

Solution-Focused Brief Therapy for Depression Among Adolescents and Young Adults Diagnosed With Cancer: An Open Pilot Trial

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Abstract

Purpose: This pilot study evaluates the acceptability and preliminary efficacy of solution-focused brief therapy (SFBT) for depression, anxiety, and hope among adolescent and young adult (AYA) diagnosed with cancer. Method: 10 AYAs with a primary sarcoma diagnosis participated in an open pilot of SFBT for their depression between January and June 2019 delivered by trained social work interns.

Results: All participants completed four planned sessions and reported strong acceptability of SFBT. Statistically significant improvements were observed for pre- and post-treatment scores for depression, anxiety, and levels of hope. These improvements were maintained at 1-month follow up, with significant patterns of difference in study participants' depression, anxiety, and levels of hope over time.

Conclusions: SFBT is an acceptable intervention approach for depression (and anxiety) among AYAs diagnosed with cancer. SFBT offers a brief, strength-based, and hope-engendering approach to address mental health concerns among young adult diagnosed with cancer.

Keywords

adolescent and young adult cancer, depression and anxiety, pilot clinical trial, solution-focused brief therapy

Adolescents and young adults (AYAs) diagnosed with cancer is an age-defined cancer population between 15 and 39 years old (Siegel, Miller, & Jemal, 2020). Population-based cancer incidence data in the United States estimated 90,000 AYAs are newly diagnosed with cancer every year, and there are over 650,000 AYA cancer survivors in 2020—a statistic expects to rise rapidly in the next decade (Miller et al., 2020). Unlike their pediatric or adult counterparts diagnosed with cancer, AYA cancer survivors experience unique biopsychosocial challenges due to their distinct developmental needs and, consequently, are disproportionately impacted by the side- and late-effects of their cancer diagnoses and treatments (Patterson, McDonald, Zebrack, & Medlow, 2015). Common challenges distinct to AYA cancer survivors include but are not limited to premature confrontation of death, grief due to loss of reproductivity, financial toxicity caused by academic and occupational disruptions, and compromised sexual health due to cancer treatment (Kaddas et al., 2020; K. Young et al., 2019; Zebrack & Isaacson, 2012). As a result, AYA cancer survivors are at significantly greater risk of

psychological distress than their pediatric or adult counterparts, including depression (Jones et al., 2020; Kaul et al., 2017).

Clinical and population-based studies reported over 30% of AYAs diagnosed with cancer meet criteria for clinical depression, a rate significantly higher than cancer survivors of other age groups (Prasad et al., 2015; Zhang, Hu, Wang, & Antalis, 2020). Notably, the rate of depression among AYA cancer survivors is three to four times higher than that of the general population without cancer (Brody, Pratt, & Hughes, 2013). If not properly treated, depression among AYA cancer survivors is likely to cause poor treatment adherence,

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increased social isolation, reduced self-efficacy, compromised life quality, and alleviated suicide risk (Geue et al., 2018; Lauer, 2015; Park & Rosenstein, 2015). Therefore, it is essential to effectively address depression among AYAs diagnosed with cancer.

Although research-supported psychotherapeutic depression interventions are available, such as cognitive behavioral therapy (CBT), there exists several gaps in the literature targeting clients with comorbid depression and cancer. First, diagnostically oriented psychotherapies that target irrational or unrealistic thoughts and negative emotions among clients with depression may not be sufficient for individuals with cancer (Dekker et al., 2017). For example, Greer and colleague (2010) argued that traditional CBT techniques may not effectively address negative thought patterns and emotions that are rational/normal but nonetheless intrusive and distressing for cancer survivors, such as death related fear and sadness, or low mood triggered by cancer treatment related fatigue.

