way, you're kind of like, unconsciously acting, you're, you're,* ***you're putting on a face or showing a side of yourself… that… while may be valid … is hard to maintain all the time****… eventually you just kind of sigh and kind of say, "Ok, well here is the…" and you know, some, some … people can weather that… phase of life… and other people can't… and… eventually… you just wanna … ugh … I mean … you can, you can compare to the ah… I don't know, the Married with Children model… with… you know… the jaded … father… sitting in his underwear (laughs)… watching the ball game…*

Hugo described the confusion he felt about what occurred (ex-partner cheating) given his view of his partner. With context about his upbringing, Nancy spoke about her partner's ex-wife leaving him. Both narratives reflect how we can get stuck in patterns of beliefs or views of others and the world, only to be confused and blindsided at later times. The just-world belief (Lerner, 1980) is also present in a few participant narratives: The belief holds that good things happen to good people, that bad things happen to bad people, and that the world *should* be a fair and just place. This belief emanates from the desire to find an orderly, cause-effect association between an individual's behaviour and the consequences of that behaviour.

Hugo

- *I mean…* ***she looks like a really nice girl. Really smart. Yeah, I didn't think that… I will have any problems with her*** [just-world belief] *... so… I was confused because…* ***why, why she was doing that if I didn't do anything to her… or I didn't give her any reason to do something like that.***

Nancy

- *…* ***he was just completely blindsided… he thought everything was fine because he was doing, what growing up, he was brought up to do****. He was a good Catholic boy. He was very good and he does what needs to be done … he was very angry about the loss of what he thought was going to be his family… you know, the structure.* ***He thought his family would remain intact… … he's just so bitter about the loss of that parenting and he was just stuck in that bitterness****… I think he's grieving it a little bit now…* [release and reorganization]

Francine shared the unlikelihood of spending the rest of her life with one person and discussed the evolution of her relationship beliefs from when she was young to date.

Francine

- ***Nothing's ever certain. Never.*** *[Do you think that's a belief you've always had or that has developed along the way?] I think* ***it's something that's developed along the way****… … I'm a child of the 80s who fully believed in Disney princesses and "The one" and "I'm gonna get married and it's gonna be a fairy tale" and… fuck that noise um…* ***I have a hard time visualizing a soul mate****… and one person that I will spend… my forever with.* ***And I mean it's plausible. I'm not saying it might never happen but … ah… uh, that, that's a lot of work. That's work… to maintain that kind of relationship for that long.*** *That takes two people dedicated to … to communicating… and* ***even just communicating their possible attraction to other people****. Like, cause it's going to happen, it's normal …* ***I don't think human beings are monogamous at heart****…* ***I don't think any of us are****.*

Grace

- *Um… naïve, ha ha… I think that um****… I had had a long-term relationship of about five years*** *with someone and it was … as* ***I look back now, a very healthy, functional relationship.*** *We discussed things… we uh made decisions together, we consulted each other… um… it was a really good relationship. The only reason it ended was just there was no… by the end of it we were better friends than we were romantic partners… so it was very amicable break-up…. …* ***so, I went into this relationship… kind of assuming that the world is a good place and there aren't … bad people in it, um especially people that you're intimately involved with*** … [just-world belief; Lerner, 1980]

- *You know, cause* ***I don't want to be divorced.*** *I don't want to be … single and looking for a rela- … like* ***it's the last thing I want to do with my life****. Um… same thing with my kids****… the last thing I wanted for them was to have two parents who can't live together.***

Here Ian described a shift in his beliefs about love in couple relationships being unconditional, and expressed certainty that his current partner feels similarly.

Ian

- *I don't think that either one of us [Ian and his partner] believes that we, that we love each other unconditionally. Not like parents will for their child. That child does not have to earn the love of a parent… so that is unconditional.* ***I don't think… that it's unconditional for [current partner] and I think she believes very clearly that she's not unconditional for me… which is new for me because I think I did believe that a spouse's love was also unconditional. But now I am of the … of the mind that it can't be.*** *I think that I've deluded myself for a long time. Um… and really if my eyes were open I would have left this woman a long time ago.*

Mark shared personal beliefs about infidelity in relationships, and further what others will think of you if you stay – suggesting staying post infidelity is perceived by others as a weakness.

Mark

- *In my opinion it's the worst thing you can do to somebody is cheat on them… And* ***it makes you look like a weaker person too and everyone knows*** *… and you know that everyone knows. And* ***everybody knows that*** *you're a nice guy and that like you didn't deserve it … but like* ***you don't have it in you to leave her*** *… like* ***you don't have the strength****.*

Francine discussed her beliefs about infidelity in relationships, as well as normalizing fantasy and role play in couple relationships.

Francine

- ***I have never cheated on anybody. It's a betrayal. I will break up with you. If I'm… if I'm at an impasse like*** *… attraction to other human beings is normal, healthy, especially if acknowledged and if you have a strong relationship, discussed. Bringing your fantasy and role-play into the bedroom in a healthy relationship is fine. Um… ah… but like…* ***if you're unable to get past that or, or towards that… and it's affecting your attraction and processing of the other partner, then it's time to end it because … you're probably going to be unfaithful or you're going to be unfaithful in your heart****… like what's the point. What's the point? I don't want to betray their trust… ah… this isn't something that happens quickly like it… it's not a snap decision.*

In her book, *Mating in Captivity*, Esther Perel (2009) questions the belief held by some that: Partners who have engaged in infidelity must disclose these experiences to their not-knowing partners for the sake of informed consent and for the relationship to have any hope of survival. Perel (2009) asks the reader to reflect on who the disclosure benefits. The partner at fault whose guilt may lessen following the disclosure or the partner learning of this who may be completely shocked and forced into a period of disorganization. Justine expressed her beliefs about the need to disclose the injury she engaged in. While acknowledging the suffering this may have caused her ex-partner, she reasons that anything less than complete openness would be disrespectful.

Justine

- *And* ***I had to be totally honest with him out of respect*** *cause I'm like, "I love this person so much that I don't want to… I want the best for them" and it's not like you force someone to love you anyways. So, I … I just let it all out… and I told him…* ***"I'm about to tell you something you're not gonna really like to hear. But, I'm gonna tell you anyways cause you deserve to know."*** *So, I was just like totally honest…*

3.3 Gendered beliefs. Various participants shed light on their beliefs about men and women in relation to parenting, evolution, intimacy needs in couple relationships, sexuality, domestic violence, and in relation to cultural and familial beliefs. Nancy, on the contrary, referenced feminist beliefs throughout the interview including acknowledging present-day systemic patriarchy and its impact on individuals and society. This subtheme is significant because it provides some information about participants' belief systems beyond views of specific relationships (10 participants, 37 references about beliefs related to gender)

Olivia

- *So… it's a really undesirable place of being a single parent at my age, with like my children at the age they're at … especially, since they are boys. So, ugh, in that way it's really frustrating. Like this is not the way I envisioned parenting. It's a two-person job for sure.* ***And there's lots I can't teach them or model without a man, because I'm a woman****. Yeah,* ***I can tell them and kind of show them with people that we know what a man is supposed to be like and … but ultimately, yeah I can't model that for them…*** *… the demographics on kids raised in single parent households… they don't tend to do as well. So, I feel a lot of guilt … about that.*

Ken

- *… like* ***the older women that were working there, they were always angry, they were yelling, and I didn't like that. I don't know why… they're not the type of people that I want to be around or associate with****. I just… again* ***it's just these really opinionated women*** *that I'm just… I don't want to be associated with, like, like I ah um… like* ***I like when, when people have opinions and can state them clearly and, and um in a nice way****… but when your… first instinct is to get angry at people, that really bothers me.*

Nancy

- *[What gender do you identify with?] I prefer not to say because of sexism in society but I generally would say I'm female… … I don't wear makeup or play… I don't play into the commercialized, objectification of women, but she does [a woman who Nancy's partner used to see].*

Brenda

- *… you can kind of track it, on your way back and in our histories… um… even on a very biological plane… it's just, you know… obviously if we are in a monogamous relationship… though the children that come from this relationship therefore must be mine and I'm happy with that, especially like…* ***even when you look at the animal kingdom, you know, obviously the males want to create as many babies as they can*** *because it… passes down their genes, and then…* ***we kind of made a social construct from that****… it was, "Well this is just the way that it is! That the way that it's supposed to be,"* ***but as society… evolves, it becomes a***

question of if that was even… or not was, but if it is still necessary now*… with the way that, things are…*

Eldon

- *By the way,* ***I'm not a girl so I'm don't one-hundred percent um… care about that*** *[emotional closeness, mattering, a sense of attachment security in a relationship].*

Justine

- *… and I didn't want to feel stupid in case I stayed and then he left me… and then I would feel stupid that I gave up my summer dream for him, for a guy. Cause I was just like,* ***"He's just gonna leave. That's what all guys do." Cause that's what I learned from my dad****… … then when I met him* ***I started hearing my stepmom's voice in my head, "If you're not a virgin on your wedding day. Nobody will ever love you. You'll never get married" like, "You're like… like if…" And then I… hearing like my grandma like, "If you're not a virgin, you're a whore"*** *and me thinking like, "Oh, he'll never love me because he'll find out about all this" and so like …* ***I was brainwashed to think that if you have sex you're a piece of shit whore*** *and… excuse my language.*

- *But if you believe like all men are shitty fathers and all the women have to do all the work, cause that's kind of how the Turkish people are. It's like, the men just go to work, and then the women just stay home and cook and clean and be a sex slave. Like, they're … not supposed to turn down sex like if their husband wants sex, you gotta… you have to give it to them. Right then and there. Which is just of kind of like rape, you know.*

- *You know… like insecure, weak guys like fear sexually empowered women… because it like threatens them.*

Lastly, here Nancy speaks about her partner's views (and what he perceives as truths) about women and how society defines beauty.

Nancy

- *"Well I could play that game Ned, but I don't want to manipulate men, so… I'm not doing that. So… why do I get treated less?" "Well we can't help it. It's just natural for us." "Then what are you doing with me?" "Well, you know if I could afford a Ferrari I'd have one but since I can't I'll make due… with a Volkswagen." "I'm like what!" … … like "****No, its what society dictates beauty is and I… and they dictate it because that's what's real and I believe it*** *and, you know, of course there's plenty more beautiful women than you and…"*

Theme 4: Attachment processes

Attachment concepts could not be unheard throughout the analysis. Intense emotional reactions (primal panic), pursue-withdraw cycles, and couple relationships having an isolating impact on the participants' network and functioning, make up the three subthemes of *Theme 4: Attachment processes*.

The researcher acknowledges that this is likely the tip of the iceberg when it comes to uncovering attachment themes, patterns, and dynamics in these narratives. A future reanalysis of interview data, focused specifically on attachment, would be beneficial. This would allow for more realized attachment subthemes, which was not the aim of this research. (15 participants, 216 references)

4.1 Primal panic. Johnson (2008) asserted that humans experience primal panic when the relationship with their primary love interest is threatened. When this person is unavailable or unresponsive this wired-in fear response can hit like a tsunami of emotions - sadness, anger, hurt and above all, fear. She described three possible ways of coping with the isolation and impending loss – seeking and accepting connection (security), angry demands and trying to push the partner to respond (attachment anxiety), or withdrawn and shut down effects to self-protect (attachment avoidance) (Johnson, 2008).

Justine

- *I already suffered from low self-esteem at the time because I was um… codependent and fully not conscious of my … deep, deep issues. And* ***so… whenever it would happen I would go into like anxiety attacks, like a panic, like thinking like, "Oh my god what did I do wrong? Is there another girl?" Just total panic mode, like anx… full blown anxiety attacks um… which turned into needy clingy behaviour****… you can't force someone to like you… you know, you like love someone so much and you want them to love you, so you try to like hang on too tightly and it doesn't work…*

Andrea

- *I watch my friends and sister sometimes, they just get so angry and they're waiting for an apology. Why would you do that to yourself? … …* ***But we get into that zone, where it*** *[an apology following a let-down]* ***has to happen or I'm not moving forward. And it becomes, like a… that threat, it becomes so strange, right.***

Brenda

- *"K, well if this is the way it's gonna be,* ***I'm gonna pack my stuff and I'm gonna go****" and I started to pack up and that's why you know … we sat down and* ***there was a little bit more emotion, there was a couple, a couple of tears and the final time, it was full on*** *… this was the first time I'd ever seen him … he had,* ***he had an anxiety attack about "What was he gonna do out there without me"*** *and … he would … the whole …* ***the red in the face, couldn't breathe, couldn't talk, big, big tears and puffy eyes*** *and* ***I just kind of stared at him****, because that was always my role … I just kind of looked at him like, "I don't know … how … to handle this from you …"*

Francine

- ***"I love you. Please take me back… I'll move. I'll, I'll transfer to the university."*** *… They'd [her ex-partner's emails]* ***vary between hostility, pleading, begging****… He was very clearly in denial. I think I was his first serious anything and it's hard for him um… he,* ***he connects very hard****.*

Ken

- ***I was obsessed*** *and that's how I was with my other long relationship too.* ***I tend to get that way with people*** *I just um…* ***I latch on*** *and um…* ***I latch on very strongly*** *I think. And um, I think part of that's just me not being comfortable with myself and I've kind of realized that I put all my… self-worth and happiness into being with someone so um… that's what I'm working on right now (laugh) but in the relationship I was completely obsessed…* ***for the last couple years the only times I've been happy was when I was like with her physically****, like I was … either hanging out, or um… it was just me and her, or me and her and some friends, I just never… I… for whatever reason,* ***if I was hanging out with my own friends and I … I was just thinking about her and what she's doing****. And I … I obsessed over her and I… for me that's a huge problem … but something happened where* ***I became really dependant on, on being with someone for my own self-worth*** *and I don't like that. I really don't like that about myself. I, I …* ***I need to change that because I can't live like that****, that's not … I don't know…*

4.2 Pursue-withdraw dynamics. Participants described numerous examples of pursue-withdraw patterns in their relationships that were engaged in over time. They referenced withdrawing for self-protection, switching from pursuing to withdrawing within relationships, and spoke about the impact of infidelity on these interpersonal dynamics. The researcher acknowledges that the segments of narrative do not capture the rich and evolving dynamics of the pursue-withdraw pattern. Tracing these interactions and identifying feedback loops at differing interacting levels, within interview narratives, could be the entire focus of a data reanalysis.

Nancy

- *One of the things that it's… it's not an incident, but it was an ongoing issue with us… is that after his divorce he just got busy. He just did many, many, many, many things and he was at his parents like three or four times per week for dinner and he's… not there for the relationship.* ***But we have a relationship. He's just not available. There's no time. He's too busy. And ah… um… I would pursue. "Come on we need to spend time together." And after a while I just felt like I was begging, and I started to feel really humiliated that I was begging for attention. And I just decided I just wasn't going to do that anymore.***

Helen

- ***She was often anxious. She'd never not been in a relationship, so even the thought of trying to be alone without help … or without somebody in her life*** *… And so, we'd always have the conversation again. "I made a commitment. I'm in this for life" …* ***cause I knew for her – at least at the beginning of the relationship – it was always about, "People leave me"*** *… but I'd always come to the point where … "We have to get over whatever this is … I made a commitment to this relationship and I'm not leaving. Sorry."*

- *You know,* ***she just kept getting more and more condescending****, more and more, um,* ***sarcastic****, you know, I'd think,* ***"What's all this? Where's some of this coming from? What have I done? Talk to me. Tell me."***

Hugo

- *But then I was like … "Yeah, people make mistakes and it's fine." So, I trust her again but um ah …* ***we had a few times when we … we took that uh … conversation again, but she always started to cry so I didn't … I never got like … an end point for, for that … aspect of the life… like closure****… because she always she, she … she was like blackmailing me by crying…* ***she was really ashamed and she didn't want to talk about that****… I forgive her so we don't have to keep talking about it… if it was affecting her so much… so ya, it's fine. It wasn't fine for me, but it was fine for her if I stopped talking about it… so, so that's what I felt.*

Ken

- *…* ***for the last, probably about two years of that relationship****… um… I'm not sure if I consciously knew this or thought about it, but* ***I really didn't want to be in that relationship*** *anymore… and so um* ***I very, very slowly kept pulling away*** *to the point where I actually, I think,* ***she*** *[previous ex-partner]* ***had started*** *pres…* ***pressuring for engagement*** *and that kind of thing. And* ***then I had gotten to the point where I think I blurted out something along the lines of, "I don't know if I want to get married."***

- *…* ***the more distant she*** *[most recent ex-partner]* ***got the more I would kind of reach towards her****...* ***I think I'd be a little more communicative, like I would ask, "Are you ok? Like what's going on?"*** *like and ah…* ***that's kind of how it ended*** *(laughs) that relationship, which kind of* ***she started crying****, (laughs)… I can definitely understand the whole …* ***as someone kind of reaches more towards you and you're already pulling back, you start pulling back more, and yeah…***

Mark

- *About a month later, I met* ***the next girl that I would date for two years****. Which was* ***pretty unhealthy, but I jumped into it****… because* ***I just wanted to feel loved and that connection with somebody****, right… so* ***I latched onto that****… that was* ***very toxic and poisonous*** *for that reason…*

Olivia

- *I have children and I moved in with my boyfriend… and I thought that um… intimacy and emotional support would increase once we were in a more intimate situation, living together … but it was the opposite that happened.* ***He found the change really stressful and***

he… really shut everybody out*… which I found really distressing and confusing … and* ***the more I pressured him to engage … the less I got****… he would come home from work and then he would go outside… and then he would come inside and … very overtly not speak to anyone… then he would disappear into the basement for the evening… he really minimized it though… he made me feel like… I was making it up. But he did say that it was different because of the stress of suddenly living together…* ***I was a lot more assertive in going after… what I thought I wanted from him… which didn't get good results. I really chased him down for a while trying to get that back… … I never really experienced that silent treatment before, or that complete blocking out. Like I've never had anyone ignore me like that before in my life… it was really upsetting.***

Andrea

- *… he [ex-partner] …* ***did everything he could to push you away****…* ***and then when you left he was devastated by it…*** *"How could you leave me? Like how could you do that?" Right.*

Grace

- *… from [over several months]* ***he was on a personal mission to win me back*** *and would not acknowledge anything that he did wrong um, and it was… like… it was* ***unbelievable the lengths he went through to try to prove that he wanted me back*** *and it was … interestingly enough,* ***not a single one of them had any effect on me****, like it didn't evoke anything in me, it just made me more angry and more um … distant… like more like,* ***"Get away from me, I can't be near you."***

Larry

- *At the start of the relationship I definitely felt I could trust her. Ah… I could rely on her like that. She was there.* ***It was later on as we got deeper into the relationship she just kind of started fading away… no matter what I did… she just pulled away****, so…*

- *So, then* ***I just withdrew from her*** *like… even if, even if you're in the house together* ***I could spend days never even looking at her****… … Um… it would… she would occasionally wake up, she would snuggle up… and then after a while it was like, "Don't touch me. Don't even sleep in my bed" like, "I'll make excuses up… so you can't come anywhere near me."* ***And then I just start following suit****… …* ***I actually came to hate her****… by the* ***last six months we were in the relationship. I think she was trying to get into the relationship*** *finally…* ***and I was gone****… I didn't care one way or the other… I'd get up in the morning and she'd be beside me and I'd be like, "Ugh."*

Justine

- ***I… pushed away the person I wanted to be close to****… not because I intentionally wanted to but because I… didn't know how to handle the intense emotions and also with my… at the time, subconscious fears of abandonment… Well I was kind of conscious of it actually cause I was like… "Oh, if I get too close he's gonna hurt me."* ***So, at first it was like, "Keep him at a distance," which kept his interest… but then as soon as I started to open up and then … then it triggered his fears*** *I guess… …* ***it would like switch back and forth between like angry um… guilt, me feeling guilt****y like, "Oh, how could I… do that to him…" like you know. So, I would like kind of… try to explain stuff to him here and there… but he didn't*

really … understand I guess… or wanna hear it. And … he was just so hurt… over it.

