Adolescent Cancer Survivors

A literature review of psychological effects following remission

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BACKGROUND: The psychological distress caused by cancer can remain long after remission. With advanced curative treatments, many pediatric patients continue to have late complications that interfere with neurologic, physical, and social development.

OBJECTIVES: The aim of this article is to analyze nine published articles that focus on adolescent cancer survivors (ACSs) and the incidence and risk factors of post-traumatic stress disorder (PTSD) and post-traumatic stress symptoms (PTSSs).

METHODS: A search of published articles including pediatric and adolescent oncology and PTSD was performed. The search was narrowed to peer-reviewed articles published after 2010 that presented empirical data and were specific to post-trauma or post-traumatic stress.

FINDINGS: Significant findings for PTSD and PTSSs were reported in ACSs. ACSs suffering from PTSD and PTSSs should be identified and treated appropriately based on age, diagnosis, treatment, and comorbid symptoms.

KEYWORDS
adolescent; pediatric; cancer; survivor; oncology; post-traumatic stress disorder

DIGITAL OBJECT IDENTIFIER
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A PEDIATRIC PATIENT BECOMING A PATIENT WITH CANCER is a life-altering event. Type and staging, imaging, chemotherapy, treatments, and short- and long-term complications determine how a child progresses from childhood to adolescence. With continuing medical advancements and improved prognosis, research in pediatric psycho-oncology has shifted to long-term survivor adaptation and an increased effort to identify psychological symptoms early (Wenninger et al., 2013). A significant portion of adolescent cancer survivors (ACSs) experience psychological stressors clinically related to the diagnosis of post-traumatic stress disorder (PTSD) and post-traumatic stress symptoms (PTSSs) (Bellizzi et al., 2012; Brinkman et al., 2013; Kwak et al., 2013; Stuber et al., 2010; Wenninger et al., 2013; Zebrack et al., 2013). Conversely, research defines post-traumatic growth (PTG) as positive changes and outcomes emerging from a cancer diagnosis and treatment (Turner-Sack, Menna, Setchell, Maan, & Cataudella, 2012). This article aims to synthesize the literature to determine PTSD and PTSSs in ACSs to increase awareness for pediatric providers, specialists, patients, and parents affected by PTSD and PTSSs to ultimately develop interventions.

PTSSs include re-experiencing an event and completely avoiding emotions related to trauma (American Psychiatric Association [APA], 2013). The definition of PTSD includes one occurrence of re-experiencing, three avoidance symptoms, and two symptoms of increased arousal (APA, 2013). Also, the definition of PTSD includes PTSSs that last for at least one month after a traumatic event and PTSSs that ultimately become physical symptoms that lead to a decline in overall function (APA, 2013). PTG is a psychological construct. When an individual has a traumatic, life-changing experience, this experience eventually can lead to beneficial changes in outlook, priorities, and relationships (Turner-Sack et al., 2012). Focus in pediatric cancer has shifted significantly, from high mortality rates to an increasing number of survivors who are learning to cope and adapt. The paradigm opens doors for research to develop and enforce interventions for ACS.

Background

The ongoing psychological distress caused by cancer can remain long after remission. The Children's Oncology Group (COG) implemented long-term follow-up guidelines for childhood, adolescent, and young adult cancer

survivors. These guidelines promote healthy lifestyles, arrange continual monitoring of health conditions, expedite early identification of possible late symptomatology, and provide a prompt intervention for potential late effects (COG, 2013). According to COG (2013), these guidelines provide standards of practice for follow-up care for pediatric patients with cancer and their providers. COG recommends annual psychological evaluations and continual monitoring. A baseline neurologic evaluation for patients at increased risk for cognitive comorbidities also is recommended. High-risk ACSs should have frequent reevaluations (COG, 2013). Because of resource limitations, most notably lower income, these guidelines are not smoothly executed (Kahalley et al., 2013). For example, in a study by Kahalley et al. (2013), some families chose not to follow through on referrals recommended by their providers because of income level. Parents may be forced to choose between a day of pay and taking their child to a clinic. In addition, when children are referred for psychological services in a nearby area or community, the provider's survivorship expertise could have limitations. Even when healthcare providers and patients' families are proactive, operational barriers in the medical field limit necessary school or mental health resources in many settings (Kahalley et al., 2013).

"Children are at a heightened risk for mental distress because cancer can interfere with development."

