Overcoming the Cancer Experience: Narrative Identity in Young Adult Survivors of Childhood Cancer

by

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A thesis submitted in conformity with the requirements for the degree of Doctor of Philosophy
Department of Psychology
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Abstract

Although young adult survivors of childhood cancer (YAs) face a series of significant physical and psychosocial challenges, only a portion of these survivors will actually develop mental health difficulties. Research on narrative identity and posttraumatic growth suggests that developing a coherent life-story narrative, making meaning, and finding benefits from negative life events, can contribute to better psychosocial adjustment. The aim of the present study was twofold: understanding the mechanisms that link young adults’ cancer experience with positive psychosocial adjustment outcomes (i.e., empathy, attributional style, and coping), and investigating maternal distress-related communication and young adult attachment style as predictors of narrative identity and psychosocial adjustment.

One hundred and eighteen YAs completed an adapted version of McAdams’ life-story interview (2001), which was coded for meaning making and coherence. YAs could choose to talk about cancer or non-cancer-related turning points. YAs completed online questionnaires assessing posttraumatic growth, attachment style, and three measures of psychosocial adjustment. Ninety-five mothers of YAs wrote a narrative of a past experience with their child’s cancer, and completed measures of distress-related disclosure, cancer-talk, and dispositional optimism.
Results revealed that meaning making was higher for cancer-related than for non-cancer related turning points. Posttraumatic growth mediated the associations between cancer meaning making and both coping and empathy. Mothers’ cancer-talk frequency was related to YA cancer meaning making, and mothers’ distress-related disclosure was associated with YA posttraumatic growth. Mothers’ narrative coherence about a memory of their child’s cancer was unrelated to YA narrative coherence, but was positively related to YA negative attribution style, but only for mothers who scored low on optimism. Finally, secure attachment style was associated with YA narrative coherence about their cancer experience, and YA overall narrative coherence (cancer and non-cancer) mediated between YA secure attachment and YA empathy.

These findings indicate that YA’s successful incorporation of the cancer experience into their narrative identities through meaning making and posttraumatic growth processes is linked to positive psychosocial adjustment outcomes. Also, mothers who engage in distress-related conversations with their children contribute to YA’s capacity to overcome their cancer experience. Implications for research on narrative identity development and clinical practice are discussed.
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My thesis is about the power of telling narratives about one’s life-changing memories. I am very passionate about this topic, I look forward to telling the story of my PhD research in the near future and to use what I have learned about narrative identity in my clinical practice.
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1 Introduction

Previous research has shown that undergoing the diagnosis and treatment of cancer during childhood or adolescence, poses subsequent physical and psychosocial challenges for the lives of young adult survivors (D’Agostino & Edelstein, 2013; Ness & Gurney, 2007). As cancer becomes a major life turning point for some survivors, cognitive efforts to extract psychological benefits from this often-traumatic experience may occur (Parry & Chesler, 2005; Park, Edmonson, Fenster, & Blank, 2008). Thus, the cancer experience may play a significant role in one of the main developmental tasks of young adulthood: developing a coherent and meaningful sense of identity (Erikson 1968; Habermas & Bluck, 2000; Madan-Swain et al., 2000). A growing body of literature suggests that telling a coherent life-story narrative might be a vehicle for survivors to make meaning of their turning points and incorporate them into their overall sense of self, as the narrative construction process encourages self-understanding (Bruner, 2004; McAdams, 2001). This incorporation is referred to as a narrative identity (McAdams & Mclean, 2013). A second line of research, has studied trauma survivors’ ability to experience posttraumatic growth, defined as the capacity to find benefits in overcoming adversity (Tedeschi & Calhoun 1996, 2004). Given that the majority of young adults survivors of childhood cancer have been found to function well socially and emotionally despite their many challenges (Zebrack, 2011), the first aim of the present study was to integrate the research in narrative identity and posttraumatic growth to better understand the mechanisms that link young adults’ cancer experience with positive outcomes of psychosocial adjustment. Outcomes of interest included coping, empathy, and attributional style as the reflect individual’s behavioural, emotional, and cognitive capacities to successfully deal with one’s or other’s distress. One of the hypothesized mechanisms of the present study was to propose posttraumatic growth as a mediator between narrative identity and these psychosocial outcomes.

Moreover, as a childhood cancer diagnosis does not occur in isolation from the child’s immediate family environment, research suggests that primary caregivers might play a role in the way that children incorporate life turning points (having cancer being one of them) into their narrative identities (Fivush & Sales, 2003). This research supports the notion that appropriate mother-child communication practices may influence the way children communicate and make
meaning of these stressful experience (Fivush, Sales & Bohanek, 2008). As such, the second aim of this study was to examine the influence of two maternal communication factors (mothers’ own narrative coherence regarding a memory of the child’s cancer, and mothers’ frequency of distress-related disclosure), on young adults’ narrative identity and psychosocial adjustment. Further, given that secure attachment style has been linked to coherence in narratives about childhood experiences with caregivers (Bartholomew and Horowitz’s, 1991; Main, Kaplan & Cassidy, 1985), as well as associated with identity development (Berman, Weems, Rodriguez, & Zamora, 2006), the third aim of the study was to explore the association between secure attachment style and narrative coherence about the cancer experience. Relatedly, this thesis will explore narrative coherence as a mediator between secure attachment and young adults’ empathic capacity (Fabes, Poulin, Eisenberg, & Madden-Derdich, 2002). The present research is one of the first to integrate the study of making meaning from traumatic experiences and the study of narrative identity, in a unique but ever-growing population, young adult survivors of childhood cancer.

1.1 The Challenge of Being a Young Adult Cancer Survivor

Overcoming a life-threatening illness is not a process that ends with the success of treatment. Young adults (YA) who manage to defeat childhood cancer face a different challenge: becoming a survivor (Bellizi & Blank, 2007). There are multiple health and psychosocial implications associated with cancer survivorship. The health late-effects are well documented in research. Survivors of childhood cancer have been found to be at increased risk for early mortality, immune system suppression, infectious disease, endocrine failure, cardiac problems, pulmonary impairments, sensory loss, neurocognitive deficits, infertility and the possibility of having a new cancer (See Ness & Gurney, 2007 for a review). Although there are fewer studies on the psychosocial effects of surviving childhood cancer, some studies suggests that when compared to their healthy peers, YA survivors of childhood cancer sometimes accomplish fewer milestones with regard to the development of autonomy, identity formation, social relationships and psychosexual maturity (D’Agostino & Edelstein, 2013; Eiser, Penn, Katz, & Barr, 2009; Maurice-Stam, Grootenhuis, Caron, & Last, 2007). YA survivors for example, have been found more likely to be single and unemployed than their peers (Nathan, Hayes-Lattin, Sisler, Hudson,
More importantly, these young adults are going through a developmental stage also known as “emerging adulthood” a term introduced by Arnett (2007) to indicate the age period from late adolescence to mid-late twenties (18-29) in which individuals face unique challenges. These challenges involve accepting responsibility for one’s self, making autonomous decisions (including in the areas of education, employment and relationships), becoming financially independent, and developing a sense of identity. Thus, YA survivors are expected to cope with both the physical and psychosocial consequences of a life-threatening illness and the specific challenges of their current developmental stage (Evan & Zeltzer, 2006).

Not surprisingly, facing these different challenges can increase YA cancer survivors’ likelihood of experiencing psychological distress including posttraumatic stress. A recent nationwide registry-based study in Finland compared 14,000 YA cancer survivors and their siblings and found that YA cancer survivors were more likely to develop mood disorders and female survivors were also more likely to develop anxiety disorders, eating disorders, personality and psychotic disorders than their healthy siblings (Ahomäki et al., 2015). Moreover, as part of the Childhood Cancer Survivor Study (CCSS), Stuber and colleagues (2010) found that YA were at fourfold the risk of developing posttraumatic stress disorder (PTSD) when compared with their siblings. This increased risk is also a result of survivors’ prolonged exposure to acute and chronic stressors such as diagnosis and treatment. Studies of PTSD in the general population suggest that adolescents tend to be especially vulnerable to posttraumatic stress symptoms as traumatic experiences interfere with the achievement of key developmental tasks such as identity formation (Davis et al., 2000). Thus, research suggests that childhood/adolescence cancer diagnosis can often be conceptualized as a traumatic experience with physical, social, and psychological reverberations in the lives of young adults.

However, some studies indicate that only a portion of young adult cancer survivors actually develops mental health issues as most of them function well psychosocially regardless of their physical difficulties (Thompson, Marsland, Marshal & Tersak, 2009; Zebrack, 2011). Early distress symptoms (i.e. depressed mood/internalizing symptoms) have also been found to decrease to normative levels after the first year of survivorship (Eiser, Hill & Vance, 2000). Sherman (2015) examined the levels of anxiety and depression in the present study sample of YA cancer survivors and found that although the clinical levels of depression were comparable
to the prevalence in healthy community samples, the prevalence of clinical levels of anxiety was much higher in this study sample (32%) than in Canadian community samples (12%) (Statistics Canada, 2012). It appears however, that although YA are at increased risk for psychological distress relative to YA in the general population, the majority still function well despite having faced a significant health stressor that can often be considered a traumatic experience. Most studies however, have focused on the adverse effects and negative sequelae of the cancer experience but only a few have examined the factors that facilitate effective coping following this negative life event, and even positive outcomes that could arise after overcoming cancer.

1.2 Overcoming the Cancer Experience: Meaning Making and Posttraumatic Growth

Exposure to a severe stressor may result in the shattering of global meaning systems, namely, the individual’s beliefs about the self, the world, and their life goals. This disruption leads to efforts to rebuild this system, by the use of meaning making, a cognitive process that facilitates the accommodation of the stressor or traumatic event into one’s set of beliefs. Accordingly, meaning making has been linked to better adjustment (Collie & Long, 2005; see Davis, Wortman, Lehman, & Silver, 2000 for a review: Lee, Cohen, Edgar, Laizner & Gagnon, 2004; Skaggs & Baron, 2006). Trauma researchers consider meaning making processes as instrumental in determining whether negative memories are traumatic or simply stressful events (Frankl, 1992; Joseph & Linely, 2005). Difficult life events are opportunities for meaning making as they foster the need to re-construct events by developing a resolution that facilitates coping and reduces cognitive dissonance (Pals, 2006; Pals & McAdams, 2004). Overall, research on meaning making suggests that individuals will have more positive outcomes if they are somehow able to incorporate their negative experiences into their global meaning system or to make necessary changes to that system resulting from those experiences (Joseph & Linely, 2005). As an example, in a qualitative study exploring thriving in young adult survivors of childhood cancer, Parry and Chesler (2005) found that although some survivors still reported difficulties in coping with cancer, most of them reported a series of positive changes such as increased psychological maturity, greater compassion and empathy, having new values and priorities, new strengths and
increased recognition of vulnerability. The authors suggest that as survivors overcome and accept the physical consequences of life post-cancer, they tend to put a stronger focus on the psychological gains of their experience.

In the past few years, an emerging line of research has focused on posttraumatic growth (PTG) defined as the interpersonal growth or positive change that results from struggling with a traumatic event (Tedeschi & Calhoun, 2004). PTG is typically measured by the Posttraumatic Growth Inventory (PTGI), and the construct’s underlying assumption is that despite an initial shattering of world assumptions (that may involve a period of symptoms of psychological distress) there is a subsequent growth in the various PTG domains. Examples of outcomes in the PTGI include having a greater appreciation for the value of one’s life, changing life’s priorities, and realizing one’s increased strength following the negative event. Meaning making has been conceptualized as a coping mechanism that contributes to posttraumatic growth as research has shown that PTG is one possible outcome of the meaning-making coping process (Park et al., 2008). Larner and Blow (2011) proposed an empirically informed model to explain different trajectories for how war veterans cope with trauma, and suggest that meaning-making coping is a core mechanism of the posttraumatic growth process. Thus, although posttraumatic growth and meaning making appear to be similar concepts, they are considered empirically distinct constructs, as the former can be considered an outcome of the latter. In addition, research indicates that meaning making goes beyond the psychological processing of trauma, as for example; narrative approaches to meaning making have deemed it as a fundamental piece of identity development (McLean & Pratt, 2006). As part of their developmental stage, YA survivors of childhood cancer are in the midst of making sense of their past and current experiences with the purpose of incorporating them into their overall sense of selves. This task, known as identity development, will most likely include YA’s understanding of the meaning of their cancer experience, and in some cases the identification of benefits from such a difficult and often traumatic event. Thus, meaning making and posttraumatic growth might become relevant psychological processes for YA survivors of childhood cancer’s identity development.

1.3 Narrative Identity

Developing a coherent sense of identity is one of the main milestones of emerging adulthood.
Erikson and Erikson (1997) defined identity as achieving a sense of uniqueness and individuality, an evolving commitment to place in a society, and a sense of continuity over time. Traditional research on identity development has emphasized the uniqueness aspect by focusing on self-descriptive statements that individuals endorse or do not endorse (Marcia 1987). The general conclusion of this research is that the construction of identity is a nonlinear and complex process with contradictions that are eventually recognized and resolved as the individual reaches emerging adulthood (Harter & Monsour, 1992). However, this research has not addressed the particular way in which individuals construct a sense of themselves as continuous over time. Narrative approaches to identity encompass the individuality and continuity facets of identity, which contribute to the understanding of identity development. These approaches are focused on the individual’s personal construction of a life story examining the different features in the narration of self-defining memories (McLean, 2008; McLean & Pratt; 2006; Pasupathi & Hoyt, 2009).

Only a few studies have looked at identity development in young adult cancer survivors which is surprising considering that both the psychological aspects of the illness and medical therapy most likely have an impact in the definition the self (Kazak et al., 1997). Madan-Swain et al. (2000) found that when compared to their healthy peers, a higher frequency of young adult cancer survivors were within the foreclosed identity status (i.e. individuals that have a strong sense of identity but who have not been through a period of exploration of that identity; Marcia, 1987). This type of identity was associated with survivors’ symptoms of posttraumatic stress disorder and family conflict. Moreover, these young adults reported sometimes experiencing an “identity paradox” when making the transition from being sick to being a survivor. As survivors, they are no longer considered sick but they are not entirely healthy, and they report that this conflict contributes to some survivors’ feelings of isolation, difficulties in identity formation, and likelihood of engaging in risky behaviors (Jones, Raley & Barczyk, 2011).

For narrative identity theories, the idea of identity as a life story has received increased attention in the past years. Erikson (1968) proposed that it is part of human nature to develop a life story and thus, narratives seem to play a very important role in the development of one’s sense of self. McAdams (2001) drew on Erikson’s idea that life stories help to define young adults’ ever-changing identities and created a specific methodology to facilitate the collection of life-stories,
and thus the study narrative of identity. This interview is known as the Life-Story Interview (McAdams, St.Aubin, & Logan, 1993, McAdams, 2006).

The life story interview asks for a detailed narrative of an individual’s major life experiences, which extends beyond the simple recapitulation of past events and reflects the subjective interpretation of one’s life (McAdams, 1995; McAdams, 2001). A life story narrative consists of carefully selected setting, characters, plots, and themes, which may vary depending on the individual’s personality, cognitive style and psychological functioning (McAdams, Reynolds, Lewis, Patten, & Bowman, 2001; Sutin, Costa, Wethington, Eaton & 2010). The Life-Story interview prompts for a series of chapters including high points, low points, early memories, and turning points. For the present study, I focused on turning points as these are defined as life episodes in “which a person undergoes a substantial change. These can occur in many different spheres of a person’s life—in relationships with other people, in work and school, in outside interests, etc.” (McAdams, 1995, p. 2). Several studies have focused on the narration of significant life experiences or turning points (McLean & Pratt, 2006; Sutin et al., 2010, Tavernier & Willoughby, 2012). Turning points have been the source of substantial research addressed to a series of processes such as autobiographical reasoning, generativity, well-being, and, as might be expected, meaning making (McLean & Pratt, 2006; McAdams et al., 2001; Pasupathi & Mansour, 2006). Pillemer (1998) defined turning points as episodes that have altered or redirected the life course’ ongoing flow. Moreover, Gotlib and Wheaton (1997) suggest that turning points are not necessarily major life events, but those that involve a substantial psychological shift for the individual’s life. As such, turning points can change from seemingly mild experiences to traumatic events. The narrative construction of a turning point memory has been considered more important than the memory itself, as it is this construction process that is the catalyst of self-understanding (Bruner, 2004). Thus, it is reasonable to assume that young adult cancer survivors who spontaneously choose their cancer experience as a turning point are more likely to consider this event a meaningful part of their identity. These young adults are presumably more interested in understanding the psychological shift of this experience in their identity and the impact of cancer in their overall life story. In the present research, two components of narrative identity; (1) narrative meaning making and (2) narrative coherence, were investigated in turning point narratives.
1.3.1 Meaning making in narratives

Making sense of one’s past, present and anticipated future is one of the main principles of narrative identity (McAdams, 2001). Accordingly, a well-formed identity narrative includes meaning making of past experiences as a way of integrating memories into the self (McLean 2005; McLean & Pasupathi, 2011; McLean & Pratt, 2006; McLean & Thorne 2003). McLean and Thorne (2003) operationalized meaning making as the extent to which the individual reports lessons and/or insights. Lessons are “behaviorally driven and applied only to similar kinds of events in parallel situations” whereas insights, which are considered more advanced forms of meaning making than lessons, are “broader meanings that extend to other parts of the self beyond those indicated in the narrated event” (McLean & Pratt, 2006, pp.715). In a revised linear coding system, McLean and Pratt (2004) proposed “vague meaning” a middle category between lessons and insights, for narratives containing more sophisticated meanings than in lessons, but not as explicit as insights. Narratives that contain meaning have typically been found to be about events involving some type of conflict, tension or stressful situation (Thorne, McLean & Lawrence, 2004). This is consistent with Erikson’s (1968) idea of crisis and vulnerability as key elements in the narrative making meaning process. Moreover, studies have revealed that adults’ narratives about negative events are longer, more vivid, and more complex in their structure than narratives about positive events (Bohanek, Fivish & Walker, 2004). McAdams and McLean (2013) suggest that is through meaning making that individuals go beyond the mere retelling of life events in order to communicate what they think their story says about themselves. As such, storytellers would often provide explanations as to how specific events represent or illustrate a unique personality trait, a personal goal, a skill, or a pattern in their lives.

As mentioned earlier, previous research has found that meaning making is an essential psychological process to facilitate individuals’ coping with negative or traumatic events. Only a few researchers have examined positive outcomes related to meaning making using the narrative identity approach and the range of positive outcomes examined has been quite limited (see McAdams & McLean, 2013 and Greenhoot & McLean, 2013, for reviews). Most studies have focused on general associations between meaning making and different measures of subjective well-being or mental health measures (McAdams et al., 2001; Tavernier & Willoughby, 2012). One study found that meaning making in narratives was associated with higher optimism and an
overall index of identity maturity (McLean and Pratt 2006). A more recent study by Adler, Harmeling, and Walfer-Biesanz (2013) found that narrative meaning making was associated with fewer symptoms of anxiety and depression. Accordingly, the present study addresses the need for research going beyond general measures of well-being to examining more specific areas of positive psychosocial adjustment. Exploring relations with these specific outcomes in the context of a common negative life event, a cancer diagnosis may provide better understanding of the specific mechanisms that help individuals cope with a difficult experience and the potential benefits of going through meaning making processes.

1.3.2 Integrating narrative meaning making and posttraumatic growth

The present research sought to integrate the literature and study of narrative meaning making and posttraumatic growth, by proposing posttraumatic growth as a potential mediating mechanism between meaning making and measures of psychosocial adjustment. Non-narrative approaches to meaning making of the cancer experience have often conceptualized meaning making is an antecedent of posttraumatic growth. For example, Park et al. (2008) used two items of the positive reframing subscale from the Brief COPE inventory (Carver, 1997 cited in Park et al, 2008) to assess meaning making in cancer survivors and found that higher scores were associated with posttraumatic growth, which was assessed using the Perceived Benefits Scale (Tomich & Helgeson, 2004). Pals and McAdams (2004) however, have been the only ones to discuss the nuanced connection between narrative meaning making and Tedeschi and Calhoun’s (1996) PTG framework. The authors acknowledge the significant contributions of the PTGI to the trauma literature and they recommend that the use of this questionnaire in research should be complemented with narrative accounts of difficult or traumatic events. The authors suggest that posttraumatic growth themes can also emerge naturally from the individual’s narrative and support the idea that this growth can result from other significant memories that are not necessarily traumatic. Presumably, once the individual has undergone cognitive processing of a negative life event (i.e., childhood cancer diagnosis) through the use of narrative meaning making, the psychological benefits (posttraumatic growth) of such an event would facilitate the positive impact on their psychosocial adjustment.
However, constructing a narrative identity serves two primary psychological functions: providing the self with a sense of purpose and meaning as well as with a sense of unity across time and situations (McLean & Pratt, 2006). The former is accomplished through the process of narrative meaning making, and the latter function refers to the concept of narrative coherence.