Mark

- *And like anytime* ***I tried to voice my concerns and talk about it she would instantly shut it… she would shut it down.*** *It's like…* ***so, it made me feel like she was hiding something more****, like I was never getting the full truth. And that… you know, consumed all your thoughts again… like that's all you could think of. "What… what is it there that I don't know? Like if this is the shit that like you told me so far. And if it's taken so long for all this stuff to come out…"*

Andrea

- *… I slept with [friend she had a connection with, later became partners]. And that was it… so… it was um, but nonetheless you think to yourself, "Okay, I hurt him [partner at the time].* ***I know I hurt him somehow. Maybe he has that sense that I pulled away."***

- ***I withdraw. When I feel… when something like that happens, I feel not safe… I withdraw.*** *It doesn't mean I don't love the person… it just means I'm not so sure I want to water that flower… …* ***observe and see what happens and try to make communication come open****…* ***I'll make attempts to talk and explain*** *and express myself …* ***but I still****… I* ***have to protect myself.***

In this passage, Larry describes the close emotional relationship he had with his friend's partner, along with the changes he noticed once they started dating. He is also reporting a shift from felt security in the friendship to getting stuck in a pattern of attacks and destructiveness, leading to eventual relationship dissolution. This may also be an example of an emotional attachment injury (potentially experienced by Larry's friend), where two people who are not in couple relationship continue to turn to each other (versus their respective partners) for emotional support and connection.

Larry

- *… because she was dating a friend of mine,* ***we weren't in a relationship, but we had a really … anytime something bothered her, she'd come to me and we'd talk for hours.*** *And* ***if something was bothering me, I'd go talk to her for hours. We had a good solid relationship. Until we had a relationship.*** *(laughs) And then you know, everything started changing. If I said something it was, it was … viewed as a negative and… she attacked that way… Um… if she started having … after a while… if she started having problems, I just followed suit and I attacked. And it was like… just becoming more and more destructive...* [pattern that evolved over time]

4.3 Isolation. Some participants described that their couple relationships contributed to isolation from other parts of their network over time including connections with friends and family. Ken spoke

about a tendency to "put everything into the relationship" whereas Ian described his ex-partner's role in disconnecting them from others. Patterns in relationships, particularly those that become more entrenched and isolating, impact the diversity and quality of connections with others. Conversely, Ian also describes how his current partner has been active in his process of reconnecting with his family (e.g., coordinating dinners).

Ken

- ***I give up on everything*** *and* ***I just put everything into the relationship****. I,* ***I don't make connections at school****, I just do what I have to do to get it done.* ***I don't make um new friendships****, I barely hold on to the friendships I have. I just pour everything into the relationship and* ***I regret that so much because I've lost friends****. I … could've had really cool experiences that just ah… I haven't really gotten to do. Like* ***I haven't really traveled much****. I haven't really um… done anything that I can say that I'm really proud of… …* ***same thing happened with [previous relationship]*** *…* ***I become this secluded person****…*

Hugo

- ***I almost stopped hanging out with my friends to spend my whole time with my girlfriend*** *… so, that kind of effect … but my really close friends, they didn't care about that.*

Larry

- ***I felt a lot of people moved away from us. A lot.*** *Yeah… they wouldn't hang…yeah, they wouldn't stay with us… for any length of time. A few did … but they were like… they didn't care either… He [friend] didn't care about anything, so what was going on in our relationship … didn't matter to him…*

Ian

- *Soon into our marriage we no longer went camping… cause "It's uncomfortable." "Ok… um… what else do we need so we can go camping with the rest of our friends?" …* ***We lost all those friends****… …* ***My sister ahhh was sort of alienated from****…* ***and her family, was sort of alienated from ours.*** *She didn't… my wife did not want to go to Christmas dinner… she… she used the word sometimes "social anxiety" … ah… she "doesn't feel up to it." So, there's many Christmas dinners for example that we didn't go to even though I was invited to my sister's. Now, with the new partner, it's sort of like uh… things like uh… "Let's organize all these dinners so that we don't have duplication." And she knows she has to sort of squeeze into this because my wife never did have people over for Christmas.*

Theme 5: Release and reorganization

Theme 5: Release and reorganization included two subthemes, fear and avoidance of releases and turning points that shifted the course of the relationship.

5.1 Fear and avoidance of releases. Several participants described fears associated with letting go of what in the relationship they were holding onto, the inability to let go or release, as well as the potential benefits of releases - only having one life, acknowledging that distrust exists for a reason, while allowing oneself to risk trusting again. Justine referenced that when one feels confident and fearless, one does not need to cling so tightly and is "just changed." The primary researcher wonders if confidence and fearlessness are prerequisites for release, or if in fact we often approach new challenges and reorganization feeling fearful, uncertain, and disorganized. (10 participants, 79 references regarding impact on self; parts of 15 participants, 221 references about coping)

David

- *… **my initial reaction** was… I guess… ugh… try **to, try to salvage** … (exhale) … it wasn't, **it wasn't because of the emotional connection to her** … **it was fear about** you know, **life just falling apart**…*

Ken

- *Yeah…. and I didn't know how to end things. It got to the point where I wasn't the one that ended things, she actually ended things because I couldn't. I just… I couldn't pull that trigger. Um… at some point early on in our relationship umm… **she had said that if we ever break up we couldn't be friends and I think that just stuck with me cause ah um I couldn't let her go. Even though I didn't want to be with her, I just couldn't let go.***

Justine

- *I love hearing about organic, spontaneous like relationships and the kind where you're not like scared… **like when you're confident and you've overcome your fears of like losing someone or whatever and you're, you're, you're not like clinging on too tight or you're not scared of** … when you just overcome your fears, you're just like not… you're ok with just taking things slow like I, like you know like um… you're just changed I guess…*

Nancy

- *So, I think that like **my own family history has set me up for not trusting them**, not expecting and … and then when they do… it's hard for me to take that in and to realize (crying)… and, and **I have the same … kind of problem with my current relationship… is that I just don't know if I can actually feel secure or if the rug's pulled out from under me at any minute. Should I trust, should I not trust, I don't know. I mean it's stupid not to, because you only have one life. But on the other hand**…*

5.2 Turning points. Many participants described turning points, significant shifts, "last straws", and points of no return that could be conceptualized as threshold crossings from which there were no easy

returns. They spoke about significant changes at the level of the individual, couple, family, and larger network systems, following these experiences. At times these shifts were towards increased connection in the system, such as Brenda's experience, whereas many spoke about shifts towards relationship dissolution and changed beliefs following AI experiences. (12 participants, 41 references)

Brenda

- *I… was… super overconfident, um I, like I said, I been,* ***I was in a long term relationship, I had been engaged, I went through this whirlwind of a year where I just kind of… let everything go*** [release]***… and then when I realized this is the person I really wanted to be with, it was a strange feeling for me… and I kind of resisted it at first*** [resisting release and reorganization]***… and… then I realized he wasn't going away****, these feelings weren't going away… so we never really had kind of that puppy love, infatuation phase, because, there was no room in the world for it. I was seeing someone else and then… by the time… I had realized that it was someone I really wanted to be with, it wasn't, "I really like you and let's spend lots of time together and take lots of pictures." It was, "No, no, I want to be with you going forward…"* [increased meaning, commitment, structure; shift into growth and conservation]

Nancy described that her partner perceived changes in her understanding of him (view of other), presumably after finding a new way to discuss relationship hurts in therapy. Similarly, Nancy echoed feeling more understood by Ned following therapy. Effective couple therapy can allow partners to create shifts in how they perceive, relate with, and grow with each other. Nancy's story, as with all the participants, had unique elements. At the time of her interview Nancy had recently learned that a long-time friend and past lover was terminally ill. This was a person who was almost her partner at various points in her life. She shared it was unlikely she would be able to visit him before he died and expressed wonderings and some regrets regarding the relationship never becoming fully established.

Nancy also contacted the primary researcher after the interview and indicated experiencing a worse AI. Due to the study's ethical approval limits (one research session) the primary researcher was unable to conduct a second interview with Nancy, but she continues to wonder what this new AI experience involved. For example, despite the significant changes in communication and relating since therapy, did her partner revert to distancing and invalidation with respect to her friend's

dying process and the impact on Nancy – particularly if he knew her relationship with the friend had deep roots and was quite meaningful to her. This may reflect that we move towards and away from security in relationships over time, as new relational experiences continue to unfold.

Nancy

- *And I think that um…* ***he used the word "turning point" just the other day… that he thinks that we did come to this turning point and I think… And he thinks it's me (laughing), he thinks I've changed. (laughing) … Maybe I have****… I don't notice that… at all. … [Changed in what way?] My understanding of him.*

Mark

- *And like I went home and I fooled around with her like a little bit and* ***then she wanted me back and I guess it felt really liberating to say, "No. No, like I am better than that. I deserve better." So, that was like really the only turning point****, I guess like…* ***it doesn't really count cause it wasn't part of the relationship, but that would be it.***

Grace

- *… and then I guess* ***the final violation*** *for me was* ***when I discovered a hidden video camera in our bedroom*** *and that was kind of like …* ***it was weird because everything kind of turned off****…* ***My emotions for him turned off****, my um…* ***willingness to make it work turned off****…*

Larry

- *Yeah…* ***but then it dawned on me it's better to be alone****… than … to be alone for the right reasons, rather than being with someone for the wrong reasons.* ***If I'm just gonna be with … somebody because I don't want to be alone… then I'm still alone****. I mean, I'm not with that person, you know … I've dated you for five years and I barely know your last name. Is that really a relationship or…*

Ken

- *I didn't really know what I wanted and* ***I hadn't really realized yet that I didn't want her****… um, but the thing* ***is as soon as I did realize that I didn't want her****…* ***my decision was kind of set.***

Ian

- *… you have to understand this. And* ***I think that it's very hard for people to jump from one way of thinking to another.*** [discussing release of beliefs] ***It was for me.*** *I have to say that it was… it was for me, but failure's a process, it's not an event.* ***But that is the event that had me jump ship… to another way of looking at that relationship.*** *And it certainly wasn't a relationship anymore… it was something far more sick than anything else…* ***I had found a woman that for six months prior has shown a great degree of care and at that point in time it was very clear to me… that I cannot live with someone that was malevolent.***

Finally, several participants identified their children as playing key roles in these turning points, whether heading towards relationship separation (Andrea, Olivia, Helen) or noticing changes in an existing relationship (David).

Andrea

- *Until he [son] was in grade 8, he was twelve or thirteen years old, at which point* ***he*** *[ex-partner]* ***relapsed again so significantly*** *that uh… um,* ***I asked him to leave****.*

David

- *My interests were what she wanted to do… and you know… just everything that… everything… was… supported and what not… and then when,* ***when the first baby was born****…* ***her focus****…* ***shifted****…* ***immediately from heaping me with praise, to looking to me for… support****, I guess.*

Olivia

- *He was done with the session and I was like, "Oh… well, that explains an awful lot… and that's exactly what it feels like… when it happens." And* ***then I thought of my kids and I thought like, "There's no way I'm putting them in that situation again." I would never willingly put my children in a situation that was potentially abusive so****…*

Helen

- *… and it… when Johnny starts noticing it too… I thought, "No, I think … I have to pull out of this … in the best, feminist way that I can and that's not to just walk away with nothing cause, you know, I'm not gonna do that… that will impact the rest of my life and it will waste the last 30 years of my life."*

Study 2

Characteristics of the Study 2 sample will be discussed prior to the two emerging themes (a) participant uncertainty, and (b) perceived positives of adopting a complexity lens (see Table 3).

The sample: Reducing the frame. First and foremost, the primary researcher is grateful that Study 2 participants made time to reflect on these exploratory questions. While the initial aim was to interview experts in complexity research, local participants familiar with complexity made up the final sample, which will be discussed further in the Limitations section.

All participants identified some history with complexity, ranging from being familiar with the theory and concepts from one to over ten years. Complexity research was part of their graduate studies,

something they were taught in their respective disciplines, and/or something they included in teaching their respective courses. Participants spoke about complexity through the lens of their discipline, and most possessed some understanding of various concepts (i.e., CAS, the adaptive cycle, panarchy, emergence, resilience, system scales). Some were unsure what natural systems were not CAS, with one participant suggesting CAS could be anything from an abstract concept (e.g., a discussion among a group of people) to a physical system (e.g., an ecosystem or a business). Likewise, Palombo (cited in Piers, Muller, & Brent, 2007) stated that CAS includes all living things, all organizations of living things, and many computer programs; as each has component parts with degrees of independence that interact in dynamic nonlinear ways, and respond in self-maintaining ways to improve fitness.

Participant 1

- *I don't know. I guess I think everything is a complex adaptive system (laughs). It's almost like I can't think of something that's not a complex adaptive system…*

Participant 2

- *A system could be a friend group. It could be a group of people that talk every now and then … each person is an agent, and whatever they are talking about at the time, you know, their discussions are emergent properties of their interacting with each other… so… (exhale)… it's like, it could literally be anything… you could look at a painting and say this is a complex adaptive system in the way that it came together … I definitely agree that almost anything that you look through can be looked at in a complex way… or complex adaptive systems way.*

Most participants were able to describe the phases of the adaptive cycle, and how it can help conceptualize system changes. One participant noted the metaphoric use of some of the adaptive cycle phases (particularly release and reorganization) reflected in the way people commonly describe going through life transitions or experiences; which was certainly noted in the language of Study 1 participants.

Participant 3

- *Come to think of it I hear… people and I hear myself thinking about you know, "I'm gonna reorganize my life." "I'm going to put some things in order." "I'm happy with the way I am right now." You know, those are phrases … that are consistent with this model. "I'm going through a nervous breakdown," you know … maybe that's not a clinical definition, but in the vernacular it's often … "Well, I'm in the release and reorganization phase. I'm in the backloop."*

Two participants also acknowledged the lack of executive control, or that "no one is at the helm," of a system.

Participant 4

- *… that self-organizing principle that there's no executive control. There's nobody at the helm kind of saying, "Ok, you go here and you go here and you two talk to each other here and …" (laughs)*

Participant 3

- *It's a system that responds to changes … sometimes in ways that aren't easy to predict… that helps us understand how… reorganization occurs… in ways that help us model the future… it's opposite of the 'command and control' idea that we can shape an ecosystem the way we want to… uh to expect an ecosystem to respond in one or more pathways following a disturbance … which could be superficially similar to other disturbances…*

Participants typically cited and connected various concepts (e.g., referencing panarchy and emergence in their definition of CAS), but some also struggled to define complexity concepts. The psychology students described a much more integrated way of seeing complexity in their lives and the overall functioning of systems. Non-psychology faculty participants were able to think about complexity with respect to their lives when asked, but had not previously considered complexity on individual or couple levels.

While Study 1 was a rich investigation into community members' lived experiences, Study 2 interviews were characterized by reflection, curiosity, unanswered questions, and new queries. Although useful initial ideas were produced, these questions should be explored, and responses compared, with a sample that is actively involved in CAS research. That being said, Study 2 participants demonstrated thoughtful consideration of these questions and it may be that a sample of complexity researchers may echo some of their positions.