TABLE 1.
RISK FACTORS LEADING TO DIAGNOSIS OF PTSD AND PTSSs IN ADOLESCENT CANCER SURVIVORS

CATEGORY	RISK FACTORS
Sociodemographic	
Age	Older age at diagnosis
Current income	Lower household income (less than $20,000)
Education	Low levels of education, failure to graduate from high school
Employment	Underemployment or unemployment
Family history	Depression, anxiety, or mental illness
Gender	Female sex
Insurance	Lack of health insurance
Marital status	Widowed, divorced, never married, dependent living
Race	Caucasian
Clinical	
Host medical factors	Neurocognitive problems, physical limitations
Type of cancer	Central nervous system tumor, Hodgkin lymphoma, acute lymphoblastic leukemia
Type of side effects	Sensory impairments, treatment-induced hearing loss, cardiopulmonary and neurocognitive toxicity, premorbid learning or emotional difficulties, chronic pain, obesity, amputation, radiation to bone or joint, osteonecrosis
Type of treatment	Chemotherapy (e.g., vincristine exposure), radiation, surgery, cranial irradiation therapy, hematopoietic cell transplantation

PTSD—post-traumatic stress disorder; PTSS—post-traumatic stress symptom
Note. From *Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancer* (version 4.0), by Children's Oncology Group, 2013, Monrovia, CA: Children's Oncology Group. Copyright 2013 by Children's Oncology Group. Adapted with permission.

With advanced curative treatments, many pediatric patients continue to have late complications that interfere with neurologic, physical, and social development. In the Childhood Cancer Survivor Study (CCSS), 9,126 ACSs and 2,968 siblings completed an assessment of their suicide ideation within the past week (Recklitis et al., 2010). Results indicated that 8% of ACSs reported suicide ideation, compared to 5% of sibling controls. These findings correlated to the physical health of the patients (Recklitis et al., 2009). Unfortunately, the processes to identify PTSD symptoms and other mental health issues in ACSs are suboptimal (Hahn, Hays, Kahn, Litwin, & Ganz, 2015).

Allostatic Load

Allostatic load is defined as physiological consequences of chronic stress on the body (Hahn et al., 2015). Examples of allostatic load may include high blood pressure, increased cholesterol, and increased cortisol levels. These physiologic implications can increase with the chronic stress associated with cancer and may be elevated in individuals experiencing PTSD symptomatology (Hahn et al., 2015). The effect of allostatic load on individuals can negatively affect their overall health status and lead to potentially life-altering repercussions. Similarly, in a study by Schwartz et al. (2010), 156 cancer survivors and 138 controls completed the Health Knowledge Inventory. Results confirmed that cancer survivors have almost double the number of health problems when compared with healthy controls (5.6 versus 2.6). Significantly more

TABLE 2.
SCREENING TOOLS FOR PTSD AND PTSSs IN ADOLESCENT PATIENTS WITH CANCER

TOOL	AGE	INFORMATION
Functional impairment		
Weiss Functional Impairment Rating Scale	6–17 years	Evaluates overall functional ability; parent form
Psychological distress		
Behavior Problems Index	4 years or older	Provides scores for 5 different symptom domains (antisocial behavior, anxiousness/hyperactivity, headstrongness, depression, and peer conflict/social withdrawal)
Brief Symptom Inventory 18	18 years or older	18-item self-report questionnaire that measures distress according to three subgroups: depression, anxiety, and somatization
Childhood Behavior Checklist	6–18 years	Caregiver report form identifying problem behavior in children; parent form
Children's Depression Inventory 2	7–17 years	A self-report that assesses cognitive, behavioral, and affective signs and symptoms of depression
Survey of Well-Being of Young Children	5 years or younger	Covers development, behavior, and family context; parent form
Trauma		
Adverse Childhood Experiences	18 years or older	Covers family dysfunction; physical, sexual, and emotional abuse; neglect; and violence
Child and Adolescent Trauma Screen	7–17 years	Screens for child trauma history and PTSD symptoms in youth
Impact of Cancer Scale	18 years or older	Developed to quantify positive and negative characteristics of a cancer survivor
Post-Traumatic Diagnostic Scale	18–65 years	Assesses the impact of traumatic events
PTSD Checklist	16 years or older	Used to analyze PTSD symptoms following *DSM-IV* criteria
Trauma Symptom Checklist for Children	8–16 years	Elicits trauma-related symptoms

DSM-IV—Diagnostic and Statistical Manual of Mental Disorders (4th ed.); PTSD—post-traumatic stress disorder; PTSS—post-traumatic stress symptom
Note. Based on information from American Academy of Pediatrics, 2010; John, 2017; Parks et al., 2016.

comorbid symptoms could lead to enhanced psychological distress, including PTSD and PTSSs (Schwartz et al., 2010).