### 1.3.3 Narrative coherence.

Narrative coherence is the foundational criterion for evaluating successful narratives. Habermas and Bluck (2000) reviewed existing literature on life-story telling and narrative understanding, and concluded that both the cognitive tools necessary for constructing coherent life-story narratives, as well as the motivations to do so, only fully develop in adolescence. The authors propose four types of global coherence: 1) temporal coherence or the ability to recall and recite events with beginnings, middles and endings (emerges before the age of five); 2) autobiographical coherence or the ability to implicitly display understanding of typical events and their corresponding timing in the lives of human beings (late childhood/early adolescence); 3) causal coherence, or the ability to link separate different events in causal sequences, as these events become episodes that enable explanations about the self and future goals (adolescence), and 4) thematic coherence or the ability to extract an overarching theme or message from the narrated events (adolescence and young adulthood). Accordingly, Baerger and McAdams (1999) attempted to reconcile the literature in narrative coherence, by creating and validating a coding scheme for the assessment of coherence in adults’ self-defining life-stories. Their coding scheme proved to have good psychometric properties (e.g., internal consistency), and since its development it has been widely used in narrative identity research with only some minor adjustments (Adler, 2012; Adler, McAdams & Skalina, 2008; Adler et al., 2013; Adler, Chin, Kolisetty, Oltmanns, 2012; Manczakm Zapata-Gietl, McAdams, 2014). Narrative coherence consists of the following four dimensions: orientation (i.e. “the extent to which the authors locates the characters and action a specific context or setting”), structure (i.e. “the extent to which the story follows a temporal sequence of goal oriented action”), affect (i.e. “the extent to which the story expresses emotion in a clear and understandable way”), and integration (i.e. the author’s ability to link narrated events to the larger sense of self”) (Adler, Wagner & McAdams, 2007, pp.1182; Adler, 2012, pp.375).
There is however, a second approach to measuring narrative coherence developed by another group of prominent researchers that proposes a similar coding scheme (Reese, Haden, Baker-Ward, Fivush & Ornstein, 2011). The main difference from Baerger and McAdam’s (1999) scheme is that it targets different developmental stages across the lifespan and is designed for different types of autobiographical memories. As such, and due to its more general nature, this coding scheme is not specific to the measure of narrative coherence in the context of young adulthood’s life-stories. However, given that one of the objectives of the present study was to also assess mothers’ narrative coherence in a memory of their child’s cancer, this coding scheme was considered a more appropriate fit to code these narratives than Baerger and McAdams’ (1999), which was designed for young adults’ turning point narratives. Reese et al.’s (2011) coherence coding scheme consists of the following three dimensions (indices that were first used by Baker-Ward, Bauer, Fivush, Haden, Ornstein and Reese in 2007): context refers to whether the narrator includes information that places the event in place and time (“where and when did an event being discussed take place?”), chronology refers to the level of temporal sequencing ( “can the listener infer the order in which the original actions within an event took place, either from the sequencing of these actions or from the linguistic markers of temporality?”); and theme, which refers to the sense of topic of the narrative ( does the narrative include a point to the story, “a high point and a resolution, accompanied by affective and evaluative information?”)(Reese et al., 2011,p. 432-433). The authors argue that each of these three dimensions is supported by different developmental achievements and trajectories across the lifespan.

Like narrative meaning making, narrative coherence has also been associated with positive outcomes. Baerger and McAdams (1999) found that adults who scored higher on overall narrative coherence scored higher on self-reported psychological well-being than adults whose life stories had lower coherence scores. Chen, McAnally, Wang and Reese (2012) examined narrative coherence in low- and high-point life events in young adults, and found that narrative coherence was associated with higher levels of prosocial behaviour. Narrative coherence has also been associated with higher self-esteem, ego-development, and better emotional health (McLean, Breen, & Fournier, 2010; Bauer & McAdams, 2010; Lody-Smith, Geuse, Roberts, Robins, 2009). However, similar to existing research in narrative meaning making, the range of psychosocial outcomes studied is limited, and to my knowledge, there are no studies that have
used Baerger and McAdam’s (1999) approach to examine narrative coherence in turning point memories in the specific population of young adult survivors of childhood cancer.

1.4 Specific Outcomes of Psychosocial Adjustment

As evidenced by the literature reviewed thus far, it is reasonable to assume that the experience of childhood cancer has a significant impact in young adults’ narrative identity. This identity most likely permeates survivors’ representations of the self, others, and the world. Accordingly, for the present study I wanted to focus on three specific outcomes of psychosocial adjustment: (1) young adults’ coping with stress (2) their capacity to empathize with others, and (3) their attributional style. These three outcomes reflect YA’s ability to deal adaptively with their distress and the distress of others from behavioural, emotional, and cognitive perspectives, representing the individual’s ability to function well psychologically and socially in the face of negative life events.

1.4.1 Coping.

Coping with stress has been defined as the use of individual’s cognitive and behavioural efforts to manage personal, interpersonal and environmental demands (Lazarus, 1980). Lazarus and Folkman (1984) suggest that stress management can include both productive and non-productive coping, as stress management may involve the acceptance, toleration, avoidance, minimization or mastering of the stressors in the environment. Frydenberg and Lewis (1993) added to this definition, by proposing that coping also involves the attempt to restore the balance or remove the turbulence caused by stressor, which can be done through accommodation of the concern without a specific solution, or through removal of the concern (solving the problem). They propose that for uncontrollable/unchangeable events, like chronic illness, coping would most likely occur through accommodation. The authors developed a measure specifically designed to assess coping strategies in adulthood (Coping Scales for Adults, Frydenberg & Lewis, 2000) and found that non-productive coping strategies (e.g., ignoring the problem, or self blame) were related to lower self-esteem and internalizing problems. Among the productive coping strategies, social support has been found to help the meaning process, as individuals have the opportunity to process their stressors with others (Harvey, 1996).
1.4.2 Empathy.

Defined as the ability to recognize, respond, and show concern for the negative affective states of others, empathy has proven to be a critical skill that enables individuals to function adaptively in a social context serving as a foundation for positive relationships (Batson, 1991; Eisenberg et al., 2010; Schonert-Reichl, 1993). Accordingly, empathy has been associated with better social and emotional skills such as prosocial behaviour, moral emotions, and moral reasoning (Eisenberg, Eggum, & Giunta, 2010; Malti, Gummerum, Keller, & Buchmann, 2009). Lower levels of empathy have been found to predict antisocial behaviour (Björkqvist, Österman & Kaukiainen, 2000). Although, in Parry et al.’s (2005) qualitative study, YA survivors of childhood cancer reported that overcoming the cancer experience had a positive impact on their empathic capacity, no studies to date have explored the association between narrative identity and YA cancer survivors’ empathy. Presumably, one of the benefits of YA survivors successfully making sense of the cancer experience is increasing one’s awareness of the challenges involved in overcoming difficult or traumatic situations (e.g., a life-threatening illness). This increased awareness might lead to better capacity of showing concern for the negative experiences of others.

1.4.3 Attributional style.

Attributional style is defined as the individual’s cognitive way of perceiving aversive uncontrollable events as being produced by either external or internal causes, having a stable or unstable nature, and being attributable to global or specific factors. It has its roots in Seligman’s (1975) notion of learned helplessness that threatens individuals’ need for control over the environment. Having an internal, stable and global attribution style with regard to aversive uncontrollable events (e.g. having cancer) has been consistently associated with higher levels depression (Sweeney, Anderson & Bailey 1986; Seligman & Peterson, 1986). More recently, Adler, Kissel and McAdams (2006) studied attributional style in the narratives of midlife adults using content analysis for spontaneously generated causal attributions, and also found that the presence of a depressogenic attributional style within narratives was related to lower life satisfaction, and higher scores in self-reported depression.
1.5 The Role of Parents in Children’s Coping with the Cancer Experience

The second objective of the present study was to examine maternal factors that could potentially predict young adults’ narrative identity and psychosocial adjustment in the context of their cancer experience. Given that the development of one’s life-story narrative involves complex communication processes that have been presumably learned from the individual’s main agents of socialization, I was particularly interested how mothers’ ability to communicate with their children about emotionally charged events could have affected young adults’ narrative identity about the cancer experience.

Moreover, given that through narrative identity young adults have the opportunity to convey representations of themselves, the world, and others. I was also interested in examining whether secure attachment style would be related to young adults’ narrative coherence about the cancer experience. Finally, although less central to my thesis but based on previous evidence, I wanted to test whether YA’s turning point coherence (both cancer and non-cancer related) would be a mediator between secure attachment style and YA’s empathic capacity.

1.5.1 Parents of young adult cancer survivors.

Young adult survivors of childhood cancer have been found to live longer with their parents than healthy peers, and family has been found to play an essential role during the cancer experience, as it is considered the closest influence on the child (Kazak, Rourke & Cromp, 2003; Stam et al., 2005). However, although for a child with cancer the family is typically the principal source of support and understanding, it can also become a potential source of anxiety (Banner, Mackie & Hill, 1996). Research has shown that parental levels of distress about their children’s cancer predict young adult survivors’ subsequent levels of distress (Robinson, Gerhardt, Vannatta & Noll, 2009). Others studies have shown that the way mothers reflect and reframe traumatic experiences with their children impacts the way children make meaning out of their traumatic experiences (Reese, Bird & Tripp, 2007). These findings suggest that parents can have a great impact on the way children deal with surviving cancer. Presumably, the way that parents have
talked about distressing events, including the cancer experience, has an effect on shaping the way survivors think and talk about and cope with these experiences.

1.5.2 Parent-child communication and children’s narrative identity.

The role of the caregiver as one of the most proximal agents of socialization in the child’s life has been widely researched. With the help of parents children are supposed to acquire the sufficient social, cognitive and emotional skills to function appropriately (Bugental & Goodnow, 1998). Parents represent the model for many of these skills and parent-child conversations about thoughts and feelings are an extremely important socialization mechanism in which children’s learning and understanding of the world take place. Developmental research examining the role of parent-child conversations in the development of children’s narrative skills has found a connection between the two (Fivush, Haden & Reese 2006; Reese, Jack, & White, 2010). This research has revealed that parents with more elaborated conversational styles (who focus on causes and explanations during personal stories, and emphasize the emotional evaluation of past events) are better at stimulation of children’s storytelling skills. For example, mothers who discuss past experiences using a more elaborative style have children who are better at recalling autobiographical past events (see Reese, 2002 for a review). Mothers’ high elaboration in past events’ narratives, has been found to promote children’s production of novel information about those events as well as richer and more detailed reminiscing (Bird & Reese, 2006). Moreover, autobiographical memory researchers suggest that children are capable of developing a subjective sense of self by engaging in conversations about specific past events with their parents. In particular, children are believed to internalize models for the evaluation of the meaning of experiences by reflecting on past emotions and connecting them to the present (Nelson, 2003).

Fivush et al. (2003) suggest that reminiscing about past events with highly emotional contents is particularly relevant for the subsequent development of the child’s identity because, in doing this, parents are facilitating children’s reflection on their own emotions. These researchers demonstrated that parents who talk more about emotion during reminiscing of the past have children who subsequently talk more about emotion (Fivush & Sales, 2003). Fivush et al. (2006) have also shown that mothers who talk to their children about emotional past events in a coherent
and elaborative manner have children with more advanced emotional understanding. It has also been found that during parent-child conversations about daily stressors, parents tend to focus more on causal explanations than when talking about neutral or positive events, suggesting that in the face of distressing experiences, parents are concerned with helping children understand the reason why these occur (Ackil, Abbema, Bauer, 2003; Sales, Fivush & Peterson, 2003). Fivush and Sales (2006) propose that parents with positive coping skills—skills that are presumably reflected in their own way of talking and remembering stressful events—are better at helping children construct their own highly explanatory and emotionally rich narratives about stressful events. Previous research indicates that parental coping strategies have been associated with children’s coping strategies (Kliwer, Fearnow & Miller, 1996). Thus, when parents communicate with their children about distressing situations or emotionally charged events, they are also modeling their own assumptions regarding the expression of emotion as well as their own strategies for emotion regulation and ability to cope with stressful events (Gottman, Katz & Hoovem, 1996).

McLean and McAdams (2013) conclude that early parent-child conversations provide the foundation for children to learn how to make meaning of their own personal life events, which as previously discussed, is key to the development of narrative identity. However, most research has been conducted on conversations during early childhood, when consolidation of narrative identity is not yet an expected developmental task. This poses the challenge of understanding the influence of early parent-child conversations in YA’s narrative identity. One way to address this challenge would be to conduct longitudinal studies with quality of early parent-child conversations about stressful life events as predictors of narrative identity about these same life events in young adult adulthood. Another way to partially address this challenge cross-sectionally would be to look at a proxy for mothers’ tendency to engage in conversations about emotional or distress-related events, and mothers’ level of narrative coherence in reminiscing about a past common distressing memory. Accordingly, for the present study mothers of YA survivors of childhood cancer were asked about their current frequency of distress-related disclosure and cancer-related talk with their children, as well as to reminisce and write about a frustrating or stressful memory in dealing with their child’s cancer.
Chaparro and Grusec (2015) investigated the role of mother’s personal disclosure of mildly distressing events in adolescents’ disclosure to mothers about these same events. Not only was maternal distress-related disclosure related to adolescents’ increased prosocial behaviour and compliance, but it was also related to adolescents’ reciprocal disclosure. Mothers’ highest rated reasons for disclosing about these events were to teach their children about the importance of emotional sensitivity and to encourage mutual disclosure. From these findings, it is reasonable to assume that these mother-adolescent dyads engage in more frequent conversations about emotionally charged events and that these conversations are beneficial for adolescents’ psychosocial adjustment. Nonetheless, it is understandable that excessive or inappropriate levels or contents of disclosure (e.g., financial hardship, divorce) by parents have been found to be detrimental to children’s psychosocial adjustment (Lehman & Koerner, 2002; Afifi, McManus, Hutchinson & Baker (2007). Accordingly, given the previously discussed importance of emotional processing of distressing life events for narrative meaning making processes, the present study sought to examine a potential association between mothers’ levels of distress-related disclosure, frequency of cancer-related talk, and young adults’ narrative meaning making and posttraumatic growth.

Regarding the assessment of mothers’ role on young adults’ coherence, the other component of narrative identity, one would expect that mothers’ own levels of narrative coherence would be related to young adult’s narrative coherence. However, only a handful of studies have directly measured maternal narrative coherence and these have focused on its link with positive outcomes in younger children (Sher-Censor & & Yates, 2014; Sher-Censor, Grey, & Yates, 2013; Fivush, Sales & Bohanek, 2008). Fivush et al. (2008) has been one of the only studies to assess the relation between 8- to 12-year old children’s narrative coherence and mothers’ narrative coherence about a scary/frustrating time related to the child’s asthma. The researchers used Baker-Ward et al.’s (2007) three coherence indices (context, chronology, and theme) which, as stated earlier, was the coding scheme of choice for this study’s mother narratives (Reese et al, 2011). Contrary to expectations, Fivush et al. (2008) found no associations between mothers and children’s indices of narrative coherence (context, chronology and theme). However, given the limited research available, it remains an open question whether narrative coherence of mothers and their young adult children would be associated.
1.5.3 Maternal dispositional optimism.

In addition to providing a model for their children’s narratives through mothers’ own elaborative communication style, the way in which mothers frame negative events might change according to mothers’ dispositional outlook on the future. That is, if a mother has generally positive and hopeful outlook on the future it is reasonable to assume that this outlook permeates the content and conclusion of the stories told to the child. Researchers have named this outlook on the future as an individual’s dispositional optimism. Individuals who are higher in dispositional optimism have been shown to construct experiences and events in a more positive manner. These individuals have been found to persevere more during difficult tasks and to employ more problem-focused strategies (Armor & Taylor, 1998). Optimism has also been linked to healthier adjustment (Scheier & Carver, 1985). Other researchers have demonstrated that parents who are high in optimism tend to tell stories to their children that emphasize children’s development and growth (Pratt, Norris, van de Hoef & Arnold, 2001). However, the link between maternal optimism and children’s narrative identity has not yet been explored. Given that maternal optimism may not be sufficient to positively influence children’s narrative identity if there is no mother-child communication about stressful events in the first place, it is reasonable to expect that mother’s dispositional optimism may act as a moderator between maternal coherence about a memory of their child’s cancer and young adults’ narrative coherence about the cancer experience.

Similarly, Garber and Flynn (2001) found that mothers who reported having major life stressful events and who had a negative attribution style about child-focused events, had children with more negative attribution styles. Since attribution style and the presence of life stressful events (e.g., having a child with cancer) most likely permeate mothers’ narratives about those stressful events, one can expect that mothers’ narrative coherence (of these events) would be related to young adults’ positive attribution style but only for those mothers who are high in dispositional optimism.
1.5.4 Secure attachment, young adults’ narrative coherence and empathy.

According to Bowlby (1988) attachment is the behavioural response aimed at increasing proximity to the caregiver in order to alleviate distress in the face of perceived threat. Children whose caregivers have responded consistently and sensitively to their distress think of their parents as available, competent and secure figures who have effectively helped them to regulate their negative affect. As a result, children develop internal working models that shape their representations of the world, others and the self: The world is seen as a safe place, others are perceived as protective and reliable, and one can confidently explore the environment and engage with other people. Although as children grow older they tend to rely less on their parents as attachment figures, and more on their peers and romantic partners to alleviate their distress needs, the internal working models continue to influence young adults’ psychosocial adjustment (Fraley & Davis, 1997). Accordingly, one of the basic premises of attachment theory is that attachment relationships continue to be important throughout the life span. Bartholomew and Horowitz’s (1991), Main, Kaplan & Cassidy (1985), Hesse (1999), and Hazan and Shaver (1987) are some of the researchers who extended the attachment model to adulthood following the reasoning that secure internal working models that were developed in childhood will evolve into secure internal working models in adulthood. Bartholomew and Horowitz (1991) proposed a model with four different attachment prototypes: secure, dismissing, preoccupied and fearful. Individuals in the secure prototype value intimacy, have the ability to maintain close relationships without compromising their autonomy, and are highly coherent and thoughtful when discussing relationships. Individuals in the dismissing prototype downplay the importance of close relationships, are restrictive in the way they express emotions, put an excessive emphasis on independence and self-reliance, and show a lack of clarity or credibility when discussing relationships. Individuals in the fearful prototype avoid close relationships because they are afraid of being rejected, lack a sense of personal security and are highly distrustful of others. Finally, the preoccupied prototype individuals are overinvolved in close relationships, their sense of personal well-being depends on the acceptance of others, they tend to idealize their significant others, and show incoherence or excessive emotionality when discussing relationships.
The link between attachment style, identity, and narrative coherence, has also been previously explored. Some studies suggest that secure attachments promote identity achievement status (i.e. the highest status of identity according to Marcia’s 1987 model, in which there is a presence of commitment and exploration in one’s sense of self) (Benson, Harris, & Rogers, 1992; Berman, Weems, Rodriguez, & Zamora, 2006; Mena-Matos et al., 1999 & Marcia, 1987). There are also specific studies supporting the link between attachment style and the dimension of coherence in identity narratives. As discussed earlier, conversations are an important setting for parent-child socialization. Securely attached children and their mothers have been found to engage in more open and easy-flowing conversations than insecurely attached children (Etzion, Carasso & Oppenheim, 2000). Also, secure individuals have been found to self-disclose more, and to display more flexibility and topical reciprocity than dismissive/ambivalent individuals (Mikulincer & Nachshon, 1991). Adult attachment researchers have used the Adult Attachment Interview to assess adults’ coherence in narratives about relationships (Crowell, Fraley, & Shaver, 1999; Main, Kaplan, & Cassidy, 1985; Hesse, 1999). The authors found that securely attached adults provided more coherent and emotionally integrated narratives of personal events in close relationships than those with other types of attachment. In contrast, insecure/avoidant adults provided more incoherent and/or emotionally flat narratives. Moreover, with regard to narratives about stressful events, the communication perspective on attachment states that securely attached individuals are able to talk about aversive emotions in an open and integrated manner that promotes the resolution of difficult emotional experiences.