Table 3. Study 2 Themes and subthemes.

Theme 1: Participant uncertainty
Theme 2: Perceived positives of adopting a complexity lens

Theme 1: Participant uncertainty

The primary researcher's overall impression of Study 2 recordings, particularly those of non-psychology participants, was that they had not fully considered applying CAS to themselves and their intimate relationships. While all were willing to consider applying CAS to couple dynamics, some openly expressed doubts about the application of CAS to human relationships, attachment, and processing attachment injuries. A few participants also wondered if existing couple psychology models and theories (e.g., attachment theory) were more appropriate than complexity theory for understanding attachment injury experiences. Although, it should be noted that the effort is not to contrast attachment and complexity theories against each other (which some participants were doing during their reflections), but rather to understand how complexity theory may further inform this area of study. One participant specifically spoke about their coexistence, and how both theories have the potential to inform and expand individual's perspectives. Conversely, Participant 5 was the most certain that CAS theory does not apply to couples, emphasizing that a couple is only composed of two agents.

Participant 5

- *But, still you… at the end you are dealing with a large number of agents and how they interact… uh… so, it's quite different from a personal relationship… for just two people. I don't think that kind of modeling… is the appropriate model (laughs) … it's more like game theory… that's more applicable for personal relationships…*

Participant 1

- *I think it's really interesting, I've never thought of relationships in this way before and yeah…*

Participant 4

- *I'm leaning towards yes [Is a couple a CAS?] in most ways, but I'm thinking about the principles that could characterize, or typically do, a complex adaptive system, but it's [couple as a CAS] not one… that I've heard about anyways… so… this is definitely novel. (laughs)*

Participant 4 also offered a caution about utilizing a metatheory to explain novel phenomena, including couple dynamics and difficulties.

Participant 4

- *… the hypotheses and predictions do support the [CAS] theory, some don't, so in the end the theory in itself is an emergent outcome… (laughs) Um… not to confuse things further, but I do think there's a danger sometimes... metatheories can sometimes distort our understanding of the research and bias us toward trying to fit a square peg into a round hole... definitely guides the understanding of the world around you, some of these theories…*

Participant 3 expressed that they were a little lost with respect to considering questions about if one can understand themselves in terms of the adaptive cycle.

Participant 3

- *[Can one locate themselves on the adaptive cycle? Is one in one place or multiple places?] Huh… you know, I've never asked myself that question. And that's funny because I go so far, where this is used to describe social systems… ah… but I've never brought it down to the individual, no… I don't know what you're looking for… I'm a little lost… if it's just me… if I have to think about myself… what's inside my skin (laughs)… I would say that I'm only in one place… and does this make sense… ah (exhale) … I think it does, yeah.*

Participant 7

- *I think it's really interesting. To try to put all these ideas together. Cause it seems like there's lots of other models though in psychology about relationships… and working through problems and stuff… I think with like earlier relationships maybe it's more like the complex adaptive cycle.*

Participant 6 offered that one *could* apply CAS theory to couple relationships, but queried the potential benefits, and wondered if individuals and couples would be left with a sense of reassurance or new insights.

Participant 6

- *So, I think you can always subdivide and subdivide and look at more detailed, component parts of anything because of the complexity of the relationship. But I … again, sort of (laughs) to what benefit… unless there's sort of a reassurance factor… or insightful factor that comes out of it … it could give you a language for wanting to change… or not… but, I don't know if it's … yeah… I don't think it's really something I'd do. (laughs)*

- *I think there'd be a question about the readiness, or willingness, or openness of adapting language within the couple… because I think if, if you tried to bring complexity language into an intimate relationship… and it was not shared language... Whereas attachment sort of has that "tiny child within you" kind of perspective … if you have anxious attachment style… I think it's more easily, more useful [in couple therapy or to understand couple dynamics].*

Participant 6 also questioned the usefulness of conceptualizing one's attachment (which attachment theory posits is developed over time, based on thousands of interpersonal experiences with our attachment figures) as an emergent CAS, suggesting it could likely be more of a metaphor than a true application.

Participant 6

- *[Is attachment emergent?] I think that one would be more of a metaphor than an actual application if anything. I don't see attachment as an emergent thing… because I don't see a linear timeline of events … as interdependently interactive… There's that, because of the temporality to it. It develops and emerges over time … but there's not… Hmm, now that I'm starting to talk about it I'm starting to wonder. But, I don't know, just something intuitively in me is saying that attachment is not emergent in the same way. I think it tends to sort of grow and progress and sort of, just kind of be there like a trait. I don't know that there's the same degree of fluidity or fluctuation in it, or that reciprocal interaction among its component parts.*

- *Yeah, I think it's a very interesting thing to look at, but (laughs) I can't imagine anyone, sort of in the moment, thinking about complexity theory. (laughs) … I think it's really good to be questioning the role of complexity… and the utility of it … Is it helpful? And even if it can, is it something we should do? Right.*

Participant 5 and Participant 6 highlighted some of the challenges and benefits of studying complex adaptive systems with emergent patterns. Participant 5 contrasted the complexity approach with traditional approaches in their field that propose systems converge at an equilibrium point; which they believe do not truly reflect the reality of system change.

Participant 6

- *Like even if you were able to have longitudinal, observational studies, if it's still based on people telling you about their experiences that's always going to be censored to a degree or otherwise … even … because how, how aware really of what we're even doing? Cause there's all this talk about memory being biased, but I think that attention is biased too and we know that with like the whole searchlight idea, that you're only paying attention to what you're looking for, really. So, if you start looking for complexity long-term, then ongoingly you'll probably start seeing it a lot more and you'll probably start thinking about it in your relationship a lot more. And I think the fact of questioning it, would change it. So, I don't think we'll ever be able to really study it.*

Participant 5

- *… so, the whole system keeps evolving… there's no converging to ah… so called equilibrium point. So, it's… the system is always evolving and developing into new things, new … ah… that makes it kind of quite difficult to model … but at the same time ah… it lets us see things that we don't see in those other models of equilibrium… it's called a recursive system, ok… so it's kind of a loop going on there, but I think the most important point is the emergence.*

You cannot define the aggregate behaviour of the system by just looking at individual behaviour.

- *… they all [traditional theories in their discipline] emphasize equilibrium… but complexity is totally different. There's no equilibrium. The system is always evolving and changing and feedback and stuff like that… but technically it's difficult to model. That's why a lot of [others in my discipline] try to avoid it.*

Theme 2: Perceived positives of adopting a complexity lens

Despite voicing uncertainty, participants also shared how they believed complexity theory has informed their lives and their understanding of relationships and the world. They used words like liberating, hope, and freeing, and that they were less surprised by surprises. They also pulled a range of skills into what they perceived as complexity's influence on their experience (e.g., self-regulation, self-acceptance, non-dichotomous thinking). A number of them described shifts in their approach to life after learning about CAS theory, although we acknowledged these coincided with their development (e.g., aging; thereby living through and learning from a multitude of life experiences), other forms of learning (e.g., traditional teachings, spirituality), and/or actively trying to understand and apply complexity concepts because of their area of work or study. Overall, there was the sense that participants felt some certainty that nothing stood still, including their times of struggle and difficulty, and instead that shifts would eventually occur – even if they were not aware of when and what changes would occur.

Participant 8

- *… previously I definitely had like one track with blinders on way of existing… so, learning about complexity and just the adaptive cycle was personally freeing… that there were more ways to exist than that. That things are going to change over time and you know, "It's ok" … just knowing that… I think, when I'm down, you know, if I work towards something, or that you know, just with time, through my interactions with others, or whatever may be going on… I won't be… I guess that's just like… adaptation in general and change over time… I definitely find it a hopeful… um, like kind of figure [adaptive cycle], or tool, or way of conceptualizing my… my current development and development over time, and where I am and how I'm doing… and… I find it to be reassuring at times of, you know, great doubt and you know, personal misery.*

Participant 4 described implicit and explicit ways of how they perceived integrating the complexity approach, such that they feel "fundamentally different." They also referenced a sense of hope, optimism, and perceiving life in non-dichotomous ways.

Participant 4

- *I feel like just me as a person, I'm fundamentally different as a consequence of learning about complexity theory… just my approach to understanding the world and everybody in it has fundamentally been changed by that theory… I think about the release phase of the adaptive cycle, but I'm not, I'm not like constantly thinking about different properties of CAS theory when I'm thinking about my relationship… but it's supposed to be implicit, like systems thinking… it has influenced my thoughts, my behaviour, and my emotions… I would say that ah, um, I hope it has affected like self-regulation and holding kind of complexity of different emotional experiences in hand and not thinking or feeling in a dichotomous kind of way… just kind of embrace the complexity…*

- *I definitely apply it to, like how I understand myself and the world around me… um, I think more and more, each and every time I read more about it, I engage with it again, in terms of research, um like when I view my attitudes and values … and whether some of them are changing and whether they are going through the phases of the adaptive cycle or things like that… I think the release phase… ah… strikes more of a cord with me, whenever I'm going through something rough in my life, or something like that, I can kind of… reconceptualize it as a release phase and that helps a little bit I think. It provides you with, I don't know, some hope or some optimism for the phases that lie ahead that'll be a little more positive… (laughs)*

Participant 2 described the complexity lens as liberating, offering a sense of self-acceptance and as an opportunity to finally think the way they always have: "Not everything is linear and that's ok." They were uncertain about exactly when in their life they began to conceptualize things in this way, and alluded to the idea that there will always be unpredictable surprises we need to be open to.

Participant 2

- *So that was kind of my first, formal introduction to complexity, but I, I always felt like when I read it – and I feel like a lot of people have this – it was like an Aha moment when you think "Wow! This really brings everything together this is how I think," like, you finally realize that, um, not everything is linear and that's ok. Um, it kind of just gave me, um, the ability to… to feel free to think the way I, the way that I always have thought, you know, and to not put myself in a little box and say, "Ok, point A, point B, point C," now I'm kind of like webs everywhere. (laughs) And I find I actually get more out of that way of thinking and accepting that about myself has been a lot easier. So, I feel like I wanna say it goes way back but I don't really know when it would have started.*

- *I feel like, no matter how… how much people in general, or how much we plan things there's always variables we're not aware of… and consequences that we can't see, so it's, it's a very interesting way to look at the world because it allows you to realize that there are so many possibilities. Doesn't matter how smart we are, doesn't matter how many computer programs we develop to see all these alternate consequences… there are so many that, you're not ever going to be able to think of, or to program, or anything like that and I think that's really beautiful, because it's… it's one of the last things that we can't really figure out. It doesn't matter how well you calculate a formula for it, something can always turn out differently than you planned…* [Everything we know about the world is a model; Meadows, 2008]

Conversely, Participant 5 indicated they did not think of complexity with respect to themselves, noting they had other beliefs and worldviews.

Participant 5

- *Um… unfortunately… no… I see it as a scientific endeavour. (laughs) It's kind of part of my scientific knowledge. Personally, I have maybe of different view on… on life or whatever. (laughs)*

Several participants identified they could apply complexity concepts to the ways they approach their work and research. Participant 6 questioned whether they were able to conceptualize things this way because complexity informs their studies. Despite this, they too expressed that this lens allowed for a sense of self-acceptance when they are "feeling stuck." Additionally, they spoke about being able to identify with some phases of the adaptive cycle more than others.

Participant 6

- *I think that's because sort of complexity informs my program of study to a degree… it's more salient, it's more prominent in my thinking, when I'm thinking about my research… as much as it's sort of like I prefer being in that sort of growth and conservation part of the curve. I think it makes me a little bit more accepting of when I feel like I'm stuck… and when I get stuck I'm less frustrated about it, and I'm more accepting, and sort of give my… myself that mental space to just let it percolate in the background… a little bit more easily instead of trying to like you know… force it to change right away, right… I think it's really obvious when I'm in that sort of a stage. Um… and then I think when I'm sort of… feeling more settled and I'm actually just sort of writing and following my outline and … and chipping away at it, that would be like the conservation phase. And then… in the backloop, the release and, and reorganization um… that one's less clear for me… I don't usually identify between those two… but I can notice when I'm stuck.*

Participant 7

- *… maybe in terms of like the way I might view a system or a problem, in my life or my work. Might be really excited about following an angle or whatever in my readings and it seems*

> *really great and then slows… and I figure out, "Ok, that is a part of it, but it's not the whole thing" … when I'm writing my papers that's often a problem… I get going and then at some point I'm like, "Wait… this is gonna be so much better if I completely reorganize it." And it's kind of a crisis point because you already have all these nice paragraphs… but there comes a point… I have to like, restart… reorganize. I'll still use some of those things but it will be a whole new framing… broader structure, but still the same data… sometimes I leave things alone for a while… in writing…*

Several participants understood their partner's experience in a way that acknowledged their upbringing, culture, and adversity they had lived through. They also described shifts in understanding their partners that have taken place since the relationship began, factors that contributed to relationship dissolution, and appreciating a new partner's ability to expand their own way of thinking. Several participants related more with the idea of interacting systems and CAS (in terms of understanding their partner and/or family) versus the adaptive cycle. Participant 7 described that their expectations and view of their partner have reorganized and "shifted a little bit" over time. For the most part, participants acknowledged that thinking about their relationships and CAS was a new area for them to reflect on.

Participant 7

- *Well, not like the, the adaptive cycle, as much… but I would say more like the idea of complexity and recognizing that there's a lot of interacting systems… I think it has more, like that perception to me… like understanding my partner's stress, or there's some like illness in the family, or, some other stressors on the system and understanding how all the different things are interrelated. I think, as opposed to a growth and renewal, destruction kind of phase, because I don't think that our relationship… goes through, like… so much of a crisis, and then like a collapse…*

- *So, it's more like looking at complex systems as opposed to the cycle of like growth and reorganization I think… I think when we were first like dating, or first married, I had more expectations that they would be… more on the same page as me… like I wouldn't know why they were late or weren't coming inside… but then like recognizing their perspective more… I think like that shifted a little bit.*

Participant 6 described consciously making efforts to separate the personal from the professional (i.e., not viewing relationship partners through a psychological lens), but did identify the idea of flowing through a cycle as something that gives them a "little bit more self-acceptance" when feeling stuck.

Participant 6

- *…so, in my current relationship um … I would say that it doesn't usually… but on occasion… I try to make a bit of a conscious effort to actually separate work… from personal life. Because I think it can in the nature of these programs… it can be easy to start getting into that mindset … and I think that's really unhelpful. So, to avoid any sort of slippery slope around looking at my partner through [that] lens… I try and have that boundary. That being said, the exception to that rule I think would be the times when I'm like really frustrated (laughs)… and then I use it almost just for myself, as a coping strategy, to try to reframe things. Similarly, to how I was saying of getting stuck in a rut… then I can be a little bit more accepting of that by seeing it as like you know … "Its part of the cycle… I'll flow out of this eventually." … I try to have that divide and then on occasion I try and use it intentionally as a coping strategy or my own sort of… reassurance or reframing in a positive light for myself.*

While Participant 6 spoke about separating their professional life from their personal relationships, Participant 3 suggested that for them this may be "impossible to divorce" as it is likely an implicit process. They acknowledged feeling less surprised by unexpected outcomes and situations, although they did not believe this necessarily resulted in improved coping or decreased suffering.

Participant 3

- *[Has complexity informed your relationships?] … Well I, I, I think I'd have to say yes… implicitly. I, I don't sit down with a pen and paper and study it on a diagram [adaptive cycle] like this in, in, in reviewing… a relationship, but it's ah… impossible for me to divorce what I know about this way of thinking from how I would approach any… any… relationship… Well I mean in the questionnaire there's unexpected outcomes… since … being exposed to systems thinking I am much more… ah… I'm much less surprised by unexpected outcomes in a relationship. Whereas, I think a… a more junior version of myself was… very ah… surprised ah… at yeah, at some outcomes… Does it allow me to cope better? … I don't know ah… I doubt it. It allows me to reflect better, but um… I don't know whether that … would translate to coping better. Um… right… do, do I suffer less? Ah… perhaps… but … that might be… part of the overall, cycling through [evolving through life] … as opposed to, you know… trying to say that that specifically helps me in understanding relationships.*

Participant 8 reported that it does not inform their long-term couple relationship, aside from considering that both they and their partner will experience new things and inevitable shifts that impact the relationship. Participant 4 similarly described that it informed their understanding of the relationship "a little."

Participant 8

- *[Has complexity informed your relationships?] Um … I think to the extent, um, you know… I've been with my partner for years now, so I think that just knowing that there's, there's different points of the relationship, and as you're with somebody for a longer period of time,*

and they have their experiences and you do new things and things are kind of gonna shift around, but I think, other, other than that, not, not really…

Participant 4

- *[Does complexity inform your couple relationships, past or present?] I would say a little bit. More in reference to like the release phase in the adaptive cycle again… if there's a bit of a rough patch… um, that maybe it's just a release phase… that you know, get back to the other phases of the adaptive cycle and then the system will keep going on to maintain resilience, but more the release and the creative destruction component of it…*

Participant 1 spoke about their ex-partner and their current partner, in terms of similarities and differences in their worldviews, the role of their developmental experiences (initial conditions), and eventually gravitating towards someone that also believes complex social issues can be nudged by small actions.