Risk Factors for PTSD and PTSSs

Table 1 lists several characteristics of a diagnosis of PTSD or PTSSs that lead to differences in overall psychological stress. These risk factors should be used to stratify adolescent patients for targeted screening.

Significance of Adolescent Developmental Stage

Cancer affects developmental milestone potential. Children are at a heightened risk for mental distress because cancer can interfere with development (e.g., social aspects, emotional aspects, language, learning, thinking, problem solving, gross motor movement) (Zebrack et al., 2013). Research is limited on ACSs as they begin to decipher medical information and responsibilities; manage treatment hardships; maintain everyday activities with family, friends, and school; and cope with the diagnosis of cancer (Zebrack et al., 2013). Given the complexity of the developmental stage and increased pressure in terms of education, employment, and independence, a cancer diagnosis adds severe stress (Zebrack et al., 2013). Changes in physical appearance, a premature encounter with possible mortality, interruptions in work or school, increased dependence on parents, increased insurance or financial troubles, potential loss of reproductive means, late effects of treatments, and questions or concerns about health pose difficulties for ACSs (D'Agostino, Penney, & Zebrack, 2011; Zebrack et al., 2013).

Screening for PTSD and PTSSs

Screening can identify and measure which stressors determine psychological distress, functional impairment, and response to trauma. Table 2 shows screening tools that assess these three categories. Most ACSs are psychologically healthy (Brinkman et al., 2013). Specific ACS subgroups are at an increased risk for severe emotional distress, such as depression, somatization, and anxiety (Brinkman et al., 2013). Screening efforts during adolescence could help identify survivors for whom interventions may work

to counter psychological symptoms and potentially neutralize the worsening of symptoms into adulthood (Brinkman et al., 2016). Screening tools should include both parent and survivor report of symptoms (Brinkman et al., 2016).

Literature Review

Most studies evaluating adolescent PTSD and PTSSs use CCSS, which is a subdivision of COG's long-term follow-up study. CCSS is a study of childhood cancer survivors aged 5 years or older and diagnosed before age 21 years (Brinkman et al., 2013, 2016). The cohort has been assembled from 31 centers in the United States and represents 35,923 childhood cancer survivors and more than 5,000 siblings (Brinkman et al., 2013, 2016). Other cohorts include the Cancer Survivor Registry and the St. Jude Lifetime Cohort study.

A search of published studies including pediatric and adolescent oncology and PTSD was performed using PubMed,

TABLE 3.
PREVALENCE OF PTSD AND PTSSs IN ADOLESCENT AND YOUNG ADULT SURVIVORS

STUDY	DESIGN	SAMPLE	ASSESSMENT	INCIDENCE OF PTSD OR PTSSs
Brinkman et al., 2013	Cross-sectional questionnaire	4,569 adult survivors who completed the assessment on three occasions from 1994–2010	BSI-18	Subgroups of AYAs experienced high levels of depression (10%), anxiety (5%), and somatization (7%) ($p < 0.05$).
Brinkman et al., 2016	Cross-sectional interview questionnaire	3,893 5-year survivors of childhood cancer who were treated from 1970–1999 and assessed in adolescence (aged 12–17 years)	Behavior Problems Index	31% of patients receiving cranial radiation therapy had elevated anxiety and/or depression, social withdrawal, and attention problems, compared to 16% of patients not receiving cranial radiation therapy ($p < 0.05$).
Kazak et al., 2010	Cross-sectional interview questionnaire	167 cancer survivors and 170 controls; recruited from March 2006 to August 2009	Psychological distress and health-related quality of life using the HCBI, HKI	Adolescents had greater psychological distress and fewer health benefits ($p < 0.86$).
Kwak et al., 2013	Longitudinal study	151 individuals aged 15–39 years within 4 months of diagnosis	PDS	39% and 44% of AYAs reported PTSSs at 6 and 12 months, respectively; 3% had severe PTSSs; 29% were at risk for PTSD ($p < 0.2$).
Schwartz et al., 2012	Cross-sectional interview questionnaire	140 AYA survivors of childhood cancer	HKI, HCBI, PTSD Checklist–civilian version	17 AYA survivors (12%) had significant PTSSs ($p < 0.001$).
Seitz et al., 2010	Epidemiologic survey	820 AYA survivors and 1,027 controls	PDS, Hospital Anxiety and Depression Scale	22% of AYAs reported PTSSs, anxiety, or depression, compared to 14% of controls ($p < 0.0001$).
Stuber et al., 2010	Longitudinal study	6,542 childhood cancer survivors aged older than 18 years and diagnosed from 1970–1986, and 368 siblings of cancer survivors	Dichotomous variable using *DSM-IV* criteria, PDS, BSI-18	589 (9%) reported functional impairment, clinical distress, and PTSD, compared to 8 siblings (2%) ($p < 0.1$).
Stuber et al., 2011	Cross-sectional interview questionnaire	6,542 long-term survivors and 374 siblings	PDS, BSI-18, RAND Health Status Survey	Compared to siblings, survivors had higher rates of PTSSs when meeting full PTSD symptoms ($p < 0.0001$).
Wenninger et al., 2013	Cross-sectional questionnaires	164 childhood cancer survivors 7 years after diagnosis	BSI-18, PDS, Cognitive Control Strategies Scale, Illness Perception Questionnaire–Revised	14% of the sample had raw scores of greater than 9, indicating significant PTSD ($p < 0.027$).

