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Impact of Cancer on Romantic Relationships Among Young Adults: A Systematic Review

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Abstract

The aim of this review was to determine the impact of a cancer diagnosis and history on young adults' ability to initiate and maintain romantic relationships. MedLine and PsycInfo databases were used to identify articles that address dating, romantic relationships, or marriage among 18- to 45-year-old cancer survivors. Twenty-one relevant articles were identified. Findings indicate that young adult cancer survivors struggle with when/how to disclose their cancer history to potential partners, are delayed in initiating their first romantic relationships, have fewer romantic relationships than peers, and are less likely than peers to marry. Young survivors report that their cancer experience impacts their long-term relationships in both positive and negative ways. In summary, young survivors face significant barriers to establishing and maintaining romantic relationships. Those who have difficulty establishing romantic relationships may benefit from receiving additional support from other sources, including family members, friends, and (in some cases) mental health professionals.

Keywords Young adult · Cancer survivors · Dating · Relationships

Introduction

Despite the growing body of research on how a cancer experience impacts romantic relationships among middle-aged and older adults (Manne et al., 2015), little is known about the impact on young adult cancer survivors. This is a significant oversight as establishing supportive romantic relationships may be particularly important for young survivors. The role of supportive relationships in buffering the stressful effects of cancer diagnosis, treatment, and survivorship has been well documented (Borstelmann et al., 2015; Ginter & Braun, 2014; Kinsinger, Laurenceau, Carver, & Antoni, 2011; Rini et al., 2011). Cancer survivors who are in supportive relationships report lower levels of anxiety, less overall psychological distress, and (not surprisingly) better relationship satisfaction (Borstelmann et al., 2015; Kinsinger et al., 2011; Rini et al., 2011). This may be particularly important for young adult cancer survivors who are known to experience more emotional distress than older survivors (Kornblith et al., 2007; Kroenke et al., 2004). In addition, young survivors may view being in a romantic relationship as a sign that they have achieved an age-appropriate milestone; this could diminish the sense of alienation from peers that some report (Reuben, 2004).

Unfortunately, young adult cancer survivors may face a number of barriers to establishing and maintaining romantic relationships. For example, young survivors may find it particularly difficult to disclose their cancer diagnosis to peers or potential romantic partners who—given their age—may have had little experience with cancer (Barnett, Shuk, Conway, & Ford, 2014); this discomfort is likely to inhibit young survivors from forging new, close relationships. Young adult cancer survivors may also encounter other barriers to establishing romantic relationships including: physical effects of cancer treatment (e.g., changes in appearance, functional impairment), social skills deficits (particularly if isolated from peers during treatment) and either perceived or actual stigmatization by others (Mackie, Hill, Kondryn, & McNally, 2000; Janson et al., 2009; Yi, Kim, & Sang, 2016). One way to gauge whether young adult cancer survivors encounter greater difficulty initiating and maintaining romantic relationships than their peers is to compare marriage rates. Although marriage rates among young survivors have not previously been collated across studies, there is

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some evidence that young survivors are less likely to marry than others their age (Gunnes et al., 2016; Koch et al., 2011).

The impetus for this review was to determine whether young adult cancer survivors do, in fact, encounter difficulties when attempting to initiate or maintain romantic relationships. The review, therefore, focused on answering four questions related to the impact of a cancer diagnosis/history on the romantic relationships of young survivors. First, do young adult cancer survivors have difficulty disclosing their cancer history to potential romantic partners? Second, do young adult cancer survivors have greater difficulty (than peers) establishing romantic relationships? Third, how does a cancer history impact ongoing/long-term romantic relationships? And finally, do rates of marriage and divorce differ between young adult cancer survivors and their peers without a cancer history?

Method

A literature search was conducted to identify primary source articles meeting eligibility criteria—i.e., addressing at least one of the four study questions delineated above. For the purposes of this review, ‘young adult’ was defined as those between the ages of 18 and 45 at the time of the study. Although there is a lack of consistency in the definition of a young adult cancer survivor, 18 was selected as the lower limit as it is often used to define adulthood from a legal standpoint (e.g., signing contracts, voting) and 45 as the upper limit to be inclusive of most literature on the young adult cancer population. Articles were included in the review if a majority of participants fell within this age range. This was operationalized in the following ways: (1) the age range was stated to be 18–45, (2) the mean age of participants ± one standard deviation (i.e., ~68% of cases) fell between 18 and 45, or (3) other information in the article indicated that at least 68% of participants were between ages 18 and 45. If there was insufficient information to determine whether a majority of participants were between the ages of 18 and 45, the article was excluded. One exception was made, however, for the article by Lewis, Sheng, Rhodes, Jackson, and Schover (2012). This was included as participants met age criteria *at diagnosis* (i.e., age range 25–45 years, mean = 37.4 years, SD = 6.0) though their age when interviewed one year later was not given. An exception was made as it is likely that the sample met age criteria when interviewed and it was considered important to include literature on the perspectives of young African American breast cancer survivors, an underrepresented group. Articles were excluded from the review if they were written in a language other than English (although studies involving non-English-speaking participants were included) or focused primarily on issues of sexual dysfunction. (Articles that focused on the impact of compromised fertility or sexual dysfunction on a relationship were included.) Eligibility of articles was determined independently in an unblinded, standardized manner by one reviewer.