Second, few strength-based psychotherapeutic intervention has been empirically evaluated targeting depression among cancer survivors (Casellas-Grau, Font, & Vives, 2014; Yan, Chan, Chow, Zheng, & Sun, 2020). This represents a major gap in the literature given a wealth body of evidence supporting the therapeutic value of strengths and positive emotions for individuals diagnosed with cancer (Baczewska et al., 2019; Casellas-Grau et al., 2014; Seiler & Jenewein, 2019). For example, studies have found that hope among cancer patients is inversely associated with major cancer-related symptoms including pain, fatigue, and psychological distress, and the relationship persists even after accounting for important demographic and medical variables like cancer stage (Berendes et al., 2010). Therefore, it is essential to empirically evaluate strength-based psychotherapeutic intervention targeting depression among individuals diagnosed with cancer.

Finally, many well-validated depression treatment options are structured/manualized and often require a minimal of eight sessions. Such requirement, however, discourages cancer survivors from seeking depression treatment because many of them are already overwhelmed with busy medical appointments and personal schedule addressing life disruptions caused by cancer and its treatment (Zhang et al., 2021b). Tighe and colleagues (Tighe, Molassiotis, Morris, & Richardson, 2011) offered insights into the post-treatment life of 39 breast cancer survivors, with many of them reporting a sense of being overwhelmed, stressed out, and do not have time to properly attend to their mental health needs. As a result, AYA cancer survivors are more likely to engage in brief depression treatment approaches than those that are longer and require more time commitment. In summary, when treating depression among AYAs diagnosed with cancer, it is essential to consider non-diagnostic, strength-based, and brief psychotherapeutic approaches. One approach that meets all these criteria is solution-focused brief therapy.

Solution-focused brief therapy (SFBT) is a strength-based, solution-focused, and research-supported brief psychotherapy

(Franklin, 2015). SFBT is a popular clinical approach among social workers, especially those working in school and hospital settings (Bond, Woods, Humphrey, Symes, & Green, 2013). For example, SFBT has been reported as a top school-based clinical intervention delivered by school social workers in the United States and internationally (Franklin & Belciug, 2015). Similarly, numerous clinical trials have supported the use SFBT in healthcare settings as administered by health social workers (J. S. Kim, Brook, & Akin, 2016; Li et al., 2018). SFBT's non-diagnostic orientation and its focus on individual strength are consistent with social work values, making it well accepted among social work practitioners (Franklin, 2015).

SFBT overcomes various gaps in the psychotherapy literature alleviating depression among AYA cancer survivors. First, grounded in social constructivism, SFBT practitioners pay little attention to what have caused the problem (the diagnostic model) but focus on co-constructing solutions with the clients by identifying their previous success and/or inner strengths (the strength-based model) (J. S. Kim, Jordan, Franklin, & Froerer, 2019). As a result, SFBT practitioners do not focus on identifying AYA cancer survivors' "irrational" thoughts and correcting them, such as "I have to be fearful of cancer returning for the rest of my life." Instead, SFBT practitioners may ask the clients to think about a previous experience when they had no control over something but were able to maintain their fear at a manageable level.

Second, SFBT explicitly uses positive emotions, such as hope and resilience, as its core change mechanism. Kim and Franklin (2015) reviewed a robust body of literature and found that solution-focused techniques, for example, miracle question or exception question, invoke clients' positive emotions, which further elicit their thought-action repertoires that are broad, flexible, and receptive to new thoughts and actions. In addition to broadening clients' thought-action repertoires, positive emotions also help build durable resources that can be utilized for future use. This is especially relevant to AYA cancer survivors given few existing psychotherapeutic approaches utilizes positive emotions when being delivered to individuals diagnosed with cancer.

Third, SFBT is a brief intervention approach requiring an average of three to four sessions to show therapeutic progress, including for clients in medical settings (Zhang, Franklin, Currin-McCulloch, Park, & Kim, 2017). In comparison to other structured and longer treatment approaches, a brief option, like SFBT, is ideal for AYAs diagnosed with cancer to accommodate for their busy life schedule. Besides, younger clients are more likely to accept brief psychotherapies than longer options due to their natural tendency to disengage from authoritative figures (Tanner-Smith & Lipsey, 2015).