AYA—adolescent and young adult; BSI-18—Brief Symptom Inventory 18; *DSM-IV—Diagnostic and Statistical Manual of Mental Disorders* (4th ed.); HCBI—Health Competence Beliefs Inventory; HKI—Health Knowledge Inventory; PDS—Post-Traumatic Diagnostic Scale; PTSD—post-traumatic stress disorder; PTSS—post-traumatic stress symptom

Google Scholar, and CINAHL®. The search was narrowed to peer-reviewed articles published after 2010. For studies to be included, they had to present empirical data and be specific to post-trauma or post-traumatic stress. The results had to be specific to post-trauma in ACSs in the United States who were either diagnosed at adolescence or were adolescents at the time of the baseline survey. Keyword stems included *adolescent*, *adolescence*, *AYA*, *pediatrics*, and *pediatric*, followed by *oncology* and *cancer*, and last, *post-trauma*, *post-traumatic stress disorder*, and *post-traumatic stress symptoms*. From the combined search, 100 articles were identified from 2010–2017. Using the inclusion criteria previously stated, nine articles were analyzed.

Results

Table 3 summarizes the nine included articles. The results contained clinically relevant findings related to PTSD and PTSSs in ACSs. According to the results, ACSs were more likely to be diagnosed with clinically significant PTSSs compared to PTSD, but a greater percentage of participants were at increased risk for developing PTSD.

Post-Traumatic Stress Disorder

Significant findings for PTSD ranged from 9%–29% (Kwak et al., 2013; Stuber et al., 2010; Wenninger et al., 2013). At the 12-month follow-up, using *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.) (*DSM-IV*) criteria, 29% of adolescents and young adults were at increased risk for developing PTSD (Kwak et al., 2013). This study identified risk for PTSD, not a confirmed diagnosis of PTSD. In a study by Stuber et al. (2010), 9% of patients reported having functional impairment, clinical distress, and symptoms related to PTSD, compared to 2% of siblings. On the Post-Traumatic Diagnostic Scale, 14% of the sample had raw scores that were clinically significant for PTSD (Wenninger et al., 2013). Of this 14%, 50% of the patients had a propensity to suppress negative thoughts and decreased levels of optimism (Wenninger et al., 2013). Although most ACSs seemingly are well-adjusted, a clinically significant number reported markedly high levels of psychological distress (Wenninger et al., 2013).

Post-Traumatic Stress Symptoms

Findings significant for PTSSs ranged from 12%–44% (Brinkman et al., 2013, 2016; Kazak et al., 2010; Kwak et al., 2013; Schwartz et al., 2012; Seitz et al., 2010; Stuber et al., 2011). In the study by Kwak et al. (2013), the prevalence of PTSSs was significantly higher compared to that in similar studies. At 12 months post-diagnosis, 39% of ACSs manifested PTSSs as early as six months post-diagnosis, and 44% demonstrated PTSSs (Kwak et al., 2013). The level did not shift significantly during a six-month period. At least 3% of ACSs reported severe levels of PTSSs (Kwak et al., 2013). In the study by Schwartz et al. (2012), PTSSs evaluated with the PTSD Checklist–civilian version ranged from 17–84. From these findings, 12% had a score above 40, indicating clinically significant PTSSs (Schwartz et al., 2012). Accordingly, in the study by Seitz et al. (2010), 22% of ACSs experienced symptoms of post-traumatic stress, including anxiety or depression, in contrast to only 14% of controls.