One of the outcomes of attachment style to be examined in the present study is empathy. It is not surprising that attachment prototypes are predictive of different social and emotional outcomes and previous research has supported the link between attachment and empathy (Fabes et al., 2002). Children with secure attachment prototypes have been exposed to consistent models of sensitivity and responsiveness to distress. Given that these individuals have been found to have high levels of emotional understanding, securely attached prototypes have the necessary emotional skills to feel and respond to the distress of others (Laible & Thompson, 1998). Empathy has also been found to mediate between sensitive parenting and being helpful and comforting towards other in distress (Davidov & Grusec, 2006). Although most research regarding attachment and empathy has been conducted with younger children, it is reasonable to
assume that since internal working models from childhood evolve into adulthood, empathy developed earlier in the life-span will probably become a skill in young adulthood as well.

Since highly coherent and emotionally integrated identity narratives of securely attached individuals contribute to the successful incorporation of stressful events into the overall sense of self, it is reasonable to assume that these narratives will influence both the individual’s positive appraisal of the self and therefore their empathic response to those who have gone through distressing experiences.

In sum, the purpose of the present research was to understand the mechanisms that help young adult survivors of childhood cancer cope more effectively with their cancer experience by being the first study to integrate narrative identity and posttraumatic growth approaches in this population. As part of this understanding, I also wanted to examine if parent-related factors such as mother distress-related disclosure, mother’s narrative coherence and young adults’ secure attachment style contributed to YA’s more successful coping with their cancer experience, and outcomes of psychosocial adjustment.

1.6 Study Overview and Hypotheses

Young adult survivors of childhood cancer were asked to choose important turning points in their lives as well as to evaluate the impact of cancer on their identity by completing an adapted fragment of McAdams’ (2001) Life-Story interview. They also completed questionnaires of posttraumatic growth, attachment style, and measures of psychosocial adjustment. Mothers of these young adults were asked to write about a distressing memory of their child’s cancer, and to complete questionnaires of distress-related disclosure, frequency of cancer talk, and dispositional optimism. The following were the study’s hypotheses:

1. Young adults’ meaning making about cancer-related turning points will be higher than meaning making about non-cancer related turning points. Also young adults who chose to speak about cancer as a turning point will have higher scores in the overall impact of cancer in their lives (cancer life-impact meaning making) as well as posttraumatic growth, than young adults who did not choose to talk about cancer-related turning points.

2. Young adults with higher scores in narrative identity about the cancer experience
(meaning making and coherence) will have higher scores in measures of psychosocial adjustment and posttraumatic growth.

3. Posttraumatic growth will mediate the relation between meaning making about the cancer experience and measures of psychosocial adjustment.

4. Mothers’ high levels of distress-related communication (distress-related disclosure and cancer-related talk) will be related to meaning making about cancer and posttraumatic growth.

5. Mothers’ coherence score in a cancer-related memory will be related to young adults’ narrative coherence about cancer, but only for mothers who are high in dispositional optimism. Similarly, this mother coherence will also be related to young adults’ positive attribution style, but only for mothers who are high in dispositional optimism.

6. Young adults’ secure attachment will be associated with narrative coherence about cancer.

7. Overall narrative coherence will mediate between secure attachment style and young adult’s empathy.
2 Method

2.1 Participants

A total of 145 young adult survivors of childhood cancer (87% of approached eligible participants) were recruited from the Pediatric Oncology Long-Term Follow-Up Clinic at the Princess Margaret Cancer Centre to participate. The present study consisted of a phone interview and two sets of online questionnaires. Of those 145, 127 young adults completed the interview, 118 completed part 1 of the questionnaires including demographic information, and 111 of these also completed part 2 of the questionnaires. Five young adults actively withdrew from the study due to reported lack of time, and missing data from the remaining participants resulted from young adults being unreachable over the phone or from their failure to complete their questionnaires after several reminders. Only 117 phone interviews had audio quality adequate for transcription. In addition, all young adults were asked for their mothers’ contact information and 128 young adults provided their consent for their mothers to participate. Questionnaires were not completed by 33 of the potential 128 mothers. These 33 mothers were unreachable, not interested, too busy, or did not mail their packages after several reminders. Five of the 95 mothers left their questionnaires incomplete. Mothers for whom young adults did not provide consent for participation were estranged, deceased or non-English speaking (see Figure 1).
Figure 1. Participation in the study for young adults and their mothers

Young adults (60% female, N=71) ranged from 18 to 30 year-old ($M=23.11$, SD= 3.34) with 27% of them ranging from 18 to 20 years-old, 48% from 21 to 25 years-old, and 25% from 26 to 30 years-old. The majority of the sample were Western European (52.5%), 16% were Eastern European, 8.5% were mixed background, 8% were South Asian, 6% were East Asian, 4% were Caribbean, 2.5% were West/Central Asian, 2.5% were Latino, and 1% were from other origins. Thirty-six percent of the sample were Catholic, 31% were not religious, 13% were Protestant, 3% were Jewish, and 14% were from other religious backgrounds. The majority of young adults lived with their parents (65%), 14% lived with roommates, 15% with their romantic partner, and 6% lived alone. The majority of young adults had at least one sibling (90%). Forty seven percent of young adults were single, 42% were in a relationship, and 11% were married. Only 4% of the sample reported having children. With regard to education, 19% had completed high school, 31% had some college or university education, 33% had completed a college or a university degree, 14% had some or had completed graduate or professional school, and 3.5% had other types of education. Regarding occupational status, 39% of the sample were part-time or full-time students, 38% were employed full-time, 13% were employed part-time, 4% were currently
unemployed or looking for a job, and 6% reported other occupational status (e.g., maternity leave), 66% reported no income, 4.4% reported earning less than $10,000, 9% reported earning between $10,000 and $40,000, 10% reported earning between $40,000 and $60,000, 11% reported earning over $60,000. Median household income however, was in the above $60,000 range which is consistent with the census data ($73,300) for the province of Ontario (Statistics Canada, 2011).

Young adults provided demographic information for their mothers. Seventy-three percent of mothers were married, 20% were separated or divorced, 6% had remarried, and only 1% of mothers were single. Educational attainment of the mothers was as follows: 9% of mothers had not completed high school, 20% had completed high school, 14% had some college or university education, 47% had completed a college or university degree, 8% had some or completed professional or graduate school, 3% reported other types of education.

2.1.1 Cancer-related demographics.

The most common cancer diagnosis was leukemia (31%), followed by lymphoma (25%), Wilm’s tumour (12%), other cancer diagnoses (12%), sarcoma (9%), neuroblastoma (8%), germ cell tumour (2.5%) and retinoblastoma (2%). Age of diagnosis ranged from less than 1 year to 17 years (\( M = 7 \) years, \( SD = 4.73 \)), with 30% diagnosed at 3 years or younger, 27% at 4 to 7 years, 14% at 8 to 10 years, 20% at 11 to 14 years, and 8% at 15 years or above. Time since diagnosis ranged from 5 years to 29 years (\( M = 16.21 \) years, \( SD = 5.67 \)). As treatment, the majority of participants reported receiving chemotherapy (95%), while fewer reported radiation therapy (42%) and/or surgery (56%), and/or bone marrow or stem cell transplant (10%). Three percent of the sample received the four types of treatment, 23% received three types of treatment, 48% received 2 types of treatment, and the remaining 26% received only one type of treatment. In terms of recurrence, 9% of the sample had a second cancer and 1% had a third cancer. All but one participant were in remission from their cancer diagnosis. Regarding physical late effects resulting from cancer treatment, 50% of the sample reported scarring of the chest, 22% scarring of the head, 14% persistent hair-loss, 12% scarring of the limbs, 3.4% limping, 2% eye loss, and 16% other type of late effects. Finally, 38% reported having sought mental health support related to their cancer.
2.2 Measures

Measures are presented for young adults’ interview data, young adults’ questionnaire data and mothers’ questionnaire data. Young adults completed a phone interview for the assessment of narrative identity (meaning making and coherence), and these interviews were coded accordingly. Coding procedures are described below. Young adults also completed online questionnaire assessments of demographics and cancer history, adult attachment, attribution style, coping, empathy, post-traumatic growth, and other questionnaires not included in this research. Mothers completed a paper and pencil questionnaire assessment of disclosure about distressing events, frequency of cancer-related talk with their children, dispositional optimism, and a written memory about a distressing memory of their child’s cancer.

2.2.1 Narrative identity interview (YA).

The phone interview was a shortened (\(\bar{X}=18.1\) minutes) version of McAdams (2001)’s original Life Story Interview’s turning point and early memory prompts, and it was adapted to include questions related to the impact of cancer in young adults’ lives. In the interview, participants were first asked to think about their life-story as a set of chapters, to pick from those chapters two turning points, to narrate these turning points in detail, to comment on the meaning of these turning points, and finally as a separate question regardless of their turning point choices (i.e., whether or not cancer-related), they were asked to reflect on the overall impact of cancer in their life-story. Although the full interview can be seen in Appendix A, the specific prompts and questions relevant to the present study are shown below:

2.2.1.1 Life-story prompt.

“I would like you to think about your life as a book or a novel. The book probably has different chapters telling different things that have happened to you over the years. Some chapters might be more meaningful or longer than others, but all of them make up your complete life-story. Please take a few moments to think about what your main chapters would be. You don’t have to tell them to me, just keep in them in mind. Please do not feel rushed; I can wait as long as you need me to. Just let me know when you are ready.”
2.2.1.2 Turning point prompt.

“Now looking back over this life story or these chapters that you thought about, it should be possible to identify certain key moments that stand out as turning points, that is, things that happened that marked an important change in your life story.”

2.2.1.3 Turning point coherence question.

“Now, I would like you to please describe this turning point to me, telling me what happened, where and when, who was involved, and what you were thinking and feeling.”

2.2.1.4 Turning point meaning making question.

“What do you think this turning point says about you as a person or about your life?”

2.2.1.5 Cancer life-impact meaning making question.

“Finally, looking back over your experience with childhood cancer… What impact do you think cancer has had on you and your overall life story?”

As shown above, each turning point was evaluated for both coherence and meaning making, and the cancer-life impact question was only evaluated for meaning making (because for this question participants were not asked to tell a specific story in a given time and space, with beginning and end etc.). Only turning points related to the cancer experience were considered for analyses of the study’s hypotheses (72 of the 117 talked about cancer-related experiences in at least one of their turning points, 16 out of these 72 chose both as cancer-related turning points, and the remaining 45 of these 117, chose both as non-cancer related turning points). Thus, for those who chose both turning points related to cancer, an average score of the two turning points was used as the final score for cancer-related turning point meaning making, and cancer-related turning point coherence. Therefore, 72 participants had scores for cancer-related turning point meaning making (CTP-MM) and cancer-related turning point coherence (CTP-Coh), and the full sample, 117 participants, had a score for cancer life-impact meaning making (CLI-MM). Of note, as a secondary part of the analyses and for comparison purposes, non-cancer related turning points were also evaluated for non cancer-related turning meaning making (NCTP-MM) and non
cancer-related turning point coherence (NCTP-Coh). Finally, all turning points were also coded for content themes using thematic analyses (See Appendix B for the coding sheet form).

### 2.2.2 Coding for meaning making.

Meaning making refers to the individual’s ability to glean from, learn, or understand meaning upon reflection on an event in the past. Meaning making was coded using McLean & Pratt (2004)’s (cited in McLean & Pratt, 2006) coding scheme, which was a revision of McLean and Thorne’s (2001) (cited in McLean & Thorne 2003) original meaning making scheme. Meaning making was coded as a categorical score of 0 to 3, in which a score of 0 referred to no meaning, a score of 1 was given to lessons (specific meanings that are behaviorally driven and applied exclusively to similar types of events in parallel situations), a score of 2 was given to vague meaning (more sophisticated but still vague given meanings), and a score of 3 was given to insights (broader meanings that extend beyond the narrated event to other parts of the self).

Tables 1 and 2 provide examples for no meaning, lessons, vague meaning, and insights for both turning points and cancer life-impact, respectively. To calculate inter-rater reliability, two extensively trained undergraduate students independently coded 50% of the narratives and Intra-Class Correlations (ICCs) were .95 for both turning points, and .92 for cancer life-impact. Disagreements between coders were discussed until a consensus was reached. One of the coders coded the remaining 50% of the narratives.

#### Table 1

*Turning Point Meaning Making Examples: What do you Think This Turning Point Says about you as a Person or about your Life?*

<table>
<thead>
<tr>
<th>Coding system illustrated for meaning making</th>
<th>Score on coding system</th>
<th>Quotation from participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Meaning</td>
<td>0</td>
<td>Um, I think it says how strong I was and how I didn’t really care what other people thought, I just wanted to go and be a normal kid.</td>
</tr>
<tr>
<td>Lesson</td>
<td>1</td>
<td>(deciding to move out from parents house) It just basically showing everybody, mainly my parents that I can do this and I want to try and do this. I</td>
</tr>
</tbody>
</table>
told my mom not that I would try for 6 months to see whether or not I could tell myself that I can do this and if I can really do this on my own.

<table>
<thead>
<tr>
<th>Vague Meaning</th>
<th>2</th>
<th>I just feel like, if you really have to try, there’s that inner strength that everyone possesses that they can get through things even if it is tough and they just have to keep going. It’s perseverance I think and like, just sticking in there.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insight</td>
<td>3</td>
<td>Well I think it kind of represents the stigma attached to having cancer. Kids think of you, even though you’re fine now, they think of you as sick or somebody that’s fragile or somebody that needs protection or isn’t capable. So I think it just kind of made me question how I think about other people with say, a history with health issues or conditions, things like that. It has kind of shaped how I try not to be oppressive or think of people as being limited or have their health issues define them.</td>
</tr>
</tbody>
</table>

**Table 2**

*Cancer Life-Impact Meaning Making Examples: What Impact do you Think Cancer has had on you and your Overall Life story?*

<table>
<thead>
<tr>
<th>Coding system illustrated</th>
<th>Score on coding system</th>
<th>Quotation from participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Meaning</td>
<td>0</td>
<td>Not too much</td>
</tr>
<tr>
<td></td>
<td></td>
<td><em>I: not too much?</em></td>
</tr>
<tr>
<td></td>
<td></td>
<td>P: no. It’s gone. 10 years ago. It went away, so… I don’t think it played a major part but it was a turning point. Had I not taken medications or treatment, I would be in trouble today</td>
</tr>
<tr>
<td>Lesson</td>
<td>1</td>
<td>Hm. I believe it’s that no matter what person gets diagnosed with it, I’m able to tell them to fight it and not to give up. Just because I was at such a young age when I had it and I fought through it.</td>
</tr>
</tbody>
</table>
Vague Meaning 2  I think cancer has made me stronger as a person, mentally, but it also has damaged me physically in my arm. So that’s the down side to it, but I feel like I’m stronger as person that I went through that at a young age and was able to see through it.

Insight 3  I think it just made me a stronger person because I feel if I can get through that, I can get through almost anything, especially doing it so young. If I can do it then, I can do it now. I can deal with like other things people throw at me or life throws at me, so I think it just made me a stronger person.

2.2.3 Coding for turning point coherence.

Coherence is considered a fundamental criterion for the evaluation of successful narratives. I used the system created by Baerger and McAdams (1999), as described in the introduction. In this system the degree of coherence is operationalized in four dimensions: orientation, the degree to which the narrative provides the reader with sufficient background information to understand the story; structure, the extent to which the narrative adopts a logical flow of scenes that are presented in a causally and temporally logical way; affect, the extent to which the narrative makes an evaluative point capturing the use of emotional language to underscore why the particular story is being told; and integration, the extent to which the narrator relates the episode being told to his/her larger sense of self. These coherence dimensions have been adopted in several studies with good inter-rater reliabilities (See Adler 2012; Adler, Wagner & McAdams, 2007). Adler (2012) uses a score from 0 to 3 for each of the four dimensions and together they constitute a composite measure of narrative coherence. Therefore, the average score of the four indices was used as the turning point coherence composite (See Table 3 for sample interview fragments displaying varying degrees of coherence). For the present study, coding was done in a two-step process in which two different pairs of coders (pair A, pair B) were involved. Pair A read through 50% of the narratives and derived a specific coding scheme operationalizing definitions of what constituted scores of 0,1,2 and 3 for the each of the indices in the context of turning points (See Appendix B). Once this coding scheme was finalized, pair B used it to code
10% of the narratives together for training purposes. Next, each of the coders of pair B independently coded 40% of the interviews achieving high inter-rater reliability for all four indices. Intra-class correlations (ICC) for turning point 1 and turning point 2 were .87 and .89 for orientation, .83 and .81 for structure, .86 and .85 for affect, and .88 and .85 for integration. For final scores involving two coders, disagreements between coders were discussed until a consensus was reached. Finally, one of the coders of pair B coded the remaining 50%. Of note, pair A did not have contact with pair B during the coding process to avoid contamination.

Table 3

Turning Point Coherence Score Examples of Varying Degrees of Coherence

<table>
<thead>
<tr>
<th>Coding system illustrated for coherence</th>
<th>Score on coding system</th>
<th>Quotation from participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coherence orientation index 0</td>
<td>0</td>
<td>It was probably when I went through the whole process of having cancer.</td>
</tr>
<tr>
<td>Coherence orientation index 1</td>
<td>1</td>
<td>Um, well I would say one of them was when I got sick. And uh, when that happened, I just had my whole family and friends around me.</td>
</tr>
<tr>
<td>Coherence orientation index 2</td>
<td>2</td>
<td>the biggest turning point was probably in grade 3, when I actually learned the significance of what I had had and that I was somewhat different that the other children my age. We were talking about cancer in class, and I knew that I had had it but I was very young when I had cancer so I didn’t really know the significance of it.</td>
</tr>
<tr>
<td>Coherence orientation index 3</td>
<td>3</td>
<td>Well, I basically moved out of my parents place. I finished my job at Zellers this past September. I needed a change and I decided to make a change late and I decided to move out of my parents place and start a fresh time in my life. I decided to live on my own, see how that goes. And then also I’m going to start a new job, which I’ll probably be starting sometime between now and March.</td>
</tr>
<tr>
<td>Coherence structure 0</td>
<td>0</td>
<td>And umm when I was diagnosed I remember it not</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Coherence structure index</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I was so happy I was almost crying. And I think that was just a really, a good moment. I’d gone through so much, I guess I was going through the chemo and radiation for about 8 months. And I’d just been through a lot. When I got the news that it was gone, it was just like a weight off my shoulders.</td>
</tr>
<tr>
<td>2</td>
<td>Um the main turning point in my life was probably when I entered high school. This has always been something that I tell others, but when I was in elementary school and when I was sick and off of school for a while, I think I had a pretty... pretty rough elementary school years just because I was always absent. I was always absent, and perhaps a language barrier, and culture differences also came into play when I was in elementary school. I mean, I don’t remember having too many friends and um... during my grade one or so, I remember being bullied. And uh... when I entered high school, everything just changed. It felt like a restart.</td>
</tr>
</tbody>
</table>
| 3                        | I’ll give you a little bit of context first. When I was, when I was sick, I had extensive radiation and chemotherapy...and because of that, it damaged not only the cancer cells, but the growth cells as well. So I had um... the right side of my chest was like caved in kind of, it didn’t grow since I was four. So I had an asymmetrical chest. And it had never been a problem for me before, because in your elementary years you never really worry about that or think about that or. You know, you’re mostly hanging out with the same types of peers and, and it just never became... it never was an issue. And then, it was around, it was about grade 10 or so... grade 10, grade 11, when I started really understanding how... how, the seriousness of... or the repercussions, the consequences of what I went
through. Um all my friends were growing and getting bigger, and I was just staying the same. And I went through a really, really tough time, and I was actually, I guess you could say… I wouldn’t say clinically depressed, but I was pretty depressed.

| Coherence affect index | 0 | like I didn’t have full understanding of what was going on. I just knew that I was sick and that I needed treatment and stuff like that, but I didn’t know the full effect of how it would affect family and friends and how it would later affect me and stuff like that so..

| Coherence affect index | 1 | P: I wasn’t surprised but probably felt, maybe a little bit isolated… not knowing who to talk to about that.

I: So what were you thinking and feeling during this time?

P: Umm… maybe just um I can’t really remember what I was thinking besides, maybe just worry about the future… I mean I was probably worried.

| Coherence affect index | 2 | I: When this happened, what were you thinking and what were you feeling?