Finally, SFBT has been empirically validated as an effective depression treatment approach in medical setting, including for those diagnosed with cancer. Zhang et al (2017) conducted a meta-analysis of SFBT in medical settings, and results of the study revealed an overall statistically significant

treatment effect of SFBT for psychological distress among individuals with chronic health conditions, $d = 0.34$, $p < 0.05$. In addition, studies have reported SFBT as a viable approach working with cancer patients and their family members in the United States (Neilson–Clayton & Brownlee, 2008). Finally, studies have reported that SFBT is effective in reducing psychological distress, including depression, among caregivers of cancer patients (Zhang et al., 2018) and for Chinese AYAs diagnosed with cancer (Zhang et al., 2021a), further supporting SFBT's potentials in alleviating depression among AYAs diagnosed with cancer.

Despite a robust body of theoretical and empirical literature indicating SFBT's potential in alleviating depression among AYA cancer survivors, to our knowledge, no existing study has evaluated SFBT for depression among AYA cancer survivors in the United States. This represents a critical gap for social work practitioners as oncology social workers are the largest mental health workforce for cancer patients in America (Zebrack et al., 2016). Therefore, this pilot study aims to examine the acceptability and (preliminary) efficacy of SFBT for depression among AYAs diagnosed with cancer when being delivered by social workers. Specifically, we hold the follow study hypotheses: 1. SFBT is acceptable among AYAs diagnosed with cancer as measured by AYA reported Acceptability of Intervention Measure (AIM) score; 2. SFBT is efficacious in reducing depression for AYAs diagnosed with cancer as measured by the Patient Health Questionnaire, 9 items (PHQ-9); 3. SFBT improves the level of hope among AYAs diagnosed with cancer as measured by the Herth Hope Index (HHI); and 4. SFBT is efficacious in reducing anxiety for AYAs diagnosed with cancer as measured by the Generalized Anxiety Disorder, 7-item (GAD-7).

Method

Participants and Recruitment

Participants were referred to the study from the Michigan Medicine Sarcoma Clinic between January and June 2019. The sarcoma clinic provides comprehensive cancer care to patients diagnosed with sarcoma, ranging from medical cancer treatment to psychosocial support. This study was designed to evaluate SFBT as an embedded depression treatment for AYAs diagnosed with sarcoma. The clinic manager introduced the study to all patients who expressed an alleviated level of distress and connected them with the investigative team. Interested patients reached out to the study coordinator and scheduled a screening session. To be eligible for participation, a patient had to (1) be between the age of 15–39 years old—an age range corresponds to AYA as defined by the National Cancer Institute (2011); (2) have a sarcoma diagnosis; (3) screen positive for moderate or greater depression (PHQ-9 ≥ 10); and (4) willing to provide informed consent (and assent if applicable). Individuals were *not* eligible if they (1) did not speak English; (2) were receiving other forms of mental health

treatment at the time; (3) had clear signs of active psychosis; (4) had cognitive impairment (based on a patient's electronic health record, EHR); (5) reported prominent suicidal/homicidal ideation with imminent risk; or (6) were receiving end-of-life care. Participants on psychotropic medication were eligible to participate.

Design Overview and Study Procedure

This study was approved by the University of Michigan medical Institutional Review Board (IRBMED). A single group pre-test and post-test design was utilized to compare outcomes over time across pre-treatment, immediate post-treatment, and 1-month follow up. Figure 1 presents the study participant flowchart. Interested participants met with a research staff for an initial in-person screening meeting to determine their eligibility in an office that is in walking distance to the sarcoma clinic. The screening interview assessed individuals' depression using PHQ-9, and those who reported a score of 10 or higher were invited to provide informed consent (and assent) as well as to conduct pre-treatment assessment, including Generalized Anxiety Disorder, 7-item (GAD-7), and the Herth Hope Index (HHI).

Eligible participants were then invited to meet with a study clinician to receive SFBT over a 4-week period (described later). The research assistant who administered pre-treatment evaluation also conducted immediate post-treatment (by the end of session 4) and 1-month post-treatment assessment to evaluate participants' progress. Pre- and post-treatment assessments were completed in-person in a room without the study clinician, and the 1-month follow up assessment was conducted over the phone. Participants received free therapy as reimbursement and did not receive other incentives for participation except for parking ticket.

