Spring 4-23-2021

The Joint Influence of Social Support and Coping on Anxiety in AYA Cancer Survivors

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by

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Submitted in partial fulfillment
of the requirements for the degree of
Master of Arts General Psychology, Hunter College
The City University of New York

2021

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Abstract

Historically understudied throughout psycho-oncology, adolescent and young adult (AYA) cancer survivors experience unique psychosocial needs during life post-treatment. Cancer-related anxiety is a psychological phenomenon prevalent amongst AYA survivors and can impede the survivor's transition to remission. Independent of one another, confiding in a social support system and frequent engagement in coping mechanisms benefit those throughout the cancer experience, leading to more positive psychosocial outcomes. From this, it was hypothesized that utilizing one's social support network and coping mechanisms would positively benefit survivors and help reduce cancer-related anxiety. This study's data was derived from a prior study conducted at Memorial Sloan Kettering Cancer Center. Although no conclusive evidence was found in support of the hypothesis, we found evidence that solely social support was an influential predictor of alleviating anxiety amongst survivors. In addition, AYA cancer survivors were more likely to engage in avoidance coping. Females were more likely than males to report intrusive symptoms, confide in their social support network and invest in close friends as a coping mechanism. Both the inability to reject the null hypothesis and the prevalence of maladaptive coping mechanisms suggest that educating survivors on various forms of adaptive intrapersonal coping would benefit them during this transition life after cancer treatment.

Adolescent and young adult cancer survivors (AYAs) represent a subgroup of survivors defined as those who had an initial cancer diagnosis between the ages of 15 and 39 (Lewis et al., 2014). Within psycho-oncology, this population is unique for a plethora of reasons. Furthermore, battling cancer during adolescence or young adulthood disrupts various developmental milestones, ultimately leading to distinctive psychosocial needs that may persist well after overcoming their disease. The psychosocial implications of surviving cancer have been largely unexplored in AYAs, as survival in this population was once considered more of a rarity. Attributable to the progress of modern medicine, an increased percentage of adolescents and young adults with cancer now achieve long-term survival status. After going into remission, AYA cancer survivors hold onto the label of survivor forever. The next step is for survivors to learn how to navigate life with the implications of cancer on their physical, emotional, and social needs.

Historically understudied throughout psycho-oncology, this group is distinctive as members within this age group experience unique psychosocial issues throughout a diverse range of life stages (Kent et al., 2012). This period hallmarks a transition from youth to adulthood, gaining independence in individual domains throughout their life. Whether this independence is professional, academic, social, financial, or romantic, cancer can be a life-changing experience and interruption (McDonnell, Salley, Barnett, et al., 2017). The ramification of this interruption can last well after survivors go into remission. The psychosocial needs within this group are substantially different when compared to cancer survivors of other ages. Within this unique survivorship period, unmet needs are often high (Jones, et. al., 2020). These unmet needs and the corresponding life milestones impacted are considered pivotal in survivors' path to adulthood.

The onset, battle, and remission of a chronic illness such as cancer elicit a traumatic response that further alters survivors' lives. The abundance of stressors endured while undergoing the cancer experience leads to the classification of cancer in its entirety as a traumatic event. Rouke et al. (2007) suggest that the ideas and circumstances regarding the cancer experience are stronger predictors of post-traumatic stress, compared to other variables such as demographics, type of disease, and treatment factors. Exuberant amounts of post-traumatic stress can indicate post-traumatic stress disorder, but the prevalence of experiencing post-traumatic stress symptoms does not always evoke a definitive diagnosis. Cancer-related post-traumatic stress has an abundance of overlapping commonalities with post-traumatic stress disorder; however, post-traumatic stress symptoms are generally less severe.

Post-traumatic stress symptoms consist of re-experiencing the traumatic event, which manifests through intrusive memories, avoidance, negative changes in thinking and mood, and changes in physical and emotional reactions (Quinn et al., 2015). Kwak et al. (2012) notes that various research of adolescent and young adult cancer survivors suggests that 3–21% of survivors report clinically significant levels of PTSS. Post-traumatic stress symptoms are considered meaningful distress measures in cancer survivors (Kwak et al, 2012). Long-term implications due to the disruption caused by their cancer experience are culpable for the influx of distress that influences a wide array of anxious behaviors. One study found that nearly 50% of survivors reported cancer-related intrusive thoughts three or more years after remission (Matsuoka et al., 2002). Kazak et al. (2010) found notable risk factors for elevated distress in AYAs, including lower social support, lower self-esteem, and identity issues.

