THE ROLE OF SELF-EFFICACY, DISTRESS, AND SUPPORT SERVICES IN COPING STRATEGIES AMONG ADOLESCENT AND YOUNG ADULT CANCER PATIENTS

By

Katie Nguyen

Submitted in partial fulfillment of the
requirements for Departmental Honors in
the Department of Psychology
Texas Christian University
Fort Worth, Texas
December 8, 2025

THE ROLE OF SELF-EFFICACY, DISTRESS, AND SUPPORT SERVICES IN COPING STRATEGIES AMONG ADOLESCENT AND YOUNG ADULT CANCER PATIENTS

Project Approved:

Supervising Professor: Danica Knight, Ph.D.
Department of Psychology

Casey Call, Ph. D.
Department of Child Development

Ellen Broom, Ph.D.
Department of Psychology

ABSTRACT

Adolescent and young adult cancer patients, otherwise called AYAs, are individuals diagnosed with cancer between 15 and 39 years old. As AYAs are in a transformative period of their lives, they are a vulnerable population that face unique challenges that differ from geriatric and childhood cancer patients (Bradford et al., 2022). In this cross-sectional study, AYAs ($n = 7$) were recruited to participate in an online Qualtrics survey assessing the support they have received, along with their self-efficacy, psychological distress, and coping strategies. Pearson correlation coefficients were calculated to determine the relationship among self-efficacy, psychological distress, level of support, and coping responses. The results did not support the original hypotheses; however, these results illustrate the complexity of AYA psychosocial needs and further suggest that support services may not immediately translate into an increase in self-efficacy, a reduction of psychological distress, or improvement in coping responses.

The Role of Self-Efficacy, Distress, and Support Services in Coping Strategies Among Adolescent and Young Adult Cancer Patients

Introduction

According to the National Cancer Institute (2024), adolescent and young adult cancer patients, otherwise known as AYAs, are individuals diagnosed with cancer between 15 and 39 years old. Although the survival rate for young adult and adolescent cancer patients is eighty-six percent, AYAs are a vulnerable population that face long-term effects, constant fear of recurrence, and unique social and emotional needs (National Cancer Institute, 2024). As AYAs are at a transitional point in life, challenges regarding education, employment, social well-being, and financial hardship sets them apart from childhood and adult cancer diagnoses (Bradford et al., 2022). Due to the wide age range of AYAs, 15-39, everyone's experience differs. Thus, it is important for interventions to be tailored to meet the individualized needs of AYAs.

Cancer treatments, including but not limited to, chemotherapy, radiation, immunotherapy, hormone therapy, or surgery, can cause many difficulties for AYAs regarding infertility, cognitive abilities, education, employment, and financial hardship (Klijn et al., 2023; Altherr et al., 2023; National Cancer Institute, 2025). Conclusions from Klijn et al. (2023) revealed the lack of fertility support and information received by AYAs after their cancer diagnosis. As some AYAs, as young as fifteen, are dealing with infertility or challenges regarding sexual functioning, they are put under intense stress when having to make decisions regarding their fertility and future reproductive plans. This further emphasizes the need for better communication of fertility information and preservation services among this population. Furthermore, AYAs may face obstacles regarding their education, employment, and finances. Short-term cognitive impairments among AYAs have been shown to be a side effect of cancer treatment which was significantly linked to a decrease in workability among young adults and adolescents (Brock et al., 2021). Due to this decrease, AYAs have been reported to have increased financial hardship when compared to individuals without a cancer diagnosis (A.D. et al., 2021). As AYAs are receiving in-person treatment, many cannot maintain a full-time job or maintain their enrollment in school, which can cause major setbacks when re-entering the workforce or academic world after their cancer is treated (Altherr et al., 2023). Overall, this highlights the unique struggles that AYAs face due to cancer treatment, which emphasizes the need for more support and resources for this vulnerable population.

As adolescent and young adult cancer patients are making life adjustments after their cancer diagnosis, many individuals are navigating how to cope with these adjustments along with their cancer diagnosis. Various coping strategies have been reported to help including actively reducing the impact of cancer, finding control, or seeking support, keeping a positive mindset, accepting one’s fate, avoidance, or maintaining a carpe diem mentality (Burgers et al., 2022; Wilharm et al., 2024). Minimizing the impact of cancer involves AYAs trying to live as normally as possible and not always putting cancer at the forefront of their brain (Burgers et al., 2022). AYAs may also try to take control of their situation to cope. This can look like knowing every detail about their cancer treatment and diagnosis or focusing on living a healthy lifestyle (Burgers et al., 2022). Coming to terms with cancer is also another coping strategy identified among this population. This is for AYAs who have accepted their cancer diagnosis and its consequences and are trying to find a way to live with it instead of fighting against it (Burgers et al., 2022). Avoidance is an additional coping strategy among AYAs in which it refers to the act of suppressing emotions and thoughts about cancer (Wilharm et al., 2024). In regard to seeking support, services received by AYAs can play a significant role in their coping. Previous research has stated that social support from families, peers, other cancer-organizations, and sports teams can distract, comfort, eliminate feelings of isolation, and are overall valued by adolescent and young adults who are going through treatment (Pennant et al., 2019). However, it is less understood how the combination of various resources such as fertility preservation, peer and family support, psychosocial services, and cancer related support services relate to AYA's sense of control and psychological distress, and further, how these components influence coping strategies among AYAs.

Literature Review

From a developmental perspective, according to Erikson's Psychosocial Stages of development, AYAs can be characterized by the psychosocial "crises," of identity versus role confusion or intimacy versus isolation (Orenstein & Lewis, 2022). AYAs that are between the ages of 15-18 can be categorized in the developmental crisis of identity versus role confusion, which involves self-discovery, independence, and finding one's purpose. AYAs that are between the ages of 18-39 can be categorized as the developmental crisis of intimacy versus isolation, which involves developing meaningful relationships and a sense of belonging. Thus, AYAs are at a transformative point in their lives where they may be developing independence from their caregivers, joining the workforce, or starting their family (D'Agostino et al., 2011). A cancer diagnosis during this period can present a variety of unique obstacles including fertility preservation and sexual dysfunction, completing education, finding, and maintaining occupation, and financial hardship (AYA Zorgnetwerk, 2022).

AYAs experience an increase in psychological distress along with an increase in progression of their diagnosis compared to pediatric and geriatric cancer patients (Xie et al., 2017). Distress can be defined as an emotional, social, spiritual, or physical discomfort that may result in feelings such as sadness, fear, depression, anxiety, or loneliness (National Cancer Institute, 2024). Previous research studies, although limited, have indicated that over a quarter of newly diagnosed AYAs struggle with increased levels of emotional distress which come in the forms of depression, anxiety, and somatization, with depression and anxiety prevalence rates being the highest (Zebrack et al., 2014). However, varying factors can influence psychological distress levels of cancer patients including gender, demographic, treatment, and age (Sansom-Daly & Wakefield, 2013). For instance, adolescents and young adults who identify as female, have reported higher levels of psychological distress compared to males (MCarthy et al., 2016). Furthermore, AYAs who identify as females have reported higher levels of psychological distress and are at a higher risk for psychiatric disorders (De et al., 2020; McCarthy et al., 2016). As many AYAs are coming to terms with their own mortality for the first time after receiving a cancer diagnosis, many individuals express a fear of dying or losing trust in their own bodies, which could potentially explain the difference in distress levels between AYAs and geriatric patients (Wilharm et al., 2024). Psychological distress is an important concern for AYAs because if left unaddressed, it can have lasting consequences, such as behavioral and cognitive impairments, which can weaken coping skills, cause dissatisfaction with care, disrupt treatment adherence, and increase the risk of mortality in AYAs (Xie et al., 2017).