P: Well I was not myself at all, I was on a lot of medication. I was not thinking clearly. I could not function alone or by myself. Someone always had to be with me. I was anxious and fearful and afraid that I would hurt myself.

| Coherence affect index | 3 | I was with my mum. I was nervous obviously cause I hadn’t really, well I’m 20 now so I took a long time to basically kind of get my act together. I only started driving, I did driving school over the past march break and then basically started driving end of April, beginning of May. So everything kind of went really quickly. I was nervous because I wasn’t sure if I had enough practice. Yeah basically just that, I was scared because I’ve heard of people that are really good drivers that have failed their G2 the first time so I was just more nervous and panicked about that. Yeah that’s pretty much how I felt at the beginning. By the end of it though, when I passed, I was relieved. I was a little bit surprised cause I felt
<table>
<thead>
<tr>
<th>Coherence integration index</th>
<th>Page 34</th>
<th>Like during my test I made like simple little mistakes...</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>Well... um, hm....well maybe I... I was too... I looked at the event maybe too hastily. Because like I was freaking out. And then my father was like &quot;look, there no way you're going to die. If you die, we die, you don't want that do you?&quot; So I was like no, so then we kind of just changed the angle of how we were approaching this. And then, um, yea I don't know... it made me discover that, you know, there's no one way to look at things. There's no one clear outcome in every situation.</td>
</tr>
</tbody>
</table>

| Coherence integration index | 1       | Um... I don't know it just makes me feel, like after being through it all, uh, just more humble and more respectful of things... not taking anything for granted really. Um... more just like, it was forced on you, it's not like you had a choice, so you just do what you can and do the best you can. |

| Coherence integration index | 2       | Um... for me, you know what, I was just... I just regrouped and realized that I can, you know, with the support of my family I can overcome whatever I set my mind to and just be positive and look forward to success. |

| Coherence integration index | 3       | About my life it says that I finally like took time for myself and I finally like decided to kind of grow up, it took me a little while to do that I think. Yeah pretty much just made me feel like I was actually becoming an adult and I like had my own freedom. I always had my own freedom but this way I didn't have to rely on anybody. I knew that if I needed to do something, as long as I had a car I could kind of do it myself instead of having to ask people favors all the time and feel like you're like using people just to kind of get a drive somewhere or whatever. And I like to give back to my friends because there have been times where we would go out and one of them wouldn't drink and they would drive and I would always feel bad because I couldn't really do that. So I felt like it was kind of like time I repay them or whatever for like 5 years of them doing that pretty much. |
2.2.4 Turning point themes.

A content analysis of the topics of the turning points narrations was done in order to identify both the main cancer and non-cancer related themes chosen by young adult cancer survivors. The final coding scheme included 6 cancer-related themes (diagnosis, treatment, recovery, recurrence, late effects, psychological realization, and other) and 4 non-cancer related themes (career/education, life milestones, relationships, and miscellaneous). Intra-class correlations ICC were used to calculate inter-rater agreement for the 10 themes. Seven themes showed very good to perfect reliabilities >.9 (which included all cancer themes), whereas three themes showed acceptable reliabilities >.75 (relationships, life-milestones, and non-cancer miscellaneous). One turning point could contain one or more themes (See Table 4).

Table 4

Examples of Cancer-related and Non-cancer-related Themes

<table>
<thead>
<tr>
<th>Theme category illustrated</th>
<th>Quotation from participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer-related: Diagnosis and treatment (example of 2 themes in one turning-point)</td>
<td>Um… a really long time ago, I had it… I was diagnosed when I was 3 with leukemia. And I remember some parts of it. I had treatment until I was 6. Um but I remember it really made me feel different, definitely. Obviously it wasn’t very fun (laughs)</td>
</tr>
<tr>
<td></td>
<td>Um, but like I remember I liked the nurses a lot at Sick Kids, they were great. And I remember um some of the doctors I had were really great and I’d get excited for stickers (laughs). You don’t think like that. And I think coming out of it… it gave you as a child like a different kind of awareness that you didn’t have just because that experience was so impacting.</td>
</tr>
<tr>
<td>Cancer-related: Psychological realization</td>
<td>Okay. Well in regards with childhood cancer which was obviously a huge part of my life, the biggest turning point was probably in grade 3, when I actually learned the significance of what I had had and that I was somewhat</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
different that the other children my age. We were talking about cancer in class, and I knew that I had had it but I was very young when I had cancer so I didn’t really know the significance of it. And then it was then where I kind of had this feeling of “oh I’m different than everyone else”. It was really impactful and it really changed how I thought about myself.

Non-cancer-related: Career-education

I guess I would say probably transitioning from high school to university. I was 17.

I went to Queens University

There was a lot of excitement. Like new experiences, I knew I was going to be experiencing new things and there was a lot of excitement associated with that. I guess, kind of nervous at the same time. You know, moving away from home, living on your own, that sort of independence that I experienced for the first time.

The following measures were part of young adults’ questionnaire.

2.2.5 Demographics and cancer history form.

A 29-item form was developed for the present study to collect young adults’ demographic information including sex, age, level of education, occupation, relationship status, living situation, ethnicity, and average household income. Information about young adults’ cancer diagnosis, such as age of diagnosis, treatment received, and late effects was also included in this form (see Appendix C). As the majority of the sample identified as Western-European a dummy variable of ethnicity was created (1= Western-European origin, 0= Other ethnicity) for regression analyses controlling for ethnicity.

2.2.6 Adult secure attachment style.

The Relationship Scales Questionnaire (RSQ, Griffin & Bartholomew, 1994) measures Bartholomew and Horowitz’s (1991) four attachment prototypes: secure, dismissing,
preoccupied, and fearful. This self-report questionnaire consists of 30 statements that were drawn from three sources: Hazan & Shaver’s (1987)’s paragraph description attachment measure, Bartholomew and Horowitz’s (1991) Relationship Questionnaire (RQ), and Collins and Read’s (1990) Adult Attachment Scale. The RSQ is the most widely used self-report measure of adult attachment (Guédeney, Fermanian & Bifulco, 2010). Young adults were asked to rate on 5-point scale how well each of the items fit their style in close relationships. Four attachment subscales are obtained by computing the mean of the items corresponding to each attachment prototype, but only the secure attachment style subscale was used in the present study. The scale consists of 5 items: “I find it easy to get emotionally close to others”, “I am comfortable depending on other people”, “I worry about being alone” (reversed), “I am comfortable with other people depending on me”, “I worry about having others not accept me” (reversed). The RSQ has shown very good content and construct (convergent) validity in different studies; but it is also known for its somewhat low Cronbach’s alpha. Four different studies have shown reliabilities in the .40-.60 range, including the original validation study (Guédeney et al.,2010; Griffin & Bartholomew, 1994; Segal, Needham & Coolidge, 2009; Walker & Ehrenberg, 1998). In this study the secure attachment subscale had a Cronbach alpha of .53. However, Cronbach’s alpha is a disputed as measure of reliability particularly for research in social sciences, as it works under the assumption of tau equivalency (i.e. having only one factor in a factor analysis). When this assumption is not met, the alpha tends to underestimate the internal consistency of the measure because it is based on its lower bound (Gu, Little & Kingston, 2013). In order to address this issue, Osburn (2000) investigated alternate methods of calculating reliability and suggested the maximized $\lambda_4$ as the most accurate estimate of reliability (i.e., the highest Spearman-Brown corrected correlation, among all the possible half-split combinations of the subscale items). The $\lambda_4$ of the secure attachment style subscale was .73 for the present study.

2.2.7 Attribution style.

The Attributional Style Questionnaire (ASQ; Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, et al., 1982) measures individual’s style of explaining aversive uncontrollable events. This self-report questionnaire consists of 12 hypothetical situations (6 positive, 6 negative), e.g. “you meet a friend who compliments you on your appearance” or “you have been looking for a job unsuccessfully for some time”. Young adults were asked to rate on a
7-point Likert scale options for three dimensions: internal/external (i.e., if the person believes that they do or do not have control/influence events: “Is the cause of your friend’s compliment due to something about your or something about other people or circumstances?”), stable/unstable (i.e. if the person believes that a repeated event is likely to change or not: “In the future, when you are with your friend, will this cause again be present?”), and global/specific (i.e. if the person’s explanation is generalized to other events or not: “Is the cause something that just affects interacting with friends, or does it also influence other areas of your life?”) The ASQ has been shown to have moderate to high internal consistency scores (ranging from .40-.82). The data in the present study yielded the following coefficient alphas: .61 and .40 for internality, .71 and .82 for stability, and .63 and .72 for globality. These indices were consistent with previous reported psychometric properties (Peterson et al., 1982). Peterson et al., (1982) suggested that the dimensions of internality, stability and globality can be collapsed to obtain two composite scores, one for positive attribution style (Cronbach’s alpha: .81) and one for negative (Cronbach’s alpha: .80), and this approach was used for the present study.

2.2.8 Coping.

The Coping Scale for Adults (CSA, Frydenberg & Lewis, 1997) is a 73-item measure evaluating 19 different types of strategies (subscales) for dealing with distressing situations: Using wishful thinking, keeping to self, using tension reduction, ignoring the problem, protecting one’s self, seeking professional help, engaging in social action, seeking spiritual support, using humor, seeking social support, focusing on solving the problem, working hard, improving relationships, focusing on the positive, using physical recreation, seeking relaxing diversions, worrying, not coping, and using self-blame. These 19 subscales can also be organized into four larger factors: dealing with problems, optimism, sharing, and non-productive coping. Sample items include “talk to others to see what they would do if they had the problem,” “shut myself off from the problem so that I can avoid it.” These four larger factors were used in this study’s analyses. Participants were asked to rate each of the 73 statements on how much it described the way they dealt with their worries and concerns on a 5-point Likert scale (1= not used at all, 5=used a great deal). The scale has shown to have high construct validity across several studies (see Frydenberg & Lewis, 2000 for a review). Cronbach’s alphas for the present study were .83 for the dealing
with problems subscale, .74 for the sharing subscale, .81 for the optimism subscale, and .91 for non-productive coping.

2.2.9 Empathy.

The Interpersonal Reactivity Index (IRI; Davis, 1980) is a 28-item measure of empathy-related responses to different situations assessing individuals’ reactions to the others’ distress in four dimensions: other-oriented feelings of sympathy and compassion (empathic concern subscale), ability to take the perspective of others (perspective taking subscale), self-oriented feelings of personal distress (personal distress subscale), and the capacity to imaginatively put oneself in other’s shoes (fantasy subscale). Participants rated how well they believed each statement described themselves on a scale from 1 (does not describe me well) to 5 (describes me very well). Sample items include “when I'm upset at someone, I usually try to 'put myself in their shoes' for a while”, “when I see someone being taken advantage of, I feel kind of protective towards them”. The 4 subscales have shown satisfactory internal consistency with Cronbach’s alphas ranging from .71 to .77 and good validity (Davis, 1980). In the present study, only the perspective taking and the empathic concern subscales were used. Cronbach’s alphas were .75 for perspective taking, and .71 for the empathic concern subscale.

2.2.10 Post-traumatic growth.

The Posttraumatic Growth Inventory (PTGI, Tedeschi & Calhoun, 1996) is a 21-item measure which assesses the degree of perceived benefit following a traumatic experience in five different dimensions: new possibilities, relating to others, personal strength, spiritual change, and appreciation of life. Participants were asked to “indicate for each of the statements the degree to which this change occurred in your life as the result of your crisis” (for the present study “crisis” was replaced by “cancer”). Sample items include: “my priorities are about what is important in life”, “an appreciation for the value of my own life”, “I developed new interests”, “a feeling of self-reliance”, “new opportunities are available which wouldn’t have been otherwise”, “having compassion for others”. Participants rated each item on a 6-point Likert scale (0= I did not experience this change as the result of having cancer to 5= I experienced this change to a very great degree as a result of having cancer). The PTGI has shown very good psychometric properties with internal consistency reliabilities ranging from .67 to .85 for the individual
subscales and .90 for the overall PTGI scale, and validity in modest relations with measures of optimism and extraversion (see Tedeschi & Calhoun, 1996; Bellizi and Blank, 2007). In the present study, the Cronbach’s alpha for the overall PTGI was .91.

The following measures were included in the mother’s questionnaire package.

### 2.2.11 Distress-related disclosure.

The Parent Intentions to Disclose Questionnaire (Chaparro & Grusec, 2015) is a 14-item measure assessing parents’ willingness to disclose about themselves in two areas, distress-related events and rule transgressions (See Appendix D). Only the distress-related events subscale was administered in the present study. For distress-related events, the 7 items referred to the likelihood of sharing situations in which the parent felt somewhat distressed, upset, or anxious (e.g., “you have a disagreement with a friend and feel upset”, “you have to give a presentation in public and you are not sure what you want to say which makes you somewhat anxious”, “a close friend forgot your birthday and you feel a bit hurt”). Mothers rated each statement on a 7-point Likert scale (1=not likely at all, 7=extremely likely). This measure has shown both high reliability and construct validity (see Chaparro & Grusec, 2015). Cronbach’s alpha for the present study was .90.

### 2.2.12 Frequency of cancer talk.

To assess maternal frequency of cancer-related talk, mothers were asked to rate on a 7-point Likert scale “how often did you talk about cancer with your child when he/she was sick?” and “how often do you currently talk about your child’s cancer experience with him/her?”

### 2.2.13 Maternal reminiscing about a distressing experience with child’s cancer.

In order to assess maternal coherence, mothers were asked to reminisce and write about a time in which they felt very frustrated about their child’s cancer. A similar prompt was previously used by Fivush, Sales, & Bohanek (2008) to interview mothers of children with asthma and to code for maternal coherence. However, given that in the present study mothers were asked to write their narrative, the following Pennebaker (2004)’s prompt to facilitate expressive writing was also included:
“Please don’t be afraid to write your very deepest thoughts and feelings about the situation. In your writing, please try to really let go and explore your deepest emotions and thoughts. You might tie your topic to your relationships with different members of your family, friends, or others, and you might tie your topic to your past, your present, or your future as well. All of your writing will be completely confidential. Don’t worry about spelling, grammar, or sentence structure. The only rule is that once you begin writing, you continue until you finish.” (See Appendix E)

Written narratives were coded for context, chronology and theme, based on the coherence indices of Baker-Ward et al., (2007) which was the same coding scheme used in Fivush et al.,(2008)’s study (see Appendix F for coding scheme sheet. Each of these dimensions (context, chronology and theme) is coded in a 4-point rate scale (1=absence, 4=fully present dimension). Context refers to whether the narrator includes information that places the event in place and time, chronology refers to the level of temporal sequencing, and theme refers to the sense of topic of the narrative. See Table 5 for example reminiscing narratives displaying varying degrees of maternal coherence indices. Two independent coders coded 100% of the written narratives, and intra-class correlations (ICC) were in the moderate to high range, with .88 for context, .73 for chronology, and .76 for theme.

Table 5

Examples of Varying Degrees of Coherence in Mother Narratives

<table>
<thead>
<tr>
<th>Context</th>
<th>Chronology</th>
<th>Theme</th>
<th>Mother Narrative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Amy was always contracting some sort of illness while on treatment. The frustrating part was they could never diagnose for weeks. We would go to the hospital almost every day because of fever but they couldn’t find anything. On one occasion it was three week before they discovered it was pneumocystis and then told me she most likely wouldn’t survive. I cried a LOT- but not in front of her. It was an emotional roller coaster for years. She asked me once during all the tests that she underwent while trying to diagnose her, if she was going to die. She was only 5 years old- she took me</td>
</tr>
</tbody>
</table>
by surprise and so I burst out crying, as I ran out of the exam room. When I had some composure I went back in and told her no- but not sure she thought I was being truthful. She obviously survived all the illnesses but I’ll never forget the pain in my heart when I thought she wasn’t going to make it. I can still make myself cry today when I think about all those times- as there were at least 4 occasions where we thought she wouldn’t make it or was having a relapse. She was one year off of chemo and had all the symptoms of relapse. After 2 weeks of hell, the symptoms disappeared and nothing came of it. That was our last scare. I think the drs. Are really good about not saying too much too early- but I truly believe they believed what they were saying. Amy is different!

2 3 2

I really do not recall a time such as this in regards to her cancer. The time frame from visiting the GP to diagnosis was only 3 days, this would have been a source of frustration if there had been a wait.

During her treatment the oncologist’s nurse was always just a phone call away and great at responding and answering any questions. She even was able to help a few years later when Lindsay had another unrelated medical problem where I was feeling extremely frustrated with the lack of care she was receiving.

I turned to her as a last resource and she listened to me, which is what no one else had done. As a result Lindsay was admitted to Sick Kids for a few days.

0 0 0

I was upset when she lost her hair

Kids at school did not want anything to do with her.

Some friends would visit but did not bring their children they thought it was contagious and did not want my child near theirs

Her veins were hard to find and she would cry when we went to get blood work done chemo-administers
The waiting and wondering for the long term outcome.

3  3  2

The most frustrating time in my life were the months leading up to Sarah’s diagnosis. In February, Sarah came down with a bad cough & head cold and was prescribed antibiotics. After 2 weeks there was not much change to her condition and I noticed that the lymphnodes under her neck were enlarged. We went back to the doctor and was told that sometimes that is normal when you have an infection. About 2-3 weeks later there was no change as a matter of fact there were more lymphnodes and Sarah was getting tired easily. She also complained that it was painful to lift her left arm over her head. The family doctor then referred us to an ENT specialist who on the first visit said to return the following week- she measured the lymphnode. After a few visits to her Sarah’s aunt & I decided to take things in our hands and researched the web. We were then calling the doctor with different things like “mono” etc. Finally, I asked to be referred to Sick Kids and that is when she decided to biopsy one of the lymphnodes and order a CT scan. This is no June and we went away and gave all the contact information to call us as soon as the results came back. Sarah, on two occasions, while out of the country, got really sick and had difficulty breathing so we tried and tried to contact the doctor and finally after 3 days we were told to get back and go straight to Sick Kids. A few days after being at Sick Kids Sarah ended up in intensive care- the cancer was closing up her airway.

1  1  1

For us were a big shock because and our families my husband and mine never had cancer. But we tried to be calm and realistic and believe and the Doctors. Thanks god, my son was ok with the treatment. Never had bad reactions. He was happy all the time and we treat like normal child. He was 5 months old. He is very smart and we dedicate to teach to play all the time and be strong. To dedicate and care. Always we were optimistic. Is because is my way. And one situation that I didn’t like was in the hospital after my son operation was that one social work came and say to me “I know how you
feel” first I didn’t call her and the presentation of the lady was terrible. Look like she was sick. Or sad. I didn’t like so if I don’t have a strong temper that people doesn’t help. I say please go away I don’t need help. But and general everything was fine. All our families are back home and we have do support very well and the doctors all the time were optimistic and was on time because I had a good pediatrician.

2.2.14 Maternal optimism.

The Life Orientation Test (LOT-R; Scheir and Carver, 1985) was used to assess mothers’ dispositional optimism as it assesses the extent to which individuals expect positive outcomes in life (“In uncertain times I usually expect the best”). The 8 items were rated in a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) with higher scores representing higher optimism. In other cancer-related studies, the questionnaire has shown to have good psychometric properties, including validity and reliability (Allison, Guichard, & Gilain, 2001; Curbow, Somerfield, Baker, Wingard, & Legro, 1993). Cronbach alpha for the present study was 0.80.

2.3 Procedure

Young adult survivors of childhood cancer were recruited during their annual aftercare visits to the Pediatric Oncology Long-Term Follow-Up Clinic at Princess Margaret Cancer Centre. In addition to being between 18 to 30 years old, inclusion criteria were being diagnosed with cancer before the age of 18, and being in full remission for the past five years. The only exclusion criterion was significant cognitive impairment resulting from cancer treatment. Young adults were also asked for their consent to send a questionnaire package to their mothers. Participation in the study followed a three-step process: An appointment to conduct the phone interview was scheduled after obtaining consent. At the end of the phone interview, participants were sent the first part of the online questionnaires and given two weeks to complete it. The second part of the online questionnaires was sent upon completion of part 1 and another two-week deadline was given (this was done in order to avoid respondent fatigue). A total of $16 was split between two
gift cards that were mailed when participants completed each part of the questionnaires. Mother packages were also sent at the end of young adults’ phone interview with a recommended two-week deadline to be completed. Please refer to Appendices G, H, I, J and K relevant forms of the study.
3 Results

Following data screening and missing data analyses, the results are presented in three sections: 1. Results relevant to the study’s hypotheses using cancer-specific narrative identity variables (i.e., cancer-related turning point meaning making or CTP-MM, cancer life-impact meaning making or CLI-MM, and cancer-related turning point coherence or CTP-Coh). This first section includes descriptive statistics and correlations among the main study variables, *t*-tests for between-group mean comparisons, linear regressions for associations between continuous variables, and moderation and mediation analyses in PROCESS for the exploration of conditional effects among observed variables. 2. For comparison purposes, a brief presentation of results involving non-cancer specific narrative identity variables (i.e., non cancer-related turning point meaning making or NCTP-MM, and non cancer-related turning point coherence or NCTP-Coh). And 3. As part of the secondary goal of the study, Structural Equation Modeling (SEM) was used to test a model involving young adults’ overall turning narrative coherence (TP-Coh) as a latent variable and mediator between YA’s secure attachment style and empathy.