Continuous distress stemming from cancer experience can influence psychosocial functioning, even during survivorship. A high prevalence of distress can furthermore impact

mental health and lead to more significant problems, including cancer-related anxiety. Various research indicates that anxiety is relevant yet understudied in adolescent cancer survivors (McDonnell, Pope, et. al., 2017). Corresponding research suggests that the predominance of cancer-related worry predicts generalized anxiety in cancer survivors (Deimling et. al., 2006). Cancer-related anxiety displays similar characteristics of an anxiety disorder (Bates et al., 2017). Cancer-related anxiety is theoretically dynamic; commonly, anxiety is characterized by symptoms related to future tripping. However, cancer-related anxiety stems from the inability to move past a previous traumatic event. Bauld et al. (1998) discovered that adolescent survivors reported higher state anxiety when compared to healthy peers.

Coping styles employed during and post-treatment can substantially impact the mental health and wellness of adolescent and young adult cancer survivors. Continued use of adaptive coping strategies is associated with lower levels of distress and fewer adjustment difficulties (Wang et. al., 2015). On the contrary, avoidance coping is predictive of depression and anxiety with children and adolescents with cancer who are either currently receiving treatment or who are in remission (Morris et. al., 1997). Developing an understanding of coping structure is necessary to explain the influence of stress on both mental health and well-being (Stanislaski, 2019). Throughout the literature, there is general disagreement on the structure of coping, considering there are over one hundred coping taxonomies and four hundred lower-order categories proposed by psychologists (Skinner & Wellborn, 1994). Theoretically, people do not solely engage in one type or style of coping throughout their life, further implying that engagement in specific coping mechanisms should be conceptualized on a continuum, as given circumstances or emotions can elicit the use of a particular coping mechanism.

Social support is essential for maintaining physical and psychological health (Ozbay et.

al., 2007). It is also a fundamental aspect of the cancer experience and survivorship. Having social support means a person does not have to cope with difficult situations alone and belongs to a social network in which they are cared for, loved, and valued. Increased means of social support from friends and family is significantly associated with better mental health, less depressed mood, and less anxiety (Corey et. al., 2008). Ubiquitous forms of social support commonly found by AYAs through their family, friends, and romantic partners. Possessing a solid support system can provide aid when experiencing overwhelming changes while adjusting to life post-cancer treatment. Engaging with a social support network can help reduce stress by acting as a buffer to distress and its deconstructive consequences (Aflakseir & Coleman, 2010).

Previously published research classifies social support on the same tier as other coping mechanisms since it ultimately produces positive stress-relieving outcomes similar to other coping mechanisms. Conceptually, social support can be classified both as a coping mechanism and a separate entity that differs from standard coping mechanisms noted throughout the literature. Social support is distinct and varies from other forms of coping as it relies on differing interpersonal factors that can influence the effectiveness of the mechanism. The strength of the interpersonal relationship and the confidant's ability to relate to the survivor influence whether the survivor's emotional needs will be fulfilled during this interaction. Pennant et al., (2019) note that social support is an external variable that can also interact with coping. They argue that social support provides extra coping resources for AYAs with cancer through supplementing additional coping strategies (Pennant et. al., 2019). This distinction highlights the importance of theoretically separating it from standard forms of coping as social support is functionality more complex.

To date, there is little research published that assesses the relationship of both coping and

social support, as well as external variables like gender that influence anxiety in this unique cohort of survivors. The aforementioned psychosocial implications after undergoing cancer treatment influence the extent to which AYA survivors experience psychosocial distress. The combined benefits of social support and usage of common healthy coping mechanisms prevalent in adolescents seem to be a perfect combination for alleviating cancer-related anxiety. This project intended to analyze the relationship between increased social support and adaptive coping styles on anxiety among adolescents and young adult survivors of cancer. Gender differences in coping and cancer-related anxiety were also explored, suggesting that females are more likely to report cancer related-anxiety. It was hypothesized that combined positive coping styles and extensive social support aid in alleviating cancer-related anxiety among AYA survivors.