Participant 1 (ex-partner)

- *I think they were a good person and everything, but I think they were much more in it for themselves and didn't see that anything… This was one of the main points where I think we fell apart on our relationship, or at least from my perspective, was that they thought there was no point to doing anything about poverty or the environment because… the world was just so screwed up anyway… And you could never have any sort of impact on it. But they came from a very different background than I did. I think their experience of extreme poverty, was different than what I had been exposed to when I was young… they explained it like, "Oh well, you've never been to [country of origin], you don't know what it's like, if you saw that [extreme poverty in country of origin] you would see that there isn't anything we can do about the world"… that kind of attitude tells me… there's not a lot of belief, at least in not being able to alter systems with small actions. Or even larger actions. They're also a [ex-partner's profession] and I don't want to put like a bad name on all [individuals of that profession] – but I see a lot of [individuals of that profession] as, "Let's separate out different components of the physical and the mental." And they don't really have a holistic view of what's actually going on with people and their bodies, and their minds, and their spirits and everything.*

Participant 1(current partner)

- *Another thing with my partner is, umm, and I don't know how, I'm sure it affects things quite a lot, but they're someone who has been through a lot of trauma in their life and is like very, very functional considering how much they've been through … I was thinking about significant things that have happened in our life and the level to which they have impacted our relationship. And I think that a lot of that has been buffered, because them … being able to be a really good buffer for things like that, and maybe move quite quickly through like, "Let's reorganize and let's get back, let's get back here again." That might be a [partner's profession] thing too… so it's like "Ok… let's get it together." And like, "Get up and regroup… and get back… on the road again."*

Participant 7 offered a reflection on parenting and how adding a new baby to the mix of an existing household could be understood in terms of release, reorganization, and an eventual new state of conservation. Similarly, Palombo described that living systems evolve through a series of reorganizations, result in new levels of structure and function, the process is continuous, and that component systems (e.g., family members) adapt to one another and the ecosystem (e.g., household) with increased stability and efficiency (as cited in Piers, Muller, & Brent, 2007).

Participant 7

- *I guess there's like different aspects right of my life, sooo… In terms of like say parenting… I have little kids at home. I feel like I've definitely, kind of like, crossed a threshold… So intellectually I was always understanding like good parenting practices… but I found it was really stressful trying to find like the rhythm in the family after I came back from maternity leave for the last kid… So yeah, I think in parenting would definitely come out of like a reorganization with the baby and… kind of like, moving up, in terms of… I think of like the exploitation phase… like that phase, the growth phase as learning how to deal with them, and now I feel like ok we've got the personalities kind of worked out, so I feel like the learning curve isn't very steep, so we're kind of going more into like this comfort zone, like the conservation, like the k area… cause we can like go day to day and we can make plans and integrate them into our lives… "Ok, we're working as a group. Now I can manage everyone as a group." Whereas before I was like, "Oh my gosh, I don't know how I'm gonna get through the day." Every moment was just too crazy.*

In addition to themes of uncertainty and personal applications, participants also reflected on the overall usefulness of applying complexity to individuals understanding themselves, their couple relationships, and AI experiences. Some participants referenced potential therapeutic or clinical utility. Participant 8 described potential ways that complexity concepts may help people cope with inevitable relationship difficulties.

Participant 8

- *I guess just, just for systems thinking, to think about it, the relationship holistically and that… even if though there was something that maybe caused the relationship to dissolve that that there's positives that you pull out of that and use… in your future relationships and for yourself… things you've learned about yourself and other people.*

- *… and like you know, you're breaking up with someone and it hurts so much at that point that your view can become myopic and people can get … um, you know, a little bit bitter or*

something… but ah, I think, maybe not at that moment, but over time… they can, um, you know… through thinking about it in more of a holistic way… come to a better place than just isolating that individual as if… like if they were in the relationship, but then isolating the event, and isolating other things, instead of incorporating that in too, doesn't help.

- *… in our world and that, like I alluded to previously, it can also be a comforting thing, and especially when a lot of people perceive… those release phases or changes to be something that's negative, that you haven't been able to keep it in that current form [core belief about self as incompetent, a failure]. Ahh, you haven't been able to keep it in the conservation phase and that's something that's you know, really negative but, to, to be ok with as well.*

Participant 7 spoke about the potential benefits of utilizing the adaptive cycle diagram with a couple who has experienced an AI. They also offered that understanding an AI through a systems lens may allow partners to understand that being left out of a photo (example of AI in definition presented to participant) is connected to much more than it seems.

Participant 7

- *I think… cause if you look at… so let's say that, if you look at their relationship as a, as a CAS that was somehow in the k quarter cause the injury caused it to collapse… then having this image then shows them that they have to work on, kind of like, communicating probably would be the release phase and then discussing their plans on what they need to do to correct the injury would be the reorganization phase… and then they would start working together with the new, the new plan or whatever… Yeah, because, I like the systems perspective because it recognizes that… so let's say the last one, because it's more of a minor example, being left out of a photo with your in-laws, ok that could cause you to have a conflict with your partner… but… there's probably like twenty other things… like his relationship with his brother-in-law and the fact that you should probably try put on a happy face at the family reunion so they don't think there's a problem between you, or like you don't show that cause there's so many other relationships that you don't want to damage.*

Participant 2 reasoned that understanding complexity and the adaptive cycle could help couples ride the waves of inevitable relationship highs and lows, including discovering what phases they may function best in.

Participant 2

- *Like no matter… the person you live with is the person you fight with (mutual laughter) doesn't matter how great they are and how perfect you are together, you're going fight with them and a lot of people think that being in a relationship is about being happy and like, it's like seeing the system, seeing that like "a relationship equals happiness equals me feeling loved and accepted forever" and they don't realize that a relationship is a cycle as well, there's gonna be lows, there's gonna be highs… So, if they do a figure eight [adaptive cycle*

diagram], if they do have an idea of how they might move through the cycle… if and when they do and what stage… some people at least from what I have talked about… find that they do really well in certain stages and do poorly in others…

In a particularly interesting segment, Participant 2 connected CAS to a commonly described relationship experience: Partners feeling they have lost their individual identity in a couple relationship over time. They suggested that one way to avoid this may be to conceptualize oneself as a CAS (presumably, in a relationship with another CAS) rather than an autonomous person merging their identity with another. Esther Perel (2009) speaks to this very issue of merged identities and the barrier this can pose to maintaining intimacy in long-term couple relationships, particularly if there has been a significant rupture in trust.

Participant 2

- *But it is true, because at the end of the day you have to consider yourself as a complex system and most people think of themselves… as autonomous, until they meet someone and then they feel like they merged their identity with them… and that's dangerous because when something goes wrong you feel like you lose part of yourself… yeah, you just can't cope with it and I feel like, there's so many people for something like infidelity, they can't, get over, overcome it and it's like the end of the relationship because, because their autonomy doesn't exist anymore…*

Participant 3 highlighted that couples would need to understand CAS theory and the adaptive cycle in order to be able to utilize it to understand their experience(s). Lastly, despite some hesitancy ("I think it does apply") when asked about complexity and relationships, Participant 3 spoke about unexpected outcomes and relationships not being single-path.

Participant 3

- *…to turn the couple into a system… but I think yes… the couple certainly would… if explained this… I probably … I would agree that any couple could place themselves somewhere here… you know like empty nest syndrome would very much be an alpha point here, sorry omega… the turning point in a relationship… very typically, you know. So, I think couples could say, "Oh, we're saving. We have our … joint… mutual funds" or whatever… or you know, the death of a partner or illness could be ah… a time for reorganization… and I think beginning of relationships are… exploitative in a way, they are. But again, somebody would have to understanding this [adaptive cycle diagram, complexity concepts] of course.*

- *I think it does… one of the ways it applies is… in how we view the other person in the partnership. And we have this idea that we think we know where that person is but ah… I've*

> *experienced… unexpected outcomes … surprises… bigger than my own sphere… it would have to do with contact with… individuals who are actually… they become the target of a new affection that disturbs the ah… relationship… and you never thought that it would be that way… so… or you never thought that you were the stepping stone to the uh… uh… haha… other relationship. I think to enter them and exit them is sort of simplistic… single path, is how we do relationships… no. Unfortunately, not (laughs). Or maybe fortunately. I don't know. Yeah.*

Participant 4 reflected on the potential application and benefits in clinical psychology and psychotherapy (more so individual than couple therapy), including recognizing that dichotomous thinking can be associated with more entrenched psychopathology and in contrast systems thinking and entertaining multicausal explanation could be therapeutic.

Participant 4

- *I do think the adaptive cycle does have some relevance but just the idea of systems thinking in general might be particularly beneficial for a patient or clinician in the context of therapy… researchers have advanced enough predictions about why systems thinking should be related to better… mental health outcomes like being associated with better life satisfaction, perceptions of wellbeing and things like that, and physical symptoms…*

- *I thought quickly of cognitive reappraisal… and approaches to therapy… I feel like… preferring a multicausal explanation for phenomena or seeing the world in that way, like, kind of the opposite of dichotomous thinking in a way… and then if you're able to entertain all these other ideas as to why, or consider reasons, as to why something happened, um, you're probably less likely to… arrive at a deleterious outcome… … dichotomous thinking supports a negative attributional style embodied in several mental illnesses like depression. A multi-causal understand of the world may serve to buffer people against a runaway negative tangent thought.*

Finally, Participant 2 offered that the adaptive cycle could be used as a tool in therapy, while also referencing attachment concepts throughout the interview including: abandonment, emotional availability, mattering, attachment fears, and approach and avoidance of discussing emotional experiences.

Participant 2

- *I feel like it's just a good tool to help people like relate to each other in a way that doesn't feel like an attack. Cause I find in so many relationships that's what it is… And I feel like if you change the concept [adaptive cycle] to a tool, it would actually make people more comfortable with it, you say, this isn't like some crazy psych term, "This is a tool for your relationship"… if you're trying to look at a relationship and you don't see it as an adaptive cycle, you do see it as a linear line and you think that every problem could be the thing that ends your relationship, you don't realize that you could be in a release stage and you guys*

could come back from that, right… there's so many things that people don't think that they can get over, like infidelity, a lot of people think, "If my partner ever cheated on me, I could never get over it" and then it happens… but it doesn't always have to be a deeper thing, and recognizing that is a release as opposed to relationship ender…

Discussion

Study 1

Study 1 resulted in the following five themes and their respective subthemes:

Theme 1: Context of injury, conveyed the contextual nature of AI existing in an evolving network of current relationships, early relationships, other adult relationships, and for some, in the context of abuse experiences.

Theme 2: Impact of injury involved four subthemes that demonstrated that emotional, cognitive, behavioural, and interpersonal impacts unfold over time, both immediately following the AI and over the long term. This theme speaks to participants' ways of coping, including more challenging efforts (e.g., substance use) as well as those indicative of various types of learning, growth, and moving forward.

Theme 3: Impact on and role of beliefs reflected how participants described changes in their views of self, changes and stability in their views of relationships, and interactions in their beliefs about gender.

Theme 4: Attachment processes was captured through subthemes in which participants described experiencing primal panic, engaging in pursue-withdraw dynamics, and feeling isolated from parts of their interpersonal networks.

Theme 5: Release and reorganization included two subthemes, fear and avoidance of releases and turning points that shifted the course of the relationship.

The next sections will return to the Study 1 research objectives listed below and reference findings from the above themes and subthemes.

1. How do participants discuss the impact of AIs on their views of self, others (partners/ ex-partners) and relationships, and other aspects of their lives?

2. How do participants describe the process of and coping with attachment injuries? Including the impact on and role of others, and other attachment injuries?
3. What about the lived experience of those who have caused and experienced attachment injuries?
4. What about men's lived experience?
5. Are complexity concepts and principles evident in participant narratives, such as the injury experience being described in a manner that is consistent with the adaptive cycle?

1. How do participants discuss the impact of AIs on their views of self, others (partners/ ex-partners) and relationships, and other aspects of their lives?

Self. A number of participants spoke about self-beliefs of unworthiness (e.g., I'm not good enough), incompetence (e.g., I pick damaged men), self-blame (e.g., You reap what you sow), and self-hatred (e.g., I'm a monster); some new, and others pre-existing and potentially reinforced by AI experiences. Participants described that felt security could improve with repair, and existing security could shift to greater insecurity when there was lack of repair and ongoing AI experiences (Lopez & Brennan, 2000; Mitchell et al., 2020; Sayre et al., 2010). Some participants described ongoing perceived impacts on self-beliefs (Darab et al., 2020), while others reported more minimal alterations. This supports understanding attachment, including one's view of self, in terms of evolving contexts and relationships (Dallos, 2006), and that corrective and novel experiences can shift internalized self-beliefs that have been sustained by previous empathic failures and misattuned interactions (Pincus, 2009; Teyber, 2005). (*Theme 3: Impact on and role of beliefs; Self*).

Partners and relationships. Beliefs about partners and ex-partners were mixed, with some participants being able to perspective take and acknowledge the impact of developmental trajectories (partners' and their own) better than others. In their qualitative study of ten couples who stayed together after an affair, Mitchell et al. (2020) also found that participants' perceptions of partner responsiveness

varied. Views of relationships also varied, with some being satisfied in their current relationships or expressing hope and openness for future relationships, and others stressing the ongoing need for self-protection, security, and self-reflection. A few participants spoke about "still having lots of insecurities" and "feeling terrified of dating," but overall beliefs about themselves, others, and relationships demonstrated both stability and change. The connection between grief, aging, and future relationships was discussed by one participant, which speaks to how various aspects of experience intersect. (*Theme 3: Impact on and role of beliefs; Relationships*).

Emotional and interpersonal. Attachment injuries, especially experienced AI, were associated with strong emotions and a significant impact on functioning (general, school/work, social). Intense, short-term emotional effects were reported by most, while some also described persisting emotional effects. Interpersonal impacts on trust, felt security, and intimacy were commonly noted, and for a few participants these generalized to other relationships (I don't trust others). (*Theme 2: Impact of injury; Emotional and interpersonal impact*). Similar emotional and interpersonal impacts have been reported in other AI studies (Darab et al., 2020; Sayre et al., 2010).

Participants endorsed the raw emotional experience that Johnson (2008) referred to as primal panic: the wired-in fear response that can hit like a tsunami of emotions (sadness, anger, hurt, and fear) when an attachment figure is unavailable or unresponsive. One participant literally used the word tsunami to describe the period of time that followed after she pieced together her partner's infidelity. (*Theme 4: Attachment processes; Primal panic*). Immediate reactions to relationship injuries were also more angry, blameful, and destructive as compared to later reactions, which has been documented in past research (Darab et al., 2020; Rusbult, Davis, Finkel, Hannon & Olsen, 2004). Interestingly, several participants identified feelings of anger as unhealthy, unwanted, and unhelpful. Participants that engaged in AI reported guilt and regret about how events unfolded and

impacted others, most frequently partners or ex-partners, but also family members and friends. (*Theme 2: Impact of injury; Emotional and interpersonal impact; Anger and Guilt and regret*).

Participants described a range of reactions to AI – seeking and accepting connection (security), angry demands and trying to push the partner to respond (attachment anxiety), and withdrawn and shut down effects to self-protect (attachment avoidance) (Darab et al., 2020; Johnson, 2008). (*Theme 4: Attachment processes; Primal panic*). Although there were participants who provided examples of adopting a certain stance (e.g., predominantly avoidant), they too discussed instances of secure and demanding behaviours (e.g., emotionally available and responsive near start of relationship) (*Theme 4: Attachment processes; Pursue-withdraw dynamics*). It seems we are capable of adopting secure and insecure behaviours in relationships, thus it is important to be aware of which tendencies and patterns are currently being strengthened and which we want to work on releasing - if we want to increase our experience of security in relationships. Of course, this is challenged by the fact that there are aspects of our attachment worlds operating beyond our conscious awareness. Although, this also means that we can be shifting towards increased attachment security and more positive internal working models without our awareness.

Mental health and substance use. Impact of AI on mental health, coping with substance use, and how AI experiences exacerbated pre-existing mental health and substance use concerns were all discussed. Significant psychological distress, retriggered mental health symptoms, pre-existing struggles with mental health and substance use due to historical trauma, and mental health and addictions of partners and ex-partners were all reported. Others spoke about how empathy and patience for partner mental health and addiction issues shifted over time (*Theme 2: Impact of injury; Mental health and substance use*), and how this contributed to relationship dissolution. (*Theme 5: Release and reorganization; Turning points*). This is consistent with thematic analysis findings from

case study data of four couples dealing with addiction, in which one of the four themes was relapse being experienced as an AI (Fletcher & MacIntosh, 2018).

Some participants used trauma language when recalling AI events and their aftermath (e.g., silent treatment referred to as emotional abuse and torture). Along similar lines, others described psychological disorganization that followed AI experiences (e.g., I didn't know which way was up; Things were thrown… I was like a tsunami; Messed with me every single day; Crash and burn) that seemed to reflect intense releases, followed by eventual reorganization phases (e.g., moving home to regroup, drinking less, separating). (*Theme 5: Release and reorganization*). Participant stories were consistent with past literature that likens AI to trauma experiences (Cano & O'Leary, 2000; Charny & Parnass, 1995; Gordon & Baucom, 2003; Gordon, Baucom, & Snyder, 2004; Johnson, Makinen, & Millikin, 2001; Pelling & Arvay-Buchanan, 2004; Simonič & Klobučar, 2017).