SFBT Intervention Protocol

Participants in the study received four structured individual sessions on a weekly basis and had up to 6 weeks to receive all four sessions. When possible, a session was scheduled on the day of a patient's clinic visit for convenience. SFBT in this study was delivered in adherence to the Solution-Focused Therapy Treatment Manual for Working with Individuals 2nd Version, which was developed by the research committee of the Solution-Focused Brief Therapy Association (Bavelas et al., 2013). In this study, a modified version specifically for AYA's diagnosed with cancer was used to train and supervise study clinicians (key content summarized in Table 1). The main outline and structure of each of the four sessions were as follow:

Session 1: Building rapport and setting client-generated goals with solution-focused languages and techniques. Key techniques include: solution-talk, pre-session change questions, future-oriented questions, formula first session questions, and, if appropriate, miracle question. Pay attention to the

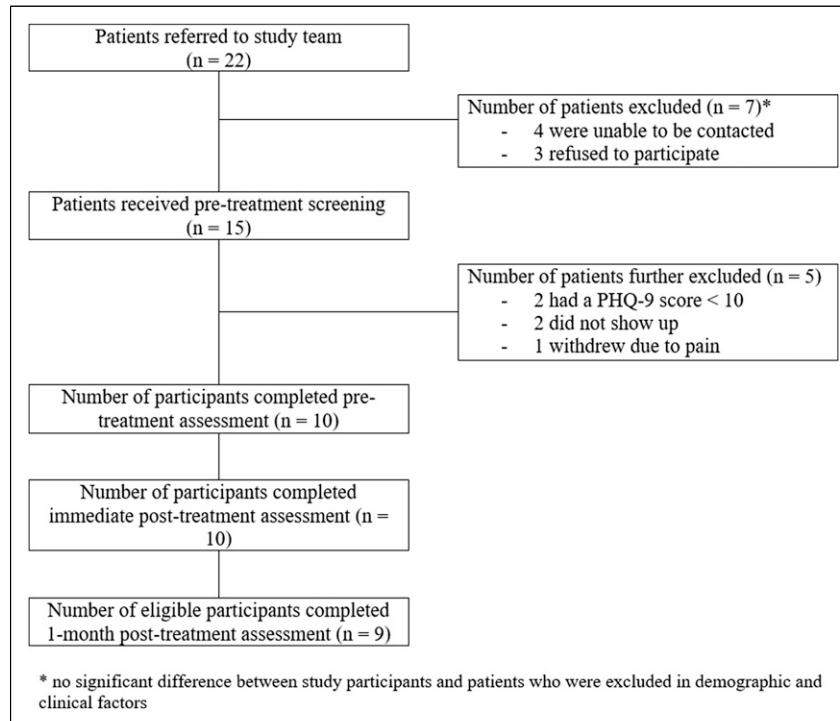


Figure 1. Participant Flowchart.

feasibility of client-generated goals, especially as contextualized in their cancer diagnoses.

Session 2 and 3: the SFBT clinician begins the session with a brief check-in and focuses on any positive changes, for example, progress, since last meeting. Through the client's own frame of reference, the SFBT clinician attends to co-construct solutions to solve clients' on-going challenges related to depression. Key SFBT techniques include: coping questions, exception questions, miracle questions, relational questions, and scaling questions.

Session 4: the SFBT clinician checks in with the client, informs participant that this is the last session for the study, and offers follow-up resources if the client wishes to continue receiving mental health support. The SFBT clinician focuses on reviewing client's progress and discusses with participants about plans to continue using SFBT strategies.

An important principle when delivering SFBT to AYAs diagnosed with cancer is the adjusted use of SFBT techniques to invoke clients' positive emotion, for example, asking about their preferred future or what would be different if a miracle happens. Most, if not all, cancer survivors would want to be cancer free when being given the chance to envision a preferred future, which is neither realistic nor constructive to the therapeutic encounter. Therefore, it is essential for SFBT clinicians to ensure SFBT techniques are asked in ways that the client's preferred future is realistic and possible.