Medline and PsycInfo databases were used to identify articles published through December 2016. No start date was specified in searches. The following key terms were used to identify articles: “young adult,” “AYA,” “young,” “cancer survivor,” “cancer,” “dating,” “romantic relationships,” “marriage,” and “couples.” A series of searches using these terms returned a total of 1192 articles. The titles of each were scanned for relevance and the abstracts of those deemed potentially relevant were read. If the abstract indicated that an article might meet inclusion criteria, the full article was retrieved and reviewed to determine whether this was in fact the case. This process resulted in the identification of 14 relevant articles. The reference sections of these articles were then examined to identify additional articles. This process resulted in the identification of seven additional articles for a total of 21 included in this review (see Fig. 1; Table 1). Data on participant number, age, and diagnoses as well as data relevant to address any of the four study questions were then extracted from each article, evaluated, and synthesized.

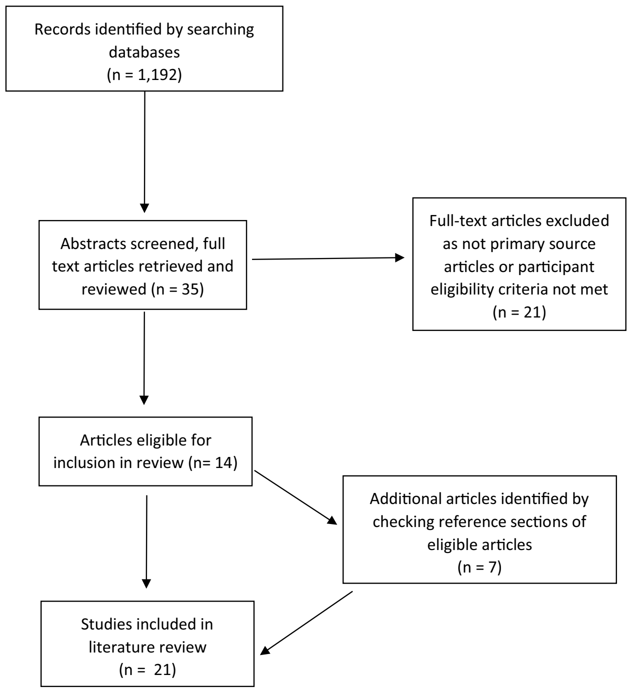

Fig. 1 Literature search flow diagram

Table 1 Sample characteristics and key findings for articles reviewed

Authors	Type of cancer	Age of survivors	Sample size	Study design	Key findings
Bellizzi et al. (2012)	Germ cell, Hodgkins lymphoma, non-Hodgkins lymphoma, ALL, sarcoma	84% age 21–39 years at diagnosis; participants surveyed within 14 months of diagnosis	*N* = 523	CS[a]	More survivors (age 21 to 39) reported a positive than negative impact of their cancer experience on their relationship with their spouse or significant other, but more reported a negative impact on dating
Borstelmann et al. (2015)	Breast cancer	18–40 years; Mean = 35.4 years	*N* = 675	CS	Young breast cancer survivors who felt unsupported by their partner reported higher levels of anxiety than those supported by their partner or unpartnered
Carpentier, Fortenberry, Ott, Brames, and Einhorn (2011)	Testicular cancer	18–34 years	*N* = 21	QI[b]	Cancer experience gave survivors a different perspective which, for some, had positive impact on relationships. Unpartnered survivors struggled with when to disclose cancer history to new romantic partner. Treatment-related scars caused body image issues for some that made sexual intimacy difficult
Dama et al. (2009)	Heterogeneous childhood cancers	93% age 18–39 years; Mean = 28.5 years	*N* = 1237	LS[c]	Young adult survivors of childhood cancer were less likely to marry than their age-mates in the general population
Dieluweit et al. (2010)	Heterogeneous adolescent cancers	Mean = 30.4 years (SD = 6.0)	*N* = 820 survivors, 820 age-matched controls, 1027 additional controls	CS	Female survivors had achieved fewer developmental milestones (e.g., first boyfriend) or achieved them later than controls. Survivors were less likely to have married than controls but equivalent numbers were in long-term relationships
Frobisher et al. (2007)	Heterogeneous childhood cancers	72.2% age 20–44 years; Mean = 30.4 years (SD = 10.3)	*N* = 9954	CS	Young adult survivors of childhood cancer were less likely to marry than peers in the general population. Female survivors were more likely to marry than males