Methods

Participants

Participants consisted of 128 cancer survivors between 14 and 20 years of age (M age = 16.35 years old, SD = 1.77 years). Two-hundred and fifty potentially eligible participants were initially contacted to participate in the overall study; however, 54 did not respond, 27 patients declined participation, and 41 recorded inaccurate contact information (Werk & Ford, 2020). The sample of 128 survivors consisted of 52% females (N = 67) and 48% males (N = 61). Participants' racial and ethnic backgrounds consisted of 81.3% White/Caucasian (N = 100), 5.5% Black/African American (N = 7), 4.7% Asian-American (N = 6), and 7.8% Other (N = 10). `18 13.3% of participants reported identifying Hispanic/Latinx (Werk & Ford, 2020). Additional eligibility criteria included participants who received a cancer diagnosis between the ages of 8 to 14 years old (M age 11.10 years old, SD = 1.79). They were English speaking, at least 12 months post-treatment, and no current evidence of active disease. Further socio-demographic

information is highlighted in Table 1.

Measures

Measures examined in this study derived from a larger study that focused on cancer survivors. This study utilized psychological scale measures focused on coping, social support, and anxiety.

Adolescent Coping Orientation for Problem Experiences (ACOPE)

Coping Mechanisms were measured using the Adolescent Coping Orientation for Problem Experiences (Patterson & McCubbin, 1987). This coping inventory consists of 52 items designed to identify common behaviors that adolescents utilize when managing problems or dealing with difficult adversities. There are twelve coping mechanisms assessed in the psychological measure; Ventilating Feelings, Seeking Diversion, Developing Self-Reliance and Optimism, Developing Social Support, Solving Family Problems, Avoiding Problems, Seeking Spiritual Support, Investing in Close Friends, Engaging in Demanding Activity, Being Humorous and Relaxing.

Each mechanism was measured using a 5 item Likert Scale ranging from zero, which signifies that the participant never engages in this behavior, to five which reflects that the participant engages in this behavior most of the time. Items within each coping mechanism are added together for a total, and higher values suggest more frequency in engaging in the coping mechanisms indicated in the scale. The number of items within each subfactor of these measures are not uniform across coping mechanisms, so the range of scores varies across coping mechanisms. Coping was not measured as a total score across the measure; instead, each coping mechanism was assessed individually. Reliability (Cronbach's alpha) of subfactors within the scale ranged in value from 0.50 - 0.76 (Patterson & McCubbin, 1987). Seeking professional

support was the only subfactor within the measure that had the low reliability score of 0.50 (Patterson & McCubbin, 1987).

Social Support was measured using a subset within the Adolescent Coping Orientation for Problem Experiences (Patterson & McCubbin, 1987). This factor consists of six items that represent coping behaviors that aim to highlight efforts to stay connected emotionally with other people through common problem solving and expression of effect. The reliability (Cronbach's alpha) of social support within the Adolescent Coping Orientation for Problem Experiences is valued at 0.75 (Patterson & McCubbin, 1987).

Impact of Events Scale (IES)

Anxiety was assessed using the Impact of Events Scale (Horowitz et. al., 1979). This scale contains 15-items intended to analyze intrusive and avoidant thoughts about the threat of a cancer recurrence. This psychological measure scores using a four-point Likert scale spanning in responses from "Not at all" to "Often." Items were added together and then averaged to one score, higher scores reflecting greater prevalence of anxiety. This measure's reliability is relatively high and ranges in value from 0.79 to 0.92 (Horowitz et. al., 1979).

Methods

This study's data was derived from a more extensive research study conducted through Memorial Sloan Kettering Cancer Center located in New York, NY, USA. MSK IRB protocol 04-074 was a non-therapeutic protocol that aimed to describe patterns of cancer-risk behaviors for adolescent cancer compared to population-based normative data of "healthy" adolescents. The participant base consisted of adolescent cancer survivors seen at Memorial Sloan Kettering Cancer Center's Department of Pediatrics for either primary cancer treatment or follow-up care at some point after their initial cancer diagnosis.

The participants were contacted by mail or telephone. They completed self-report assessment interview questions administered via telephone interview. Additionally, participants were offered the option to complete the questionnaire on their own, rather than over the telephone if desired, which only a handful of survivors ended up doing. Interviewers who conducted phone assessments had no clinical relationship with the participants, which intended to reduce reporting bias (Werk & Ford, 2020). For data analysis of this current research project, this data was revisited from the original MSK protocol. Only measures related to coping, social support, and anxiety were analyzed, which relate to the research interest. Data analysis was conducted through IBM's Statistical Package for the Social Sciences version 23.