Training, Supervision, and Fidelity Assessment of Study Clinicians. Two master's level social work students in their advanced year served as

study clinicians. The study clinicians were trained by a PhD-level licensed clinical social worker with 5 years of clinical experiences delivering SFBT to young patients in hospital settings, including AYAs diagnosed with cancer. Study clinicians spent 4 hours reading the original SFBT manual and attended an all-day long training using the modified study specific SFBT manual for AYAs diagnosed with cancer. Each study clinician also attended a 2-hour role play session with the trainer and was evaluated using 10 criteria from the original SFBT treatment manual. Both study clinicians achieved an average score of 90 out of 100 before initiating clinical contact. The same trainer provided on-going weekly supervision throughout the duration of the study. Random (audio) recording of sessions as additional fidelity checks was not feasible in this study.

Outcome Measures

Intervention acceptability. SFBT acceptability was measured by the Acceptability of Intervention Measure (AIM), which is a psychometrically validated scale evaluating participants' perceived acceptability of an intervention (Weiner et al., 2017). Participants responded to a 5-point Likert scale ranging from 1 = completely disagree to 5 = completely agree to the following four questions: 1. The intervention meets my approval; 2. The intervention is appealing to me; 3. I like the intervention; and 4. I welcome the intervention. The AIM has a theoretical range from 4 to 20, with a higher AIM score indicating higher acceptability of SFBT.

Depression. Depression was evaluated using the Patient Health Questionnaire, 9-item (PHQ-9) (Kroenke et al., 2001).

Table 1. Modified Content for Solution-Focused Brief Therapy with AYAs Diagnosed with Cancer.

	General Solution-Focused Brief Therapy Procedure	Adaptation for AYA cancer patients
Session one	<p>Goals and aims</p> <p>The overarching goal of session one is to establish an effective and collegial therapeutic relationship between the SFBT therapist and the client.</p> <p><i>General Process</i></p> <ul style="list-style-type: none"> - A therapist may begin with a brief check in with the client and start the session with the <i>pre-session change question</i>. Tell the client that it is typically a 4–5 sessions/times of meeting. By the end of the 4th or 5th meeting, if the client feels strongly about continuing services, the therapist will have a conversation with the client about other available resources. - Based on the client's response to the pre-session change question, the therapist then establishes <i>solution-focused goals</i>, using the <i>future-oriented question</i>, <i>scaling question</i>, or <i>miracle question</i>. - In developing goals with the client, the therapist needs to assure the goals are solution-oriented, feasible, and come directly from the client. - Towards the end of the session, the therapist may use <i>exception questions</i>, <i>scaling questions</i>, <i>coping questions</i>, and other techniques to explore components to develop a solution. - The therapist may end the session by <i>complimenting</i> strengths and resources and past success or exception, if any, from the client during the session. - (assignment) if appropriate, while complimenting the client for their past exceptions or successes, feasible assignments related to behavioral changes or creating solutions may be suggested to the client based on their past successes or future behaviors they desire. 	<p>Modification</p> <ul style="list-style-type: none"> - Pre-session change questions should be tailored to account for the possibility that a patient did not respond well to the more recent treatment regimen or had severe side-effects to cancer treatment. - The therapist should acknowledge any negative cancer-related experiences or symptoms but remain focused on the client's strengths and resilience. - If the <i>miracle question</i> is appropriate, the therapist should frame a realistic miracle, for example, "<i>if your cancer diagnosis remains the same, but your cancer management becomes highly effective.</i>" - If the <i>exception or coping questions</i> are appropriate, the therapist should account for the situation that many patients are coping with cancer for the first time and have limited experiences coping with cancer.
Session two	<p>Goals and aims</p> <p>The overarching goal of session two is to build on goals from session one and to co-construct solutions with the client</p> <p><i>General Process</i></p> <ul style="list-style-type: none"> - A therapist may begin with a brief check in with the client and start the session with the <i>pre-session change question</i>. - Based on the client's response to the pre-session change question, the therapist then focuses on identifying components of a solution using <i>scaling question</i>, <i>exception question</i>, <i>coping question</i>, and using the client's frame of reference. - The therapist pays close attention to details and components that can help the client in further developing solutions to their challenges and to achieve a preferred future. - Under the client's own <i>frame of reference</i> and using the details regarding past exceptions, solutions, and successes, the therapist then guides the client (lead from <i>one step behind</i>) to develop specific behavior or lifestyle change plans to engage positive changes. - The therapist concludes the session by complimenting the client on progress made during the session and specific details in building solutions identified by the clients. 	<p>Modification</p> <ul style="list-style-type: none"> - It remains essential for the therapist to ensure the components of solutions are feasible and realistic, especially within the context of the clients' cancer diagnosis and treatment. - Patients with a cancer diagnosis are more likely to have non-positive narratives about their cancer experiences, preferred future, or potential solutions. As a result, the therapist should strategically "ignore" negative comments and select positive frames of reference from clients to build solutions. - The therapist should always compliment on the fact that the client is seeking support during their busy schedule receiving cancer care