Table 1 (continued)

Authors	Type of cancer	Age of survivors	Sample size	Study design	Key findings
Gerhardt, Vannatta, Valerius, Correll, and Noll (2007)	Heterogeneous non-CNS childhood cancers	Mean = 18.7 (survivors) (Participants all surveyed at age 18)	*N* = 56 survivors, 60 peer controls	CS	No significant differences between survivors and controls in the proportion reporting a current romantic relationship or the intention to one day marry
Geue, Schmidt, Sender, Sauter, and Friedrich (2015)	Heterogeneous cancers	18–45 years, Mean = 33.3 years (SD = 5.6)	*N* = 99	CS	76% rated their relationship as “happy” or “very happy.” Greater relationship satisfaction predicted by (shorter) duration of relationship, satisfaction with sexuality, being on sick leave
Green, Zevon, and Hall (1991)	Heterogeneous childhood cancers	18–44 years, Mean age = 26.6 (SD = 6.1)	*N* = 227	CS	Marriage rates were lower for survivors than those in the general population but no differences were found in rates of separation or divorce
Ishida et al. (2011)	Heterogeneous childhood cancers	Mean = 23.1 years (SD = 4.9)	*n* = 185 survivors, *n* = 72 sibling controls	CS	A significantly lower percentage of childhood cancer survivors (v. sibling controls) were living with a partner
Janson et al. (2009)	Heterogeneous childhood cancer	81.3% age 20–39 years	*N* = 8928 survivors; 2879 siblings	LS	Childhood cancer survivors were less likely to have ever married than siblings or peers in the general population but no more likely to divorce
Johannsdottir et al. (2010)	AML, Wilms’ tumor, infratentorial astrocytoma	19–34 years, Mean = 23 years (SD = 3.3)	*N* = 247 survivors, 1814 controls	CS	Marital status did not differ between survivors and population-based controls
Kirchhoff, Yi, Wright, Warner, and Smith (2012)	Heterogeneous cancers	20–39 years, Mean = 33.0 years (SD = 3.8)	*N* = 1198 survivors, 67,063 controls	CS	Survivors were less likely to be currently married than controls. Among ever-married participants, survivors were more likely than controls to be separated or divorced
Lewis et al. (2012)	Breast cancer	25–45 years at diagnosis*; Mean = 37.4 years (SD = 6.0) *age at time of interview not given	*N* = 33	QI	Over half of those who were single when diagnosed described difficulties with dating including concern over when to disclose their cancer history. Half of those in committed relationships at diagnosis said cancer had a negative impact on their relationship or their partner’s emotions

Table 1 (continued)

Authors	Type of cancer	Age of survivors	Sample size	Study design	Key findings
Mackie et al. (2000)	ALL, Wilms' tumor (during childhood)	19–30 years	$N = 102$ survivors, 102 age- and sex-matched controls	IAQS[d]	Survivors had poorer social functioning in romantic relationships, friendships, and other social interactions. Survivors were more likely than controls to report avoidance in their relationships
Robinson, Miedema, and Easley (2014)	Heterogeneous cancers	Mean = 32.8 years (SD = 6.0)	$N = 53$	QI	Some survivors reported that the cancer experience brought them close to their partner while others reported the opposite. Sexual intimacy between survivors and partners was negatively impacted by several factors (e.g., effects of cancer treatment, impaired body esteem)
Russell, Galvin, Harper, and Clayman (2016)	Heterogeneous cancers	95% age 22–45 years; Mean = 32.5 years	$N = 56$	QI	LGBTQ and heterosexual survivors had similar concerns about when to disclose cancer history to partners. Cancer-related fertility issues caused less disruption in LGBTQ relationships
Thompson, Marsland, Marshal, and Tersak (2009)	Heterogeneous childhood cancers	18–25 years; Mean = 21.6, SD = 2.2	$N = 60$ survivors, 60 controls	CS	Survivors were less likely than controls to be in a relationship, had fewer relationships over the past 5 years and had more distress at end of relationships
Thompson, Long, and Marsland (2013)	Heterogeneous cancers	19–25 years, Mean = 21.6	$N = 18$	QI	Childhood cancer experience impacted survivors' romantic relationships in both positive and negative ways (e.g., changing their perspective, making them less comfortable with emotional disclosure, impacting body esteem)
Wengenroth et al. (2014)	Heterogeneous childhood cancers	20–40 years, Mean = 26.6 (SD = 5.3)	$N = 1096$ survivors, 500 siblings, 5593 controls	CS	Cancer survivors were less likely than siblings to have a life partner and less likely than siblings or general population controls to be married