Overall, in comparison to sibling controls, ACSs experienced greater rates of post-traumatic stress as defined within *DSM-IV* criteria (Stuber et al., 2011). Findings in the studies by Brinkman et al. (2013), Brinkman et al. (2016), and Kazak et al. (2010) identified subgroups of ACSs who experienced greater levels of depression, anxiety, and somatization related to increased treatment intensity and cranial radiation therapy.

IMPLICATIONS FOR PRACTICE

- Identify and treat adolescent cancer survivors (ACSs) experiencing post-traumatic stress disorder and post-traumatic stress symptoms based on age, diagnosis, treatment form, and comorbid symptoms.
- Conduct mental health monitoring and psychological health surveillance at every ACS visit, as recommended by the Children's Oncology Group.
- Provide proactive care that includes a plan for prevention and guidance based on specific risk factors associated with ACSs.

Discussion

ACSs have an increased risk of developing long-term psychological effects based on their diagnosis, treatment, and support system. Evaluation and treatment are crucial in long-term survivorship care.

Unmet Needs

Mental health issues of ACSs are distinct from those of younger children and adult populations. In addition, ACSs may be treated inappropriately or inadequately by psychological cancer services (Zebrack et al., 2013). Of note, studies suggest that the unmet need for professional psychological services increased as ACSs reported negative health-related symptoms from treatments (Zebrack et al., 2013). Similarly, in a study by Kahalley et al. (2013), ACSs experienced mental health hardships that were not adequately managed by appropriate psychological services.

Comorbid post-treatment symptoms contribute to high levels of distress. These findings indicate a crucial deficiency of psychosocial support (Zebrack et al., 2013). According to Zebrack et al. (2013), almost half of ACSs within the first four months of diagnosis reported an unmet need for information regarding exercise and nutrition. In addition, half of the ACS sample stated an unmet need for adequate mental health services (Zebrack et al., 2013).

Post-Traumatic Growth

PTG is positive change following a cancer diagnosis and treatment (Smith, Samsa, Ganz, & Zimmerman, 2014). The term *post-traumatic* indicates that this growth occurs after an extreme or life-changing event. This phenomenon is not caused by other minor stresses, nor is it considered a natural process of development (Sumalla, Ochoa, & Blanco, 2009). In connection to PTG,

FIGURE 1.
RECOMMENDATIONS FOR PROVIDERS TO HELP AYAs COPE WITH CANCER

INFORMATION
- Consider prompt referral to medical and psychological providers with competence and experience in treatment and care for the AYA age group.
- Encourage participation in decision making about AYA diagnosis and related treatment.
- Guide AYAs to age-appropriate resources for health information.

PRACTICAL SUPPORT
- Implement programs to help AYAs excel in school and homework.
- Encourage AYAs to keep friendships with peers, friends, or classmates.
- Ensure opportunities for educational and professional support programs.
- Facilitate meetings with other AYA cancer survivors who have been helpful for others in the past.
- Provide family-centered care, and refer to family counseling if necessary.

EMOTIONAL AND SOCIAL SUPPORT
- Inform AYAs about camps, retreats, or recreational programs, depending on the individual wants and needs of the patient.
- Use proactive methods of communication for AYAs, such as social media resources (e.g., Facebook, websites, email, blogs).
- Facilitate independence for AYAs in and out of the hospital.
- Consider use of willing AYA survivors as teachers, role models, mentors, or camp counselors for other AYA patients.
- Assist AYAs and their families in having an open line of communication or discussion to talk about cancer and how it has affected the family.
- Develop interventions that encourage positive growth and adaptation.
- Work with AYAs to prevent or mitigate stressors.

POLICY AND INSTITUTIONAL CHANGES
- Introduce policies in communities and hospitals or clinics to reduce mental health stigma.
- Advocate for comprehensive health insurance to ensure access to health care for AYAs.
- Increase awareness and advocate for all AYAs with cancer.