Regarding supporting AYAs who are experiencing significant psychological distress, there is an issue of unmet needs. According to Smith (2013), one third of participants (484

AYAs) reported unmet services, with 15% of reported unmet services being mental health support. This highlights the concern of AYAs not receiving the resources or support to minimize their psychological distress and further emphasizes the need for better communication of resources and support. One possible way to offer support to AYAs is through peer interaction and connection, which has shown to decrease psychological distress (Li et al., 2024). According to Li et al., (2024), a decrease in psychological distress was shown after participants (n = 90) completed a randomized control trial where half of the participants (45 AYAs) participated in an eight-week intervention focused on peer support while the control group (45 AYAs) received typical psychological care. Participants that participated in the peer support intervention reported lower psychological distress levels compared to the control group. The need for resources to support AYAs distress is significant because the distress does not end after AYAs are determined cancer-free in which one out of three cancer survivors experience psychological distress (Osmani et al., 2023). Thus, the psychological distress of AYAs is an ongoing issue that needs more research on strategies for improving psychological care among this population.

According to the National Cancer Institute, “Self-efficacy pertains to a sense of control over one’s environment and behavior.” (2024). Self-efficacy can relate to health behaviors in which an individual's level of self-efficacy could influence their health behaviors and outcomes. Previous research has supported a positive relationship between self-efficacy levels and positive health behaviors, symptom management, and perceived control (Thornton et al., 2021; Herts et al., 2017). AYAs that reported higher levels of self-efficacy were more likely to meet dietary recommendations including vegetable and fruit intake and participate in physical activity (Diorio et al., 2018). Furthermore, Kato et al. (2008) utilized a video game intervention to increase the knowledge of cancer and self-efficacy levels among participants ranging from thirteen to twenty-nine years old. Results found that an increase in knowledge of cancer and self-efficacy levels accounted for the intervention's effects on medication adherence (Kato et al., 2008). Thus, self-efficacy plays a vital role in adolescent and young adult cancer patients, as it can contribute to health behaviors that affect their overall health and diagnosis.

Previous research has additionally shown self-efficacy levels to influence psychological distress and health-related quality of life (HRQOL). In a pre and post study, AYAs were measured in psychological distress and self-efficacy before and after participating in an outdoor adventure for a weeklong with other AYAs. The results concluded that AYAs who reported increased psychological distress before the trip reported an increase in self-efficacy and social support after the trip was completed (Zebrack et al., 2017). Thus, social support can be a mediating factor in lowering psychological distress and increasing self-efficacy in AYAs. In a study with AYAs ranging from fourteen to twenty-two years old, initial higher self-efficacy levels at diagnosis were correlated with lower distress levels assessed three months later (Rosenberg, 2016). However, young adult and adolescent cancer patients report lower health related quality of life (HRQOL) when compared to cancer-free peers and geriatric cancer survivors (Quinn et al., 2015). Lower ratings of HRQOL have been reported to be influenced by unmet services or needs and the perception of not being in control over one's life (Smith et al., 2018). However, increased levels of self-efficacy and knowledge of diagnosis were shown to be an active mediator in adherence to treatment and positive health behaviors (Robertson et al., 2015). Thus, when young adults and adolescents feel they have a sense of control over their health, they are likely to engage in healthy behaviors and may perceive their HRQOL to be better.

Support can also play a significant role in AYAs lives; however, young adults and adolescents have reported that their medical teams have underestimated their support needs and preferences (Quinn et al., 2015). According to Cheung and Zebrack (2016), AYAs reported that they "...prefer resources that reduce feelings of loneliness, create a sense of community or belonging, and provide opportunities to meet other AYA patients." (p. 1). However, the impact of support from diverse groups is dependent on one's developmental stage (Ionio et al., 2023).

Support can be categorized into two groups, including informal and formal support. Informal support, such as family and peers, has shown to be significant to AYAs, as it provides them with a sense of normalcy, emotional, and financial support (McNeil et al., 2019). AYAs have reported finding more value in connecting with other AYAs who have had similar experiences compared to non-AYA peers, however, participating in typical activities with peers has still shown to be an important part in support for AYAs (D'Agostino et al., 2011). Furthermore, AYAs have reported struggling to find other AYAs to connect with throughout their cancer journey, which can be a barrier to this valuable aspect of support (McNeil et al, 2019). Primary caregivers and family are reported as the primary form of informal support for AYAs as many rely on their caregivers for financial support, transportation, and housing (Lau et al., 2024; McNeil et al., 2019). Formal sources of support, such as health care professionals, were also reported to provide informational and emotional support for AYAs. However, there is a limited amount of AYAs utilizing psychosocial support (Lau et al., 2024; Hirayama et al., 2023). According to Hirayama et al. (2023), only 18% of AYAs (170/945) that participated in this study had received mental health support. This illustrates the limited utilization of psychosocial support, which could be explained by potential barriers, such as health care providers not meeting the needs of AYAs (Smith, 2013).

Support services can play a significant role as they have been linked to improvement of adherence to treatment and health behaviors while also playing a significant role in coping (Robertson et al., 2015; Pennant et al., 2019). Previous research has stated that social support from families, peers, other cancer-organizations, and sports teams have the ability to distract, comfort, eliminate feelings of isolation, and are overall valued by adolescent and young adults who are going through treatment (Pennant et al., 2019) However, it is less understood how the combination of various resources such as fertility preservation, peer and family support, psychosocial services, and cancer related support services relate to AYA's sense of control and psychological distress, and how these components influence their coping strategies.

As adolescents and young adults are adapting to life changes after their diagnosis, individuals' ability to cope and navigate their cancer diagnosis may be affected. Coping and stress were determined to be one of many themes that could inhibit or contribute to one's resilience against cancer (Rosenberg et al., 2014). Some AYAs reported developing coping strategies or relying on support from parents or peers to cope with their cancer diagnosis and treatment. On the other hand, AYAs that focused on overwhelming stress, worrying, and extreme tiredness repressed their coping abilities, and reported lower resilience (Rosenberg et al., 2014). Furthermore, coping can impact health perceptions. AYAs that reported increased ability to cope and manage their cancer treatment and medication side effects, such as changes in their physical appearance, were less likely to self-report poorer health outcomes (Zhang et al., 2023). Overall, coping plays a significant role in AYA's cancer journey as it can further or weaken one's resilience.