3.1 Data screening.

All study variables were screened for normality using skewness and kurtosis statistics prior to data analysis. *Z*-values were calculated dividing the skewness and kurtosis statistics by their corresponding standard errors. Variables that are considered problematic have *Z* values greater than 3.3 for either of these two statistics. All study variables had a normal distribution. The *Z* value for kurtosis of the variable cancer life-impact meaning making was -3.4 but transformation did not improve normality. Given that this variable had an appropriate skewness, no transformation was used.

3.2 Missing mother data.

Complete mother data (questionnaire and narratives) were available for 90 of the young adult participants. In order to examine differences between young adults for whom mother data were collected and those young adults for whom it was not available, independent sample *t*-tests with
missing/not missing mother data as a grouping variable were conducted for all continuous study variables. Chi-analyses were used for categorical variables. No significant differences between these two groups emerged across narrative identity, psychosocial adjustment, and attachment style variables.

3.3 Section 1: Young Adults’ Cancer-Specific Narrative Identity Results

3.3.1 Descriptive statistics and correlations.

Means, frequencies, standard deviations, ranges, and zero order correlations for young adults’ cancer-related narrative identity variables, cancer turning point themes, psychosocial adjustment variables, attachment style variables, and mothers’ variables are presented in Tables 6 to 11.

Descriptive statistics and correlations among the three cancer narrative identity variables, cancer-related turning point meaning making (CTP-MM), cancer life-impact meaning making (CLI-MM) and cancer-related tuning point coherence (CTP-Coh), are presented in Table 6. All three mean narrative identity variables were significantly interrelated. As stated earlier, for those participants who chose both turning points related to cancer, an average score of the two turning points was used as the final score for CTP-MM and for CTP-Coh.

Table 6.

*Descriptive Statistics and Correlations among Cancer Narrative Identity Variables*

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Cancer life-impact meaning making (N= 117)</td>
<td>1.63</td>
<td>1.21</td>
<td>0-3</td>
<td>.43**</td>
<td>.40**</td>
</tr>
<tr>
<td>2. Cancer turning-point meaning making (N=72)</td>
<td>1.66</td>
<td>1.21</td>
<td>0-3</td>
<td>_</td>
<td>.48**</td>
</tr>
<tr>
<td>3. Cancer turning-point coherence(^1) (N=72)</td>
<td>1.45</td>
<td>0.68</td>
<td>0-3</td>
<td>_</td>
<td>_</td>
</tr>
</tbody>
</table>

NOTE: \(^1\)Composite calculated on the mean of orientation, structure, affect and integration \(* = correlation is significant at the .05 level; ** = correlation is significant at the .01 level.\)
3.3.2 Turning point themes.

The final sample of turning points collected was 230 (4 of the 117 participants chose to report only 1 turning point), with 40% (N=91) being about cancer-related themes, and 60% (N=139) being about non-cancer related themes. Table 7 displays the frequencies (%) for cancer-related themes. Note that one turning point could include more than one theme (e.g., cancer diagnosis and treatment).

Table 7.

<table>
<thead>
<tr>
<th>Theme</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer-related turning points (n=91)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diagnosis</td>
<td>50</td>
<td>55%</td>
</tr>
<tr>
<td>Treatment</td>
<td>20</td>
<td>22%</td>
</tr>
<tr>
<td>Psychological realization</td>
<td>16</td>
<td>17%</td>
</tr>
<tr>
<td>Recovery</td>
<td>8</td>
<td>9%</td>
</tr>
<tr>
<td>Late effects</td>
<td>7</td>
<td>8%</td>
</tr>
<tr>
<td>Recurrence</td>
<td>2</td>
<td>2.3%</td>
</tr>
<tr>
<td>Other cancer-related</td>
<td>13</td>
<td>14%</td>
</tr>
</tbody>
</table>

3.3.3 Psychosocial adjustment variables.

Table 8 and 9 present the descriptive statistics and correlations among secure attachment, posttraumatic growth, attribution style, coping, and empathy subscales. Posttraumatic growth was positively correlated with empathic concern, positive attribution style was positively correlated with dealing with problems, and empathic concern, and dealing with problems was positively related to both perspective taking and empathic concern. Given the high correlation between empathic concern and perspective taking, an empathy composite was created for
subsequent analyses. Secure attachment style was positively correlated with positive attribution style, and empathy. It was also negatively correlated with negative attribution style and non-productive coping.

Table 8.

Descriptive Statistics for Young Adults’ Secure Attachment, Posttraumatic Growth, and Measures of Psychosocial Adjustment

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Secure attachment (RSQ)</td>
<td>3.36</td>
<td>0.65</td>
<td>1.8 - 5</td>
</tr>
<tr>
<td>2 Posttraumatic growth (PTG)</td>
<td>3.52</td>
<td>1.23</td>
<td>1 - 6</td>
</tr>
<tr>
<td>3 Positive attribution style</td>
<td>5.19</td>
<td>0.77</td>
<td>2.5 - 6.89</td>
</tr>
<tr>
<td>4 Negative attribution style</td>
<td>3.92</td>
<td>0.82</td>
<td>1.52 – 7</td>
</tr>
<tr>
<td>5 Dealing with problems (CSA)</td>
<td>3.32</td>
<td>0.46</td>
<td>1.95 - 4.38</td>
</tr>
<tr>
<td>6 Non productive coping (CSA)</td>
<td>2.58</td>
<td>0.66</td>
<td>1.07 - 4.56</td>
</tr>
<tr>
<td>7 Perspective taking (IRI)</td>
<td>3.48</td>
<td>0.66</td>
<td>1.71 - 4.86</td>
</tr>
<tr>
<td>8 Empathic concern (IRI)</td>
<td>3.86</td>
<td>0.57</td>
<td>2.43 – 5</td>
</tr>
</tbody>
</table>

Table 9.

Correlations among Secure Attachment, Posttraumatic Growth, and Measures of Psychosocial Adjustment.

<table>
<thead>
<tr>
<th></th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Secure attachment (RSQ)</td>
<td>0.02</td>
<td>.24**</td>
<td>-.30**</td>
<td>.23*</td>
<td>-.44**</td>
<td>.22*</td>
<td>0.1</td>
</tr>
<tr>
<td>2 Posttraumatic growth (PTG)</td>
<td>_</td>
<td>0.12</td>
<td>0.02</td>
<td>0.14</td>
<td>0.19</td>
<td>0.14</td>
<td>.45**</td>
</tr>
<tr>
<td>3 Positive attribution style</td>
<td>_</td>
<td>0.03</td>
<td>.29**</td>
<td>0.01</td>
<td>0.16</td>
<td>.21*</td>
<td></td>
</tr>
<tr>
<td>4 Negative attribution style</td>
<td>_</td>
<td>0.05</td>
<td>.43**</td>
<td>0.04</td>
<td>-0.01</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
5. Dealing with problems (CSA)       _       .27** .30** .27**
6. Non productive coping (CSA)       _       -0.11  0.09
7. Perspective taking (IRI)          _       .43**
8. Empathic concern (IRI)            _       

* = correlation is significant at the .05 level; ** = correlation is significant at the .01 level.

3.3.4  Mother Variables.

Table 10 presents the descriptive statistics and correlations among mothers’ disclosure, coherence in a cancer-related memory, and dispositional optimism (sub)scales. Mother distress-related disclosure was positively associated with mother’s cancer-related talk. Given that the index of context was uncorrelated with the indices of chronology and theme, it was excluded from the composite of mothers’ coherence used in subsequent analyses. Mothers’ coherence composite was negatively correlated with mothers’ dispositional optimism. Mothers’ coherence index of theme was positively correlated with mother’s frequency of cancer related talk.

Table 10.

*Mothers’ Study Variables*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Distress disclosure</td>
<td>4.32</td>
<td>1.60</td>
<td>1-7</td>
<td>.21</td>
<td>-18</td>
<td>.08</td>
<td>.11</td>
<td>.03</td>
<td>.12</td>
</tr>
<tr>
<td>2. Frequency of</td>
<td>3.84</td>
<td>1.43</td>
<td>1-7</td>
<td>_</td>
<td>-.05</td>
<td>.19</td>
<td>.11</td>
<td>.23*</td>
<td></td>
</tr>
<tr>
<td>cancer-related talk</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Dispositional</td>
<td>3.15</td>
<td>.51</td>
<td>1-5</td>
<td>_</td>
<td>-.26*</td>
<td>-.02</td>
<td>-.24*</td>
<td>-.21*</td>
<td></td>
</tr>
<tr>
<td>optimism</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Mean mother</td>
<td>2.22</td>
<td>.78</td>
<td>0-3</td>
<td>_</td>
<td>.15</td>
<td>.88**</td>
<td>.86**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>coherence\1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Score on context</td>
<td>1.42</td>
<td>.86</td>
<td>0-3</td>
<td>_</td>
<td>-.01</td>
<td>.04</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Score on</td>
<td>2.35</td>
<td>.94</td>
<td>0-3</td>
<td>_</td>
<td></td>
<td>.53**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>chronology</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Score on theme</td>
<td>2.09</td>
<td>.85</td>
<td>0-3</td>
<td>_</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NOTE: Composite calculated on the mean of chronology and theme *= correlation is significant at the .05 level; ** = correlation is significant at the .01 level.

3.3.5 Hypothesis 1

Young adults’ meaning making about cancer-related turning points will be higher than meaning making about non-cancer related turning points. Also young adults who chose to speak about cancer as a turning point will have higher scores in the overall impact of cancer in their lives (cancer life-impact meaning making) as well as posttraumatic growth, than young adults who did not choose to talk about cancer-related turning points.

Results are presented separately for both types of meaning making CTP-MM and CLI-MM, and posttraumatic growth (PTG).

3.3.5.1 Cancer turning point meaning making.

For those young adults who chose one cancer-related turning and one non-cancer related turning point (n=56) turning point meaning making scores were compared using paired sample t-tests. Consistent with the hypothesis, cancer turning-point meaning making (CTP-MM) scores were significantly higher than non-cancer turning point meaning scores, t(55)=2.39, p=.020, d=.034.

3.3.5.2 Cancer-life impact meaning making.

To explore differences in CLI-MM between participants who chose at least one cancer-related turning point (N=72, 62%) and those who did not choose a cancer-related turning point (n=45), independent sample t-tests were conducted. Also consistent with the hypothesis, CLI-MM scores were significantly higher for those participants who chose cancer-related turning points than those who did not choose cancer-related turning points, t(115)=-2.48, p=.015, d=0.49.

3.3.5.3 Posttraumatic growth.

Participants who chose cancer-related turning points also scored significantly higher in posttraumatic growth than participants who did not choose cancer-related turning points, t(98) = -4.72, p<.01, d=0.95.
3.3.5.4 Other variables.

No significant differences emerged for YA’s psychosocial adjustment variables and mothers’ variables between those who chose at least one cancer-related turning point and those who did not.

3.3.6 Hypothesis 2

Young adults with higher scores in meaning making and narrative coherence about cancer will have higher scores in measures of psychosocial adjustment and posttraumatic growth.

3.3.6.1 Cancer-related turning point meaning making.

A series of multiple linear regressions was conducted in order to examine if the outcomes of positive psychosocial adjustment (coping, attributional style, and empathy) as well as posttraumatic growth varied as a functioning of CTP-MM after controlling for sex, age, and ethnicity. No significant associations emerged.

3.3.6.2 Cancer life impact meaning making.

In contrast, a series of multiple linear regressions revealed that CLI-MM was associated with lower levels of non-productive coping, $\beta=-.20, p=.04$, higher levels of empathy, $\beta=.25, p=.01$, and higher scores in posttraumatic growth, $\beta=.32, p<.01$, above and beyond sex, age, and ethnicity (See Table 11).

Table 11

<table>
<thead>
<tr>
<th>EMPATHY</th>
<th>Beta</th>
<th>S.E</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.21</td>
<td>.10</td>
<td>2.19</td>
<td>.03</td>
</tr>
<tr>
<td>Age</td>
<td>-.03</td>
<td>.02</td>
<td>-.27</td>
<td>.79</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.01</td>
<td>.10</td>
<td>.11</td>
<td>.92</td>
</tr>
<tr>
<td>CLI-MM</td>
<td>.25*</td>
<td>.04</td>
<td>2.58</td>
<td>.01</td>
</tr>
<tr>
<td>$R^2$</td>
<td>.12*</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 1: Regression Analysis of Posttraumatic Growth

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>S.E</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.22</td>
<td>.23</td>
<td>2.36</td>
<td>.02</td>
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<tr>
<td>Age</td>
<td>-.17</td>
<td>.03</td>
<td>-1.89</td>
<td>.06</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.23</td>
<td>.22</td>
<td>2.46</td>
<td>.02*</td>
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<tr>
<td>CLI-MM</td>
<td>.32**</td>
<td>.10</td>
<td>3.51</td>
<td>.00</td>
</tr>
<tr>
<td><strong>R^2</strong></td>
<td></td>
<td></td>
<td></td>
<td>.22**</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Beta</th>
<th>S.E</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.21</td>
<td>.13</td>
<td>2.21</td>
<td>.03</td>
</tr>
<tr>
<td>Age</td>
<td>-.18</td>
<td>.02</td>
<td>-1.88</td>
<td>.06</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.16</td>
<td>.13</td>
<td>1.61</td>
<td>.11</td>
</tr>
<tr>
<td>CLI-MM</td>
<td>-.20*</td>
<td>.06</td>
<td>-2.01</td>
<td>.04</td>
</tr>
<tr>
<td><strong>R^2</strong></td>
<td></td>
<td></td>
<td></td>
<td>.13**</td>
</tr>
</tbody>
</table>

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

Note. CLI-MM= Cancer life-impact meaning making.

#### 3.3.6.3 Cancer-related turning point coherence.

A series of regressions was conducted to see if CTP-Coh was associated with outcomes of psychosocial adjustment (coping, attributional style, and empathy) and posttraumatic growth above and beyond sex, age, and ethnicity. No significant associations emerged.

#### 3.3.7 Hypothesis 3

**Posttraumatic growth will mediate the relation between meaning making about cancer and measures of psychosocial adjustment.**

#### 3.3.7.1 Cancer-related turning point meaning making.

Given that multiple regressions revealed no associations between CTP-MM and PTG, and between CTP-MM and measures of psychosocial adjustment, no mediation analyses were performed.
3.3.7.2 Cancer life impact meaning making.

To explore if PTG mediated the relation between CLI-MM and measures of psychosocial adjustment PROCESS (Model 4), a computational tool utilized for analysis of mediation and moderation (Hayes, 2013), which is an updated and expanded version of earlier programs such as MODMED (Preacher, Rucker & Hayes, 2007), was used. Given that previous analyses showed a negative association between CLI-MM and non-productive coping, and a positive association between CLI-MM and empathy, these two outcome variables were used for mediation analyses. Although when controlling for PTG the direct effect between CLI-MM and non-productive coping did not disappear, $\beta = -.17, p < .01$, when calculating the indirect effect of PTG, a partial mediation emerged. The value of this effect was .060 with a bootstrap (2000 samples) $SE$ of .026 yielding a 95% CI of .021 to .126. Given that the confidence interval did not include zero, there was a significant mediation indicating that PTG mediated between CLI-MM and low levels of non-productive coping. Moreover, when controlling for young adults’ PTG, the effect between CLI-MM and empathy was no longer significant, $\beta = .07, p = .083$, and when calculating the indirect effect of PTG, a full mediation emerged. The value of this effect was .046 with a bootstrap (2000 samples) $SE$ of .043 yielding a 95% confidence interval (CI) of .016 to .102. Since this CI did not include zero, there was a significant mediation of PTG between CLI-MM and young adults’ empathy.

3.3.8 Hypothesis 4

Mothers’ high levels of distress-related communication (disclosure about worries and cancer talk) will be related to meaning making about cancer and posttraumatic growth.

Multiple regressions were conducted to examine if mothers’ distress-related disclosure and cancer talk frequency were associated with meaning making about cancer and posttraumatic growth.

3.3.8.1 Cancer turning point meaning making.

Mothers’ frequency of cancer-related talk was not associated with CTP-MM, $\beta = .15, p = .33$, nor was mothers’ distress-related disclosure, $\beta = .12, p = .43$. 
3.3.8.2 Cancer-life impact meaning making.

Mothers’ frequency of cancer-related talk was associated with CLI-MM, $\beta=.34$, $p<.01$, above and beyond sex, age, and ethnicity, whereas mothers’ distress related disclosure was only marginally associated with CLI-MM, $\beta=.22$, $p=.06$. (See Table 12)

Table 12

*Mothers’ Cancer Talk Frequency and Young Adults’ Narrative CLI-MM.*

<table>
<thead>
<tr>
<th>CANCER LIFE IMPACT MM</th>
<th>Beta</th>
<th>S.E</th>
<th>$T$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.06</td>
<td>.25</td>
<td>.56</td>
<td>.58</td>
</tr>
<tr>
<td>Age</td>
<td>.06</td>
<td>.04</td>
<td>.55</td>
<td>.59</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.02</td>
<td>.24</td>
<td>-.16</td>
<td>.89</td>
</tr>
<tr>
<td>Cancer-related talk</td>
<td>.34**</td>
<td>.08</td>
<td>3.15</td>
<td>.00</td>
</tr>
</tbody>
</table>

$\beta^2$ .12*

** $p<.01$, * $p<.05$.

3.3.8.3 Posttraumatic growth.

Mothers’ distress-related disclosure was positively associated with young adult’s post-traumatic growth, $\beta=.28$, $p<.01$ above and beyond sex, age, and ethnicity. No association emerged for mothers’ cancer-related talk (see Table 13).

Table 13

*Mothers’ Distress-Related Disclosure and Young Adults’ PTG.*

<table>
<thead>
<tr>
<th>POSTTRAUMATIC GROWTH</th>
<th>Beta</th>
<th>S.E</th>
<th>$T$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.18</td>
<td>.27</td>
<td>1.79</td>
<td>.08</td>
</tr>
<tr>
<td>Age</td>
<td>-.16</td>
<td>.04</td>
<td>-1.60</td>
<td>.12</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>.18</td>
<td>.26</td>
<td>.18</td>
<td>.08</td>
</tr>
</tbody>
</table>
3.3.9 Hypothesis 5

Part 1: Mothers’ coherence score in a cancer-related memory will be related to young adults’ cancer-related turning point coherence, but only for mothers who are high in dispositional optimism.

No significant associations emerged between mothers’ coherence in a cancer-related memory and young adults’ CTP-Coh, above and beyond sex, age and ethnicity, $\beta=-.002, p=.99$. There was also no signification moderation effect of mothers’ dispositional optimism in the relation between mothers’ coherence in a cancer-related memory and young adults’ CTP-Coh, $\beta=-.16, p=.42$.

Part 2: Mothers’ coherence score in a cancer-related memory will be related to young adults’ attribution style, and this relation will be moderated by mothers’ dispositional optimism.

Maternal coherence about a distressing memory of the child’s cancer was positively associated with young adult’s negative attribution style, above and beyond, sex, age and ethnicity, $\beta=.28, p=.02$. No other associations with psychosocial adjustment variables emerged (see Table 14).