Table 1 (continued)

Authors	Type of cancer	Age of survivors	Sample size	Study design	Key findings
Yi et al. (2016)	Heterogeneous childhood cancers	20–36 years	$N=28$	QI	Survivors articulated concerns about whether future romantic partners (and their families) would accept them given their cancer history. Survivors also expressed worry about how to disclose their cancer history

[a] *CS* cross-sectional survey

[b] *QI* qualitative interview

[c] *LS* longitudinal survey

[d] *IAQS* interviewer-administered quantitative survey

Results

The 21 articles reviewed included six studies collecting qualitative data (via semi-structured interviews) and 15 collecting quantitative data (twelve via cross-sectional survey, two via longitudinal survey, and one via interviewer-administered quantitative measures). Data indicating the potential generalizability of findings (e.g., sample size, participant characteristics) are presented in Table 1. Data addressing the four study questions are described below.

Do Young Adult Cancer Survivors Have Difficulty Disclosing Their Cancer History to Potential Romantic Partners?

Data from five qualitative studies indicate that young survivors struggle with when and what to disclose. In one interview study, young, unpartnered men with testicular cancer explained that disclosing their cancer history immediately (e.g., on a first date) may seem premature but waiting until later in the relationship (e.g., a few months in) may leave their partner with the impression that they withheld important information (Carpentier et al., 2011). Interviews with both heterosexual and lesbian, gay, bisexual, transgender, or queer (LGBTQ) survivors indicate that determining when to disclose a cancer history to a partner is a frequent source of concern (Russell et al., 2016); some felt that it should probably be disclosed early on in the relationship while others felt that waiting was preferable (Russell et al., 2016). When young African American women diagnosed with breast cancer were interviewed, one participant articulated that it was important for her to disclose her cancer history right away so that potential partners who were uncomfortable dating her could terminate the relationship before it got serious (Lewis et al., 2012).

In addition to the issue of *when* to disclose a cancer history, some young survivors wrestle with *what* to disclose. In one interview study with young adult survivors of childhood cancer, half of the participants felt comfortable disclosing the clinical aspects of their cancer experience (e.g., treatment received, side effects experienced) but not necessarily the emotional aspects (Thompson et al., 2013). The remaining participants, however, were reluctant to discuss even clinical information with a partner. These survivors worried about upsetting their partner or being seen as "weak" (Thompson et al., 2013). A qualitative study of young adult cancer survivors in Korea highlighted some of the same concerns. Participants described feeling an obligation to let a new partner know about their cancer history but not knowing how to introduce the topic (Yi et al., 2016). Some worried that discussing their cancer history would ultimately lead to rejection by their partner or the partner's family (Yi et al., 2016). These concerns may not be entirely unfounded. In an interview study of survivors between the ages of 19 and 25, some reported feeling frustrated or dismissed when their self-disclosure to friends or partners was not met with more interest or curiosity (Thompson et al., 2013). It is unclear how these unsatisfying self-disclosure experiences impact survivors' ability to forge or maintain romantic relationships.

Do Young Adult Cancer Survivors Have Greater Difficulty Establishing Romantic Relationships?

The available research—including both quantitative studies and qualitative studies—suggests that young survivors are hindered in their efforts to date. A large, cross-sectional survey study conducted in Germany ($N=820$) found that young female survivors were significantly delayed in achieving relationship milestones—such as having their first romantic relationship—relative to peers in the general population (Dieluweit et al., 2010). This study also found that young adult male and female survivors were significantly delayed in marrying and having their first child (Dieluweit et al., 2010). Likewise, a smaller, controlled study of young adult survivors of childhood cancer found that survivors ($n=60$) were less likely than those without a cancer history ($n=60$) to currently be in a relationship, had had fewer relationships over the past 5 years, and experienced greater emotional distress when their relationships ended (Thompson et al., 2009). Findings from both studies indicate that demographic and treatment-related factors are associated with relationship outcomes. For example, survivors treated with radiation were significantly more delayed than other survivors in reaching relationship milestones, and those who were younger or received higher-intensity treatment were less likely to currently be in a relationship (Dieluweit et al., 2010; Thompson et al., 2009).