Previous research has suggested that many AYAs tend to focus on problem-solution based strategies such as acceptance, planning, religion, or reframing, versus emotionally based strategies such as self-blame or substance use (Salman & Imam, 2019; Wurz et al., 2024). However, AYAs who reported struggling with anxiety and depression were more likely to engage in emotionally based strategies (Hlubocky, 2016). To assess coping abilities among AYAs, the Stress-Coping Models have been previously used in AYA literature, specifically modified forms of the Transactional Model of Stress and Coping created by Lazarus and Folkman. This model suggests that an adaptation to a stressor, such as a cancer diagnoses, is determined by primary appraisals, or the evaluation of the significance of the cancer, and secondary appraisals, or the resources available to aid coping (Sansom-Daly & Wakefield, 2013). When looking at the Stress-Coping Models through an AYA lens, primary appraisals could be considered the belief of their ability manage their cancer diagnosis while secondary appraisals could be characterized as resources such as fertility preservation, family and peer support, psychological services, and other related cancer support services that are available to aide in coping. Furthermore, self-efficacy models can expand these Stress-Coping Models through identifying that individuals or AYAs must believe they have coping skills or enough support to enable these skills (Sansom-Daly & Wakefield, 2013). Self-efficacy in this AYA population is significant in which it can shape the primary appraisals within the Stress-Coping Model, or the evaluation of how significant the threat of cancer is. AYA's self-efficacy levels or the belief of control over their health could potentially decrease the level of threat of their diagnosis.

The purpose of this research was to explore previous research on the topics of psychological distress, self-efficacy levels, support services, and coping abilities among AYAs. Adolescent and young adult cancer patients are a vulnerable population that face unique battles that are not seen in childhood or geriatric cancer patients (Bradford et al., 2022). Furthermore, this research study was to further understand how resources or support services received by adolescent and young adult cancer patients affect levels of self-efficacy, psychological distress levels, and coping responses. This information is significant to inform medical teams and loved ones of young adult and adolescent cancer patients how to best provide support to promote positive health outcomes and coping strategies.

I hypothesize that young adults and adolescents who report receiving more support services including but not limited to fertility preservation, peer and family support, psychosocial services, and cancer related support services will score higher on self-efficacy and lower on psychological distress, while AYAs who report receiving less support will score lower on self-efficacy and higher on psychological distress. I further hypothesize that AYAs who score higher on self-efficacy and lower on psychological distress will, in turn, score higher on problem-solving coping responses and lower on avoidant coping strategies. Finally, I hypothesize that AYAs who report receiving more support will score higher on problem-focused coping strategies and lower on avoidant coping responses.

Design, Methods, Schedule

Methods

Participants

This study used a cross-sectional design, evaluating AYAs (n= 7) from ages 18-39 years old that were recruited through a combination of methods, including social media platforms and fliers that were distributed to AYAs through nurse navigators across hospitals and treatment centers in Texas. The sample had two participants aged 18–25 and four aged 26–35, with one participant not reporting their age. Most participants were female (*n*= 6), while one was male. The sample also consisted of participants that described their race and ethnicity as White (n= 5), and participants that described their race and ethnicity as Hispanic or Latino (n= 2). Participants in this study showed a variety of cancer diagnoses including breast cancer (*n*= 1), cervical cancer (*n*= 1), leukemia (*n*= 1), sarcoma (*n*= 2), and other cancers (*n*= 2).

Procedure

When child life specialists or nurse navigators handed out Carley's Closet items such as a pouch or bag to an AYA patient, they received a recruitment flier for this study. The flier described the study and displayed a QR code for them to scan if they wish to participate. Furthermore, supporting agencies, such as Rutledge Cancer Foundation, shared the Qualtrics survey on their social media platforms to invite individuals who are eligible to participate. The Qualtrics survey was open for five months. Participants scanned the QR code with their phones displayed on the flier or social media post, where they were directed to a consent form outlining the procedure and protection against risks such as breeches of confidentiality. After signing the consent form through a digital signature, the participant could access the survey, which took approximately fifteen minutes. Participants then answered questions that encompassed different measurement tools for self-efficacy and psychological distress, and coping strategies, along with demographic questions regarding their age, race, gender, and type of cancer. In addition, the survey included questions regarding the services they have received such as fertility preservation, peer and family support, psychosocial services, and cancer related non-profit organization services, along with questions regarding cancer diagnosis and treatment. After completing the survey, participants had the opportunity to fill out another form for a chance to win a $50 Amazon gift card if they wished to participate. Potential participants who did not wish to consent were able to close their browser at any time to opt out.

Measures

Demographics. Participants' demographics were obtained at the beginning of the Qualtrics survey through questions assessing their gender (1 = male, 2 = female, 3 = Non-Binary, 4 = Prefer not to say), age (1 = 18-25 years old, 2 = 26-35 years old), cancer type (1 = Breast, 2 = Thyroid, 3 = Testicular, 4 = Melanoma, 5 = Brain, 6 = Cervical, 7 = Colorectal, 8 = Leukemia, 9 = Lymphoma, 10 = Sarcoma, 11 = Other), and race (1 = White, 2 = Hispanic or Latino, 3 = Black or African American, 4 = American Indian or Alaska Native, 5 = Asian, 6 = Native Hawaiian or Pacific Islander, 7 = Other). These questions were formatted as select all that apply.

Services. The type and number of support services participants received were also recorded through a variety of questions, including selecting all that apply and rate of occurrence scales.

Carley's Closet. Carley's Closet is a support service provided by a non-profit, Rutledge Cancer Foundation, that provides AYAs with bags, pouches, and stockings filled with items such as blankets, beanies, headphones, gift cards, eye masks, etc., in hopes to make young adult and adolescent cancer patients feel more comfortable in the hospital (Rutledge Cancer Foundation, 2023). Participants reported whether or not they have received a Carley's Closet item or items through a multiple choice response (1 = Yes, 2 = No), along with a select all that apply question regarding which items they have received (1 = Pouch, 2 = Bag, 3 = Stocking, 4 = Other).

Fertility Preservation. Fertility preservation is the act of saving reproductive tissue, sperm, or eggs that can be used in the future for reproduction (National Cancer Institute, 2024). This service was characterized by whether the participant had been provided with, has sought out information regarding fertility preservation from their medical team, or if they planned to or have received a form of fertility preservation. Participants were given a multiple-choice response (1 = Yes, 2 = No).

Counseling. Counseling is defined as receiving help from a licensed counselor to aid in coping, emotional distress, or acceptance (National Cancer Institute). Participants were asked to indicate the rate of occurrence for receiving counseling from a Licensed Professional Counselor (LPC) after their cancer diagnosis (1 = Never, 2 = Sometimes, 3 = Often, 4 = Always).

Support Groups. Support groups are defined as any formal or informal interaction with other AYAs that aid in each other's ability to cope by exchanging information or experiences (National Cancer Institute). Participants were asked to indicate the rate of occurrence for these formal or informal interactions (1 = Never, 2 = Sometimes, 3 = Often, 4 = Always).