Results

Aim 1: To assess trends and gender differences in coping and anxiety

This study aimed to measure the benefits of both a social support system and usage of particular coping mechanisms for reducing anxiety in AYA cancer survivors. The initial hypothesis stated that the combined social support and frequent use of coping mechanisms would alleviate anxiety. Analysis of descriptive statistics was performed to measure each coping mechanisms' frequencies to assess our participants' coping behaviors. Participants seemed to engage in the following coping mechanisms less frequently compared to other factors within the measure, Seeking Professional Support (M = 3.16, SD = 1.53), Seeking Spiritual Support (M = 6.00, SD = 2.68), and Investing in Close Friends (M = 6.44, SD = 2.11). The coping mechanisms which participants endorsed engaging in more frequently were Ventilating Feelings (Range: 0-30), Avoiding Problems (Range: 0-25), and Seeking Diversions (Range: 0-40). Means for these more regularly reported coping mechanisms were between the scores of 22.13 to 19.77 (see Table 2 for more detail). Generally, participants scored highly on the Social Support subset of

the measure, where the mean score of this value was 18.83, but this was ultimately not statistically significant.

Additional descriptive statistics of cancer-related anxiety measured the frequency of anxiety within this population by measuring avoidant and intrusive post-traumatic stress symptoms (see Table 3). Within this population, the mean score for intrusive symptoms was 7.94 with a standard deviation of 7.3 (Range: 0-35). Participants were more likely to endorse avoidant symptoms (M = 11.0, SD = 8.8, Range: 0-35). An independent t-test analyzed potential gender differences in endorsement of cancer-related anxiety and various coping behaviors. There was a significant gender difference in the reporting of intrusive symptoms, the mean of reporting intrusive symptoms for females was 9.86 (SD = 7.66) compared to males (M = 5.83, SD = 6.37) (Table 4). Subsequently, a p-value of 0.002 provides enough evidence that when measuring gender difference in Intrusive symptoms, female AYA cancer survivors are more likely than males to report anxiety.

When comparing males and females, only two coping behaviors were significantly different - Social Support and Investing in Close Friends (see Table 5). For Social Support, the mean value of this mechanism for females was 20.39 (SD = 3.88), notably higher than the mean of males, 17.11 (SD = 4.35). The comparison of Social Support between males and females resulted in t = 4.50 and p = 0.00. These results demonstrate that females are more likely than males to confide in their social support system to cope. When looking at the coping mechanisms of Investing in Close Friends, the female mean value was 6.87 (SD = 1.89), which was higher than the male's mean of 5.97 (SD = 2.24). Furthermore, a t score of 2.46 and a p-value of 0.015 also reflect a significant gender difference in this coping mechanism, insinuating that females are more likely to cope by spending quality time with close friends.

Aim 2: To determine the interrelation between social support, coping and anxiety

A multiple regression was conducted to calculate measured post-traumatic stress symptoms, quantified by total IES scores, based on the covariates of coping factors. All coping mechanisms were included in the multiple regressions to examine how they account for variance within post-traumatic stress symptoms. The regression equation was found that ($F(12,113) = 2.12$, $p = 0.21$), with an R^2 of 0.183, and standard error of estimate as 12.94. The data from the multiple regression highlighted two coping factors that influenced the prevalence of post-traumatic stress symptoms were developing social support and seeking spiritual support. Social support had a standardized coefficient of 0.343 and a p-value of 0.005. Seeking spiritual support had a standardized coefficient of 0.199 and a p-value of 0.038. The other coping factors were not significantly related to the IES total score; more extensive details of the resulted coefficients are provided below in Table 6. These results suggest that these two variables, social support and seeking spiritual support, significantly influence and are predictors of alleviating anxiety measured through total IES symptoms; however, the other coping mechanisms were not significantly predictive of anxiety. An interaction effect was not assessed for the mutual relation of social support and coping since the findings regarding coping mechanisms from the multiple regression were insignificant.

Discussion

This study sought to assess whether the combined benefits of social support and engagement in certain coping behaviors would be significantly associated with lower cancer-related anxiety among adolescent and young adult cancer survivors. Coping's unsubstantial influence suggests a lack of reciprocal nature between social support and coping strategies for decreasing anxiety among survivors. However, the significance of social support on cancer-

related anxiety solidifies the prominent influence of this discrete form of solace during remission. Furthermore, gender differences prevalent through data analysis indicate the apparent distinction in coping and cancer-related anxiety within this age cohort.