Young adult cancer survivors appear to be aware of the pernicious effect of their cancer history on dating. A population-based survey study of over 500 survivors found that 44% of those diagnosed in their twenties and 45% of those diagnosed in their thirties felt that their cancer had had a negative impact on dating (Bellizzi et al., 2012). These findings are consistent with those from two qualitative studies. In one interview study, approximately half of the young African American breast cancer survivors who were single at diagnosis reported difficulties with dating, including that potential partners may "shy away" from them due to their cancer history (Lewis et al., 2012). In another interview study, young adult cancer survivors in Korea reported that, because of their cancer history, they experienced a variety of negative emotions when they thought about dating; these included guilt, shame, and fear (Yi et al., 2016).

Some young survivors may have difficulty establishing romantic relationships consequent to social skill deficits. A quantitative cross-sectional study (using interview-based assessment measures) of young adults who had been treated for acute lymphoblastic leukemia (ALL) or Wilm's tumor during childhood ($n=102$) found that these young survivors had lower levels of functioning in romantic relationships relative to age- and gender-matched controls ($n=102$; Mackie et al., 2000). More survivors than controls (i.e., 36 vs. 9%) showed avoidant functioning and, for example, avoided disclosing personal information to their partners (Mackie et al., 2000). These survivors also demonstrated lower levels of functioning in their platonic relationships, suggesting that they may have had global deficits in social or relationship skills.

Two qualitative studies suggest an important caveat to these findings, however: some young adult cancer survivors may simply choose to date less often because they have become more discriminating. For example, when 18- to 25-year-old survivors of childhood cancer were interviewed, some reported that they now prioritize their health and family above all else and that it would be difficult to form a close relationship with someone who does not feel similarly (Thompson et al., 2013). Survivors of testicular cancer interviewed for another study echoed these sentiments (Carpentier et al., 2011).

How Does a Cancer History Impact Ongoing/Long-Term Romantic Relationships?

The literature addressing the impact of cancer on existing relationships is mixed, suggesting the potential for both positive and negative effects. When young African American survivors were interviewed ($N=33$), half of those who were in a committed relationship at the time of diagnosis reported that their cancer experience negatively impacted the relationship (Lewis et al., 2012). By contrast, a large, cross section survey study ($N=523$) found that 59% of those diagnosed with cancer in their twenties and 69% of those diagnosed in their thirties felt that cancer had had a positive impact on their relationship with a spouse or significant other (Bellizzi et al., 2012). Findings from two qualitative studies may help to explain why some survivors feel their cancer positively impacted their relationships: some survivors reported being less likely to get caught up in petty grievances after their diagnosis (Thompson et al., 2013) and some—with emotionally supportive partners—reported that their cancer experience brought them closer as a couple (Robinson et al., 2014). Those whose partners were not emotionally supportive, or who felt pressured by their partner to resume all pre-cancer responsibilities, however, felt that their cancer experience strained their relationships (Robinson et al., 2014). Indeed, there is evidence that young survivors with unsupportive partners—with whom they cannot discuss their feelings or don't get along—may be worse off than those not in relationships: a large survey study ($N=675$) with young adult breast cancer survivors found that those who had unsupportive partners reported higher levels of anxiety than those who did not have a partner or who had supportive partners (Borstelmann et al., 2015).

The findings above underscore the importance of determining whether young survivors feel that their relationships are meeting their needs and providing adequate support. A study comparing 60 young adult cancer survivors to 60 young adults without a cancer history did not find any differences in relationship satisfaction (Thompson et al., 2009). Likewise, a survey of 99 young adult cancer survivors who were in relationships found that 76% rated their relationships as "happy" or "very happy" (Geue et al., 2015). In the same study, however, 36% reported dissatisfaction with the frequency of sexual intimacy and 26% dissatisfaction with their own sexual attractiveness (Geue et al., 2015). Further, this study found that relationship satisfaction was predicted in part by satisfaction with one's sexuality and sexual life (Geue et al., 2015). This is important to note as several studies indicate that physical intimacy and sexual relationships may be compromised by the effects of cancer diagnosis and treatment. In one interview study, some young survivors noted that intimacy with their partner was hampered by factors including the following: fear that intimate contact could hurt the partner (e.g., due to exposure to the cancer treatment), physical changes related to cancer (e.g., painful intercourse), and diminished body image (Robinson et al., 2014). Indeed findings from a number of quantitative and qualitative studies indicate that the physical consequences of cancer treatment—including surgical scars, disfigurement, weight gain, and hair loss—negatively impact the body image of many young adult cancer survivors making them less comfortable with physical intimacy (Bellizzi et al., 2012; Carpentier et al., 2011; Robinson et al., 2014; Thompson et al., 2013). Some survivors have reported that changes in physical intimacy put a strain on romantic relationships (Robinson et al., 2014).