It also seems that changes in terms of mental health and substance use associated with AI can be relatively brief (with individuals shifting back towards previous ways of being), as well as having the potential to contribute to more longstanding patterns (influenced by many other factors including one's trauma, mental health, substance use, and relational history). In other words, we can cycle through a significant mental health impact or period of substance use during and post AI, but can regain a new structure in our lives relatively quickly, or alternatively get further stuck in certain difficult patterns. Some impacts can also subside (e.g., coping by drinking, feeling suicidal) while others persist (e.g., trust in others). This is likely further informed by the extent of AI, the meaning made, whether one remains in the relationship, and many other factors (e.g., the experiences of depression and low self-esteem persisting or worsening over months and years, as one's partner continues to connect with other people). The complex connections and feedback loops between

mental health, substance use, couple relationships, and AI experiences certainly warrant ongoing study.

2. How do participants describe the process of and coping with attachment injuries? Including the impact on and role of others, and other attachment injuries?

Process. Narratives conveyed that AI experiences spanned participants' lives, and existed within and across relationships. In interviews, infidelity was frequently identified as the main injury, but stories involved hurts related to addiction, financial issues, changes in life direction, lack of support regarding health needs, emotional disconnection and distancing, and abuse experiences. These experiences are consistent with those reported by participants in previous attachment injury studies (Dehghani et al., 2020; Fletcher & MacIntosh, 2018; Naaman et al., 2005; Sayer et al., 2010; Shade & Sandberg, 2012; Zuccarini et al., 2013). A spectrum of infidelity was reported (e.g., emotional connections, sexting, use of dating apps, one-night stands, longer affairs); lending support to AI being more about the meaning than the content (Johnson, Makinen, & Millikin, 2001). Compound injuries were more the norm than the exception in most narratives (Halchuk, Makinen, & Johnson, 2010; Makinen & Johnson, 2006); involving more of the same or a diversity of hurts over time. (*Theme 1: Context of injury; Within relationships*).

Previous experiences of infidelity, partner substance use, and other relationship hurts and disappointments were described. Some participants also spoke about distance, emotional disconnection, and lack of support in relationships with family, friends, and coworkers. (*Theme 1: Context of injury; Adult relationships*). Abusive and controlling behaviours were described by a number of participants, in early and adult relationships. Emotional dysregulation and verbal attacks were identified by some participants in terms of their own or their partners' reactions to AI experiences. Some described entrenched and ongoing patterns of abusive behaviour, whereas others spoke about reactivity and abusive comments/actions as

situated around and connected to AI incident(s). This may reflect that we can cycle through adopting certain reactions in relationships (attacks during and after AI incidents), as well as remain stuck in perpetuating certain abusive patterns in the same relationship or in future relationships. (*Theme 1: Context of injury; Abuse in relationships*). Individual, dyadic, situational/contextual, and cultural factors inform violence in couple relationships, and distressed insecure partners with established patterns of negativity may find it particularly challenging to constructively navigate conflict (Bartholomew & Cobb, 2011).

Coping. Overall, narratives conveyed that participants coped each day, in numerous ways, and in various ways over time. Despite interpersonal adversities, participants were resilient in ways that made sense in their respective contexts. They described connections and insights made through a mix of self-reflection, journaling, self-help literature, and discussions with informal and professional supports. Self-actualization and efforts to increase mastery were reported by a few participants (e.g., returning to school, finding employment, routines with pets). This is similar to Pelling and Arvay-Buchanan's theme of increased self-care and personal development behaviours (2004), described by their sample of four women who experienced AI.

Both, tuning in (e.g., validating one's own feelings; making connections between AI and the past) as well as tuning out (e.g., distracting, overworking, substance use) were described. Checking behaviours (e.g., phone, email, social media checking) and efforts to conceal or hide actions (e.g., use of passwords, social media privacy settings) were reported across most narratives in relation to coping with experiencing AI and engaging in AI, respectively. (*Theme 2: Impact of injury; Coping*). Checking and spying behavioural effects of AI have been described in the AI literature (e.g., Darab et al., 2020). While the researcher recognizes that coping strategies are often classified as effective/ineffective or adaptive/maladaptive, she believes that a variety of strategies can be conceptualized as efforts to cope. Further, all participants, including those who identified addictions

issues for example, also engaged in other forms of coping (e.g., reading self-help literature, yoga, reflection, counselling) and this should not be overlooked.

Learning experiences. Learning from AI experiences was reported by the majority of participants including arriving at new insights about themselves, identifying areas for personal growth, and becoming more authentic about their needs and feelings in relationships post AI (Olsen et al., 2002). Mental notes for future relationships, trying new things, and valuing reconnection with friends and family were discussed. On the contrary, for some participants the relationship risks (e.g., emotional vulnerability, getting hurt again) became salient, which is consistent with other studies that found AI to be associated with long-term effects (Darab et al., 2020; Pelling & Arvay-Buchanan, 2004; Sayre et al., 2010). The researcher decided to include various learning experiences in her analysis, rather than solely those we would classify as examples of positive or adaptive learning. Overall though, most participants described making meaning of their experiences and articulated how they wished to go forward. (*Theme 2: Impact of injury; Learning experiences and growth*).

Stepping back, one may consider the initial disorganizing impact of AI (e.g., emotional, interpersonal, mental health, substance use, functioning) as a release phase, and this eventual period of learning or meaning as evidence of reorganization, processing, and healing. Trusting that painful intrapersonal and interpersonal situations will inevitably and eventually shift, despite current uncertainty and distress, was also one of the perceived positives of adopting a complexity lens identified by Study 2 participants, which is relevant here (*Study 2 Theme 2: Perceived positives*).

Role of others. Participants relied on specific parts of their networks throughout AI experiences. For the most part, even participants that described withdrawing from relationships for self-protection, simultaneously strengthened or leaned on other relationships in their lives, such as select friends and family members. This is similar to Pelling and Arvay-Buchanan's theme of connecting with supports

(2004). Most participants predominantly confided in at least one person and typically not more than four; which suggests we think carefully about who is privy to some of our deepest hurts or regrets. Only one participant reported speaking solely with the researcher about his AI experience. Finally, some gravitated towards professional rather than informal supports, and reported varying benefits. (*Theme 2: Impact of injury; Coping; Therapy*).

Partner and ex-partner responses were important in the healing process, with participants describing differences in their experience depending on whether injuring parties were remorseful and accountable, versus entitled and dismissive (Greenberg & Johnson 1988; Johnson, 2005; Makinen & Johnson, 2006). (*Theme 2: Impact of injury; Coping; Theme 3: Impact on and role of beliefs; Relationships*). Rebound hookups and relationships were also referenced in terms of the role of others; with some participants identifying that these experiences made them feel better or wanted, following painful AI realities. This suggests that the potential emotional support provided by some of these brief and seemingly surface-level relationships, should not be underestimated. Finally, some participants acknowledged how early relationships (most often familial, but also prior couple relationships) impacted their ability to trust, experience security, and process AI, in later relationships. They described adversities they went through, how they adapted, and how this connected to their functioning in current or more recent relationships. (*Theme 1: Context of injury; Early relationships; Abuse in relationships*).

Impact on others. Participants readily identified that AI experiences impacted others, including family and friends. For the most part, they were able to articulate the potential or actual impact of AI on others, even if they had some difficulty discussing the hurt they caused (such as with engaged in AI). Aside from the direct impact on partners and ex-partners, younger children were identified as most impacted by subsequent relationship reorganization and AI fallout.

Some participants described that their relationships contributed to isolation from family, friends, and others (coworkers) through weakened or cut-off connections. Relationships and networks are dynamic and evolving, and certain couple relationship patterns seem to have the power to impact the diversity and quality of couple's connections with others. (*Theme 4: Attachment processes; Isolation*). The reorganization of one's network (e.g., following the release of a separation and once settling into a new relationship) is another place we may observe transitions from phase to phase. One participant spoke about growing increasingly disconnected from family over the course of his marriage (ex-wife did not want to attend dinners/family plans), separating, reconnecting with family and introducing his new partner, and now settling into new routines (new partner connects with his family to plan dinners; encourages connection).

Shaming attachment needs and codependency. A few participants explicitly shamed neediness and codependency in relationships, prior to and following AI experiences. Some judged themselves for becoming obsessed with a relationship at the cost of neglecting friendships, felt that they needed to heal their "anxious and codependent attachment styles," and viewed the ways they were acting when distressed by AI issues as somehow abnormal – versus completely understandable given the circumstances and their histories. Despite reporting that they learned about attachment concepts through mental health services, social media, and self-help literature, some spoke about their attachment needs and fears with judgment, rather than understanding and self-compassion. This may not be that surprising, since many of us have a tendency of speaking to ourselves critically and judgmentally, unless we make an active and mindful effort to do otherwise. Still, it may suggest that the lay public is not fully aware of the basic tenets of attachment theory, which could inform, normalize, and depathologize their relationship experiences, including AI. The researcher believes that narratives could be reanalyzed to fully unearth subtle and explicit self-invalidation and judgment

of attachment needs and fears. This was not the focus of the current research, but rather an observation that she noted and found interesting – although not entirely surprising.

3. What about the lived experience of those that caused and experienced attachment injuries?

While all 15 participants described experiencing attachment injuries, five of these participants also identified causing hurtful relationship events, three others alluded to their partners or ex-partners being hurt, and three more questioned whether certain experiences could have been felt as AI by past partners. This may reflect that we cause and experience many attachment injuries throughout our lives and relationships, varying in magnitude, meaning, and even awareness of the incident, for each partner involved. Both, male and female participants spoke about experiencing and causing AI within their current/recent relationships and throughout their relationship histories.

Participants who spoke about causing AI identified feelings of guilt, regret, remorse, "feeling bad," and disgust with themselves, as well as happiness, excitement, and feeling energized by new connections. (*Theme 2: Impact of injury; Emotional and interpersonal impact; Guilt and regret*). This is consistent with past research about reactions to transgressions in relationships and perpetrator guilt (Baumeister, Stillwell, & Heatherton, 1995; Kowalski, Walker, Wilkinson, Queen, & Sharpe, 2003). Some coped with engaging in AI experiences by changing their privacy settings on social media, hiding their relationship status, locking their phones, telling lies and hiding information from close others, and journaling. (*Theme 2: Impact of injury: Coping).* Some also described worries about others' views of them, while others shared that friends were quite non-judgemental, accepting, if not encouraging of their behaviour.

A few participants described causing AI was not in line with their values and felt they needed to take time to reflect, work on themselves, and understand why things happened (Why did I push away

someone I loved?). (*Theme 3: Impact on and role of beliefs; Self*). For the most part, mental health and substance use were discussed more in relation with experiencing AI, versus engaging in AI. (*Theme 2: Impact of injury: Mental health and substance use*). Past research has similarly found that those experiencing AI can suffer more significant and long-standing impacts compared to the impact reported by hurtful party (Baumeister, Stillwell, & Wotman, 1990; Kowalski et al., 2003; Zechmeister & Romero, 2002). One participant described a multilevel impact of engaging in AI on his emotions, actions and ways of coping, view of self, and how he perceived others viewed him, both peers and potential relationship partners.

Participants who experienced injuries tended to focus more on their hurt, rather than ways in which they contributed to relationship dynamics or negative changes. Conversely, participants speaking about causing an injury tended to provide context about the place they were in when AI occurred. While hurt, it may be difficult to look at how one played a role, and while at fault, one may wish to make sense of causing another pain (which may involve providing context to one's actions). Gawronski (2012) wrote that motivated reasoning (e.g., justification to oneself or to another) is one way of resolving inconsistency (e.g., stemming from cognitive dissonance post acting against one's values), and can bias the process of inconsistency resolution toward desired conclusions. Further, that this may be illustrated in instances of threat-compensation such as victim derogation (e.g., They needed to play the victim) and self-verification (e.g., I'm a good person) (Gawronski, 2012).

It may also be the case that we can get stuck in one appraisal, rather than practising cognitive flexibility and inviting in several coexisting interpretations (i.e., They have been hurt and so have I; I'm generally a good person and I contributed to the relationship challenges in some way; They have the right to reach out to supports and it was hard for me when others viewed me as the Bad Guy). As Study 2 participants discussed, perhaps adopting a complexity lens is connected to being more

accepting of fluctuations and less dichotomous in how we understand ourselves and our relationships (*Study 2 Theme 2: Perceived positives*).

4. What about men's lived experience?

One limitation of the existing attachment injury literature is that a number of studies have been conducted about women's lived experiences (Pelling & Arvay-Buchanan, 2004; Sayre et al., 2010; Simonič & Klobučar, 2017; Zitzman & Butler, 2009) and couples processing AI in therapy (Naaman et al., 2005; Zuccarini et al., 2013), but have not always focused on men's lived experiences. Gender differences were not noted by the primary researcher. Male participants, similar to their female counterparts, discussed various types of injuries they experienced and engaged in, as well as other significant developmental and adult experiences. A number spoke about experiencing emotional abuse, tolerating ex-partners' dysregulated behaviour, and the impact of ex-partner mental health and substance use on themselves and their relationships. Similarly, a number of men and women spoke about adversity, including emotional abuse and domestic violence, in their families of origin. This is consistent findings that men and women report similar rates of intimate partner violence (Archer, 2000), despite differences in abuse outcomes (e.g., women being killed more, suffering worse injuries). (*Theme 1: Context of injury*). Regardless of gender, participants discussed the impact of AI on their mental health, the range of emotions they experienced, how AI impacted trust and future relationships, and what they gained in terms of learning experiences and growth. (*Theme 2: Impact of injury*).

In contrast to the four Pelling and Arvay-Buchanan (2004) study participants, who described their male partners as avoidant, the male participants in this study (and partners and ex-partners that female participants described) engaged in combinations of secure and insecure (hyperactivating and

deactivating) patterns of behaviour. Male participants described attachment concepts (primal panic, pursue-withdraw dynamics) when speaking about their AI experiences, similar to female participants in other qualitative AI studies (Darab et al., 2020; Sayre et al., 2010). They spoke about disconnection from others and other aspects of their lives when involved in certain relationships. (*Theme 4: Attachment processes*). They reported the need to reorganize following significant AI events, times when they knew a relationship was no longer serving them but were hesitant of change, and eventual turning points that took place (meeting new people; accepting an ex-partner's new relationship; having enough of an environment perceived as toxic; taking time to reflect on their own needs and next steps). (*Theme 5: Release and reorganization*).

A number of male and female participants shared their beliefs about men and women in relation to parenting, evolution, intimacy needs in couple relationships, sexuality, domestic violence, and cultural and familial beliefs. Similar to female participants, some male participants expressed more rigid and dichotomous gender beliefs, but this seemed to vary less by gender and more by the individual participant. (*Theme 3: Impact on and role of beliefs; Beliefs about gender*).

Perhaps the one area where there were some differences between male and female Study 1 participants was in terms of the role of others in coping. One male participant reported he had not spoken to anyone about his relationship experience, while another shared that his friends and acquaintances go to him for support, rather than the other way around. Another male participant described having few emotional support outlets during his separation, made worse by the fact that family and friends lived out of town. Another, who also reported supports lived elsewhere, expressed a desire to create lasting friendships and relationships, and alluded to not experiencing these at the time of interview – it should be noted though, that this participant had recently gone through a break-up; a time of reorganization during which life and existing connections may seem extra bleak.

Finally, yet another male participant described working long hours to distract himself from difficult experiences, including relationship conflicts and losses.

Still, with the exception of two participants, the remaining male participants did identify at least one (if not more) select friends and/or family that they considered as confidants in times of difficulty. In fact, some of these relationships were long-term, in one case nearly a lifelong mentorship and friendship. Two spoke about accessing professional services, while another briefly sought out religious counsel before finding this unhelpful and intermittently turning to supportive friends. It also seems that female participants spoke about attending individual or couple therapy (with partners or ex-partners) more than male participants, at the same time it is possible that some male participants did not disclose this way of coping. It should be noted too that a couple of female participants indicated a preference for speaking with a professional over friends and family, but despite this, their stories still referenced speaking to informal supports in their networks (e.g., friends, ex-partners, ex-partner's coworkers).

While men's voices have been underrepresented in the attachment injury literature to date, the emerging sense based on this research, is that both men and women suffer from and engage in AI experiences, and are quite willing to share their stories. Thus, we should continue to include men in future qualitative AI studies, rather than do so mainly when conducting research with couples.

5. Are complexity concepts and principles evident in participant narratives, such as the injury experience being described in a manner that is consistent with the adaptive cycle?

Study 1 participants described AI experiences in a manner that was consistent with periods of stability, shock and disorganization, followed by inevitable reorganization. (*Theme 5: Release and reorganization*). Participants reported an ongoing process of adjustment and coping. AI were situated

in a landscape of other injuries within and across relationships, and over time. Participants reorganized after AI to varying extents; such that there was a significant impact on trust for some (Lusterman, 1998; Makinen & Johnson, 2006), while others remained more unphased, hopeful, and open to new relationships (Scheinkmann, 2005). Reorganization is also likely occurring on implicit, subconscious levels, such that participants would be challenged to explicitly describe how they are changing and staying the same (in a single snapshot of retrospective narrative.)

Participants also provided numerous examples of pursue-withdraw patterns in their relationships that were engaged in over time. They referenced switching from pursuing to withdrawing within relationships, and spoke about the impact of infidelity on these interpersonal dynamics. (*Theme 4: Attachment processes; Pursue-withdraw dynamics*). These interactions seemed to reflect intrapersonal and interpersonal feedback loops, within the participant's experience, in the couple relationship, but also in terms of connections with their network (e.g., getting feedback from various others at different times throughout the relationship). Similar pursue-withdraw dynamics have been documented in previous qualitative AI studies, described by Darab et al. (2020) as *behavioural withdrawal and nearness* and by Sayre et al. (2010) as an *abandonment/detachment* AI marker – which also leads into the next finding.