The positive influence of social support aligns with previous research, emphasizing the benefits of this form of support during survivorship. The conclusion of cancer treatment may prompt a stark life transition, as one is shifting from patient to survivor. The emotional fulfillment obtained from a patient's solid social support network during treatment can carry over and adapt accordingly to the new psychological needs experienced during survivorship. Environmental resources such as social support positively associate psychosocial adjustment in survivors (Moon et al., 2017). Utilization of one's social support network can be a continuous resource in relieving additional feelings of distress during this period.

Even though engagement in coping mechanisms did not prove to alleviate cancer-related anxiety in our sample, significant trends in coping found can shed light on more substantial issues pertaining to the psychosocial well-being of survivors during remission. This population reported more frequent engagement in coping behaviors, such as avoiding problems and seeking diversions, which mirror avoidant behaviors. The lack of significance and prevalence of endorsing other various adaptive coping mechanisms suggests that we are not providing AYA cancer survivors with the psychological tools needed to navigate survivorship independently. Bauld et al. (1998) argue that even though cancer survivors typically have a similar psychosocial profile to healthy peers, they are more likely to utilize avoidance strategies to manage problems (Bauld et al., 1998). Analogous research suggests that it is common for survivors to endorse a degree of abstaining from dealing and resolving personal issues post-treatment. Tremolada et al. (2016) found that in their sample of AYA cancer survivors, their participants often reported

avoidance criteria through PTSS.

To a certain degree, avoidance in this age group across the board is standard. Within AYAs and their healthy peers, this age period is formative for developing coping with specific mechanisms while navigating the transition to adulthood. Many people at this stage in their life do not have the tools to engage in positive coping mechanisms, so will engage in avoidance until they have better emotional skills required to address stressors. Specific to AYA survivors, avoidance reported in this population can indicate a different situation. In its entirety, fighting cancer is nothing short of a taxing experience. Evading stressors post-treatment is a potential way for patients to recharge and reassess during this paramount life transition. However, continuous usage of avoidance coping mechanisms is ultimately unhealthy. Regularly avoiding stressors eventually exacerbates the initial stress, potentially making it unmanageable later on.

Gender differences regarding reported anxiety found within our sample align with coinciding research that explored this phenomenon. Females were more likely than males to report intrusive anxiety symptoms, as previously mentioned in the previous research done by Wang et al. (2005). The study done by Chaplin et al. (2008) supports this gender difference in coping with stress. Women in their sample were more likely to report experiencing more extensive sadness and anxiety related to stress (Chaplin et al., 2008). In the current experiment, females were also more likely to engage in socially based coping mechanisms, Social Support and Investing in Close Friends. Greenglass et al. (1998) found that females employ more effective use of their social support network to cope with stress than males. Further research addressing gender differences in support, coping, and anxiety within adolescent and young adult survivors is beneficial for advancing knowledge and ultimate implications for post-treatment continuation of care.

Considering the ample amount of stress that survivors endure during their cancer experience and throughout survivorship, this population is a remarkably resilient group. In his work, Charles S. Carver proposes a psychosocial modality for developing resiliency within cancer survivors. He suggests that primarily individuals are goal-seeking beings, and their efforts towards seeking their goals are threatened and often disrupted by the cancer experience (Carver, 2005). The adversity that coincides with cancer potentially promotes increased emotional effort to negate distress, proliferating resiliency (Carver, 2005). This theory applies specifically to adolescent and young adult cancer survivors as their cancer experience occurs when they begin to pursue goals within their life paths. Once in cancer remission, the resiliency built during the trauma experienced during the cancer experience can be utilized when overcoming everyday life adversities. This psychosocial resiliency may help account for the lack of severe psychological distress reported by survivors.

Some cancer patients describe spirituality as a source of strength that fosters coping with the cancer experience and exemplifies wellness during survivorship (Puchalski, 2012). Spiritual support can be theorized as an intrapersonal coping mechanism with similar characteristics to social support. While exploring their spirituality, survivors gain additional social support from their religious network. Religious social support refers to the emotional and tangible asset that one receives, provides, and expects from one's religious community (Barrett, 2013). This social connection derived from their spiritual community can be a vital tool for survivors, helping them feel a part of something more meaningful and larger than themselves while transitioning into this new stage of their lives.