AYA—adolescent and young adult
Note. From "Psychosocial Care of Adolescent and Young Adult Patients With Cancer and Survivors," by B. Zebrack and S. Isaacson, 2012, *Journal of Clinical Oncology, 30,* p. 1,225. Copyright 2012 by American Society of Clinical Oncology. Adapted with permission.

studies define resilience as a positive psychological event, despite direct exposure to traumatic experiences (Phipps et al., 2014). In a study exploring the relationship between PTSSs and PTG, researchers found no association between PTSSs and PTG at 12 months following diagnosis (Zebrack et al., 2015). Zebrack et al. (2015) also reported a relationship among a specific post-traumatic stress symptom, re-experiencing it, and two signs of PTG (new possibilities and personal strengths). The results suggested that re-experiencing may be psychologically adaptive for survivors. With this knowledge, the need to foster a line of open communication with family, friends, other survivors, or healthcare providers to discuss fears, worries, or concerns can help enhance understanding of the diagnosis and lead to positive outcomes in life after cancer (Zebrack et al., 2015).

Similarly, six months after completing treatment, survivors aged 11–21 years from three different pediatric cancer centers reported PTG (Arpawong, Oland, Milam, Ruccione, & Meeske, 2013). PTG was positively associated with higher psychosocial functioning and PTSSs. Physical functioning and depressive symptoms were found to be inversely associated and, therefore, counterproductive in PTG (Arpawong et al., 2013).

Although providers may observe PTG in adolescents as clinically significant, a provider must understand that high levels of PTG are independent of distress (Arpawong et al., 2013; Smith et al., 2014). The presence of psychosocial distress is not entirely avoidable because positive and negative outcomes occur in the adjustment to cancer (Arpawong et al., 2013). Survivors who experience substantial PTG also may be highly distressed (Smith et al., 2014). Therefore, screening for PTSSs is critical, independent of the identified growth.

Role of the Advanced Practice Nurse

Clinical

Providers can best address unmet needs of ACSs by determining and assessing their risk. Proactive care includes a plan for prevention and guidance based on risks associated with ACSs (McCabe et al., 2013). Many ACSs are lost to follow-up when services with their interprofessional oncology team are discontinued because of age (McCabe et al., 2013). Patients should continue to be followed into adulthood by an interprofessional team, including an oncology advanced practice nurse (APN), who is in the best position to evaluate coping and psychological status. APNs should be aware of adolescent adherence to care throughout the transition into adult survivorship.

Regarding counseling, APNs should focus on evidence about adolescent coping strategies. Studies show that cognitive strategies are associated with psychological distress (Wenninger et al., 2013). More specifically, mental health counseling should address the lack of positive future expectations and avoidance of negative thoughts for patients suffering from psychological distress (Wenninger et al., 2013). Healthcare providers should encourage ACSs to use less avoidant coping strategies and instead strengthen coping acceptance strategies (Turner-Sack et al., 2012). ACSs who are more susceptible to relapse use more acceptance coping strategies and, therefore, are more likely to have high PTG (Turner-Sack et al., 2012).

APNs can advocate for their patients by securing health insurance and access to care. The socioeconomic impact of cancer on ACSs is considerable (Zebrack & Isaacson, 2012). As adults, ACSs have been reported to be six times more likely than siblings to

report health-related unemployment and almost twice as likely to be unemployed but actively seeking work (Zebrack & Isaacson, 2012). ACSs in the United States are more likely to be uninsured as adults compared to other age groups (Zebrack & Isaacson, 2012). ACSs' higher risk for unemployment contributes to a higher risk for lacking health insurance, limiting access to appropriate follow-up care. Advocacy does not stop at guaranteeing proper insurance for this patient population but can continue in the form of policy and institutional changes, as identified in Figure 1.

Education

For many ACSs, a cancer diagnosis may be their first experience with a life-threatening illness and, therefore, their first encounter with the world of health care. Patient education should be age-appropriate. Resources for ACSs stress a sense of normalcy (D'Agostino et al., 2011). Figure 2 provides a list of appropriate resources specific to ACSs. Providers can use the Internet as a source of information because younger patients with cancer are more likely to access the Internet for information compared to older adult patients with cancer (D'Agostino et al., 2011). Although a multitude of educational materials can help adolescent patients with cancer navigate their diagnosis and treatment, face-to-face contact with the healthcare team remains important (D'Agostino et al., 2011). Ultimately, the goal of care for ACSs is to encourage and help promote self-sustaining, independent, and proactive adolescents in society (D'Agostino et al., 2011).