AI experiences often led to internal (e.g., obsessing, rage, hurt, abandonment, uncertainty) and external (e.g., fighting, separations, moving, also cheating) disorganization. Intrapersonal and interpersonal (e.g., couple, family, friend group, work relationships) impacts and varying degrees of reorganization were described; approaching dating and new relationships, processing relationship dissolution, and focusing on other parts of their lives (e.g., self, work, studies, children). (*Theme 5: Release and reorganization; Turning points*).

Stepping back, what was evident is that participants told AI stories by weaving together information about their relationship histories, development, ways of coping, short- and long-term impacts, among other aspects of their lives; possibly demonstrating the emergent characteristic of stories themselves. CAS theory may provide an overarching framework for understanding the complexity of intrapersonal and interpersonal changes involved in AI experiences. The use of qualitative methods to explore adult attachment facilitates a deeper and more accurate understanding of an individual's experiences, by giving context to identified attachment behaviours, and it does not reduce an individual and the complex variations in their life experiences into a basic category (Rodriguez, Frost, & Oskis, 2016). A number of past AI studies, referenced throughout this work, have applied a qualitative research approach to the study of AI.

Study 2

Two key themes emerged from Study 2 interviews: *Theme 1: Participant uncertainty* and *Theme 2: Perceived positives of adopting a complexity lens*. The overall objective of Study 2 was to invite local individuals who are familiar with complexity theory (graduate students and faculty) to share how they view the interconnection between adult attachment and complexity.

Most Study 2 participants were able to apply some complexity concepts to themselves, their relationships and family networks, as well as their work and studies. With respect to relationships and processing AI, participants more readily gravitated towards the benefits of adopting systems thinking and spoke about what they perceived as associated intrapersonal and interpersonal positives. Participants did express uncertainty, not knowing, and not previously applying complexity to themselves and their relationships, and this was certainly more the case with non-psychology participants. (*Study 2 Theme 1:*

Participant uncertainty). Psychology students generally had a much more integrated and flexible way of applying complexity to their lives.

Perceived, associated positives were described as useful skills for understanding and navigating relationships and life, and included: hope; optimism; self-acceptance; acceptance and tolerance of stuckness, uncertainty, and imperfection; certainty that current conditions (especially times of difficulty) would shift despite not knowing when this would occur; allowing for non-dichotomous and non-linear thinking, which one participant described as liberating; being less surprised by surprises; increased sense of agency and ability to shift focus to different parts of the system that are more manageable; and possessing a multicausal understanding of themselves, others, and the world. (*Study 2 Theme 2: Perceived positives of adopting a complexity lens*). These perceived benefits certainly echo those discussed in *Getting to Maybe* by Westley et al. (2007), such as standing still through uncertainty, and that healthy systems are paradoxically able to remain the same and change, even when there is much uncertainty about what these changes will involve. Living systems evolve towards a compromise between order and surprise that allows for coordination of complex activities; exhibiting order and stability, and the capacity for adaptation and change (Kaufman, 1995; Wolfram, 2002).

The ability to tolerate uncertainty and believe that inevitable future shifts will occur, stood out to the primary researcher in the Study 2 narratives. (*Study 2 Theme 2: Perceived positives of adopting a complexity lens*). Marris (1996) described optimal development as not defined by the quality of a particular adjustment, but rather as a higher order orientation toward management of change and uncertainty. Not a configuration of traits, but rather a flexible pattern of competencies that promotes consistent and constructive engagement with others (Marris, 1996). Vaughn and Bost (1999) suggest that "healthy personality" development is associated with self-reflection, reasonably accurate and differentiated assessment of self and other, the ability to access and coherently organize context-relevant affects and

memories, entertain flexible interpretations, and employ effective coping strategies accordingly. Similar to these theories of personal development, that highlight the benefits of flexible and adaptive patterns that organize depending on context, Study 2 participants spoke about giving themselves permission to be stuck, acknowledging the role of many parts, stepping back and working on other manageable aspects of their lives, and making efforts to trust the process even when experiencing much uncertainty. (*Study 2 Theme 2: Perceived positives of adopting a complexity lens*).

Additionally, most Study 2 participants considered the properties of CAS and decided that individuals and couples were likely CAS, with some referencing the interacting panarchies around them (e.g., family, history, culture, society). One participant strongly believed CAS theory was not applicable to couple relationships due to a couple only involving two agents. Other uncertainties, questions, and hesitations discussed in Study 2 interviews have already been thoroughly outlined in the Results section, and may also be partially informed by the make-up of the sample. (*Study 2 Theme 1: Participant uncertainty*).

Most interestingly, one participant suggested that a way to avoid loss of individual identities in couple relationships is for partners to perceive themselves as CAS versus merging their identities together. (*Study 2 Theme 2: Perceived positives of adopting a complexity lens*). Another noted that relationships are made up of ongoing AI experiences and that couples may move through cycles several times and over long periods of time with respect to one issue (Wolfram, 2002), while possessing an ongoing goal of commitment to the relationship. The majority endorsed being in multiple places on an adaptive cycle and spoke to what phase(s) they identified with in various life aspects (e.g., My relationship is in conservation. I'm approaching release and reorganization in terms of my studies. My spiritual beliefs are in a growth phase). Some participants noted the location may vary by perspective (e.g., self, partner, therapist) as well as moment to moment.

Most participants suggested that if couples were CAS and moved through adaptive cycles, the AI could occur anywhere, whereas some alleged that should the event(s) be significant enough, release and reorganization would likely follow. One participant suggested releases could be occurring around certain issues, while other aspects of the couple relationship may stay stationary; again, the concept of simultaneous change and stability. A number of Study 2 participants also referenced that complexity and systems thinking may be more at play on an implicit versus explicit level, such that individuals and relationships move through non-linear dynamical patterns without these shifts necessarily being at a conscious level. For example, not noticing that a one's beliefs or a relationship dynamic are becoming increasingly rigid (conservation phase) which then requires less of a shock to send the system into release.

Additional Connections

The dynamical systems approach views mental states as attractors that are constantly in flux (Tschacher & Junghan, 2009). Referring to mental disorders, these authors proposed psychopathological states are not fundamentally different from healthy states. Along the same line of reasoning, insecure attachment states may not be fundamentally different from secure states. It may be beneficial for us to continue to view attachment and couple relationships as nonlinear, dynamic, and evolving, in both our personal lives and professional areas of practice. While it is not about hanging onto one optimal state, it is about accepting that unknown changes and rigidities will arise, and can be reinforced or shifted on various levels.

Bak (1996) suggested that conflict may serve as an information discharge, in order to maintain an adaptive mix of coherence and complexity that allow for self-regulation and growth. Pincus and Guastello (2005) also stated that relationships serve an information processing functioning, where rules, roles, relationships, realities, and response patterns (Pincus, 2001) overlap to control closeness and conflict. Writing about psychotherapy, Pincus noted that the most commonly studied interpersonal processes

(control, closeness, and conflict) have an emergent structure, arise from patterned information exchange, and feed back to regulate subsequent dynamics over time, in circular ways, across scales (cited in Guastello, Koopamns, & Pincus, 2009). In the short-term, conflict is suggested to narrow flow and protect the integrity of the system (e.g., self-relations and interpersonal relationships), whereas conflict resolution appears to be a precursor to adaptation and growth. In Study 1, some repeated injuries were absorbed into the fabric of the relationship as "just another time" (e.g., when an ex-partner relapsed, a partner was on Tinder again) while "turning points" and "last straw" experiences were also reported, which contributed to threshold crossings (e.g., finding a hidden camera in the bedroom resulting in all feelings for the ex-partner turning off, but also more genuine and open discussion about feelings and needs). Similarly, pivotal events (characterized by a clearly delineated 'before/after' emotional divide, and profound changes in terms of participants' thoughts, emotions, and beliefs about partners or the relationship) were reported in an AI study of five stepmothers (Sayre, 2010).

Aspects of complexity were noted when participants spoke about inter-relatedness itself. Their narratives about relationships involved feedback loops in terms of reflection, communication, and interaction, and reference to acting and adapting in a dynamic context. This supports that relationships themselves are emergent, evolving through ongoing dynamics and being influenced by additional feedback loops. For example, one participant's friend suggested that he should give his ex-partner back home another chance, resulting in the participant being more open to repair and reconciliation, despite other of his friends "hating her." Other participants spoke with an ex-partner, or their partner's ex-partner, to gain perspective on one's partner or the relationship, and arrived at a deeper level of understanding or self-validation. Another example of a feedback loop was when a friend's view of men was impacted by the participant's ex-partner's behaviour over time, in both positive (hope for relationships) and negative (losing hope, becoming pessimistic) directions.

Some participants described getting "stuck" and acting in certain ways with each other as relationship patterns formed and stabilized, as a result of adaptation on various interacting levels (e.g., unemployment and substance use contributing to living together but not speaking to each other; checking patterns in context of ongoing infidelity; withholding information from friends and family about a partner's addiction struggles). Being stuck also inevitably gave way to some sort of change (e.g., leaving the relationship; rebuilding trust and decreased checking behaviour; letting friends and family know what is really going on; giving one's partner more feedback following AI). Feedback cycles seem to have the capacity for generating more of the same, while others involve both recursive operations and processes that introduce novelty (Goldstein, 2001, 2002). Transcendence of previous patterns must entail both, following and negating the previous pattern, in order to move towards a different outcome (Goldstein, 2001, 2002).

Palombo (cited in Piers et al., 2007) described that reorganization makes evolution possible, and that CAS appear driven to the edge of chaos, where ecosystems (including relational ecosystems) can change significantly in adaptation directions. Several participants mentioned fear and avoidance of leaving or releasing relationships that were no longer serving them (i.e., avoidance of the edge), due to still providing some stability, security, familiarity, and intimacy (i.e., holding onto conservation). Some participant narratives were also characterized by systems thinking in terms of how they understood connections between themselves, their relationships, and other aspects of context (time, place, degree of support in their network, work, health and mental health), while others demonstrated more rigidity and single-path or linear-like views. Rigid overuse of one particular view or strategy becomes self-sustaining through positive circular feedback over time (Pincus, 2009).

Through this process rigidity can invite rigidity, such that short-term interpersonal adaptations that aim to avoid [narcissistic] injury (Kohut, 1977), in fact block development of more flexible longer-term adaptive strategies. Rigidity may spread across scales of time and size, making the system less flexible,

adaptive, and robust, against neighbouring systems' flows in which it is nested (Dishion, Nelson, Winter, & Bullock, 2004). The more rigid our relationship pattern has become (e.g., critical, avoidant of each other), the less resilient to shocks (e.g., meeting a friendly and supportive person and growing closer to them over time). Rigidity has been written about in connection to psychopathology, spreading both within and among individuals (e.g., criticism in relationship impacting one's mental health; partners in a relationship impacting each other's mental health) (Dishion et al., 2004). Interestingly, it seems that short-term conflict and rigidity may serve an adaptive function. Some systems evolve towards reliance on chronic unresolved conflict (a hallmark of psychopathology), rather than mutual closeness or reciprocal control, such that conflict may be the only thing holding the relationship together (Pincus, 2009).

Towards a CAS model of AI resolution. Sbarra and Hazan (2008) suggested that the attachment field lacks a fully developed theoretical account of what it means to be attached to another person, the functional mechanisms that maintain adult pair bonding, and how injuries impact this unfolding process. Perhaps this is because there are too many complex relationships among variables that impact attachment trajectories, including the varied impact of AI experiences over the course of life. In the Introduction, various models were summarized for working with couples resolving AI in clinical contexts (Gordon, Baucom, & Snyder, 2000; Makinen & Johnson, 2006; Woldarksky Meneses & Greenberg, 2011). Gordon et al. (2000) suggested that the forgiveness process involves three stages (*impact*, *meaning*, and *moving forward*) which parallel recovery from more general trauma events (Gordon, Baucom, & Snyder, 2000). Makinen and Johnson's (2006) AIRM (Attachment Injury Resolution Model), includes four phases (*attachment injury marker*, *differentiation of affect*, *reengagement*, and *forgiveness and reconciliation*). Finally, The Couples' Forgiveness Model involves the injuring partner (a) accepting responsibility for the emotional injury nondefensively, (b) expressing shame, (c) offering a heart-felt apology, (d) the injured partner experiencing

a shift in their view of the injuring partner, and (e) the injuring partner accepting forgiveness (Woldarsky Meneses, & Greenberg, 2011).

CAS theory may offer an integrative framework for such AI resolution models; one that makes space for AI of varying impacts, compound injuries, individuals approaching relationship with significant trauma histories and histories of mental health concerns and substance use, and the role of others in the coping process. While the above models seem to demonstrate one flow through the process (e.g., impact, meaning, moving forward), CAS theory may allow us to accept that in real-life relationship experiences and healing from AI is not so neat and linear. Instead cycling through, feeling the impact, trying to make new meaning, and getting stuck in impact again (informed by partner, family, and others' reactions), sometimes many years after the relationship has ended. Further, when a study concludes that a couple has resolved an AI based on displaying 'moving forward' behaviours, how do we know they will be resolved in five years? In their next relationship? At home, without the guidance of the therapist? Alternatively, CAS theory may exist all around us, be tricky to disprove, and perhaps overwhelm the process of understanding AI, compared to a smaller number of identified phases, focused predominantly on individual and couple levels, as in the above resolution models. More research is needed to assess the practicality and utility of applying CAS to AI experiences, but one can still outline potential benefits of acknowledging complexity for clinicians.

Considerations for Clinicians

Clinicians who provide psychotherapy, whether it be to individuals, couples, or groups, have the opportunity and honour of learning about clients' interpersonal lives. Pincus (2009) wrote that successful psychotherapy ultimately involves a balance between stability and complexity, and acceptance and change. Further, that psychological matters during effective treatment take place when novel insights arise through natural course, and what emerges is fostered. While CAS theories are still relatively new to clinical

psychology, the lack of explicit focus on conflict and rigidity does not mean that they are not key components of existing evidence-based psychotherapies (Pincus, 2009). For example, cognitive behavioural therapy (CBT) specifically targets restructuring rigid, dysfunctional beliefs and EFT rigid, entrenched couple patterns and core beliefs. Pincus (2009) suggested that clinical theory research (e.g., studying turn taking, meaning exchanges, rigid conversations patterns, and conflict avoidance dynamics) should be empirically testable and explicitly nonlinear and systematic.

Similar to how Palombo described the loosely connected self-organizing, ecosystem between the client and the therapist, couple relationships can be conceptualized as an evolving ecosystem (cited in Piers, Muller, & Brent, 2007). Clinicians can help raise their clients' awareness of patterns of rigidity, in whatever area of their lives and relationships these may be. Further, it's important and exciting to acknowledge that small changes in initial conditions or input along the way (interpretation, restructuring) can lead to major reorganization for a client or a couple, in terms of changes in connectedness and complexity of their mental content and interpersonal dynamics.

Understanding that AI experiences are embedded in other AIs in current and past relationships, family-of-origin issues, lifespan transitions, mental health and substance use, core beliefs (self, other, relationships), ways of coping, and the role of and impact on others, may be helpful. Clinicians can remain open to how various factors and variables play a role in case conceptualization of AI experiences and couples' relationships, including both small- and large-scale variables. They can aspire towards being nonjudgmental and unattached to one's own beliefs and bias regarding AI. This may also include asking male clients about AI experiences and not assuming they are typically the avoidant partner who has caused the AI.

Clinicians can remain open to various paths and AI outcomes including couple reconciliation, dissolution, or shifts to a different type of relationship over time (e.g., an ex-partner becoming a friend and

confidant over time). We can try to mindfully study our lives for patterns of rigidity and surprises, and similarly not be surprised by new twists in our clients' narratives (e.g., We were not together, but kept living together partially for financial reasons, and continued to sleep together, even though we knew we were eventually separating).

Clinicians can also continue to listen for trauma-like language in client narratives about AI to better understand short- and long-term meaning making and impacts. Potential gains and growth associated with periods of crisis, release, disorganization and reorganization (e.g., more authentic relationships, awareness of own needs in next relationships) can be explored. Clinicians can thus encourage tolerance of uncertainty and *standing still* through these significant events. They may benefit from keeping the adaptive cycle and system resilience in mind when working with individuals and couples whose patterns appear entrenched and resistant to change, which can be frustrating for all involved but also useful information about the system's functioning. Additionally, anticipating potential gains and growth associated with times of difficulty could instill hope for the clinician, as well as the individual and couple.

We (clinicians) may also benefit from reminding ourselves that the biopsychosocial (and technically also ecological) landscape in individual and couple work is constantly changing, slowly and rapidly. This stance (ideally) allows one to make necessary and flexible adjustments throughout the therapy process, versus being glued to initial clinical hypotheses and treatment plans. Viewing oneself and one's beliefs as CAS can allow for adapting, namely, releasing parts of beliefs about clients, oneself, and the world, rather than getting stuck in one truth.

Limitations

Study 1. Study 1 had the following limitations. The review of the adult attachment and AI literature was not exhaustive due to the sheer number of studies and the interchangeable use of terms (e.g., AI, emotional hurt, infidelity, betrayal, impasse), respectively. The sample was self-selected and a variety of

underlying motivations for participation are possible (e.g., wish to contribute to research and advance science, contribute to help others, and/or to use the interview space for further personal processing). While wanting to contribute to research and altruistic motivations may not be problematic, using the interview space for personal processing or as a therapeutic space could be (e.g., not responding to interview questions). Study 1 participants did not have a tendency of dominating the interview, instead they let the researcher guide the session and responded to questions appropriately and for the most part, concisely. It should also be noted, that most of the existing qualitative and EFT AI studies have recruited participants through purposive sampling, from counseling services, or through ads offering couple therapy.