Conversely, there was a low prevalence in seeking professional support within our sample. Zebrack et al. (2014) found that a substantial amount of adolescent and young adult

cancer survivors do not utilize psychosocial services. The abundance of medical attention received during treatment can be overwhelming. As a result, survivors may feel the need to seek other nonsecular forms of help, aside from modern medicine. This exploration of spirituality does not diminish the importance of seeking psychological help during remission. Encouraging survivors to seeking different forms of assistance, whether it be psychotherapy or spiritual, may assist with psychosocial adjustment during this transition to life post-cancer. Nevertheless, spiritual interventions should be considered and incorporated into the plan of care for each cancer patient (Lee, 2019).

Strengths and Limitations

Potential limitations for the current study include the following regarding study design and implementation. To better assess the relationship between social support and coping, using a different psychological measure, aside from evaluating social support within ACOPE, would potentially lead to differing results. Examining social support within an already pre-existing psychological scale measure did not entirely solidify the entity separate from a coping mechanism. Analyzing a subfactor of a psychological scale measure to other individual items within that same measure is problematic and compromises the scale's reliability. A different social support psychological scale measure would provide the opportunity for a more comprehensive assessment of social support trends and behaviors in this demographic.

Implementation of the previous truncated version of the IES can be considered a limitation. This earlier version of the IES measure does not account for other stress symptoms that parallel anxious behaviors. The IES-R, a revised version of the scale created by Dr. Weiss and Dr. Marmar, contains seven additional items related to the hyperarousal symptoms (Weiss & Marmar, 1996). Since hyperarousal is a trademark symptom commonly endorsed in anxiety

disorders, measuring these symptoms in our sample would have potentially revealed anxious indicators not accounted for in the present study. The data from the post-traumatic stress symptoms did not accurately reflect a clinically anxious population. Both the low means of reporting intrusive and avoidance symptoms and the high variance within the sample suggest that the frequency of anxiety seen in participants is minimal yet inconsistent. Specifically targeting AYA survivors who were clinically diagnosed with an anxiety disorder would have negated this discrepancy, potentially leading to varying results and more substantial data validity.

The original study performed at Memorial Sloan Kettering Cancer Center also measured illegal substance usage in AYA cancer survivors. Conceptually, it would have been beneficial to the current research to consider substance abuse as a separate maladaptive coping mechanism and measured this behavior during data analysis. In that case, there is a potential for a greater scope of coping mechanisms that were not examined in the present study. There was also a lack of racial and ethnic diversity within the participant base. The majority of the sample was of white/Caucasian descent. Lack of racial and ethnic representation in this sample does not allow for exploration of potential racial or cultural differences in utilization of social support, coping behaviors, or self-reporting anxiety. Further research assessing cultural differences in these phenomena is vital for accurate knowledge, accessibility, and representation.

Future Implications

These results can be utilized to further research and implement psychosocial care within adolescent and young adult survivors. As previously noted, AYA cancer survivors are a unique group, as their psychosocial development and needs differ substantially from other related populations. The prevalence and characteristics of anxiety found within AYAs suggest that the inability of proper adaptive coping, regardless of reported support, does not assist in negating

anxiety. These conventional forms of support and care do not adequately provide the appropriate psychological tools needed to cope with this specific population. Further implying that different forms of support during remission would be more beneficial to survivors. Various forms of support include; promoting survivors to seek counseling services, seeking spiritual counseling, or connecting and pairing cancer survivors with other survivors who experienced a similar journey.

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Table 1
Socio-Demographic Variables & Medical History

	M	SD	N	%		N	%
Age	16.4	(1.8)			**Diagnosis**		
Diagnosis Age	11.1	(1.8)			Sarcoma	41	(32.0)
Gender					Lymphoma	19	(14.8)
Female			67	(52)	Leukemia	16	(12.5)
Male			61	(48)	Brain	12	(9.4)
Race					Germ Cell	9	(7.0)
White/Caucasian			104	(81.3)	Thyroid (Papillary)	8	(6.3)
Black American			7	(5.5)	Carcinoid	5	(3.9)
Asian American			6	(4.7)	Neuroblastoma	4	(3.1)
Other			10	(7.8)	Nasopharyngeal Carcinoma	4	(3.1)
Hispanic/Latinx			17	(13.3)	Other	10	(7.8)
Years since diagnosis	5.0	(2.3)			**Treatment**		
1 - 3 years			30	(23.4)	Solely Chemotherapy	9	(7.0)
4 - 6 years			61	(47.7)	Solely Radiation	1	(0.8)
7 + years			32	(25.8)	Solely Surgery	28	(21.9)
					Multimodal	87	(68.0)
					Recurrence		
					Yes	9	(7.0)
					Two Recurrences	2	(1.6)