Self-Efficacy. The Patient Activation Measure, otherwise referred to as PAM-13, is a validated measure to assess health practices, self-policing, and health inquiry behaviors (Ng et al., 2024). Items include questions regarding their confidence in talking to their medical teams, going through treatments, and the responsibility of their own health. The PAM is a 13- item scale, with each item scored on a 4-point scale (1 = Disagree strongly, 2 = Disagree, 3 = Agree, 4 = Agree strongly). An example item from PAM includes, "I am confident that I can follow through on medical treatments I may need to do at home." The reliability of PAM has been considered strong as it has been supported by several studies and populations in which majority of studies using PAM report Cronbach's alpha > .80 (Ng et al., 2024). Scores are added together to create a raw score between 13 and 52 and then converted to a standardized scoring that ranges from 0-100. High scores symbolize heightened activation (Roesel et al., 2024).

Psychological Distress. The Distress Thermometer, created by the National Comprehensive Cancer Network (NCCN), has been validated to assess cancer patients' levels of distress on a 10-point scale (0 = no distress, 10 = extreme distress). In addition, this measure includes five categories including physical, emotional, social, practical, and spiritual concerns with a set of related problems underneath each category except for spiritual concerns which is characterized as a yes or no question (e.g., practical problems = work or school, family problems = ability to have children, emotional problems = depression, physical problems = appearance). There are 36 items in which participants will indicate if they have or are currently experiencing these problems by checking yes or no (Chan et al., 2018). Scores greater than or equal to four are correlated with significant levels of distress. This quantitative data will give insight to participants' stress levels correlated with various aspects of their lives as it has been validated and found reliable through AYA cancer populations with a strong reliability of .8 (Shrivastava, 2022) (Tang, 2011).

Coping. Coping strategies of participants were assessed using the Brief COPE scale, which has been validated in cancer populations (Weeratunga et al., 2022). The 28-items are scored on a

4-point scale to assess coping strategies used in stressful situations (ex: 1 = I have not done this at all, 2 = I have done this a little bit, 3 = I have done this often, 4 = I have done this a lot). Coping strategies assessed include three overarching coping styles including problem-focused coping, emotion-focused coping, and avoidant coping (Iwanaga et al., 2022). Example items of the Brief COPE scale include "I've been turning to work or other activities to take my mind off things," "I have been taking action to try to make the situation better," "I have been refusing to believe that it has happened." Scores are calculated through an averaging score on each item of each subscale with a higher score suggesting an increased tendency to use the coping strategy. The factor's internal reliability or Cronbach's alpha have been reported to be within a range of .5-.9 (Carver, 1997).

Data Analysis

Descriptive Analyses

Demographics of participants regarding their gender, age, and type of cancer, and race were calculated through percentages (e.g., 86% of participants were female). The support services received by the participants, including Carley's Closet items and fertility preservation, were calculated through percentages (e.g., 423% of participants reported receiving Carley's Closet items). Other forms of support, including counseling and interaction with other AYAs, were calculated through mean and standard deviation. Continuous variables such as the Patient Activation Measurement (PAM), the Distress Thermometer, and the Brief COPE subscales were further calculated through means and standard deviations. Percentages, means, and standard deviations were reported in Table 1 and Table 2.

Quantitative Analyses

Pearson correlation coefficients were calculated to analyze the relationships among self-efficacy, psychological distress, level of support, and coping. The direction and strength of these associations were identified and presented in Table 3.

Qualitative Analyses

Table 4 highlights the problems or side effects of cancer that participants reported to be contributing to their diagnosis. A word cloud was generated to highlight the most frequent problems that participants reported, which can be seen in Figure 1. The larger the word appears, the more frequently the problem was reported by participants, while the smaller the word appears, the less frequent the problem was reported by AYA participants. The most frequently reported problems are in purple, while the less frequent are in orange.

Table 1

Item	*n*	*M*	*SD*	Range
Age		1.67	.516	---
18-25 years old	2	(33.3)		
26-35 years old	4	(66.7)		
Gender		1.86	.378	---
Male	1	(14.3)		
Female	6	(85.7)		
How would you describe your race/ethnicity?		1.29	.488	---
White	5	(71.4)		
Hispanic or Latino	2	(28.6)		
What type of cancer are you currently diagnosed with?		8.375	3.42	---
Breast	1	(14.3)		
Cervical	1	(14.3)		
Leukemia	1	(14.3)		
Sarcoma	2	(28.6)		
Other	2	(28.6)		
Have you received items from Carley's Closet?		.57	.535	---
Yes	3	(42.9)		
No	4	(57.1)		
Have you received information about fertility preservation?		.57	.535	---
Yes	3	(42.9)		
No	4	(57.1)		
How often have you received counseling after your cancer diagnosis?		2.29	1.113	---
Never	2	(28.6)		
Sometimes	2	(28.6)		
Often	2	(28.6)		
Always	1	(14.3)		
How often do you interact with other AYAs?		2.43	.535	---
Never	0	(0)		
Sometimes	4	(57.1)		
Often	3	(42.9)		
Always	0	(0)		

Table 2

Item	*n*	*M*	*SD*	Range
Level of Support		5.86	1.864	0-10
Low Level (0-5)	4	(57.1)		0-5
High Level (6-10)	3	(37.5)		6-20
PAM-13	7	49.57	6.88	0-100
Distress Thermometer	7	5.57	8.87	0-10
Brief COPE Scale				
Problem-Focused Coping	5	28.20	7.43	0-40
Emotional-Focused Coping	4	39.67	8.87	0-60
Avoidant-Focused Coping	4	17.75	4.50	0-40

Patient Activation Measure (PAM-13)
Coping Orientation to Problems Experienced Inventory
(Brief COPE)

Table 3

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Support	1									
2. PAM-13	-.396	1								
3. Distress	.172	.202	1							
4. Problem Cope	.251	.015	-.678*	1						
5. Emotional Cope	.205	.144	-.626*	.958*	1					
6. Avoidant Cope	.907*	-.740*	.556*	-.088	-.225	1				
7. Carley's Closet	.765*	-.602*	.225	-.086	-.043	.962*	1			
8. AYA Interaction	.573*	-.304	.301	.147	-.043	.962*	.167	1		
9. Fertility Preservation	.430*	.259	.094	.767*	.576*	.556*	-.167	.750*	1	
10. Counseling	.826*	-.352	-.009	.168	.275	.870*	.801*	.40	.932*	1

Support encompasses social support, informational support, medical support, and tangible support.
*p < 0.04

Table 4

Distress Rating	Physical Problems	Emotional Problems	Social Problems	Practical Problems	Spiritual Problems
8	Pain, fatigue, memory or concentration, changes in eating, loss or change of physical capabilities	Worry or anxiety, sadness or depression, loss of interest or enjoyment, grief or loss, fear, loneliness, anger, changes in appearance, feelings of worthlessness or being a burden	Relationship with spouse or partner, relationship with family members, relationship with coworkers, ability to have children	Taking care of myself, taking care of others, work, school/ housing, finances, transportation	sense of meaning or purpose, changes in faith or beliefs, death, dying, or afterlife
8	Pain, fatigue, memory or concentration, sexual health, loss or change of physical abilities	Sadness or depression	Relationship with spouse or partner	Taking care of myself, taking care of others, work, insurance	
8	Pain, loss or change in physical capabilities	Worry or anxiety	Prejudice or discrimination	School/ housing	Conflict between beliefs and cancer treatment
5	Pain, fatigue, memory, or concentration	Worry or anxiety, loss of interest or enjoyment, changes in appearance		Taking care of myself	
4	Sleep, memory or concentration	Worry of anxiety, changes in appearance	Ability to have children	Access to medicine, treatment decisions	Conflict between beliefs and cancer treatments
3	sleep, fatigue, memory or concentration, sexual health, loss or change of physical capabilities	Worry or anxiety	Relationship with spouse or partner, ability to have children	Taking care of myself, work, finances	
3					

Figure 1

Discussion

The present study examined the relationship between support, self-efficacy, psychological distress, and coping strategies among adolescent and young adult cancer patients (AYAs). The results from this study offered mixed support for the original hypotheses.