The diversity of the sample could have been greater, instead of predominantly single, heterosexual, and Caucasian. While the self-selective nature of this sample and the small sample size (typical of qualitative studies) does limit the generalizability of the findings, generalizability is not typically the goal of qualitative research (Golden, 2003). Instead, the collected data provide an in-depth and rich knowledge about this particular sample.

Additionally, while the attachment field has moved beyond categories and prototypes that classify an individual as entirely secure or insecure – how the reader perceives this sample is worth considering. It is possible that insecurely attached individuals gravitated towards participating in this study. It is possible that participants' stories disproportionally reflect unresolved AI, pathological relationships, maladaptive ways of coping, and abusive histories. It is possible that this was not as evident to the researcher because (as a person and a clinician) she makes efforts to see the function in "dysfunction." It is also possible that the number of interview questions asked, how narratives were transcribed and quotes selected for inclusion, and even the nature of speaking about AI – may all partially contribute to narrative incoherence. Certainly, some participants were more stuck, impacted, and traumatized by experiences than others, but overall the researcher did not experience the interviews as particularly disorganized or incoherent. Nonetheless, it

would be interesting to recruit a sample of securely attached participants, who have not experienced significant adversity on individual and relational levels, who engage in primarily adaptive ways of coping, and who have had minimal mental health or substance use issues, in order to compare findings.

Another limitation involved the retrospective nature of participant self-reports, as well as the self-censoring or limiting of self-disclosure during interviews. The researcher acknowledges that these narratives are one snapshot and one interpretation of the past, present, and future, and that social desirability and positive impression management exist. The researcher minimized self-censoring by adopting a non-judgmental, curious, and validating stance throughout the interview, which ideally made space for a diversity of participant experiences. The researcher also emphasized that there were no right or wrong answers, rather that she appreciated the participant taking the time to share their private experience. Confidentiality and anonymity were explicitly discussed at various points of the research process (recruitment letter; informed consent discussion and written consent form; at the end of the interview).

Further, the Study 1 interview script could have included fewer questions, in order to hear one aspect of the experience more fully (e.g., impact of AI on view of self over time). It is not uncommon for qualitative researchers to pose a few questions to a small sample of participants (e.g., Sayre et al., 2010). One would imagine that this would provide the researcher with more time to conduct multiple interviews with one participant over time, and make the iterative process of data analysis more manageable. The researcher felt some urgency to move through the questions, while adhering to the two-hour maximum session length promised to participants. While listening to audio recordings, the researcher noticed missed opportunities to explore issues further (e.g., mental health impact) or to seek clarifying examples.

The study could have also had fewer participants, as 15 narratives provided an abundance of data. Approaching this data set with a two- or three-person team for coding and analysis would have been beneficial in hindsight, as would have been conducting follow-up interviews with participants to gather

feedback on how emerging themes resonated with them. Such follow-up interviews have been completed in other qualitative AI studies (e.g., Pelling & Arvay-Buchanan, 2004). Conversely, because of the theoretical and exploratory nature of this research, it is unclear if Study 1 participants would have been interested in providing feedback about emerging themes. The researcher was also careful about the research session not being perceived as a therapy session, which a follow-up meeting may have complicated. Still, some participants may have very much appreciated an opportunity to reflect on the findings and share how themes resonated with them.

The challenges of studying a metatheory such as CAS through a one-time qualitative interview was considered. If all living systems are CAS existing at different levels and evolving across stages, could this present a challenge to pattern recognition in narratives. Ideally, data from individual, dyadic, situational, and cultural/societal levels, collected over time, would perhaps better capture the complexity of AI experiences. Wolfram (2002) asserted that CAS are computationally irreducible, meaning that the only way to discover their long-term pattern of behaviour is to run the system through several iterations, and that some form of agent modeling (i.e., models mapping multiple heterogeneous agents across a dynamic landscape) should be utilized (2002). Pincus (2009) identified that the most extensive research applying non-linearity and dynamic principles has likely been carried out by couple researcher John Gottman (such as Gottman, Swanson, & Swanson, 2002).

Gottman studies the interactive rigidity within marital conversations that predicts dissatisfaction and divorce (using a different equation model based on matches and mismatches in the couples' interactive response styles). In a 2002 article, Gottman et al. demonstrated that studying personal relationships using mathematical models is possible. They described proximal change experiments conducted with couples in their lab that include assessment (pre-intervention conversation modeled by the clinicians) and intervention, followed by an evaluation of the intervention using mathematical modeling of the post-

intervention conversation. The Gottman lab employs a multi-method research approach to studying marital interactions which involves measuring and being able to predict couple's interactive behaviour, their perception of their interaction, and their physiological states during interactions. Rather than trying to change the entire relationship, these researcher clinicians use proximal experiments that focus on changing a particular parameter of that couple's mathematical model. Their approach uses general modeling for social interactions and can be applied to time series data generated over time for two individuals.

Study 2. Several limitations of Study 2 are noted. Two interviews were conducted by phone which made parts of the recordings hard to decipher. Each of these participants reviewed the audio file and transcript, and clarified their comments. Again, follow-up sessions with Study 2 participants to gather their feedback on identified themes were not held. For Study 2, this was mostly out of respect for participants' busy schedules (graduate students, faculty). This may be somewhat supported by the fact that only four of eight participants were interested in reviewing interview transcripts for accuracy. Still, the researcher could have made an effort to review the findings with participants, even if only by email.

Although this was a local sample suited for initial explorative inquiry, the study would have benefitted from recruiting students, faculty, and researchers from outside of Lakehead University, to gather additional insights and perspectives. Efforts were made to reach 11 international complexity researchers (two declined, three emails bounced back, and the remainder did not respond), nine Lakehead University faculty (four agreed, one declined, one did not end up scheduling, and the rest did not respond), eight students (four agreed, three did not end up scheduling, and one did not respond), and a colleague and his partner (who initially indicated familiarity with complexity science, but then declined for not being specifically familiar with CAS theory).

The students that ended up participating were all affiliated with the Complexity, Culture, and Resilience Lab in the Department of Psychology at Lakehead University. Potential confounding factors

associated with interviewing this group are possible: personal investment, bias, and feeling compelled to validate and confirm the researcher's ideas. Yet, the primary researcher found that student participants communicated perceived gains and benefits of adopting a complexity lens, while remaining critical about the limits of applying CAS concepts and conceptualizing relationships in this way. It is also impossible to untangle all of the different ways of learning and experiences that impacted the participants, to arrive at the views they shared at the time of the interviews. As such throughout the work there is reference to participants' "perceived associated benefits," but not in a way that directly connects these to only being informed by learning complexity theory.

Finally, one of the potential benefits of studying a local group of individuals who are familiar complexity, and some familiar with the researcher, is the genuine and frank discussions that emerged, filled with additional wonderings the researcher may have not considered without them (e.g., perceived benefit of adopting a complexity lens on self-awareness and self-regulation). Expert CAS researchers may not have the opportunity to offer the time that Study 2 participants did, and further may defend, rather than question, the application of complexity to all living systems, including couple relationships and AI experiences.

Directions for Future Research

Study 1. Several directions for future research could follow from Study 1. Similar to Gottman's approach to couple research, longitudinal studies that follow individuals and partners could be conducted, in order to capture change and stability of beliefs, diversity of factors and people referenced, and changes in terms of diversity and modularity of interpersonal connections over time. This would allow for collecting data from various interconnected, co-evolving levels and agents (e.g., individual, dyadic, situational, cultural).

Utilizing an analytic approach similar to Pype, Mertens, Helewaut, and Krystallidou (2018), who coded interviews with palliative care workers using CAS principles as codes, may also be useful to recode

this data set or future qualitative AI data. Examples of CAS principles they used for coding included: team as an open system interacting with its environment; attractors shaping team functioning; and the team possessing history and sensitivity to initial conditions (Pype et al., 2018). This approach may have allowed for different themes to emerge that further inform the non-linear dynamics within Study 1, and possibly Study 2, narratives. A potential benefit of this approach by Pype et al., (2018) is that the CAS principles could guide the coding process, such that parts of narratives specifically pertaining to CAS principles could be identified and analyzed. One potential challenge may be the tendency to make examples fit the principles, which could be partially remedied by employing a team of coders.

The approach to current analysis was instead to note significant complexity themes that were noticed, including: stability, release and disorganization; fear and avoidance of releases; and feedback loops. These complexity concepts were certainly the focus of findings, to the detriment of examples of panarchy, remembering, rigidity and poverty traps, and system resilience. One reason for this was that an example of a participant acknowledging different levels of interacting systems that impacted her and ex-partner (i.e., Nancy discussing a past relationship in connection to her health, poverty, small community, gender socialization and her ex-partner's beliefs about men and women, lack of support) were simply too lengthy to include. They could only be captured by connections in several dense pages of text. It seems that a qualitative study with fewer participants, focused on a select complexity concept (e.g., remembering) may best demonstrate the presence and absence of it in participant narratives. At the same time, locating various CAS concepts and principles in relationship narratives to support the argument that CAS applies and informs attachment dynamics may be more reflective of the dynamic networks involved.

A social network analysis approach that involves mapping social and interpersonal networks over time could be beneficial. Social networks could be assessed pre and post AI experiences, or pre and post psychotherapy and at later follow-up to assess stability and change in interpersonal networks. Individuals

supposedly have at least one to three attachment figures at any one time (Bartholomew, 1997), and these figures typically change throughout the course of their lives (Cicirelli, 2010). Assessing the impact of change and stability of attachment figures on individuals' mental health, coping, and resilience is an important research direction, particularly in light of the significant impact of AI and broader interpersonal experiences on mental health and substance use patterns of some individuals (e.g., Study 1 participants).

Study 2. The most crucial direction for future research that follows from Study 2 is to gather insights from a wider group of established complexity researchers, and also potentially another less expert sample familiar with complexity from a different university community. Participants for this initial exploratory study were all from Lakehead University and half the participants were psychology students affiliated with the Complexity, Culture and Resilience Lab. While they provided some initial insights about the connection between complexity and relationships, it would be beneficial to replicate a similar qualitative study with a broader group, to compare and contrast current findings with those of complexity experts. Further, conducting qualitative studies of researchers and theorists in order to explore different uses and applications for the theory they study, may be a fruitful idea, although it may also be more prone to bias and overapplication of the theory by those who are already converted. The primary researcher was unable to locate examples of such a qualitative study being conducted with attachment researchers and theorists, and none to our knowledge exist in the complexity literature.

International complexity researchers may also have been more likely to participate in a brief online survey study, rather than a one-hour phone interview. Possible open-ended questions could have been limited to: (a) does CAS theory inform your couple relationship? (b) are individuals and couples CAS? and (c) does CAS theory apply to couples and human relationships? The Stockholm Resilience Institute, the Santa Fe Institute and other complexity focused websites (complexityexplorer.org) could be contacted, requesting that a brief online study be circulated among its members as part of a larger fan out. This would

ideally provide outside perspectives on the applicability of CAS to couple relationships and processing AI circumstances. Quantitative exploration of the relationships between psychological resilience, attachment, systems thinking, and individual and couple functioning through AI experiences, may also be a good next step.

Additionally, research assessing clinical utility of teaching or utilizing complexity concepts would be helpful, guided by questions such as: Do individuals, couples, or clinical populations benefit from adopting a complexity lens? Do these groups identify similar perceived positives as those described by Study 2 participants (tolerance of uncertainty, acceptance of getting stuck, hopefulness, multicausal understanding, non-dichotomous thinking)? Or do they not connect with the theory and concepts as queried by one Study 2 participant? How can complexity concepts and principles best be utilized by clinicians for case conceptualization and treatment, including the ball-and-basin metaphor to understand shifts in attachment security within and across relationships? Can attractors be identified in one's attachment network, and how do these relate to attachment figures and significant attachment experiences? Can the hierarchical organization of multiple internal working models be conceptualized as panarchy, involving processes of revolt and remembering? And finally, what are the best methods for studying complexity in relationships in psychology?

Conclusion

Two large, qualitative interview studies were conducted to examine if the complexity perspective can contribute to understanding adult attachment and attachment injuries. Data analysis was iterative, conceptually- and data-driven, and informed by thematic analysis. This research expands the existing qualitative AI literature, including about men's lived experience, individuals who have caused hurts, compound AI (within and across relationships), and hearing stories from a broad age range of individuals (20s to 70s). While the findings provide some initial support for AI experiences being understood through a

complexity lens, more research is needed. Individuals, couples, and family systems do seem to move through various phases of change including growth, conservation, release and disorganization, and varying degrees of reorganization over time – but not complete reorganization, thus demonstrating the system's capacity for remembering through panarchy (Berkes & Folke, 2002). Study 2 participants demonstrated that complexity concepts can be used metaphorically to discuss their individual experiences and that (to them) adopting a complexity lens in their approach to life was associated with numerous perceived positives. This should be qualified with the finding that Study 2 participants communicated considerable uncertainty about applying complexity to relationships and relationship injuries (theirs' and others') and that they viewed other lenses (e.g., attachment theory) as potentially more appropriate and valuable.

Attachment has fluid and stable qualities, such that some patterns (thoughts and beliefs, behaviours, conversations and interactions, and returns to relationship partners) repeat themselves while other aspects may shift and evolve. This study's findings support that the attachment injury process is not linear and can be characterized by relative periods of growth, stability, shocks and disorganization, learning and reorganization that cycle over time and across levels. Complexity theory may be useful to psychology practitioners and researchers in the area of attachment in the sense that it allows one to acknowledge the many variables and factors at play, and encourages one to expect the unexpected. It also draws attention to the initial conditions of the system and the "psychosystem" or interpersonal ecosystem of compound injuries, trauma histories, and other stressors that play a role in shaping the AI as well as the therapy process. It may also be that we can adopt a complexity lens to facilitate our navigation and understanding of ourselves, others, and the world. Psychology clinicians and researchers should continue to consider the connections between attachment dimensions and complexity (larger scale patterns, nonlinearity, changes in diversity or connections of client's network). Attachment theory and complexity theory seem to complement each other and contribute to looking at different aspects of the same evolving systems. In this

way, CAS theory may offer an integrative framework for understanding AI, but more research on this interconnection is encouraged.

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APPENDIX A

Letter to Potential Participants – Study 1

Letter to Potential Participants

Dear Potential Participant,

Thank you for your interest in this study. I am a second year student in the Clinical Psychology Ph.D. program at Lakehead University. This study is one of a series of studies, which make up part of the requirements of this doctoral degree. This research study is being supervised by Dr. Mirella Stroink.

We are recruiting participants who are 18 years of age or older from Lakehead University as well as the Thunder Bay community to participate. Participants must also have experienced and engaged in attachment injuries in significant intimate relationships, past or current.

Attachment injuries are emotional hurts that occur in intimate relationships. These events may be characterized by abandonment or a betrayal of trust during a critical moment of need. Attachment injuries have the power to reorganize relationships in terms of how partners view themselves, each other, and relationships overall.

Complex adaptive systems (CAS) have adaptive cycles, which include four phases: exploitation, conservation, release, and reorganization. Complexity theories acknowledge that systems are constantly adapting to their environment and patterns emerge from the interconnected parts of the system. The purpose of this study is to explore individuals' retrospective experiences of processing attachment injuries.

Should you decide to participate, you will be invited to reflect on your relationship history and significant experiences in these relationships. Participation in this study is completely voluntary and you are free to withdraw at any time without repercussion.

Time involved should you decide to participate includes: a 1 to 2- hour interview and the opportunity to review the interview transcript for accuracy. All scheduling will aim to best accommodate your schedule.

Physical or psychological risks associated with participating in this study are unlikely. Still, discussing challenging experiences in couple relationships may contribute to experiencing mild to moderate stress. Should you experience distress during or following your participation you will be directed to the Student Health and Counselling Centre or another community service if you are not a Lakehead University student. Benefits associated with this study include time to reflect on past experiences and how they have contributed to your growth and change, learning about the research process, and a $5.00 Tim Hortons gift card.

All data collected from this research study will be kept anonymous and confidential. Dr. Stroink and I will be the only individuals who can access it. Data will be stored in Dr. Stroink's lab for five years.

Please feel free to contact me at the email below with questions about the study.

Thank you for considering to participate.

Karin Almuhtadi, MA
Clinical Psychology Ph.D. Student, Department of Psychology, Lakehead University
Tel: (807) 708-2992
Email: kalmuhta@lakeheadu.ca

Dr. Mirella Stroink
Professor, Department of Psychology, Lakehead University
Tel: (807) 346-7874
Email: mstroink@lakeheadu.ca

This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

APPENDIX B

Letter to Potential Participants – Study 2

Letter to Potential Participants

Dear Potential Participant,

Thank you for your interest in this study. I am a second year student in the Clinical Psychology Ph.D. program at Lakehead University. This study is one of a series of studies, which make up part of the requirements of this doctoral degree. This research study is being supervised by Dr. Mirella Stroink.

We are recruiting individuals who adopt a complexity perspective in their graduate studies, work and/or research, and who have been in at least one significant intimate relationship in their lives.

You will be invited to share your views about connections between couple relationships and complex adaptive systems (CAS) in a semi-structured interview.