Do Rates of Marriage and Divorce Differ Between Young Adult Cancer Survivors and Their Peers?

Although there are some conflicting findings, the bulk of research—including multi-site and population-based studies—indicates that young adult cancer survivors marry less frequently than peers. A multi-site study of nearly 9000 childhood cancer survivors in the United States (US) found that survivors were significantly less likely to have ever married than siblings or peers in the general population (Janson et al., 2009). In this study, 42.4% of survivors were currently married, 7.3% divorced or separated and 46.4% never married. A smaller study of young adult survivors of childhood cancer ($N=227$) also found lower marriage rates among survivors than in the general population (Green et al., 1991). Over 15% of survivors who had never married reported that their cancer history was a factor (Green et al., 1991). A body of research conducted outside of the US also indicates that young survivors are marrying and establishing life partnerships at lower rates than their peers. A population-based study conducted in Switzerland found that a significantly smaller percentage of young adult cancer survivors had a life partner (i.e., 47%) than did their siblings (i.e., 61%; Wengenroth et al., 2014). Likewise, a smaller percentage of survivors were married than young adults in the Swiss general population (i.e., 16 vs. 26%; Wengenroth et al., 2014). Population-based studies conducted in the UK (Frobisher et al., 2007) and Italy (Dama et al., 2009) have also found lower marriage rates among young adult survivors than in the general population. Finally, a study conducted in Japan found that young survivors were less likely than their siblings to be living with a partner (i.e., 13 vs. 25%) and more likely to be living with their parents (i.e., 63 vs. 44%; Ishida et al., 2011).

By contrast, some research findings do not indicate a significant difference between the marriage rates of young adult cancer survivors and other young adults. Data from the Behavioral Risk Factor Surveillance System (BRFSS)—a large, nationally representative data set—show no difference between the marriage rates of 20- to 39-year--old cancer survivors and their peers without a cancer history (Kirchhoff et al., 2012). This study did find that marital outcomes were less favorable for survivors, however, as described below. It is noteworthy that a majority of the survivors included in this study were diagnosed with cancer during young adulthood (age 18–29), whereas participants in the aforementioned studies which found lower marital rates among survivors had all been diagnosed during childhood. This may explain the discrepancy in findings. Nonetheless, other, smaller studies of young adult survivors of childhood cancer also did not find a difference in the percentage of survivors versus controls who were married or living with a partner (i.e., 48 vs. 53%; Johannsdottir et al., 2010) or who planned to one day marry (i.e., 28 vs. 42%; Gerhardt et al., 2007). The failure to detect statistically significant differences in these studies may be due to small sample sizes.

A young adult cancer survivor's likelihood of marrying may be impacted by demographic and treatment-related factors. Three of the studies reviewed found that young adult female survivors were more likely to marry or establish a life partnership than male survivors (Dama et al., 2009; Frobisher et al., 2007; Wengenroth et al., 2014). A population-based study conducted in Italy found female survivors had an 82% likelihood of marrying relative to the general population, whereas male survivors had only a 68% likelihood (Dama et al., 2009). Data from large, multi-site and population-based studies indicate that diagnosis with central nervous system (CNS) tumor, radiation treatment (particularly cranial radiation), or receiving a bone marrow transplant decrease the likelihood of marrying among young survivors (Frobisher et al., 2007; Janson et al., 2009; Wengenroth et al., 2014). In one multi-site study, the relationship between receiving cranial radiation and the likelihood of marrying was mediated, in part, by the impact of treatment on physical development (i.e., shorter stature), cognitive functioning (e.g., poor memory), and impaired physical functioning (Janson et al., 2009).

It is unclear whether young adult cancer survivors who do marry are at increased risk for subsequent separation or divorce. Nationally representative data from the BRFSS indicate that, among participants who had ever been married, young adult cancer survivors were more likely than controls to be divorced or separated (i.e., 18 vs. 10%; Kirchhoff et al., 2012). This effect was particularly robust for female cancer survivors (Kirchhoff et al., 2012). By contrast, analysis of data from a multi-site study of childhood cancer survivors did not find a difference between rates of divorce among survivors and their siblings or population controls (Janson et al., 2009). Nonetheless, among the survivors who had separated or divorced, 20% felt that their cancer history played a role (Janson et al., 2009). Finally, another study of childhood cancer survivors found no difference in the rates of separation and divorce between survivors and the general population (Green et al., 1991).