Childhood camps specifically for ACSs give continuous social and emotional support and access to information (Beckwitt, 2014). Themes of cancer camps include normalcy, meaningful camp experiences, and access to resources (Beckwitt, 2014). Recommendations to promote the abilities of ACSs to cope with cancer include information, practical support, emotional and social support, and policy and institutional changes.

Research

Despite studies acknowledging PTSD and PTSSs in ACSs following cancer remission, a small number of studies have explored the prevalence and predictors of distress and mental health issues in this population (Kwak et al., 2013). Future research should examine the etiology of prevalence and predictors of PTSD and PTSSs and how it affects the road to recovery and the stability of ACSs in the long-term. Monitoring the developmental course of specific comorbid symptoms (e.g., the effects of central nervous system tumors) can help introduce individualized therapy and improve functional outcomes to ultimately reduce the long-term impact for ACSs (Brinkman et al., 2016). Future research should identify and implement clinical steps to help transition ACSs to experience higher levels of PTG and continue to investigate individual attributes that explain PTG after cancer remission (Smith et al., 2014).

FIGURE 2.
AGE-SPECIFIC CANCER RESOURCES

CAMPS, RETREATS, AND ADVENTURE PROGRAMS

Camps and retreats for families and children affected by cancer
- https://bit.ly/W52Qqj

List of retreats by state
- https://stupidcancer.org/directories/retreats.shtml

FERTILITY INFORMATION AND RESOURCES

Becoming a parent after cancer
- www.livestrong.org/we-can-help/livestrong-fertility

Preserving fertility before and after cancer treatment
- www.savemyfertility.org

FINANCIAL SUPPORT SERVICES

Young adults and the Affordable Care Act
- www.healthcare.gov/young-adults/coverage

Support for young adult cancer survivors
- www.thesamfund.org

INFORMATION

Navigating cancer care for young adults
- www.cancer.net/navigating-cancer-care/young-adults

Reports, research, and literature on adolescents and young adults with cancer
- www.cancer.gov/types/aya

SOCIAL NETWORKING AND PEER SUPPORT

Cancer Support Community
- www.cancersupportcommunity.org

Critical Mass
- https://criticalmass.org

Livestrong Foundation
- www.livestrong.org/we-can-help/young-adults

Stupid Cancer
- https://stupidcancer.org

Ulman Cancer Fund for Young Adults
- https://ulmanfund.org/mission

SURVIVORSHIP PROGRAMS

National Coalition for Cancer Survivorship
- www.canceradvocacy.org

Young Survival Coalition
- www.youngsurvival.org

VIDEOS AND LIVE CALL-IN PROGRAMS

Connect Education Workshops
- https://bit.ly/2N6liJL

Stupid Cancer Show
- www.blogtalkradio.com/stupidcancershow

WORK, EMPLOYMENT, AND LEGAL SUPPORT

Cancer and careers
- www.cancerandcareers.org

Disability Rights Legal Center
- https://drlcenter.org

Conclusion

COG guidelines recommend mental health monitoring and psychological surveillance for all ACSs at every visit. A subset of ACSs reports clinically significant mental health difficulties, including PTSD and PTSSs after being diagnosed with cancer. As providers, involving ACSs in their health care, encouraging self-reliance, and promoting autonomy can lead to positive mental health. Advocacy for ACSs in the hospital and clinic settings sets the stage for further outreach and collaboration between provider entities. Psychological screenings with links to appropriate health services are essential in supporting vulnerable ACSs in this developmental chapter and their transition to adulthood.

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QUESTIONS FOR DISCUSSION

USE THIS ARTICLE FOR JOURNAL CLUB

Journal club programs can help to increase your ability to evaluate the literature and translate those research findings to clinical practice, education, administration, and research. Use the following questions to start the discussion at your next journal club meeting.

- For adolescent cancer survivors (ACSs) in your practice, have you seen signs of post-traumatic stress disorder (PTSD) or post-traumatic stress symptoms (PTSSs)?
- For ACSs new to your practice, how would you establish a screening program for PTSD or PTSSs?
- Of the age-specific cancer resources listed in Figure 2, which resources have you used or recommended to ACSs or their family members? Which of the listed resources are new to you?
- Which coping acceptance strategies have helped ACSs in your practice?

Visit http://bit.ly/1vUqbVj for details on creating and participating in a journal club. Photocopying of this article for discussion purposes is permitted.

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