### Table 14

*Mothers’ Narrative Coherence and Young Adults’ Negative Attribution Style.*

<table>
<thead>
<tr>
<th>ATTRIBUTION STYLE</th>
<th>Beta</th>
<th>S.E</th>
<th>$t$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.04</td>
<td>.19</td>
<td>.37</td>
<td>.71</td>
</tr>
<tr>
<td>Age</td>
<td>.02</td>
<td>.03</td>
<td>.18</td>
<td>.86</td>
</tr>
</tbody>
</table>
Ethnicity  -.02  .18  -.18  .86
Mothers’ narrative coherence  .28*  .13  2.41  .02

\[ R^2 = .08 \]

** \( p < .01, \) * \( p < .05. \)

Using PROCESS (Model 1), a significant interaction effect between mothers’ coherence and mothers’ dispositional optimism, in the prediction of young adults’ negative attribution style emerged. The interaction was probed using the Johnson-Neyman technique. This technique defines regions of significance representing the range of \( z \)-scores in which the simple slope of \( y \) on \( x \) is significantly different from zero at a chosen level of significance (\( \alpha \)). In other words, it provides a region of values of the moderator for which the conditional effect of an independent variable on an outcome is significant (\( \alpha = .05 \) was used to identify significant effects in the present study). There was a region of significance for scores below 3.39 on mothers’ dispositional optimism (see Figure 2 and Table 15). The lower and upper lines represent the confidence intervals across the different values of the moderator. That is, mothers’ coherence was positively associated with young adults’ negative attribution style but only for mothers who scored low in dispositional optimism. The effect was not significant for mothers’ scoring high on dispositional optimism.
Figure 2. The conditional effect of mothers’ coherence on young adults’ negative attribution style as a function of mothers’ dispositional optimism

Table 15.
Moderation Analyses for Mothers’ Coherence as a Predictor of Negative Attribution Style

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>S.E</th>
<th>t</th>
<th>p</th>
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</thead>
<tbody>
<tr>
<td>Mothers’ coherence</td>
<td>1.41</td>
<td>.574</td>
<td>2.45</td>
<td>.017*</td>
</tr>
<tr>
<td>Mothers’ dispositional optimism</td>
<td>.924</td>
<td>.394</td>
<td>2.34</td>
<td>.138</td>
</tr>
<tr>
<td>MC X MDO</td>
<td>-.483</td>
<td>.170</td>
<td>-2.85</td>
<td>.005**</td>
</tr>
<tr>
<td>R^2</td>
<td>.154**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change in R^2</td>
<td>.090**</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

** **p<.01, * p<.05. MC=Mothers’ coherence MDO=Mother’s Dispositional Optimism

NOTE: Coefficients are based on mean centered values. Change in R^2 refers to the increase due to the interaction.

3.3.10 Hypothesis 6

Young adults’ secure attachment will be associated with narrative coherence about cancer-related turning points.

Young adults’ secure attachment style was associated with CTP-Coh above and beyond sex, age and ethnicity, β=.40 p<.01.

Table 16

Young Adults Secure Attachment Style and Young Adults’ Cancer-related Turning Point Coherence.

<table>
<thead>
<tr>
<th></th>
<th>Beta</th>
<th>S.E</th>
<th>t</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.15</td>
<td>.16</td>
<td>1.28</td>
<td>.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>----</td>
<td>----</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>.02</td>
<td>.08</td>
<td>.93</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.03</td>
<td>.16</td>
<td>-.25</td>
<td>.80</td>
</tr>
<tr>
<td>YA secure attachment style</td>
<td>.40**</td>
<td>.14</td>
<td>3.547</td>
<td>.00</td>
</tr>
<tr>
<td>$R^2$</td>
<td></td>
<td></td>
<td></td>
<td>.18*</td>
</tr>
</tbody>
</table>

** $p<.01$, * $p<.05$.

### 3.4 Summary of results.

In sum, meaning making about cancer (both CTP-MM and CLI-MM) was higher for cancer-related turning points than for non-cancer related turning points, and young adults who chose cancer-related turning points had higher CLI-MM scores than those who chose non-cancer related ones. Only CLI-MM (and not CTP-MM or CTP-Coh) was associated with coping and empathy, and as expected, PTG was a mediator of these associations.

Regarding the role of mother communication variables on YA’s narrative identity and PTG, mothers’ cancer-related talk frequency was related to CLI-MM and mothers’ distress-related disclosure, although marginally, was also associated with CLI-MM. Mother distress-related disclosure was also significantly related to PTG. Moreover, Mothers’ narrative coherence about a distressing memory of their child’s cancer was unrelated to young adults’ CTP-Coh, but mothers’ coherence was positively related to YA’s negative attribution style for mothers who were low on optimism. Finally, as expected, secure attachment style was associated with CTP-Coh.

### 3.5 Section 2: Young Adults’ Non Cancer-Specific Narrative Identity Results

As stated earlier, given that YA had a choice in their turning point selection, coding of their non cancer-specific narrative identity variables (i.e., non cancer-related turning point meaning making or NCPT-MM, and non cancer-related turning point coherence or NCPT-Coh) was also done for this sample of turning points, in order to provide information about differences between cancer-specific and non cancer-specific findings. In particular I was interested in whether the
main findings of the study hypotheses were specific to the cancer experience or if they were just related to overall narrative identity. Also given that non-cancer related turning points had different themes, I was interested if some of the differences between cancer and non-cancer related turning point narrative identity that could be potentially explained by these themes. Results are presented briefly in the following order: correlations among narrative identity variables and posttraumatic growth (Table 17), non cancer-related turning points themes (Table 18), and regression analyses for significant associations that emerged between non-cancer narrative identity variables and measures of psychosocial adjustment and secure attachment (Tables 19–21). No significant associations emerged between mother variables and YA’s non-cancer narrative identity variables (NCTP-MM and NCT-Coh)

Table 17

Descriptive Statistics and Correlations among Narrative Identity Variables and Posttraumatic Growth

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>NCTP-Coh</th>
<th>CPT-MM</th>
<th>CLI-MM</th>
<th>CTP-Coh</th>
<th>PTG</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NCTP-MM</td>
<td>1.17</td>
<td>1.18</td>
<td>0-3</td>
<td>.53**</td>
<td>.28*</td>
<td>.16</td>
<td>.38**</td>
</tr>
<tr>
<td>2</td>
<td>NCTP-Coh</td>
<td>1.33</td>
<td>0.68</td>
<td>0-3</td>
<td>_</td>
<td>.27</td>
<td>.20</td>
<td>.56**</td>
</tr>
</tbody>
</table>

* = correlation is significant at the .05 level; ** = correlation is significant at the .01 level. Note. NCTP-MM= Non cancer-related turning point meaning making, NCTP-Coh= Non cancer-related turning point coherence, CLI-MM= Cancer life-impact meaning making, CTP=Coh= Cancer-related turning point coherence, PTG= Posttraumatic growth.

Table 18

Non Cancer-Related Turning Point Themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non cancer-related (n=139)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Career & Education 62 45%
Relationships 33 24%
Life milestones 27 19%
Miscellaneous 31 22%

Table 19

Non Cancer-Related Turning Point Meaning Making and Positive Attribution Style

<table>
<thead>
<tr>
<th>POSITIVE ATTRIBUTION STYLE</th>
<th>Beta</th>
<th>S.E</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>-.17</td>
<td>.16</td>
<td>-1.59</td>
<td>.11</td>
</tr>
<tr>
<td>Age</td>
<td>.07</td>
<td>.02</td>
<td>.66</td>
<td>.51</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>-.15</td>
<td>.02</td>
<td>-1.40</td>
<td>.17</td>
</tr>
<tr>
<td>NCTP-MM</td>
<td>.22*</td>
<td>.07</td>
<td>2.06</td>
<td>.04</td>
</tr>
</tbody>
</table>

\( R^2 \) .07

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

NOTE: NCTP-MM= Non cancer-related turning point meaning making.

Non-cancer related turning point meaning making was associated with higher scores for positive attribution style, \( \beta=.22, p=.04 \), above and beyond sex, age, and ethnicity. No other associations with measures of psychosocial adjustment (coping or empathy) emerged.

Table 20

Non Cancer-Related Turning Point Coherence and Empathy

<table>
<thead>
<tr>
<th>EMPATHY</th>
<th>Beta</th>
<th>S.E</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>.10</td>
<td>.11</td>
<td>93</td>
<td>.35</td>
</tr>
</tbody>
</table>
Age  
Ethnicity  
NCTP-Coh  

**Table 21**

Secure Attachment Style and Non Cancer-Related Turning Point Coherence

| NON CANCER TURNING POINT COHERENCE | 
|-----------------------------------|---|---|---|---|
| Sex  | .23 | .14 | 2.20 | .03  
| Age  | -.09 | .02 | -.88 | .38  
| Ethnicity  | -.03 | .02 | -.30 | .77  
| YA secure attachment style  | .24* | .11 | 2.26 | .03  

**R²**  

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

Young adults’ secure attachment style was associated with non cancer-related turning point coherence above and beyond sex, age and ethnicity, β=.24, p=.03.
Finally, I wanted to test whether narrative coherence of turning points (whether or not cancer-related) would mediate between young adults’ secure attachment style and empathy. Also, given that CTP-Coh and NCPT=Coh were not significantly different from each other, \( t(55) = .171, p = .09 \), it was reasonable to use overall turning point coherence in the model.

3.6.1 Hypothesis 7

**Narrative coherence will mediate between secure attachment style and young adult’s empathy.**

To increase the validity of the coherence assessments, a latent variable that captured the common variance across the four coherence indices was used. Accordingly, Structural Equation Modeling (SEM) using Mplus (Muthen & Muthen, 2010) was the preferred statistical package to test the hypothesis that young adult coherence mediated between young adult’s secure attachment style and positive adjustment (the set of hypothesized variables that met the assumptions for testing a mediation).

Given that mother data was missing for 23% of the young adults with available interview data (N=117) and in order to address potential power concerns that could introduce bias in the results, Full information maximum likelihood (FIML) and multiple imputations (MI) were used to maximize data available. FIML is an estimation procedure to do multiple imputations that has been shown to outperform more common strategies (e.g., listwise deletion, mean substitution; Schlomer, Bauman, & Card, 2010). It also performs well whether the data is missing at random or not and when missing data is moderate (i.e., 25%; Goodson, Neilands & Buhi 2008).

The overall fit of the models was evaluated on the basis of the following fit indices: the SMRM (<.08), the comparative fit index (CFI >.90), and the root-mean-square error of approximation (RMSEA< .06) (Schermelleh-Engel, Moosbrugger & Müller, 2003). The model with empathy as the outcome variable met the criteria of a good fit (df=39,SMRM=.06, CFI=.91, RMSEA=.054) and there was evidence of a significant mediation, as the indirect effect of secure attachment on empathy through coherence was significant CI 95% [.014,.215 ] using 10000 bootstraps. Of
note, sex, age and whether turning points were cancer-related or not, were included as covariates in the model (See Figure 3).

*Figure 3.* Structural Model of Secure Attachment, Latent Coherence, and Empathy.
4 Discussion

The primary purpose of the present research was to examine the mechanisms underlying the ability of young adult cancer survivors to successfully incorporate their cancer experience into their identity, and thereby contribute to their psychosocial adjustment. Hypothesized mechanisms included YA’s ability to create cancer-related narratives with high degrees of meaning making and coherence, ability to report benefit from having cancer (i.e., posttraumatic growth), and the capacity of YA’s mothers to communicate with their children about distressing experiences. Overall, the main study hypotheses were partially confirmed, as choosing cancer as a turning point was related to more cancer-related meaning making, and posttraumatic growth mediated between cancer life-impact meaning making and outcomes of psychosocial adjustment. Although mothers’ distress-related communication with their children positively contributed to young adults’ narrative identity, mothers’ coherence in reminiscing about a distressing event of their child’s cancer appeared to have detrimental effects. Secure attachment was linked to cancer-related turning point coherence, and overall turning point coherence mediated between secure attachment and empathy. The theoretical and practical implications of the main findings are discussed below.

4.1 Choosing to Make Meaning of the Cancer Experience

Although only some YAs chose to speak about cancer-related turning points during their interviews, all YAs had to reflect on the overall impact of cancer in their lives. Thus, there were two kinds of cancer-related meaning making examined in this research: one specific to the turning point of choice related to cancer (CTP-MM) and one referring to a more general understanding of the cancer experience (cancer life-impact meaning making, CLI-MM).

4.1.1 Turning point meaning making.

As hypothesized, turning point meaning making scores were higher for cancer-related turning points than for non-cancer related turning points. Thematic analyses revealed that non-cancer
related turning point themes included career and education events, relationships, and other life-milestones (e.g., living on their own). Although, these non-cancer themes could also involve a certain degree of stress, given their normative nature (non-life threatening) they were likely not as distressing or traumatic as a cancer diagnosis. These findings are consistent with previous research examining differences in meaning making according to types of turning points. McLean and Pratt (2006) found that individuals who reported on mortality events as turning points scored higher on meaning making than those reporting achievement-related turning points. Similarly, Thorne et al. (2004) found that higher levels of meaning making were more common in individuals whose turning points contained references to tension (i.e., discomfort, disagreement, unease) than those turning points that did not include these references. Tavernier and Willoughby (2012) also found that life threatening/mortality events were the most prevalent turning points chosen by adolescents to describe substantial changes in their lives and to find meaning about them. Taken together these findings are consistent with Erikson’s (1968) premise about crisis and vulnerability being the catalyst of meaning making processes.

4.1.2 Cancer life-impact meaning making.

As expected, young adults who chose to speak about cancer-related turning points also had higher scores in cancer life-impact meaning making than those young adults who chose non-cancer related turning points. This is consistent with previous research in autobiographical memory and the idea of centrality, which suggests that stressful or traumatic events remain highly accessible and vivid for several years and come to mind more spontaneously than other types of memories, in response to internal and external prompts (Bernstein, 2001, Bernsten & Rubin, 2006; Janoff-Bulman, 1988). Bernsten and Rubin (2006) suggest that when traumatic or stressful memories are seen as central turning points in one’s life story, these memories would also be regarded as central components of one’s identity. Accordingly, although all young adults in the present study had to reflect on the overall impact of the illness in their life story (cancer life-impact meaning), only some of them had previously identified a cancer-related memory as a turning point. Presumably, these young adults considered their cancer experience more central to their identity, and thus had more opportunities to make meaning of it.
4.2 Links between Cancer-Related Narrative Identity, Posttraumatic Growth, and Psychosocial Adjustment

For the present study cancer-related narrative identity was operationalized as both YA’s ability to tell in a coherent manner a cancer-related turning point narrative as well as to reflect on the meaning of cancer in their lives. Thus, in addition to the two kinds of meaning making (CTP-MM and CLI-MM) cancer-related turning point narrative coherence (CTP-Coh) was also examined in this research. These three variables were correlated, and I discuss the associations with posttraumatic growth and psychosocial adjustment below.

4.2.1 Cancer-related turning point meaning making.

Contrary to expectations, cancer-related turning point meaning making was not associated with coping with stress, attributional style, or empathy. One possible explanation for the absence of associations with psychosocial adjustment is the specificity of YAs’ cancer-related turning point themes. Thematic analyses in the present study revealed that YAs’ chose memories about their cancer experience (e.g., the day of their diagnosis, a particularly painful treatment, a recovery milestones), which are not the same as reflecting on the overall impact of cancer in their lives. It is possible that the extracted meanings of these memories correspond to smaller constituents of a larger sense of meaning of the cancer experience. Thus, the cancer experience is presumably comprised of many different cancer-related memories which taken together, would likely contribute to young adults’ incorporation of cancer into their identity, and thus to better psychosocial adjustment. In addition, the failure to find an association between cancer-related turning point meaning making and posttraumatic growth (despite prior substantial empirical evidence of the connection between PTG and meaning making processes) may attest to the notion of specific turning point memories not being necessarily traumatic or critical in nature. This is consistent with previous research that suggests that turning points can also be mild experiences not necessarily involving major life events (Bruner, 2004; Gotlib and Wheaton, 1997).
4.2.2 Cancer-related turning point coherence.

Contrary to expectations, no associations were found between cancer-related turning point coherence, coping, attributional style, empathy or posttraumatic growth. Although as stated earlier, this was the first study to examine associations between narrative coherence and outcomes such as coping and attributional style, the absence of links between cancer turning point coherence and empathy is somewhat puzzling. Chen et al (2012) had found associations between narrative coherence and prosocial behaviour, which has often been an outcome closely related to empathy. Thus, it appears that for this sample of YA’s the specific ability to locate one specific cancer memory in place and time, and re-tell it in a structured/chronological manner, may not necessarily be conducive to better understanding of others. One possible explanation is that comparable to the earlier mentioned difference found between cancer turning point meaning making and cancer life-impact meaning making, a more accurate indicator of YAs coherence about their cancer experience, would have involved asking survivors to retell their whole cancer story (from beginning to end, including diagnosis, treatment, and recovery themes), as opposed to isolated cancer-related memories.

4.2.3 Cancer life-impact meaning making.

As expected, high scores on survivors’ ability to reflect on the impact of cancer in their overall life story were related to posttraumatic growth, lower levels of non-productive coping, and higher levels of empathy. When young adults were asked to look back over their life story and glean meaning from the influence of cancer in that story, those with high meaning making scores (i.e., insights or broader meanings that extend beyond the narrated event to other parts of the self), were presumably those who had incorporated the overall cancer experience into their identity in a successful way. These YA survivors were also able to extract different life benefits from this experience as revealed by the association with PTG. These findings are consistent with theoretical frameworks of meaning making, narrative identity, and previous empirical evidence supporting the link between identity development and psychosocial adjustment (Collie & Long, 2005; Davis, Wortman, Lehman, & Silver, 2000; Marcia, 1987; McAdams et al., 2001; McLean & Pratt 2006; McAdams & McLean, 2013). However, given that most studies have used general measures of psychological well being as the outcomes of meaning making, the present study contributes to research by providing links with other more specific outcomes of
psychosocial adjustment, namely coping and empathy. Given the previously mentioned importance of positive coping as a strategy to appropriate deal with stressful life experiences as well as of empathy as an essential skill for adequate social functioning, finding a connection between narrative meaning making and these outcomes, can be particularly relevant for interventions targeting stress management and empathy development in both clinical and non-clinical samples.

4.2.4 Posttraumatic growth as a mediator between cancer life-impact meaning making and psychosocial adjustment.

As hypothesized, posttraumatic growth mediated between cancer life-impact meaning making and empathy, and fewer levels of non-productive coping. In addition to young adults’ ability to glean meaning as a vehicle to incorporate their cancer experience into their identity, these mediation findings suggest that it may also be necessary to identify specific benefits from this negative experience (i.e., posttraumatic growth) in order to see positive changes in psychosocial adjustment (in this case in understanding others’ distress, and avoiding negative coping strategies). This is consistent with a recent line of research that suggests that individuals who have undergone traumatic experiences can also make meanings that are unhealthy for the self, and these have been found to result in lower levels of well-being (Lilgendahl, McLean & Mansfield, 2013; Lilgendahl & McAdams, 2011). In these unhealthy meanings individuals form “damaged self” connections between the event and their identity in which they emphasize how the self was negatively changed by the specific event (e.g., “my self-esteem was crashed as a result of the physical late effects of cancer”) (Pasupathi et al., 2007). In contrast, in “self-growth” connections as in posttraumatic growth, individuals acknowledge the positive impact of the event on the self (e.g., “I became more compassionate of other people with chronic illness as a result of having cancer”). Thus, it is reasonable that posttraumatic growth acts as one of the mechanisms by which narrative identity about the cancer experience is linked to positive psychosocial adjustment. The present findings are also consistent with previous studies in which posttraumatic growth has been identified as an outcome, not an antecedent of the meaning making process (Larner & Blow, 2011; Park et al., 2008). Finally, the present results support previously found connections between surviving cancer and having increased empathic capacity (Parry & Chesler, 2005).
4.3 The Role of Mothers in YA’s Survivors’ Cancer Experience

In the present study, mothers were assessed on three different dimensions regarding their ability to communicate about distress related experiences (specific and non-specific to cancer): mothers reported frequency of cancer-related conversations with their children, mothers’ disclosure about general distress-related situations, and mothers’ ability to reminisce about a distressing memory of their child’s cancer in a coherent way. Positive associations between the first two and YAs meaning making and posttraumatic growth were expected, and mothers’ coherence was expected to positively relate to young adults’ turning point coherence and attributional style only for mothers who were high in dispositional optimism.

4.3.1 Mothers’ reported frequency of cancer-related talk.

As expected, mothers’ self-reported frequency of cancer-related talk (past and present) was positively associated with YAs’ cancer life-impact meaning making. This finding is consistent with the findings of numerous developmental psychology studies revealing the significant impact of parent-child conversations about stressful events on children’s ability to make meaning out of their personal events through narratives (Fivush, Haden & Reese, 2006; Reese, Jack & White, 2010). Although the quality and content of these conversations was not assessed in the present study, it appears that mothers who recalled frequent cancer-related communication with their children had children who were able to extract more advanced meanings out of their overall cancer experience. Presumably, by mothers creating more frequent opportunities to talk about cancer with their children, they encourage children to practice talking about their cancer, thereby facilitating narrative meaning making.