Attachment injuries are emotional hurts that occur in couple relationships. These events may be characterized by abandonment or a betrayal of trust during a critical moment of need. Attachment injuries have the power to reorganize relationships in terms of how partners view themselves, each other, and relationships overall. In addition to their challenges, attachment injuries may also lead to adaptive and resilient forms of reorganization.

Complex adaptive systems (CAS) have adaptive cycles, which include four phases: exploitation, conservation, release, and reorganization. Complexity theories acknowledge that systems are constantly adapting to their environment and patterns emerge from the interconnected parts of the system.

Participation in this study is completely voluntary and you are free to withdraw at any time without repercussion.

Time involved should you decide to participate includes: a 1 to 2- hour interview and the opportunity to review the interview transcript for accuracy. All scheduling will aim to best accommodate your schedule.

Physical or psychological risks associated with participating in this study are unlikely. Still, discussing couple relationships may contribute to experiencing mild to moderate stress. Should you experience distress during or following your participation you will be directed to the Student Health and Counselling Centre or another community service of your preference. Benefits associated with this study include supporting the generation of new knowledge, taking part in the research process, and a $5.00 Tim Hortons gift card.

All data collected from this research study will be kept anonymous and confidential. Dr. Stroink and I will be the only individuals who can access it. Data will be stored in Dr. Stroink's lab for five years.

Please feel free to contact me with questions about the study.

Thank you for taking the time to read this and considering taking part.

Karin Almuhtadi, MA
Clinical Psychology Ph.D. Student, Department of Psychology, Lakehead University
Tel: (807) 708-2992
Email: kalmuhta@lakeheadu.ca

Dr. Mirella Stroink
Professor, Department of Psychology, Lakehead University
Tel: (807) 346-7874
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APPENDIX C

Consent Form – Study 1 and 2

Consent Form

By signing below, you understand and agree to the following:

1. I have read and understood the Letter to Potential Participants.

2. Participation is completely voluntary.

3. I understand the potential risks and/ or benefits of participating in this study.

4. I am not required to answer questions, which I do not want to answer.

5. I am free to withdraw from the study at any time and there will be no repercussions.

6. All data (i.e., audio recordings, written transcripts, and researcher's notes) from this research study will remain in a locked file drawer secure lab room at Lakehead University for 5 years, following the completion of the study.

7. I understand that audio recording the interview is for the purpose of transcription and analysis. Further, I am free to decline the use of audio recording at any time.

Please check one of the following:

[ ] YES, I consent to the interview being audio recorded and transcribed.

[ ] NO, I do not consent to the interview being audio recorded and transcribed.

8. If I checked YES above (#7), I understand that a written transcript will be forwarded to me 1 to 2 weeks after the interview (by mail or email) for my review and I am able to provide feedback and revisions.

Further, I understand that from the date of receipt I will have 2 weeks to provide feedback and revisions or to withdraw my transcript, after which point it will be used for analysis.

[ ] Email: _____

[ ] Mail: _____
_____
_____
_____

9. All data will remain confidential and anonymous.

10. I may request a summary of the results by:

[ ] Email: _____

[ ] Mail: _____
_____
_____
_____

__ Yes, I agree to take part in this study.

APPENDIX D

Attachment Injury Definition and Brief Examples

Attachment Injury Definition and Brief Examples

Attachment injury:

- A critical incident or significant event, in your current or past relationship, when you or your partner felt distressed due to the other failing to respond to distress by providing support and reassurance. The outcome is that the incident had an effect on your relationship.

Brief examples:

- Not letting your partner know that you have lost your job and instead leaving the house as if still working.
- Being cheated on or cheating on your partner.
- Refusing to attend your partner's important family gathering.
- Being unable to attend your partner's health appointments despite them wanting the support because it's too difficult to face.
- Forgetting a milestone birthday.
- Being left out of a photo with your in-laws that you were expecting to be a part of.

Orienting questions:

Experienced attachment injury

- Can you describe a critical incident or significant event in your relationship (past or current) when you felt that your partner failed to be there for you during a time of need? The outcome was that the incident had an effect on your relationship.

Engaging in an attachment injury

- Can you describe a critical incident or significant event in your relationship (past or current) when you failed to be there for your partner during a time of need? The outcome was that the incident had an effect on your relationship.

APPENDIX E

Interview Script – Study 1

Interview Script – Study 1

Introduction

- Thank the participant for their time and willingness to share their experience.
- Discuss informed consent issues and sign written consent form (Appendix C) before proceeding:
    - Voluntary participation
    - Confidentiality and data record keeping
    - Audio recording and transcription
    - Anonymity and use of pseudonyms
    - Pros and cons of participating in the research study
- Prior to starting the interview, inform the participant that there are no right or wrong answers, rather this is a process where the researcher can learn from their experiences in significant relationships.
- Read the Attachment Injury Definition and Brief Examples handout (Appendix C)
- Make sure the participant has a clear idea about what an attachment injury involves and knows which two they will be discussing.

General

1. Start the interview off by asking the participant to share some information about themselves and their relationships overall
    a. Age
    b. Gender
    c. Sexual orientation
    d. Culture
    e. Number of past significant intimate relationships
    f. Current relationship status

g. Satisfaction in current relationship (rate 0-7 with 7 being 'very satisfied' and 0 being 'very dissatisfied')

Part I: Experienced Attachment Injury

Attachment Injury (assess for language used to describe the event, i.e. like a shock)

2. Can you describe a critical incident or significant event in your relationship (past or current) when you felt that your partner failed to be there for you during a time of need? The outcome was that the incident had an effect on your relationship. Please describe this experience in as much detail as possible:
    a. When it occurred?
    b. What relationship it occurred in?

Relationship Background Question

3. Can you tell me how this relationship began?

Felt Attachment Security (assess for resilience of individual and couple system)

4. How did you feel emotionally in this relationship at the start?
    a. Did this change over time? How?
    b. How not?
5. Have you experienced emotional security in your other intimate relationships?
6. Have you experienced emotional security in your other relationships?
    a. Family?
    b. Friends?

Working Model of Self (assess for release and reorganization phases of the adaptive cycle)

7. Thinking back to when this injury first happened, did this experience impact your view of self?
    a. How did it change?

b. How did it stay the same?

c. Could you describe how you view yourself now?

8. Did your behaviour (actions) in the relationship change after this incident?

a. If so, how?

b. Did any part of your behaviour stay the same after this experience? If so, which parts?

Working Model of Other (assess for release and reorganization phases of the adaptive cycle)

9. Following this injury, did this experience impact your view of your (ex-) partner?

a. How did it change?

b. How did it stay the same?

c. Could you describe how you view this individual now?

Working Model of Future (Relationships) (assess for release and reorganization phases of the adaptive cycle)

10. Following the injury, did this experience impact your view of relationships going forward?

a. How did it change? How did it stay the same?

b. Could you describe how your view of relationships today?

Exploring Panarchy

11. Did other people or factors (if any) impact how you process(ed) this experience?

a. Who/what impacted you? *(this could include: family, friends, past relationships, culture, religion, beliefs)*

b. Did this change over time? If so, how?

12. Were other people or factors (if any) impacted by you going through this experience?

a. Who/what was impacted by this experience?

b. Did this change over time? If so, how?

c. Did others stay the same? If so, how?

13. Is this experience connected to any other attachment injuries for you?

    a. If so, which ones? *(This could include: AI in this relationship, past intimate relationships, relationships with others, in (ex-) partner's life)*

    b. Did this change over time? If so, how?

14. Did you find that this issue kept coming back up?

    a. How did you cope with this?

Perceived Personal and System Resilience

15. How would you describe resilience?

    a. Do you identify yourself as resilient?

    b. Do you identify your (ex-) partner as resilient?

    c. Do you identify the (ex-) relationship as resilient?

Systems Thinking

16. Now, think of yourself, your (ex-)partner, the experience, and the time and place in your life. How do you make sense of it overall?

    a. Do any connections emerge for you now that you have taken some time to reflect on it?

Attachment Injury

17. Can you describe a critical incident or significant event in your relationship (past or current) when you failed to be there for your partner during a time of need? The outcome was that the incident had an effect on your relationship. Please describe this experience in as much detail as possible:

    a. When it occurred?

b. What relationship it occurred in?

18. Part II: Engaging in Attachment Injury

Relationship Background Question

19. (*If not the same relationship as in Part I of the interview ask…*) Can you tell me how did this relationship began?

Felt Attachment Security (assess for resilience of individual and couple system)

20. (*If not the same relationship as in Part I of the interview ask…*) How did you feel emotionally in this relationship at the start?

a. Did this change over time? How?

b. How not?

Working Model of Self (assess for release and reorganization phases of the adaptive cycle)

21. Thinking back to when this first happened, how did this experience impact your view of self?

a. How did it change?

b. How did it stay the same?

c. Could you describe how you view yourself now?

22. Did your behaviour (actions) in the relationship change after this incident?

a. If so, how?

b. Did any part of your behaviour stay the same after this experience? If so, which parts?

Working Model of Other (assess for release and reorganization phases of the adaptive cycle)

23. Following this injury, did this experience impact your view of your (ex-) partner?

a. How did it change?

b. How did it stay the same?

c. Could you describe how you view this individual now?

Working Model of Future (Relationships) (assess for release and reorganization phases of the adaptive cycle)

24. Following the injury, did this experience impact your view of relationships going forward?
    a. How did it change?
    b. How did it stay the same?
    c. Could you describe how you view relationships today?

Exploring Panarchy

25. Did other people or factors (if any) impact how you process(ed) this experience?
    a. Who/what impacted you? *(this could include: family, friends, past relationships, culture, religion, beliefs)*
    b. Did this change over time? If so, how?
26. Were other people or factors (if any) impacted by you going through this experience?
    a. Who/what was impacted by this experience?
    b. Did this change over time? If so, how?
    c. Did others stay the same? If so, how?
27. Is this experience connected to any other attachment injuries for you?
    a. If so, which ones? (This could include: AI in this relationship, past intimate relationships, relationships with others, in (ex-) partner's life)
    b. Did this change over time? If so, how?
28. Did you find that this issue kept coming back up?
    a. How did you cope with this?

System Resilience

29. (*If not the same relationship as in Part I of the interview ask…*) Do you identify your (ex-) partner as resilient?
30. (*If not the same relationship as in Part I of the interview ask…*) Do you identify the (ex-) relationship as resilient?

Systems Thinking

31. (*If not the same relationship as in Part I of the interview ask…*) Finally, think of yourself, your (ex-)partner, the experience, and the time and place in your life. How do you make sense of it overall?
    a. Do any connections emerge for you now that you have taken some time to reflect on it?

Part III: Closing

32. Ask the participant if there is anything else they would like to share as we are coming to the end of the interview
33. Check in with the participant about the following:
    - How they are feeling at the end of this interview?
    - What they are thinking about?
    - Any concerns they have following leaving the interview?
34. Ask the participant about their interest in reviewing their transcript?
35. Does the participant want a summary of the results?
    - If yes, collect email contact information
36. Provide participant with closing letter
    - Highlight counselling support options and researcher contact information
37. Provide thank you card and coffee card ($5.00)!

APPENDIX F

Interview Script – Study 2

Interview Script – Study 2

Introduction

- Thank the participant for their time and willingness to share their experience.
- Discuss informed consent issues:
    - Voluntary participation
    - Confidentiality and data record keeping
    - Audio recording and transcription
    - Anonymity
    - Pros and cons of participating in the research study
- Prior to starting the interview, inform the participant that there are no right or wrong answers, rather this is a process where the researcher can learn from their reflections on complexity and relationships.

Part I: Interview

1. Can you describe your history with, and understanding of, the field of complexity?
2. What is your understanding of complex adaptive systems?
3. What is your understanding of the adaptive cycle? (provide diagram from Appendix J)
    a) Do you think about the cycle with respect to yourself?
    b) Where you are on the cycle? Can you?
    c) Is it one overall place and/ or multiple places (e.g., various parts of life)
4. Does complexity or systems thinking inform your intimate relationships (past and/or present)?
    a) If possible, can the participant reflect on their experience in intimate relationships before and after adopting complex or systems thinking?
5. Could you provide your thoughts on the notion of couples as a CAS?

a) How so?

b) How not?

c) Can you use the adaptive cycle to identify where a couple is on it?

d) Can you identify where you, your partner, and your relationship (if currently in relationship) are located on the adaptive cycle?

6. Could you provide your thoughts on the notion of an individual's attachment system as a CAS?

a) How so?

b) How not?

c) Can you use the adaptive cycle to understand an individual's attachment system?

7. Read Attachment Injury Definition and Brief Examples handout (Appendix C)

a) Make sure the participant has a clear idea about what an attachment injury involves.

b) At what point, if any, on the adaptive cycle do you think an attachment injury would fit?

c) How, if at all, could CAS theory and the adaptive cycle inform the processing of attachment injuries for individuals? For couples?

Part III: Closing

38. Ask the participant if there is anything else they would like to share as we are coming to the end of the interview

39. Check in with the participant about the following:

- How they are feeling at the end of this interview?
- What they are thinking about?
- Any concerns they have following leaving the interview?

40. Check with participant about interest in reviewing transcripts?

41. Does the participant want a summary of the results?

    - If yes, collect email contact information

42. Provide participant with closing letter

    - Highlight counselling support options and researcher contact information

43. Provide thank you card and coffee card ($5.00)

APPENDIX G

Closing Letter – Study 1 and 2

Closing Letter

Dear Participant,

Thank you for participating.

If you have requested a summary of the findings, this will be forwarded to you by mail or email. The summary will include overall results rather than specific information you provided during the study. Should you have any questions or concerns about this study or your participation, please feel free to contact Dr. Stroink or myself at the email addresses provided below.

If you are experiencing any distress as a result of participating in this study and you are a student at Lakehead University, please contact the Student Health and Counselling Centre at 343-8361. If you are not a student, please contact one of the following mental health services.

Thunder Bay Counselling Centre
544 Winnipeg Ave
(807) 684-1880
(Walk-in Counselling 1st and 3rd Wednesday between 12 pm and 8 pm)

St. Joseph's Care Group – Mental Health Outpatient Programs
710 Victoria Avenue East
(807) 624-3400

24-hour Crisis Line
(807) 346-8282

Thank you for your contribution to this research!

Sincerely,

Karin Almuhtadi, MA
Clinical Psychology Ph.D. Student, Department of Psychology, Lakehead University
Tel: (807) 708-2992
Email: kalmuhta@lakeheadu.ca

Dr. Mirella Stroink
Professor, Department of Psychology, Lakehead University
Tel: (807) 346-7874
Email: mstroink@lakeheadu.ca

This study has been approved by the Lakehead University Research Ethics Board. If you have any questions related to the ethics of the research and would like to speak to someone outside of the research team, please contact Sue Wright at the Research Ethics Board at 807-343-8283 or research@lakeheadu.ca.

APPENDIX H

Diagram for Study 2

Adaptive Cycle

Diagram for Study 2

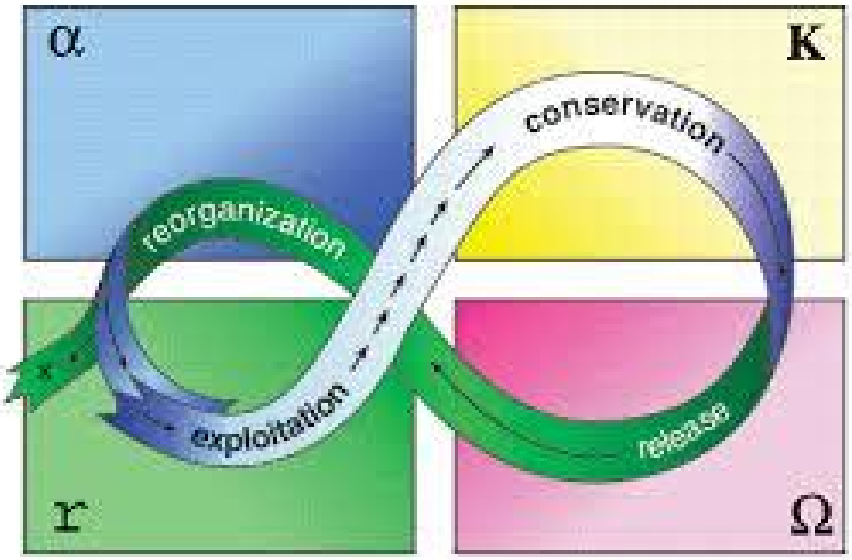

Figure 5. The adaptive cycle (Holling, 2001).

APPENDIX I

Recruitment Poster - Study 1

Recruitment Poster - Study 1

Seeking Participants for Study on Attachment Injuries in Couple Relationships

What is an Attachment injury?

- A critical incident or significant event, in your current or past relationship, when you or your partner felt distressed due to the other failing to respond to distress by providing support and reassurance. The outcome is that the incident had an effect on your relationship.

Examples

- Not letting your partner know that you have lost your job
- Being cheated on or cheating on your partner
- Refusing to attend your partner's important family gathering

Eligibility

- Individuals 25 years or older
- Experienced an attachment injury in a significant intimate relationship (past or current)
- Engaged in/ caused an attachment injury in a significant intimate relationship (past or current)

Requirements

- Phone screen questionnaire (5 min)
- Audio-recorded qualitative research interview (1-2 hr)

Compensation

- Thank you card & $5.00 Tim Hortons card

To Participate

- Contact Karin Almuhtadi at **kalmuhta@lakeheadu.ca** or **708-2992**

Department of Psychology,
Faculty of Health and
Behavioural Sciences
955 Oliver Road, P7B5E1

Karin Almuhtadi, M.A.
Ph.D. Clinical Psychology
Student