One potential source of marital stress that is unique to young adult (relative to older adult) survivors is concern about fertility. A number of studies indicate that young adult cancer survivors worry about whether the treatment they received will limit their ability to have children (Carpentier et al., 2011; Thompson et al., 2013; Yi et al., 2016). Likewise, some young adult cancer survivors worry about whether any future (biological) children will be negatively impacted by their diagnosis or treatment (e.g., developmental delays, increased cancer risk; Thompson et al., 2013). Couples may experience differing reactions to these concerns. Some of the heterosexual couples interviewed in one study felt that dealing with fertility challenges brought them closer together as a couple whereas others reported that their relationship was stressed by differing perspectives on creating a family (e.g., whether adoption was an acceptable option; Russell et al., 2016). By contrast, LGBTQ survivors interviewed in the same study did not feel that fertility issues caused friction in their relationships (Russell et al., 2016).

Discussion

The findings from this review suggest that young adults with a cancer history encounter significant and, in some cases, unique challenges to establishing and maintaining romantic relationships. The basis for these challenges is likely multifactorial and may include the following: the effects of their cancer treatment (e.g., on cognitive functioning, physical functioning, sexual intimacy, fertility), stigmatization by others, and deficits in relationship skills (Janson et al., 2009; Lewis et al., 2012; Mackie et al., 2000; Yi et al., 2016). Despite this, the news is not all bad. Some young adult cancer survivors report that their cancer experience gave them a new and greater appreciation for an ongoing relationship or drew them closer to their partner.

Although research on the relationships of young adult cancer survivors is fairly limited, it was sufficient to address the four questions guiding this review. The small body of literature that addressed self-disclosure among young survivors indicates that they continue to struggle with determining when and how to disclose their cancer history to a potential partner (Carpentier et al., 2011; Thompson et al., 2013). It is possible that anxiety about self-disclosure—or having received a negative reaction to past disclosures—leads to avoidant behavior in some young survivors. These survivors may be less willing to initiate a romantic relationship. This reluctance may be one of the several barriers to establishing romantic relationships that young adult cancer survivors face (Dieluweit et al., 2010; Thompson et al., 2009). In addition to actual or anticipated rejection by others, other barriers may include deficits in relationship skills and greater selectivity among survivors (Lewis et al., 2012; Mackie et al., 2000; Thompson et al., 2013; Yi et al., 2016). Young survivors may be more likely to have social skill deficits if they were treated for cancer—and, therefore, isolated from peers—during periods of their childhood or adolescence when these skills typically develop (Mackie et al., 2000). In addition to the timing of treatment, treatment intensity also appears to impact the likelihood that survivors will later struggle with establishing and maintaining relationships (Frobisher et al., 2007; Janson et al., 2009; Thompson et al., 2009; Wengenroth et al., 2014).

The impact of a cancer history on pre-existing relationships or long-term relationships that are initiated after a cancer diagnosis is less straightforward. Young survivors who are in supportive relationships at the time of their diagnosis may report feeling closer to their partners and more positively about their relationships, whereas young survivors who are with partners that are unsupportive or unreasonably demanding may report that the cancer experience strained their relationships (Borstelmann et al., 2015; Carpentier et al., 2011; Lewis et al., 2012; Robinson et al., 2014; Thompson et al., 2013). A related ambiguity in this literature is whether marital outcomes differ between young survivors and their peers. The bulk of research conducted in the US and abroad suggests that young survivors marry at lower rates than similarly aged peers (with the caveat that many of the larger, population-based studies have focused on survivors of childhood cancer; Dama et al., 2009; Frobisher et al., 2007; Green et al., 1991; Ishida et al., 2011; Janson et al., 2009; Wengenroth et al., 2014); it is less clear, however, whether young survivors are more likely to divorce or separate from their spouses than peers without a cancer history (Green et al., 1991; Janson et al., 2009; Kirchhoff et al., 2012). Cancer diagnosis and treatment have the potential to negatively impact a young survivor's employment, sexual functioning, fertility, and mood—all of which are potential sources of strain in a marriage (Bellizzi et al., 2012; Carpentier et al., 2011; Rabin et al., 2007; Robinson et al., 2014; Russell et al., 2016; Syse, A, Tretti, & Kravdal, 2008; Thompson et al., 2013). More research is needed, however, to draw conclusions about whether these stressors significantly increase risk for negative marital outcomes.

Implications for Clinical Psychology

The findings from this review suggest a number of avenues for optimizing psychosocial care for young adult cancer survivors. First, medical and mental health providers who work with cancer survivors should be educated about the barriers that young adult cancer survivors face to initiating and maintaining romantic relationships. For ease of reference, the relationship barriers identified by this review are summarized in Table 2. Likewise, clinicians should know that certain subsets of young adult cancer survivors may be at particularly high risk for relationship difficulties (e.g., those diagnosed with CNS tumors, those who received higher-intensity treatment); risk factors for experiencing relationship barriers are also summarized in Table 2. Educating clinicians may enhance their ability to identify young survivors who are unable to establish supportive relationships and, therefore, are at risk for having inadequate levels of social support.