4.3.2 Mothers who talk about distress.

It was hypothesized that mothers’ distress-related disclosure would be associated with both meaning making and posttraumatic growth. This hypothesis was partially confirmed as mothers’ disclosure about personal distressing experiences was associated with YAs’ posttraumatic growth, and was marginally associated with young adults’ cancer life-impact meaning making. In previous research self-disclosure about distressing experiences has been consistently associated with better psychological health, as it has been linked with individuals’ ability to
better process these negative events through higher levels of acceptance and optimism (Pennebaker, 1993; Pennabaker, Zech, & Rimé, 2001). Thus, mothers who are modeling disclosure about their own mildly distressing events are also modeling a powerful and adaptive coping strategy, which is likely contributing to young adults’ ability to accept and view with optimism their own negative experiences (Kliewer, Fearnow, & Miller, 1996). In addition, given that self-disclosure has also been found to be reciprocal between mother-child dyads (Chaparro & Grusec, 2015), it is reasonable to assume that these young adults are also feeling encouraged to share their own distressing experiences with their mothers, which in turn facilitates the types of conversations that have been linked with children’s ability to make meaning (Fivush & Sales, 2003).

4.3.3 The problem with mothers’ coherence.

Contrary to expectations, mothers’ coherence in reminiscing about a distressing time with their child’s cancer was not associated with young adults’ cancer turning point coherence, and no moderation of mothers’ dispositional optimism was found. In fact, mothers’ coherence was negatively associated with mother’s dispositional optimism. The lack of association however, is consistent with Fivush and colleagues’ (2008) failure to find a correlation between mothers’ and their children’s coherence about a similar narrative. One possible explanation for these findings is the difference between the prompt used to assess maternal coherence and young adults’ turning point coherence. Mothers were asked to write specifically about a distressing/frustrating time of their child’s cancer, while young adults were asked to spontaneously choose a memory in which they underwent a substantial change and to reflect on the impact that this memory had on their sense of self. Thus, mothers’ ability to make meaning or to coherently incorporate a difficult memory into their identity was not being examined, but more so their capacity to accurately remember the details of a difficult event that was already being primed with a negative valence (i.e., frustrating or distressing).

In line with the previously discussed idea of centrality of traumatic experiences (Bernsten, 2001), it is likely that those mothers who remembered more accurately frustrating episodes of their child’s cancer, were those whose memories more accessible and likely more traumatic. However, because no turning point or meaning making prompt was made, these mothers were bound to describe the overall negativity of their experience. Bernsten & Rubin (2006) found that higher
scores on a scale of centrality of traumatic memories were associated with higher levels of psychological distress. According to this notion, it is reasonable that mothers with higher degrees of coherence in reminiscing about a frustrating time with their child’s cancer were also those with lower scores on dispositional optimism. Given that this measure of dispositional optimism has been previously associated with better ability to cope with a variety of stressors including cancer (Allison, Guichard, & Gilain, 2001; Fontaine, Mastead, & Wagner, 1993), the negative correlation may also suggest that these mothers were prone to less adaptive coping strategies.

4.3.4 Mothers’ coherence and young adults’ negative attribution style.

Although it was hypothesized that mothers’ high levels of dispositional optimism would moderate between mothers’ coherence and young adults’ positive attribution style, the results revealed that low levels of dispositional optimism moderated between mothers’ coherence and young adults’ negative attribution style instead. This finding suggests that for this sample of young adults survivors of childhood cancer, mothers’ coherence about a frustrating memory of their cancer might have negatively influenced young adults’ view of aversive uncontrollable events, especially if their mothers were not particularly optimistic. Assuming that mothers who are low in optimism are more likely to have negative attribution styles, the present finding is consistent with Garber and Flynn’s (2001) finding that mothers who reported having major life stressful events and who also had a negative attribution style about child-focused events, had children with more negative attribution styles. These findings are also consistent with previous ones supporting the notion that mothers model their own emotion regulation abilities and coping strategies when they communicate with their children about stressful events (See Gottam, Katz and Hooven, 1996)

4.4 Attachment Style and Narrative Coherence

Young adult survivors completed a measure of adult attachment style, which was expected to be positively related to young adults’ ability to narrate cancer-related turning points in a coherent manner (CTP-Coh). Moreover, a secondary purpose of the present study was to propose a model in which overall turning point coherence (cancer and non-cancer related) mediated between secure attachment style and empathy.
4.4.1 Secure attachment and coherence about cancer.

As expected, higher scores on secure attachment style were associated with higher scores on cancer turning-point coherence. Although securely attached individuals have been found to provide more coherent and emotionally integrated narratives about relationships (presumably due to the transference of their internal working models from early positive mother-child experiences) (Main, Kaplan, & Cassidy, 1985), I also wanted to see if this coherence extended to narratives about stressful experiences, including cancer-specific memories. Given that securely attached children have been found to engage in more self-disclosure as well as in more easily flowing conversations than insecurely attached children (Etzion et al., 2000; Mikulincer & Nachshom, 1991), it is reasonable to assume that these children had more opportunities to develop and thereby retell more coherent cancer-related stories.

4.4.2 Turning point narrative coherence as a mediator between secure attachment and empathy.

In the present study, the hypothesized model of young adults’ overall turning point coherence as a mediator between secure attachment and young adults’ empathy proved to have a good fit. This finding is consistent with both theoretical and empirical accounts of attachment. Securely attached young adults were those whose caregivers responded consistently and sensitively to their distress when they were children (Bowlby, 1988; Bartholomew and Horowitz, 1991). These caregivers provided an adaptive model about dealing with distress, which manifests in the individual’s representations of the self, the world and others. Narratives about stressful experiences may be one of the mechanisms by which securely attached individuals can materialize these representations in a coherent manner. Thus, given that turning points narratives are often about stressful life events, it was reasonable to expect that overall turning point coherence would be an explanatory mechanism connecting secure attachment, and young adults’ ability to regulate personal distress and appropriately respond to the distress of others (i.e., their empathic capacity) (Laible & Thompson, 1998). Given that having cancer is one type of the many different negative experiences in which adaptive models of responding to distress can become evident, I was not expecting for this model to be cancer-specific but applicable to young adults’ general narrative coherence about turning points. In previous research, securely attached individuals have been found to have higher levels of emotional understanding which typically
results in improved empathic capacity (Laible & Thompson, 1998). The present model provides further evidence of the connection between attachment, coherence, and distress-related outcomes, by integrating research on narrative identity with attachment theory.

4.5 Implications for Clinical Practice

The present findings have ramifications for mental health practitioners involved in the care of patients who have faced life-threatening illness or chronic illness. As researchers have found that meaning making can be a predictor of fewer levels of depression and anxiety, and higher self-esteem (King & Illicks, 2009), practitioners might be interested in promoting narrative identity processes during psychotherapy. Although fostering meaning making is already implicitly or explicitly a therapeutic technique of most psychological interventions (Adler, Chin, Kolisetty, & Oltmanns, 2013; Hayes, Beevers, Feldman, Laurenceau, & Perlman, 2005; Hayes et al., 2007), health psychologists should strive to incorporate narrative identity prompts as a central component for this meaning making process, given its connection with psychological well-being (McLean, Breen, & Fournier, 2010; Pennebaker & Francis, 1996) and lower levels of nonproductive coping. However, given the differences between cancer-related turning point meaning making and cancer life-impact meaning making found in the present study, it would be important for psychologists to inquire about multiple memories associated with their cancer but more importantly to ask patients to look back and reflect on the overall impact of the illness on the story of their lives. Finally, given that traumatic memories can elicit self-damaging meanings (Lilgendhal et al., 2013), it is important that posttraumatic growth is encouraged by helping patients reflect on the benefits of overcoming the adversities of their illness.

4.6 Limitations and Future Directions

One important limitation of the present study is that given the cross-sectional nature of the data, direction and causality of the effects cannot be inferred statistically particularly between mother predictors and young adult outcomes. Future studies should examine if mothers’ distress-related communication with their chronically ill adolescent children subsequently predicts young adult survivors’ narrative identity development. This also applies to hypothesized links between narrative identity and psychosocial adjustment, as it would be interesting to investigate if young
adults’ cancer life-impact meaning making could predict changes/increases in outcomes of psychosocial adjustment over time by controlling for baseline levels of these psychosocial outcomes.

Another limitation of the present study, is the potential impact that using a substantially shorter version of McAdams’ (2001) Life Story Interview may have had on young adults’ ability to reflect on their overall life story, given that these reflections typically happen after the interviewee responded and elaborated about many different chapters or significant episodes of their lives. Nonetheless, most studies evaluating meaning making of self-defining memories or turning points have used very specific prompts, that have not been necessarily embedded within the Life Story Interview (McLean 2005; McLean & Pratt, 2006)

As stated earlier, another limitation is the marked difference in methodology used to assess maternal coherence about children’s cancer and young adults’ narrative coherence. Unlike young adults, mothers were not interviewed and were unsupervised while writing the requested narrative. Moreover, mothers were not prompted to generate a self-defining memory in their lives, but to specifically recollect a frustrating time of their child’s cancer which significantly reduced their opportunities to spontaneously glean meaning from a personal stressful memory of choice. Thus, although as a part of a different research question, future research should directly assess the association between mothers’ narrative meaning making and young adults’ narrative identity development in order to potentially reveal further developmental mechanisms that contribute to overcoming the cancer experience. Moreover, given that the present study evaluated a proxy for mother-child conversations about distressing events and cancer through self-report measures, future studies could adopt a more experimental approach in which mothers and young adults live conversations about cancer and other distressing experiences are recorded and coded for factors of interest (see Reese, Bird & Tripp, 2007).

Regarding the variability in turning points reported by YAs in the present study, (i.e., not necessarily all of them were major life changing events), future studies that are seeking to explore very specific types of self-defining memories could further refine the turning point interview prompt to narrowing the scope of the types of events collected.
Finally, although it is important to note that young adults were the source of data for many of the study hypotheses and this might result in shared method variance, not all of the data collected involved self-reported questionnaires.

4.7 Conclusion

Despite these limitations, the present study makes important contributions to understanding the mechanisms that help the majority of young adult cancer survivors to successfully incorporate the cancer experience into their identity. Factors included mothers’ distress-related communication and the combination of young adults’ capacity to make meaning and find posttraumatic growth out of their overall cancer experience when predicting psychosocial adjustment. Moreover, the present study extends the range of positive outcomes explored in previous research to more specific variables, such as empathy, which is related to the individual’s capacity to function more adaptively in social interactions, and coping, which is related to the individual’s ability to choose adaptive behaviours to manage stressful situations. In addition, secure attachment was shown to have positive effects for both cancer-specific and non-cancer specific turning point coherence. Finally, distress-related turning point coherence was a mediator between secure attachment style and empathy, which contributes to previously existing research which had found a link between secure attachment and relationship narratives.
5 References


Appendices

Appendix A: Young Adult’s Participant Telephone Interview Script

**Hi, my name is [first and last name] ______. May I please speak with _______ [full name of participant]? [When participant is on the phone] Hi!_____[participant’s name](I’m [your name]_____ and) I’m calling from the Psychology Department at the University of Toronto. How are you?**

At your last visit to the long-term follow-up clinic, you agreed to participate in a study about young adult survivors of childhood cancer, and part of that study was a telephone interview.

I have written down that that we booked the interview for this time. It will take about 20 minutes or less. Is that ok? Great, thank you so much. Maybe you want to sit somewhere that is comfortable for you and where there won’t be other people around to distract you?

I am going to ask you some questions about significant events in your life. You don’t have to answer any questions if you don’t want to, and everything that you tell me will be kept completely confidential. If you feel uncomfortable at any point, please don’t hesitate to let me know.

The purpose of this interview is not to do some sort of clinical analysis. The interview is for research purposes only. The main goal is simply to know some things about you.

I understand your mother is also participating in the study, right? I just want to let you know that we will not be telling her anything that you have said, and vice versa.

I’m going to be recording the interview so that I don’t have to write everything down. Is that ok with you? [if ok , say] Good thank you so much. [if not ok, say] I understand. But remember that everything you tell us is completely confidential and your name will not be associated with the interview once is transcribed.

Before we begin and to make things easier, I would like you to think about your life as a book or a novel. The book probably has different chapters telling different things that have happened to you over the years. Some chapters might be more meaningful or longer than others, but all of them make up your complete life-story. Please take a few moments to think about what your main chapters would be. You don’t have to tell them to me, just keep in them in mind. Please do not feel rushed; I can wait as long as you need me to. Just let me know when you are ready.
I. Ok great. Now looking back over this life story or these chapters that you thought about, it should be possible to identify certain key moments that stand out as turning points, that is, things that happened that marked an important change in your life story. Ok? So please think about some event in your life where you went through an important change of some kind. Take your time and when you have your turning point let me know.

(When the person says they are ready is done)

a) Ok great. Now, I would like you to please describe this turning point to me, telling me what happened, where and when, who was involved, and what you were thinking and feeling.

[Listen to the story and do not interrupt (except for the occasional neutral comment—see below) until the participant has finished. Make sure that by the time they have finished describing it you know what happened, where and when, who was involved, and what the participant was thinking and feeling. If you are missing a piece of information just re-ask the particular question. Avoid excessive prompting if unnecessary. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure”, “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

b) What do you think this turning point says about you as a person or about your life?

[If participant doesn’t understand question just say: ‘You just described a turning point and I want to know what you think this event says about you as a person or about your life’]

c) Is there anything more you’d like to add about this turning point?

a) Good thank you. Now, can you think of another turning point in your life? Remember to tell me what happened, where and when, who was involved, and what you were thinking and feeling.

[Listen to the story and do not interrupt until the participant has finished. (except for the occasional neutral comment—see below) Make sure that by the time they finished describing it you know what happened, where and when, who was involved, and what the participant was thinking feeling. If you are missing a piece of information just re-ask the particular question. Avoid excessive prompting if unnecessary. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure”, “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

b) What do you think this turning point says about you as a person or about your life?

c) Is there anything more you’d like to add about this turning point?

_____________________

1 Try not using this one as much, unless you are absolutely sure it is appropriate and necessary.
Ok____, thanks for sharing these two events with me.

a) Now let’s talk about an early memory – from childhood or your teen-aged years – that stands out as especially positive in some way. Please describe this happy memory in detail. What happened, where and when, who was involved, and what were you thinking and feeling?

[Interviewer should listen to the story and do not interrupt until the participant has finished. Make sure that by the time they finished describing it you know what happened, where and when, who was involved, and what the participant was thinking feeling. If you are missing a piece of information just re-ask the particular question. Avoid excessive prompting if unnecessary. Interviewer should occasionally say something appropriate such as “I understand”, “uh huh” “ok” “how nice”, “absolutely” “definitely”. Interviewer should not reinforce.]

b) What does this memory say about you as a person or about your life?

[Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “uh huh” “ok” “how nice”, “absolutely”, “definitely”. Interviewer should not reinforce.]

c) Is there anything more you’d like to add about this early memory?

Ok thank you_____[participant’s name], that was great.

Option A) [If the participant ALREADY chose cancer as the turning point, say]

a) I know you already talked about your cancer experience in the first question, I was wondering if you could please talk (a bit more, or elaborate more) about how you coped with cancer.

[Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure” “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

b) The way you coped with cancer, what does that say about you as a person?

[If the answer to this question is contained in the previous answer then say “I know you’ve touched on this, but can you tell me what you think the way you coped with cancer says about you as a person?” Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure” “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

c) Finally, what impact do you think cancer has had on you and your overall life story?
d) Is there anything more you’d like to add?

Option B) [If the participant DID NOT choose cancer as the turning point, say]

a) Finally, looking back over your experience with childhood cancer, please talk about how you coped with it.
[Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure” “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

The way you coped with cancer, what does that say about you as a person?

[If the answer to this question is contained in the previous answer then say “I know you’ve touched on this, but can you tell me what do you think the way you coped with cancer says about you as a person?” Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure” “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

Finally, what impact do you think cancer has had on you and your overall life story?

[If the answer to this question is contained a previous answer then say “I know you’ve touched on this, but can you tell me what impact do you think cancer has had on you and your overall life story?” Listen and do not interrupt until the participant has finished. Interviewer should occasionally say something appropriate such as “I understand”, “that was difficult I’m sure” “uh huh” “ok” “how nice”, “absolutely”. Interviewer should not reinforce.]

Is there anything more you’d like to add?

Ok great thank you so much ______ [participant’s name]! So that was the last part of this interview. Thank you so much for sharing all of that with me, and for taking the time to answer all of my questions. The information you’ve provided will be extremely helpful for the research project. Before we go, are there any final thoughts you’d like to share about your cancer experience? (If participant seems a bit upset/sad, ask something like) “Are you feeling ok?” or “Was this too long?”

Just one final thing before you go, as we mentioned in the description of the study, we are asking you to complete some online questionnaires that are divided into two parts.
Right now, I am going to email you the link for the first part of the questionnaire with the instructions. The email address that I have written down is.. [confirm the participant’s email address] is that right?. As soon as you complete it we will mail you the first gift certificate as a token of our appreciation, and we will also email you the second part of the questionnaires. Does that sound ok?

In order for me to mail the gift certificate, I am just going to confirm your mailing address [Check that mailing address is correct].

[participant’s name] this interview has been very helpful for us, but this information will only be useful for our study in combination with your questionnaire responses.

I just want to remind you to please complete the first part of the questionnaire in the next week, is that ok with you?

Do you have any questions for me before you go?

I really enjoyed talking to you today. Thanks again so much for your time. Have a good day!
Appendix B: Young Adult’s Interview Coding Sheet

<table>
<thead>
<tr>
<th>Coder: ____________________________</th>
<th>Participant ID: ____________________________</th>
</tr>
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<tr>
<td><strong>PART A Themes Turning Point 1</strong></td>
<td><strong>PART A Themes Turning Point 2</strong></td>
</tr>
<tr>
<td>Valence of Turning Point</td>
<td>Valence of Turning Point</td>
</tr>
<tr>
<td>Positive [ ] Negative [ ] Positive and Negative [ ]</td>
<td>Positive [ ] Negative [ ] Positive and Negative [ ]</td>
</tr>
<tr>
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<td><strong>Cancer</strong></td>
</tr>
<tr>
<td>Type of event (Check for all that apply)</td>
<td>Type of event (Check for all that apply)</td>
</tr>
<tr>
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<td>Diagnosis [ ] Recurrence [ ] Recovery Milestone [ ]</td>
</tr>
<tr>
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<td>Treatment [ ] Late Effects [ ] Psychological Realization due to Cancer [ ]</td>
</tr>
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<td>Other cancer-related:</td>
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<tr>
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<td><strong>Education &amp; Career</strong></td>
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<tr>
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<td>Type of event</td>
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<tr>
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<td>Romantic Relationship [ ]</td>
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<td>(includes engagement/proposal/ marriage, includes divorce)</td>
</tr>
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<td>Family [ ] Loss [ ] Struggling [ ]</td>
</tr>
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<td><strong>Life Milestones/ Major Life Changes</strong></td>
</tr>
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<td>Type of event</td>
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<td>Giving Birth [ ]</td>
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<td>Other (e.g. buying first house, first intimate experience):</td>
</tr>
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<td>I [ ] sadness [ ]</td>
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Participant cries:
Yes  ☐  No  ☐

PART C a Themes
Note: Look for other coping strategies in b and d if they show up

Valence
Positive  ☐  Negative  ☐  Neutral  ☐

Factors interfering with coping
Age  ☐  Medication  ☐
Other: ________________________________

Non codable
Doesn't remember  ☐  N/A  ☐

Time of coping
Past  ☐  Present  ☐
(If both are mentioned, focus on past piece)

Social Support
Family  ☐
   Father  ☐
   Mother  ☐
   Siblings  ☐
   Extended Family  ☐
Friends/ Classmates  ☐
Healthcare Personnel  ☐
Teachers  ☐
Other: ________________________________

Distancing
Ignore it  ☐
Avoid thinking/talking about it  ☐
Deny it  ☐
Minimize importance  ☐

Internalizing
Isolate  ☐
Cry  ☐
Worry about it  ☐

Externalizing
Take it out on others  ☐
Self-destructive behaviour  ☐

Self-generated coping
Reflect and accept it  ☐
Make sense of it  ☐
Keep a positive attitude  ☐
Humor  ☐
Other: ________________________________

Problem solving  ☐
Do distracting activities  ☐
Engage in normal life activities  ☐

Institutional support
School  ☐  Healthcare  ☐  Other: ________________________________
(finding hospital/home’s facilities as helpful/useful to deal with cancer illness)

PART C b
Note: Look for other ways for coping with cancer in part b if they show up

Is age mentioned as interfering factor?
Yes  ☐  No  ☐

Type of theme
Quality  ☐  Impact on Quality  ☐
  e.g. it shows that I’m …  ☐  e.g. it made me …  ☐

Positive
Self-oriented  ☐
Other-oriented  ☐

Negative
Externalizing
(e.g. angry, frustrated, resentful)
Specify: ________________________________

Internalizing
(e.g. anxious, suppress emotion, weak, avoidant)
Specify: ________________________________

PART C
Meaning Making (Highest Score)  ☐
Impact Statement (Frequ.)  PN  ☐  NEG  ☐
Appendix C: Participant Demographics and Cancer History Questionnaire

Demographics and Cancer History Questionnaire

In this section you will be asked to provide some details about you and your family.