Table 2
Comparing Coping Behaviors in AYA Cancer Survivors

	AYA Cancer Survivors (N = 128)	
Coping Factors	*Mean*	*Standard Deviation*
Ventilating Feelings	19.77	2.80
Seeking Diversion	22.13	4.96
Self-Reliance / Optimism	19.68	4.02
Social Support	18.83	4.41
Solving Family Problems	17.94	4.76
Avoiding Problems *	20.52	2.98
Seeking Spiritual Support	6.00	2.68
Investing in Close Friends	6.44	2.11
Seeking Professional Support	3.16	1.53
Engaging in Demanding Activity	11.77	3.40
Humor	7.42	2.09
Relaxing	12.68	2.34

Notes. * $p < 0.05$

Table 3

Prevalence in Anxiety in AYA Cancer Survivors

Impact of Events Scale	*M*	*SD*	*Range*
Intrusive Symptoms	7.94	7.3	0-35
Avoidance Symptoms	11.00	8.8	0-38

Notes. N = 128

Table 4

Gender Difference Prevalence in Anxiety in AYA Cancer Survivors

	Females (N = 67)		Males (N= 61)		t	p value
Post-Traumatic Stress Symptoms	Mean	*SD*	Mean	*SD*		
Intrusive Symptoms *	9.86	7.66	5.83	6.37	3.19	0.002
Avoidance Symptoms	11.86	8.57	10.05	9.05	1.56	0.25

*Notes. N = 128, * p < 0.05*

Table 5

Gender Difference Prevalent in Coping Behaviors in AYA Cancer Survivors

	Females (N = 67)		Males (N= 61)			
Coping Factor	M	*SD*	M	*SD*	*t*	*p*
Ventilating Feelings	19.73	2.70	19.80	2.93	- 0.145	0.89
Seeking Diversion	22.30	5.15	21.95	4.77	0.40	0.69
Self-Reliance / Optimism	20.16	3.49	19.15	4.50	1.44	0.15
Social Support *	20.39	3.88	17.11	4.35	4.50	0.00
Solving Family Problems	18.55	4.55	17.26	4.93	1.54	0.13
Avoiding Problems	20.04	3.00	21.03	2.90	-1.89	0.06
Seeking Spiritual Support	6.10	2.66	5.89	2.72	0.46	0.65
Investing in Close Friends *	6.87	1.89	5.97	2.24	2.50	0.02
Seeking Professional Support	3.31	1.64	2.98	1.40	1.22	0.23
Engaging in Demanding Activity	11.69	3.30	11.87	3.54	-0.30	0.76
Humor	7.21	1.97	7.66	2.21	-1.21	0.23
Relaxing	12.81	2.33	12.54	2.37	0.64	0.53

*Notes. N = 128, * p < 0.05*

Table 6

Mutlitple Regression Analysis Assessing Social Support, Coping and Total IES scores

Coping Factor	Standardized Coefficients Beta	*t*	*sig.*	*Confidence Interval* *Lower*	*Upper*
Ventilating Feelings	.10	.95	.34	-.54	1.53
Seeking Diversion	.04	.40	.69	-.44	.66
Self-Reliance / Optimism	.11	1.01	.32	-.37	1.15
Social Support *	.34	2.87	.01	0.33	1.80
Solving Family Problems	-.15	-1.40	.166	-1.05	.18
Avoiding Problems	.03	.26	.80	-.90	1.17
Seeking Spiritual Support *	.20	2.10	.04	0.59	1.96
Investing in Close Friends	-.12	-1.14	.26	-2.16	.58
Seeking Professional Support	-.05	-.52	.61	-2.12	1.24
Engaging in Demanding Activity	.49	-1.20	.24	-1.42	.35
Humor	-.18	-1.93	.06	-2.33	.03
Relaxing	.14	1.44	0.15	-.31	1.92

Notes. Dependent Variable - Total IES score. $R^2 = 0.183$, *N = 128 (*p < 0.05), 95% CI*