Table 2 Potential relationship barriers and risk factors for barriers among young adult cancer survivors

Potential relationship barriers
Ambivalence about when to disclose cancer history to partner
Ambivalence about what cancer-related information to disclose to partner
Physical intimacy negatively impacted (e.g., by cancer treatment)
Lower levels of relationship functioning, social skill
More selective in choosing partner
Avoided by potential partners due to cancer history
Risk factors for relationship barriers
Younger age
Radiation treatment (particularly cranial radiation)
Higher-intensity treatment
Received bone marrow transplant
Diagnosed with central nervous system tumor
Cancer treatment received during childhood
Treatment-related effects on physical development, physical functioning, cognitive functioning
Emotionally unsupportive partner
Negative body image

Although, to date, the empirically based psychosocial interventions developed for young adult cancer survivors have not focused on helping them overcome relationship barriers (e.g., Richter et al., 2015), the information in this review suggests avenues for assisting this population. For example, young adult cancer survivors at risk for difficulties in establishing romantic relationships could work with behavioral health providers to address any social/relationship skill deficits, develop and rehearse strategies for self-disclosing their cancer history, and access additional sources of support (e.g., relatives, friends, other young survivors). Young adult cancer survivors who experience difficulties with an ongoing relationship may benefit from working with behavioral health providers either individually or in couples counseling. Although, couples counseling interventions have not yet been developed specifically for the young adult cancer survivor population, young survivors might benefit from interventions that have been shown to help (primarily older) survivors; these interventions focus on skills such as providing social support to one's partner and adapting to body-related changes (e.g., Brandao, Schulz, & Mena Matos, 2014). More research is needed to determine whether such interventions will need to be adapted to address some of the unique issues faced by couples involving a young adult cancer survivor (e.g., coping with compromised fertility).

Limitations and Future Research

This review was one of the first to examine the impact of a cancer history on the ability of young adults to establish and maintain romantic relationships. The findings of the review should be interpreted within the context of certain limitations, however. First, the review included individuals who were diagnosed during childhood, adolescence, and young adulthood. The impact of cancer diagnosis and treatment on relationship functioning may differ widely depending on an individual's developmental stage at the time of diagnosis and treatment. Those diagnosed during childhood or adolescence may be more likely to have deficits in social and relationship skills due to the direct effects of treatment (e.g., on cognitive functioning) and isolation from peers during critical developmental periods. In addition, although a majority of participants in each article reviewed were young adults (defined here as at least 68%) not all of the participants in each sample were. The inclusion of some participants who were either adolescents or older adults could have impacted study findings. Given the paucity of research on young adult cancer survivors, however, it was deemed advantageous to include studies with samples that were not exclusively composed of young adults. The literature included in this review was also culturally heterogeneous as several of the studies reviewed were conducted outside of the United States. Although findings from the majority of these studies were consistent in showing evidence of relationship barriers among young survivors, the impact of culture on relationships (or an individual's experience of survivorship and stigmatization) may differ widely across cultures. Finally, it should be noted that, given the dearth of literature available on romantic relationships among young adult cancer survivors, some of the conclusions in this review have been based on the findings from a single study or limited number of studies.

This review suggests some potentially fruitful avenues for future research. Research into potential relationship barriers could be extended. For example, it would be helpful to investigate the extent to which young adults who do not have a cancer history stigmatize those who do. This would provide important information about how young survivors are viewed by potential partners and whether actual stigmatization (as opposed to perceived stigmatization) is a significant relationship barrier. Likewise, research on the predictors of relationship difficulties among young survivors could be expanded. For example, it would be helpful to investigate the factors that precipitate separation or divorce among young adult cancer survivors in order to determine whether subsets of young survivors (e.g., those experiencing body image or fertility issues) are at greater risk for unfavorable marital outcomes. This may help to explain why some studies found higher rates of divorce/separation among young survivors relative to peers while others did not. Future research should also examine whether young adult survivors identifying as members of certain demographic or cultural groups (e.g., defined by age cohort, race, ethnicity) are at higher risk for relationship difficulties. Ultimately, this research should serve as a springboard for the development of empirically driven interventions designed to help young adult cancer survivors to establish and maintain supportive, healthy romantic relationships.

Compliance with Ethical Standards

Conflict of interest Carolyn Rabin declares that she has no conflict of interest.

Human and Animal Rights and Informed Consent This article does not contain any studies with human participants or animals performed by any of the authors.

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