1) Sex
   [1] Female

Age ___

Birth month/year ________________

3) Ethnicity (please choose one)
   [1] Western European origin
   [2] Eastern European origin
   [3] Russian origin
   [4] West and Central Asian origin (e.g., Iraq, Iran, Afghanistan, Jordan, Lebanon, Saudi Arabia, Turkey)
   [5] South Asian origin (e.g., Bangladesh, India, Pakistan, Sri Lanka)
   [6] East Asian origin (e.g., PR China, Taiwan, Japan, South Korea)
   [7] Southeast Asian origin (e.g., Cambodia, Malaysia, Philippines, Singapore, Thailand, Vietnam)
   [8] African origin
   [9] Caribbean origin
   [10] Latin, Central and South American origin
   [12] Other origin – please specify: _____________________________________

4) Is English your first language? (The language you spoke first as a child)
   [1] Yes
   [2] No

5) What is your current romantic relationship status?
   [1] Single
   [2] In a serious relationship, not living with partner
   [3] In a serious relationship, living with partner
   [5] Separated
   [6] Divorced
   [7] Other (please specify): ________________________________

6) What is the marital status of your parents?
   [1] Unmarried/common-law
   [3] Separated
[4] Divorced
[6] Other (please specify): ______________________________

7) If your parents are not together, how old were you when they separated? _______

8) What is your current housing situation?
   [1] Living in the family home (parents’ home)
   [2] Living away from the family home, with one or more roommates
   [3] Living away from the family home, with a romantic partner and/or children
   [4] Living away from the family home, alone

9) What is the highest level of education you completed?
   [1] Elementary School
   [2] Some High School
   [3] Complete High School
   [4] Some College or University
   [5] Completed College or University
   [6] Some or completed Graduate School
   [7] Other (Please specify) ______________________________

10) What is the highest level of education your mother completed?
    [1] Elementary School
    [2] Some High School
    [3] Complete High School
    [4] Some College or University
    [5] Completed College or University
    [6] Some or completed Graduate School
    [7] Other (Please specify) ______________________________

11) What is the highest level of education your father completed?
    [1] Elementary School
    [2] Some High School
    [3] Complete High School
    [4] Some College or University
    [5] Completed College or University
    [6] Some or completed Graduate School
    [7] Other (Please specify) ______________________________

12) What is your occupational status?
    [1] Student (part-time or full-time)
    [2] Employed part-time (less than 40 hours/week)
    [3] Employed full-time (more than 40 hours/week)
    [4] Currently unemployed, looking for work
    [5] Currently unemployed, not looking for work
    [6] Currently on disability
[6] Other (Please specify): ______________________

13) Do you have siblings?
   [1] Yes
   [2] No, I am an only child (if no, skip to question 16)

14) How many siblings do you have? ____________

15) Are you:
   [1] The oldest child
   [2] A middle child
   [3] The youngest child

16) Are you a parent?
   [1] Yes
   [2] No (if no, skip to question 19)

17 How many children do you have? ______

18) If you have children, please list their ages: ______________________

19) With what religion do you most associate yourself?
   [1] I am not religious (skip question 21)
   [2] Buddhism
   [3] Catholic Christianity
   [4] Orthodox Christianity
   [5] Protestant Christianity
   [7] Islam
   [8] Judaism
   [9] Other (please specify) __________________________

20) How strongly do you identify with your religion?

   1  2  3  4  5  6  7
   Not At All          Extremely
   Strongly           Strongly

21) At what age were you first diagnosed with cancer? ________

22) How long has it been since your cancer treatment ended (in years and months)? For example: 5 years, 2 months. Please give your best estimate.

23) What type of cancer were you diagnosed with?
24) Did you receive chemotherapy as treatment?
   [1] Yes
   [2] No

25) Did you receive radiation as treatment?
   [1] Yes
   [2] No

26) Did you have surgery as treatment?
   [1] Yes
   [2] No

27) If yes, please specify the type of surgery:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

28) Have you ever seen a psychologist and/or psychiatrist for issues that you feel are related to
    the experience of having cancer?
   [1] Yes
   [2] No

29) Please specify any other forms of cancer treatment that you received:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Appendix D: Maternal Disclosure Questionnaire

Parents differ in how much they talk to their children about their own concerns and worries. Some talk to their children about these things a lot, and some talk to their children about these things less. We want to find out what kinds of things parents tell their children.

Below you will find different somewhat upsetting events that have happened that you might or might not share. Please indicate how likely you would be to share each of the following experiences with your child (the child who is also participating in this research) if the occasion arose.

1) You have a disagreement with a good friend and you feel upset.

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<td>Somewhat Likely</td>
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2) You have to give a presentation in public and you are not sure what you want to say, which makes you somewhat anxious.

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3) A close friend forgot your birthday and you feel a bit hurt.

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4) You got your hair cut but you do not like how it turned out and you are briefly upset.

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5) You lost something of yours that had sentimental value and you are upset.

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Your friends got together and forgot to invite you and you feel disappointed.

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You are worried that you might not be able to finish a task before a deadline.

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Now, we will ask you similar questions but referring to your child’s cancer experience. Please indicate how likely you would be to share /talk about each of the following experiences with your child if the occasion arose.

You are feeling anxious about his/her health

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About a time that was really distressing for you while he/she had cancer

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About some information you heard about cancer that made you upset.

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That you recently met another young adult cancer survivor who went through a similar experience as your child
Finally, please respond to the questions below,

12) How often did you talk about cancer with your child when he/she was sick?

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<tr>
<td>Never</td>
<td>Sometimes</td>
<td>Very frequently</td>
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12a) Can you explain briefly how did you talk (if you did) about the cancer when your child was still in treatment?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

13) How often do you currently talk about your child’s cancer experience with him/her (after recovery)?

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13a) Can you explain briefly how do you talk (if you do) about the cancer with your child?
______________________________________________________________________________
______________________________________________________________________________
______________________________________________________________________________

Appendix E: Maternal Reminiscing about Distressing Events
Adapted from Fivush, 2008

Can you think of one time that you were really frustrated about your child’s cancer, and write a little bit about it? Please provide as much detail as you can. Please don’t be afraid to write your very deepest thoughts and feelings about the situation. In your writing, please try to really let go and explore your deepest emotions and thoughts. You might tie your topic to your relationships with different members of your family, friends, or others, and you might tie your topic to your past, your present, or your future as well. All of your writing will be completely confidential. Don’t worry about spelling, grammar, or sentence structure. The only rule is that once you begin writing, you continue until you finish.
Appendix F: Mother Written Memory Coding Sheet

Part A: Frustration Themes
- Lack of Support Network
- Family Support System
- Lack of emotional support
- Lack of support from other institutions
- Others’ attitudes and comments
- Partner Support System

Part B: Positive Themes
- Related to child’s cancer diagnosis
- Child Progressing in Recovery
- Early diagnosis/detection

Part C: Context, Chronology, Theme
- Context
- Chronology
- Theme

Part D: Mental State Language
- Cognitive
- Positive
- Negative
- Behavioral
Appendix G: Young Adult’s Recruitment Script

Hi. My name is __________ and I am a PhD student working with Dr. Norma D’Agostino, who is a clinical psychologist here at Princess Margaret Hospital, in the Department of Psychosocial Oncology. We are currently conducting a research study with young adults who had childhood cancer. I’m wondering if you might be interested in hearing a bit more about the study?

[If no] Ok, thank you for your time.

[If yes] Ok, great! So in this study we are interested in exploring some factors that might contribute to the psychological and social adjustment of young adult survivors of childhood cancer. The study involves filling out two sets of questionnaires online and a telephone interview that will take about 30 minutes or less. We will also ask you for your mother’s contact information so that we can send her a few questionnaires.

The questionnaires ask about a lot of different things, but mainly we are interested in how you were parented, your thoughts and feelings, and your personality. The interview asks you to tell us stories about important events in your life. There are no potential risks to participating in the study, and everything you tell us will be kept completely anonymous and confidential. You can also withdraw from the study at any time. For your participation in the study you will receive two gift cards.

Does this sound like something you’d be interested in?

[If no] Ok, thank you for your time. May I ask you briefly why it is that you are not interested? [Record the patient’s information and reason for declining on the Declined to Participate Record]

[If yes] Fantastic! So now we’ll quickly go over this consent form together and then we will schedule a time for your telephone interview.

[Give the consent form to the participant. Make sure he/she reads it] Please let me know if you have any questions about anything on there. [After answering any questions ensure that participant signs the form. Give the participant a copy] Now I will ask you to fill out this sheet with your contact information and your mother’s contact information, so that we can call you for the phone interview, mail you the gift cards, and mail your mother some information about the study. [Give contact sheet to participant to fill out]

So, when is a good time, in the next week or so, for your phone interview? We can work around your schedule. [Coordinate an interview time, write the time down for the participant] As soon as you complete the interview we will email you a link for the first set of online questionnaires.

That is everything for today. Thank you so much for agreeing to participate! Talk to you soon.
Appendix H: Young Adult’s Consent Form

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

Title  Parenting Predictors of Autonomy and Identity Development in Young Adult Survivors of Childhood Cancer

Investigator  Dr. Norma D’Agostino, Psychologist, Princess Margaret Hospital

Co-Investigators
  Ms. Maria Chaparro, PhD Candidate, University of Toronto Department of Psychology
  Ms. Amanda Sherman, PhD Candidate, University of Toronto Department of Psychology
  Dr. David Hodgson, Radiation Oncologist, Princess Margaret Hospital

Introduction

You are being asked to take part in a research study. Please read this explanation about the study and its risks and benefits before you decide if you would like to take part. You should take as much time as you need to make your decision. You should ask the study doctor or study staff to explain anything that you do not understand and make sure that all of your questions have been answered before signing this consent form. Before you make your decision, feel free to talk about this study with anyone you wish. Participation in this study is voluntary.

Background and Purpose

You are being asked to consider participating in this study because you are a young adult survivor of childhood cancer. This study aims to understand why some survivors of childhood cancer experience issues with anxiety and depression, while others experience positive social and emotional outcomes. We want to know what factors contribute to or protect against psychological distress in young adult survivors of childhood cancer in order to assist families currently experiencing childhood cancer.

While we know that the experience of childhood cancer can influence how well survivors adjust to the demands of young adulthood, less is known about the influence of mothers on the psychosocial adjustment of young adult survivors of childhood cancer. Moreover, we aim to explore how genetics can shape young adult cancer survivors’ susceptibility to parenting influences.

About 100 people from the Princess Margaret Hospital Pediatric Oncology Long-term Follow-Up Clinic will be in the study.

Study Design
This study is intended to be finished in about a two-week time frame. There are four parts to this study: a saliva sample, a telephone interview, an online questionnaire, and permission to contact your mother to complete a questionnaire.

You will be asked to give the saliva sample today. We will schedule a telephone interview in the upcoming week. You will be asked to complete your online questionnaire within one week following the interview.

**Study Procedures**

Saliva Sample: For this procedure you will imagine that you are chewing your favorite food, move your jaw as if you were chewing that food, and gently force the pooling saliva through a short plastic straw into a vial. This procedure is painless and non-invasive. Your genetic material will be isolated from these cells and analyses performed to identify dopamine-related genes. This procedure is called genotyping. No other information will be gathered from the saliva sample.

Interview: You will participate in one telephone interview (you may also choose to complete the interview face to face at the hospital) that will take about 30 minutes. In this interview you will be asked to respond to general questions about significant periods in your life.

Questionnaire Package: You will complete an online survey that will take about 45 minutes. The survey will be done in two parts. This survey contains various questionnaires that will give us information about things like your personality, your view of the world, and the way you handle certain situations. You will be emailed a link to the online questionnaires only after you have completed the interview.

Mother’s Contact Information. You will also be asked to give the contact information of your mother so that we may ask her to complete a questionnaire package that will take about 20 minutes to complete. Please do not discuss your responses to interview or survey questions with your mother.

**Risks Related to Being in the Study**

There are no medical risks if you take part in this study, but being in this study may make you feel uncomfortable. You may refuse to answer questions or stop the interview at any time if there is any discomfort.

**Benefits to Being in the Study**

You will not receive direct benefit from being in this study. Information learned from this study may help other pediatric cancer patients and their families in the future.

**Voluntary Participation**

Your participation in this study is voluntary. You may decide not to be in this study, or to be in the study now and then change your mind later. You may leave the study at any time without
affecting your care. You may refuse to answer any question you do not want to answer, or not answer an interview question by saying “pass”.

We will give you new information that is learned during the study that might affect your decision to stay in the study.

**Confidentiality**

If you agree to join this study, the study doctor and his/her study team will look at your personal health information and collect only the information they need for the study. Personal health information is any information that could be used to identify you and includes your: name, address, date of birth, new or existing medical records, that includes types, dates and results of medical tests or procedures.

The information that is collected for the study will be kept in a locked and secure area by the study doctor for 5 years after the end of the study. Only the study team or the people or groups listed below will be allowed to look at your records. Your participation in this study also may be recorded in your medical record at this hospital.

Representatives of the University Health Network Research Ethics Board may look at the study records and at your personal health information to check that the information collected for the study is correct and to make sure the study followed proper laws and guidelines.

All information collected during this study, including your personal health information, will be kept confidential and will not be shared with anyone outside the study unless required by law. You will not be named in any reports, publications, or presentations that may come from this study.

If you decide to leave the study, the information about you that was collected before you left the study will still be used. No new information will be collected without your permission.

**Expenses Associated with Participating in the Study**

You will not have to pay for any of the procedures involved with this study. As a token of our appreciation you will be sent a $26 cinema gift card at the end of the study. If you decide to withdraw early from the study you will still be given a $13 cinema gift card for your partial participation in the study.

**Conflict of Interest**

This research will have professional benefit to Ms. Chaparro and Ms. Sherman, serving as their doctoral dissertation projects. These individuals have an interest in completing this study. Their
interests should not influence your decision to participate in this study. You should not feel pressured to join this study.

Questions About the Study

If you have any questions, concerns or would like to speak to the study team for any reason, please call: Dr. Norma D’Agostino at 416-946-4525 or Amanda Sherman/Maria Chaparro at 416-978-5373.

If you have any questions about your rights as a research participant or have concerns about this study, call the Chair of the University Health Network Research Ethics Board (REB) or the Research Ethics office number at 416-581-7849. The REB is a group of people who oversee the ethical conduct of research studies. These people are not part of the study team. Everything that you discuss will be kept confidential.

Consent

This study has been explained to me and any questions I had have been answered. I know that I may leave the study at any time. I agree to take part in this study.

Print Study Participant’s Name __________________ Signature _______________ Date ________________

(You will be given a signed copy of this consent form)

My signature means that I have explained the study to the participant named above. I have answered all questions.

Print Name of Person Obtaining Consent __________________ Signature _______________ Date ________________
Appendix I: Young Adult’s Email Instructions to Questionnaire Part 1

Dear participant’s name,

Thank you so much for agreeing to participate in this study! As I mentioned on the phone, this email provides you with the link to the first set of questionnaires. This set of questionnaires should take you about 30-45 minutes to complete. It is best if you try to put aside a block of time to complete these all at once and in private. As soon as you complete this questionnaire we will mail you the first gift card and send you the link to the second set of questionnaires.

Please note that if, while completing the questionnaires, you need to stop for a period of time you must complete all the questions displayed on the current page before you can click "NEXT". Although there is NO "SAVE" button your answers are periodically saved once you click the "NEXT" button. If you wish to stop at some point and continue later, you can just close the window. You can re-open the same link later (the original one sent to your email) but if you want to access your saved answers you have to access them from the same computer. However, we recommend doing the complete survey in one session.

To access your questionnaires, please go to this website address: https://survey.qualtrics.com/SE/?SID=SV_aVtT7tUqqloSHvm. You will be prompted for your Participant ID# and you will be shown a set of instructions. Please enter participant # and click "Next". The study will then begin.

If you have any questions, please contact one of the following people at the Child Study Centre (phone number: 416-978-5373):
Maria Chaparro: maria.chaparro@utoronto.ca
Amanda Sherman: amanda.sherman@utoronto.ca
Becky Crawford (study manager): css.uoft@gmail.com

Thank you again for your participation, it is very valuable to us!

Interviewer's name

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Social Development Lab
Department of Psychology
University of Toronto

100 St. George Street
Toronto, ON M5S 3G3
http://www.psych.utoronto.ca/~csc/
F: 416-978-4811
Appendix J: Young Adult’s Email Instructions to Questionnaire Part 2

Dear participant’s name,

Thank you for successfully completing the first set of questionnaires! This email provides you with the link to the second set of questionnaires. This set of questionnaires should take you about 30-40 to complete. It is best if you try to put aside a block of time to complete these all at once and in private. As soon as you complete this questionnaire we will mail you a second gift card as a token of our appreciation.

To access your questionnaires, please go to this website address: https://survey.qualtrics.com/SE/?SID=SV_bdf1nyvql3sgBMQ4. You will be shown a set of instructions and will be prompted for your Participant ID#. Please remember to enter participant # and click "Next". The study will then begin.

Please note that if, while completing the questionnaires, you need to stop for a period of time you must complete all the questions displayed on the current page before you can click "NEXT". Although there is NO “SAVE” button your answers are periodically saved once you click the "NEXT" button. If you wish to stop at some point and continue later, you can just close the window. You can re-open the same link later (the original one sent to your email) but if you want to access your saved answers you have to access them from the same computer. However, we recommend doing the complete survey in one session.

If you have any questions, please contact one of the following people at the Child Study Centre (phone number: 416-978-5373):
Maria Chaparro: maria.chaparro@utoronto.ca
Amanda Sherman: amanda.sherman@utoronto.ca
Becky Crawford (study manager) css.uoft@gmail.com

Thank you again for your participation, it is very valuable to us!

--
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Appendix K: Mother Questionnaire Consent Form And Instructions

Parenting Predictors of Autonomy and Identity Development in Young Adult Survivors of Childhood Cancer

You are being asked to take part in a research study because you are the mother of a survivor of childhood cancer who is also participating in this study.

While we know that the experience of childhood cancer can influence how well survivors adjust to the demands of young adulthood, less is known about the influence of mothers on the psychosocial adjustment of young adult survivors of childhood cancer. This study aims to understand why some survivors of childhood cancer experience issues with anxiety and depression, while others experience positive social and emotional outcomes. We want to know what factors contribute to or protect against psychological distress in young adult survivors of childhood cancer in order to assist families currently experiencing childhood cancer.

The package will take about 20 minutes to complete. The package is composed of various self-report questionnaires and a short essay that will provide us with information about things like your personality, your view of the world, your parenting style, and the way you handle certain situations. You will return your questionnaire package through the mail (prepaid postage) one week after you have received it.

You will not receive any direct benefit from being in this study. Your participation in this study is voluntary. You may decide not to be in this study, or to be in the study now, and then change your mind later. You may leave the study at any time without affecting your child’s care. You have the right to refuse participation in this study or not complete the study in its entirety.

All information obtained during the study will be held in strict confidence. Representatives of the University Health Network Research Ethics Board may look at the study records to check that the information collected for the study is correct and to make sure the study followed proper laws and guidelines. All information collected during this study will be kept confidential and will not be shared with anyone outside the study unless required by law. You will not be named in any reports, publication or presentations that may come from this study.

If you have any questions, concerns or would like to speak to the study team for any reason, please call: Dr. Norma D’Agostino at 416-946-4525 or Amanda Sherman/Maria Chaparro at 416-978-5373.

If you have any questions about your rights as a research participant or have concerns about this study, call the Chair of the University Health Network Research Ethics Board (REB) or the Research Ethics office number at 416-581-7849.

By completing this questionnaire you are agreeing to participate in the study.
Instructions

Please set aside approximately 20 minutes to complete these questionnaires, preferably in a quiet place where you will be able to concentrate and will not be interrupted. Please do your best to complete every question.

At the beginning of each section you will find a set of instructions. Please be sure to read them carefully. If you have any questions or unsure of what you are being asked, please telephone Maria or Amanda at 416-978-5373.

We would greatly appreciate if you could please return this questionnaire to us within one week after you receive it. We have included an addressed, stamped envelope for your convenience. Thank you very much for your help!