The first hypothesis stated that AYAs who receive more support services including fertility preservation, interaction with other AYAs, counseling, and Carley's Closet would score higher on self-efficacy and lower on psychological distress, however, there were no significant relationships found between level of support and self-efficacy (r = -.396), along with level of support and psychological distress (r =.172). Thus, the level of support did not influence self-efficacy and psychological distress levels among the AYA participants. This does not align with previous research that has shown significant positive relationships between perceived social support and self-efficacy among breast cancer survivors (Pomey et al., 2023; Yu et al., 2025);

however, it does align with research done by Brock et al., (2025), that found no correlation between peer support and self-efficacy levels among AYAs who experienced a peer connection program. Furthermore, the non-significant relationship between support and psychological distress also did not match previous research that has shown significant negative correlations between perceived support and psychological distress, which indicates high levels of support have shown to be linked to a decrease psychological distress. (Irestorm et al., 2025; Li et al., 2024; Yu et al., 2025). However, the results of this study differed. One potential reasoning for this could be that AYAs who are experiencing an increase in psychological distress are more likely to reach out to support services for help. In addition, it could be that AYAs who already have a powerful sense of self-efficacy may not feel the need to reach out to additional support services, which could potentially explain the non-significant relationship between self-efficacy and support services.

The second hypothesis stated that AYAs who score higher on self-efficacy and lower on psychological distress, will have increased use of problem-solving coping responses compared to those who scored lower on self-efficacy and higher on psychological distress. No meaningful relationship was found between self-efficacy and problem-focused coping strategies ($r = .015$). However, there was a strong significant negative relationship found between psychological distress and problem-focused strategies ($r = -.626$). The non-significant relationship between self-efficacy and problem-focused coping does not follow previous research that has shown significant positive correlations between self-efficacy and problem-focused coping among cancer populations (O’Brien & Moorey, 2010; Amirshamsi et al., 2021). However, the significant negative relationship found between psychological distress and problem-focused strategies does align with prior research, suggesting that problem-focused coping strategies are associated with better psychosocial outcomes in cancer populations (Richardson et al., 2015). Thus, individuals engaging in problem-focused coping strategies have shown a decrease in psychological distress. Furthermore, a strong significant positive relationship between psychological distress and avoidant coping (r = .556) was found, which further aligns with previous research that suggests avoidant coping strategies can contribute to distress levels in cancer patients (Manne et al., 2005; Cohee et al., 2021). Thus, individuals who are reporting higher psychological distress also show high use in avoidant-focused coping strategies. This can suggest that AYAs who do not have strong coping skills may engage in avoidant-focused coping strategies, which can lead to an increase in psychological distress due to the inability to manage or deal with stress from their diagnosis or treatment.

The third hypothesis stated that AYAs who have received more support will be more likely to engage in problem-focused coping strategies, rather than avoidant-focused coping strategies, when compared to AYAs who reported lower levels of support. However, the results showed the opposite. A strong, significant positive relationship was found between support and avoidant coping (r = .907), which suggests individuals who reported high levels of support also reported elevated levels of avoidant coping. This does not align with prior research which has found a strong relationship between levels of perceived support and the increase of problem-focused coping styles, rather than avoidant coping styles, along with a lack of support being a strong predictor in the use of avoidant coping strategies among cancer populations (Cohee et al., 2021; Chao, 2010). A potential explanation for this finding is that support does not automatically initiate problem-focused coping strategies. Support received by AYAs including, Carley' Closet gift bags, AYA interaction, and information about fertility preservation may offer practical and informational support. However, it may not directly facilitate problem-focused coping. Thus, although AYAs may have reported high levels of support does not mean that they are not utilizing avoidant coping strategies to handle their stress of diagnosis and treatment.

Another factor to consider is the timing of the support related to the individual's diagnosis. For example, if an AYA just received their diagnosis and is immediately offered tangible support, such as a Carley's Closet pouch, it does not mean that this support will automatically alleviate avoidant-focused coping. Item eight on the Brief COPE scale states, "I've been refusing to believe that this has happened." If an AYA who had just received a diagnosis took this survey, it would make sense to expect high avoidant-focused coping, even if the individual did receive an element of support.

Other key findings include the common problems participants ($n = 6$) reported to be facing that have increased their distress in the categories of physical, emotional, social, practical, and spiritual problems. There were no specific patterns when analyzing the problems reported by individuals categorized as low distress (0-4) when compared to those categorized as high distress (5-10). However, when looking at the physical problems category, 68% of participants ($n = 4$) reported problems regarding pain, fatigue, memory or concertation, and loss or change of physical capabilities. In the emotional category, 83% of participants ($n = 5$) reported dealing with worries or anxieties. When asked about social struggles, 50% of participants ($n = 3$) reported having problems with their spouse or partner. In the practical category, 66.67% of participants ($n = 4$) reported having the problem of taking care of themselves. Finally, only 50% of participants (n = 3) reported having problems related to spirituality. These findings give great insight and contribute to the existing literature that describes common problems that adolescent and young adult cancer patients may be experiencing throughout their cancer journey.

Limitations

Despite this study's contributions, several limitations should be noted, and a major one being the lack of generalizability. Due to the small sample size of this study (n = 7) AYA, these results cannot be generalized to other non-cancer populations, and further, may not accurately represent the broader AYA population. Additionally, the small sample size limits the power to detect significant differences. Thus, it is important to approach these findings with caution. As self-efficacy, distress, and coping strategies were all self-report measures, responses from participants may have been influenced by social desirability or current mood at the time of the survey. In addition, as this cross-sectional design only gathers data via Qualtrics at one point in time, causality cannot be inferred from the results, only associations or trends that align or contrast prior research.

Future Directions

Future research should aim to gather further research on how social support plays a role in self-efficacy, psychological distress, and coping strategies. Studies should also aim to engage more AYA patients in research to create larger sample sizes to further analyze potential relationships between variables. Recruitment and participation among AYAs have been a constant struggle in research, and it is important to take recruitment strategy into consideration when conducting future research. Although majority of studies have found that utilizing the internet and social media are the best methods for recruiting participants, other studies have shown paper options have had a positive impact on recruitment rate among the AYA population (Vlooswijk et al., 2022; Wang et al., 2023; Rosenberg et al., 2016). Future research should also consider other factors besides self-efficacy, psychological distress, and level of support, to have a well-rounded understanding of what factors impact coping strategies among AYAs.

Conclusion

In conclusion, this study aimed to explore the role of self-efficacy, support, and psychological distress in coping among AYAs. Overall, these findings did not support the original hypotheses. However, these results illustrate the complexity of AYA psychosocial needs and further suggest that support services may not immediately translate into an increase in self-efficacy, a reduction of psychological distress, or improvement in coping responses. Although this was an exploratory study, it provides great insight into AYA experiences, needs, and further contributed to the existing literature of AYAs. Future research should continue to explore factors that may influence AYA's self-efficacy, psychological distress, and coping strategies, to better understand how to support this vulnerable population throughout their cancer experience.

References

Acquati, C., Zebrack, B. J., Faul, A. C., Embry, L., Aguilar, C., Block, R., Hayes−Lattin, B., Freyer, D. R., & Cole, S. (2017). Sexual functioning among young adult cancer patients: A 2−year longitudinal study. *Cancer*, *124*(2), 398-405. https://doi.org/10.1002/cncr.31030

Altherr, A., Bolliger, C., Kaufmann, M., Dyntar, D., Scheinemann, K., Michel, G., Mader, L., & Roser, K. (2023). Education, Employment, and Financial Outcomes in Adolescent and Young Adult Cancer Survivors—A Systematic Review. *Current Oncology*, *30*(10). http://dx.doi.org.ezproxy.tcu.edu/10.3390/curroncol30100631

Amirshamsi, M., Shahrbabaki, P. M., & Dehghan, M. (2021). Coping strategies for stress and self-efficacy in patients with cancer and their spouses. *Cancer Nursing*, *45*(2), E614-E620. https://doi.org/10.1097/ncc.0000000000001010

AYA Zorgnetwerk. AYA-anamnesetool. 2022 [cited 2022 Jul 07]. Available from: https://ayazorgnetwerk.nl/anamnese-tool/

Barnett, M., McDonnell, G., DeRosa, A., Schuler, T., Philip, E., Peterson, L., Touza, K., Jhanwar, S., Atkinson, T. M., & Ford, J. S. (2016). Psychosocial outcomes and interventions among cancer survivors diagnosed during adolescence and young adulthood (AYA): A systematic review. *Journal of Cancer Survivorship*, *10*(5), 814-831.

Bradford, N. K., McDonald, F. E., Bibby, H., Kok, C., & Patterson, P. (2022). Psychological, functional and social outcomes in adolescent and young adult cancer survivors over time: A systematic review of longitudinal studies. *Psycho-Oncology*, *31*(9), 1448-1458. https://doi.org/10.1002/pon.5987

Brock, H., Dwinger, S., Friedrich, M., Sender, A., Geue, K., Mehnert-Theuerkauf, A., Bergelt, C., & Richter, D. (2025). Peer2Me - impact of peer support on self-efficacy in young adult cancer survivors (YA-CS): Findings from a comprehensive cohort design. *BMC Cancer*, *25*(1). https://doi.org/10.1186/s12885-025-14323-5

Brock, H., Friedrich, M., Sender, A., Richter, D., Geue, K., Mehnert-Theuerkauf, A., & Leuteritz, K. (2021). Work ability and cognitive impairments in young adult cancer patients: Associated factors and changes over time—results from the AYA-Leipzig study. *Journal of Cancer Survivorship*, *16*(4), 771-780. https://doi.org/10.1007/s11764-021-01071-1

Burgers, V. W., Van den Bent, M. J., Rietjens, J. A., Roos, D. C., Dickhout, A., Franssen, S. A., Noordoek, M. J., Van der Graaf, W. T., & Husson, O. (2022). "Double awareness"—adolescents and young adults coping with an uncertain or poor cancer prognosis: A qualitative study. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.1026090

Carver, C. S. (1997). You want to measure coping but your protocol' too long: Consider the brief cope. *International Journal of Behavioral Medicine*, *4*(1), 92-100. https://doi.org/10.1207/s15327558ijbm0401_6

Chao, R. C. (2011). Managing stress and maintaining well−being: Social support, problem−focused coping, and avoidant coping. *Journal of Counseling & Development*, *89*(3), 338-348. https://doi.org/10.1002/j.1556-6678.2011.tb00098.x

Chan, A., Poon, E., Goh, W. L., Gan, Y., Tan, C. J., Yeo, K., Chua, A., Chee, M., Law, Y. C. Somasundaram, N., Kanesvaran, R., Ng, Q. S., Tham, C. K., Toh, C. K., Lim, S. T., Tao, MTang, T., Quek, R., & Farid, M. (2018). Assessment of psychological distress among Asian adolescents and young adults (AYA) cancer patients using the distress thermometer: A prospective, longitudinal study. *Supportive Care in Cancer*, *26*(9), 3257-3266.https://doi.org/10.1089/jayao.2016.0015

Cheung, C. K., & Zebrack, B. (2016). What do adolescents and young adults want from cancer resources? Insights from a Delphi panel of AYA patients. *Supportive Care in Cancer*, *25*(1), 119-126. https://doi.org/10.1007/s00520-016-3396-7

Cohee, A., Johns, S. A., Alwine, J. S., Talib, T., Monahan, P. O., Stump, T. E., Cella, D., & Champion, V. L. (2021). The mediating role of avoidant coping in the relationships between physical, psychological, and social wellbeing and distress in breast cancer survivors. *Psycho-Oncology*, *30*(7), 1129-1136. https://doi.org/10.1002/pon.5663

D'Agostino, N. M., Penney, A., & Zebrack, B. (2011). Providing developmentally appropriate psychosocial care to adolescent and young adult cancer survivors. *Cancer*, *117*(S10), 2329-2334. https://doi.org/10.1002/cncr.26043

De, R., Zabih, V., Kurdyak, P., Sutradhar, R., Nathan, P. C., McBride, M. L., & Gupta, S. (2020). Psychiatric disorders in adolescent and young adult-onset cancer survivors: A systematic review and meta-analysis. *Journal of Adolescent and Young Adult Oncology*, *9*(1), 12-22. https://doi.org/10.1089/jayao.2019.0097

Hart, R. I., Cowie, F. J., Jesudason, A. B., & Lawton, J. (2020). Adolescents and young adults' (AYA) views on their cancer knowledge prior to diagnosis: Findings from a qualitative study involving AYA receiving cancer care. *Health Expectations*, *24*(2), 307-316. https://doi.org/10.1111/hex.13170

Herts, K. L., Khaled, M. M., & Stanton, A. L. (2017). Correlates of Self-Efficacy for Disease Management in Adolescent/Young Adult Cancer Survivors: A Systematic Review. *Health Psychology*, *36*(3), 192-205. https://doi.org/10.1037/hea0000446

Hirayama, T., Kojima, R., Udagawa, R., Yanai, Y., Ogawa, Y., Shindo, A., Tanaka, M., Kobayashi, M., Ishiki, H., & Satomi, E. (2022). A questionnaire survey on adolescent and young adult Hiroba, a peer support system for adolescent and young adult cancer patients at a designated Cancer Center in Japan. *Journal of Adolescent and Young Adult Oncology*, *11*(3), 309-315.

Hirayama, T., Ikezawa, S., Okubo, R., Mizuta, T., Iwata, S., & Suzuki, T. (2023). Mental health care use and related factors in adolescents and young adults with cancer. *Supportive Care in Cancer*, *31*(4). https://doi.org/10.1007/s00520-023-07708-

Hlubocky, F. J. , Muffly, L. S. , Gomez, J. X. , Breitenbach, K., McNeer, J. L., Stock, W. & Daugherty, C. (2016). *Journal of Clinical Oncology, 34* (26), 256. doi: 10.1200/ jco.2016.34.26_suppl.256.

Ionio, C., Bigoni, F., Sacchi, M., Zecca, M., Bergami, E., Landoni, M., Ciuffo, G., Rovati, A., & Rizzi, D. (2023). Exploring the effects of cancer as a traumatic event on Italian adolescents and young adults: Investigating psychological well-being, identity construction, and coping strategies. *Pediatric Reports*, *15*(1), 254-262. https://doi.org/10.3390/pediatric15010021

Irestorm, E., Wakefield, C. E., Hetherington, K., McGill, B. C., Evans, H. E., McDonald, F., Patterson, P., Beattie, A., Cohn, R. J., & Sansom-Daly, U. M. (2025). Recapturing life: Virtual peer-based psychological support for adolescent and young adult cancer survivors delivered in the community. *Journal of Adolescent and Young Adult Oncology*. https://doi.org/10.1177/21565333251369689

Iwanaga, K., Rumrill, P., Reid, C. A., Thomas, A., & Wagner, C. C. (2022). Psychometric validation of the *Brief-COPE Scale* in a sample of individuals with multiple sclerosis: A brief report. *Rehabilitation Counseling Bulletin*, *67*(4), 295-301. https://doi.org/10.1177/00343552221139875

Kato, P, Cole, S, Bradlyn, A, Pollock, B: A video game improves behavioral outcomes in adolescents and young adults with cancer: a randomized trial. vol. 122, issue 2, pp. 305-e317. Pediatrics. (2008). doi: 10.1542/peds.2007-3134

Klijn, N. F., ter Kuile, M. M., & Lashley, E. E. L. O. (2023). Patient-Reported Outcomes (PROs) and Patient Experiences in Fertility Preservation: A Systematic Review of the Literature on Adolescents and Young Adults (AYAs) with Cancer. *Cancers*, *15*(24), 5828. https://doi-org.ezproxy.tcu.edu/10.3390/cancers15245828

Lau, N., Steineck, A., Walsh, C., Fladeboe, K. M., Yi-Frazier, J. P., Rosenberg, A. R., & Barton, K. (2024). Social support resources in adolescents and young adults with advanced cancer: A qualitative analysis. *BMC Palliative Care*, *23*(1). https://doi.org/10.1186/s12904-024-01527-y

Li, L., Duan, Y., Cao, H., Zhou, X., Kang, Y., Wan, Z., Huang, D., Xie, J., & Cheng, A. S. (2024). Effect of group online-based peer support intervention on psychological distress of adolescent and young adult cancer patients: A randomized controlled trial. *Supportive Care in Cancer*, *32*(8). https://doi.org/10.1007/s00520-024-08765-z

Lu, A. D., Zheng, Z., Han, X., Qi, R., Zhao, J., Yabroff, K. R., & Nathan, P. C. (2021). Medical financial hardship in survivors of adolescent and young adult cancer in the United States. *JNCI: Journal of the National Cancer Institute*, *113*(8), 997-1004. https://doi.org/10.1093/jnci/djab013

Manne, S. L., Ostroff, J., Winkel, G., Grana, G., & Fox, K. (2005). Partner unsupportive responses, avoidant coping, and distress among women with early stage breast cancer: Patient and partner perspectives. *Health Psychology*, *24*(6), 635-641. https://doi.org/10.1037/0278-6133.24.6.635

McCarthy, M. C., McNeil, R., Drew, S., Dunt, D., Kosola, S., Orme, L., & Sawyer, S. M. (2016). Psychological distress and posttraumatic stress symptoms in adolescents and young adults with cancer and their parents. *Journal of Adolescent and Young Adult Oncology*, *5*(4), 322-329. https://doi.org/10.1089/jayao.2016.0015

McNeil, R., Egsdal, M., Drew, S., McCarthy, M. C., & Sawyer, S. M. (2019). The changing nature of social support for adolescents and young adults with cancer. *European Journal of Oncology Nursing*, *43*, 101667. https://doi.org/10.1016/j.ejon.2019.09.008

Miller, K. D., Fidler−Benaoudia, M., Keegan, T. H., Hipp, H. S., Jemal, A., & Siegel, R. L. (2020). Cancer statistics for adolescents and young adults, 2020. *CA: A Cancer Journal for Clinicians*, *70*(6), 443-459. https://doi.org/10.3322/caac.21637

National Cancer Institute. (2024, June 6). *Adolescents and young adults (AYAs) with cancer*. https://www.cancer.gov/types/aya

Ng, Q. X., Liau, M. Y., Tan, Y. Y., Tang, A. S., Ong, C., Thumboo, J., & Lee, C. E. (2024). A systematic review of the reliability and validity of the patient activation measure tool. *Healthcare*, *12*(11), 1079. https://doi.org/10.3390/healthcare12111079

O'Brien, C. W., & Moorey, S. (2010). Outlook and adaptation in advanced cancer: A systematic review. *Psycho-Oncology*, *19*(12), 1239-1249. https://doi.org/10.1002/pon.1704

Orenstein GA, Lewis L. Erikson's Stages of Psychosocial Development. [Updated 2022 Nov 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK556096/

Osmani, V., Hörner, L., Klug, S. J., & Tanaka, L. F. (2023). Prevalence and risk of psychological distress, anxiety, and depression in adolescent and young adult (<scp>AYA</scp>) cancer survivors: A systematic review and <scp>meta−analysis</scp>. *Cancer Medicine*, *12*(17), 18354-18367. https://doi.org/10.1002/cam4.6435

Pennant, S., C. Lee, S., Holm, S., Triplett, K., Howe-Martin, L., Campbell, R., & Germann, J. (2019). The role of social support in adolescent/Young adults coping with cancer treatment. *Children*, *7*(1), 2. https://doi.org/10.3390/children7010002

Pomey, M., Nelea, M. I., Normandin, L., Vialaron, C., Bouchard, K., Côté, M., Duarte, M. A., Ghadiri, D. P., Fortin, I., Charpentier, D., Lavoie-Tremblay, M., Fernandez, N., Boivin, A., Dorval, M., Desforges, M., Régis, C., Ganache, I., Bélanger, L., Rosberger, Z., … De Guise, M. (2023). An exploratory cross-sectional study of the effects of ongoing relationships with accompanying patients on cancer care experience, self-efficacy, and psychological distress. *BMC Cancer*, *23*(1). https://doi.org/10.1186/s12885-023-10856-9

Quinn, G., Goncalves, V., Sehovic, I., Bowman, M., & Reed, D. (2015). Quality of life in adolescent and young adult cancer patients: A systematic review of the literature. *Patient Related Outcome Measures*, 19. https://doi.org/10.2147/prom.s51658

RCF patient programs: Carley's closet. (2024, June 13). Rutledge Cancer Foundation. https://rutledgecancerfoundation.org/rcf-patient-programs-carleys-closet/

Richardson, E. M., Schüz, N., Sanderson, K., Scott, J. L., & Schüz, B. (2016). Illness representations, coping, and illness outcomes in people with cancer: A systematic review and meta-analysis. *Psycho-Oncology*, *26*(6), 724-737. https://doi.org/10.1002/pon.4213

Robertson, E., Wakefield, C., Marshall, K., & Sansom-Daly, U. (2015). Strategies to improve adherence to treatment in adolescents and young adults with cancer: A systematic review. *Clinical Oncology in Adolescents and Young Adults*, 35. https://doi.org/10.2147/coaya.s85988

Roesel, I., Froehlich, D., Joos, S., Valentini, J., Mauch, H., & Martus, P. (2024). The patient activation measure-13 (PAM-13) in an oncology patient population: Psychometric properties and dimensionality evaluation. *Health and Quality of Life Outcomes*, *22*(1). https://doi.org/10.1186/s12955-024-02255-w

Rosenberg, A. R., Yi-Frazier, J. P., Wharton, C., Gordon, K., & Jones, B. (2014). Contributors and inhibitors of resilience among adolescents and young adults with cancer. *Journal of*

Adolescent and Young Adult Oncology, *3*(4), 185-193. https://doi.org/10.1089/jayao.2014.0033

Rosenberg, A. R., Bona, K., Wharton, C. M., Bradford, M., Shaffer, M. L., Wolfe, J., & Baker, K. S. (2016). Adolescent and Young Adult Patient Engagement and Participation in Survey-Based Research: A Report From the “Resilience in Adolescents and Young Adults With Cancer” Study. *Pediatric Blood & Cancer*, *63*(4), 734–736. https://doi.org/10.1002/pbc.25843

Salman, A. A., & Imam, A. M. (2019). Coping strategies of Palestinian adolescents and young adults with cancer: A triangulation approach. *Lancet*, *393*, S43. https://doi.org/10.1016/s0140-6736(19)30629-4

Sansom-Daly, U. M., & Wakefield, C. E. (2013). Distress and adjustment among adolescents and young adults with cancer: an empirical and conceptual review. *National Library of Medicine*, *2*(4), 167-197. https://doi.org/10.3978/j.issn.2224-4336.2013.10.06

Shrivastava, S. P., Elhence, A., Jinwala, P., Bansal, S., Chitalkar, P., Bhatnagar, S., Patidar, R., Asati, V., & Reddy, P. K. (2022). Assessment of psychological distress among Indian adolescents and young adults with solid cancer using the national comprehensive cancer network distress thermometer. *South Asian Journal of Cancer*. https://doi.org/10.1055/s-0042-1756184

Smith, A. (2013). Unmet support service needs and health-related quality of life among adolescents and young adults with cancer: The AYA HOPE study. *Frontiers in Oncology*, *3*. https://doi.org/10.3389/fonc.2013.00075

Smith, A. W., Keegan, T., Hamilton, A., Lynch, C., Wu, X., Schwartz, S. M., Kato, I., Cress, R., & Harlan, L. (2018). Understanding care and outcomes in adolescents and young adults with cancer: A review of the AYA HOPE study. *Pediatric Blood & Cancer*, *66*(1). https://doi.org/10.1002/pbc.27486

Tang, L., Zhang, Y., Pang, Y., Zhang, H., & Song, L. (2011). Validation and reliability of distress thermometer in Chinese cancer patients. *Chinese Journal of Cancer Research*, *23*(1), 54-58. https://doi.org/10.1007/s11670-011-0054-y

Thornton, C. P., Li, M., Yeh, C. H., & Ruble, K. (2021). Self-efficacy in symptom management for adolescents and young adults with cancer: A systematic review. *Supportive Care in Cancer*, *29*(6), 2851-2862. https://doi.org/10.1007/s00520-020-05960-6

Vlooswijk, C., Poll-Franse, L. V. V. D., Janssen, S. H. M., Derksen, E., Reuvers, M. J. P., Bijlsma, R., Kaal, S. E. J., Kerst, J. M., Tromp, J. M., Bos, M. E. M. M., Hulle, T. V. D., Lalisang, R. I., Nuver, J., Kouwenhoven, M. C. M., van der Graaf, W. T. A., & Husson, O. (2022). Recruiting Adolescent and Young Adult Cancer Survivors for Patient-Reported Outcome Research: Experiences and Sample Characteristics of the SURVAYA Study. *Current Oncology*, *29*(8). http://dx.doi.org/10.3390/curroncol29080428\

Wang, R. R., Schweitzer, J. B., Hernandez, S., Molina, S. C., & Keegan, T. H. (2023). Strategies for recruitment and retention of adolescent and young adult cancer patients in research studies. *Journal of Clinical and Translational Science*, 1-27. https://doi.org/10.1017/cts.2023.669

Weeratunga, E., Senadheera, C., Hettiarachchi, M., & Perera, B. (2022). Validation of Sinhala version of brief COPE scale in patients with cancer in Sri Lanka. https://doi.org/10.21203/rs.3.rs-1205154/v2

Wilharm, C., Pralong, A., Weiss, M., Hallek, M., Voltz, R., Tuchscherer, A., & Simon, S. T. 2024). Facing life-threat during youth: A qualitative study on challenges, coping, and needs among adolescents and young adults with cancer. *Supportive Care in Cancer*, *32*(3). https://doi.org/10.1007/s00520-024-08370-0

Wurz, A., Petrella, A., Tulk, J., Sabiston, C. M., Schulte, F., Bender, J., D'Agostino, N., Hou, S. H., Eaton, G., Chalifour, K., & Garland, S. N. (2024). Describing and exploring coping strategies among those diagnosed with cancer as an adolescent or young adult: A YACPRIME study. *Current Oncology*, *31*(2), 685-692. https://doi.org/10.3390/curroncol31020050

Yu, X., Huang, Q., Yang, Y., Wang, L., Wu, F., Ding, Y., Zong, X., Wang, A., & Yuan, C. (2025). Impact of social support on body image during chemotherapy in patients with breast cancer: The chain mediating role of depression and self-efficacy. *Asia-Pacific Journal of Oncology Nursing*, *12*, 100664. https://doi.org/10.1016/j.apjon.2025.100664

Zebrack, B. J., Corbett, V., Embry, L., Aguilar, C., Meeske, K. A., Hayes−Lattin, B., Block, R., Zeman, D. T., & Cole, S. (2014). Psychological distress and unsatisfied need for psychosocial support in adolescent and young adult cancer patients during the first year following diagnosis. *Psycho-Oncology*, *23*(11), 1267-1275. https://doi.org/10.1002/pon.3533

Zebrack, B., Kwak, M., & Sundstrom, L. (2017). First descents, an adventure program for young adults with cancer: Who benefits? *Supportive Care in Cancer*, *25*(12), 3665-3673. https://doi.org/10.1007/s00520-017-3792-7

Zhang, A., Delly, J., Meister, D., Jackson Levin, N., Blumenstein, K., Stuchell, B., & Walling, E. (2023). The relationship between unmet cancer care needs and self-rated health among adolescents and young adults with cancer. *Supportive Care in Cancer*, *31*(6). https://doi.org/10.1007/s00520-023-07792-6