(continued)

Table 1. (continued)

	General Solution-Focused Brief Therapy Procedure	Adaptation for AYA cancer patients
Session three	<p>Goals and aims</p> <p>The overarching goal of session three is continuing solution building with more details</p> <p>General Process</p> <ul style="list-style-type: none"> - The therapist begins the session with a brief check in and starts with the <i>pre-session change question</i>. - Building on the client's response to the pre-session change question, the therapist then explores details, using <i>coping questions</i>, <i>scaling questions</i>, and other techniques to further co-construct and establish solution(s) to the client's situation. - In further <i>co-constructing</i> the solution(s), the therapist <i>compliments the client</i> to guide the client using their own frame of reference to engage behavior or lifestyle changes. - If some of the client's efforts have been working, reinforcing these efforts using SFBT techniques and responses are strongly recommended. - In ending the third session, the therapist will notify the client that session four will be the final session and briefly share with the client what will happen in session four. 	<p>Modification</p> <ul style="list-style-type: none"> - It remains essential for the therapist to ensure the components of solutions are feasible and realistic, especially within the context of the clients' cancer diagnosis and treatment. - When clients' solutions are difficult to achieve or not possible due to their cancer diagnosis or treatment, the clinician may use relational questions asking how the patient's oncologist may react to the proposed solutions. - The therapist should guide the client to think about how effective solutions may or may not work with their cancer journey becomes worse, for example, progress and treatment side-effects.
Session four	<p>Goals and aims</p> <p>The overarching goal of session four is to summarize progress made so far and offer necessary resources for the client after the intervention ends</p> <p>General Process</p> <ul style="list-style-type: none"> - The therapist starts the session by <i>complimenting</i> the progress they have made so far. The complements need to be specific. - The therapist then invites the client to share their experiences, focusing on the <i>positive changes</i> they have noticed throughout the intervention period. - Using the <i>scaling question</i>, the therapist evaluates the client's current status and, ideally, invites the client to identify specific reasons they give a higher score now than before. - Using the <i>future-oriented question</i>, the therapist invites the client to think about needed resources and methods they need to keep building or maintaining solutions. "<i>What do you think we can talk about for the rest of the session so that you walk out of the room and feel more confident that you can now manage the situations on your own?</i>" - The therapist may provide psychoeducation to the client on resources available if the client needs further support. - The therapist uses relational questions to further motivate the client to think about strategies in managing their own situations, maybe with the support from their social relationships. - The therapist concludes the sessions. 	<p>Modification</p> <ul style="list-style-type: none"> - The therapist should focus on building sustainable solutions as the clients continue their cancer journey. - The therapist should emphasize clients' inner resources and resilience when solving future challenges especially considering the uncertain nature of cancer progression.

PHQ-9 has been psychometrically validated and is one of the most widely used depression scale internationally. For cancer patients, a large sample study reported PHQ-9's Cronbach's alpha of .84 or higher, suggesting strong internal reliability (Hinz et al., 2016). Participants responded to a list of nine questions inquiring how often they have been bothered by these problems over the last 2 weeks using a 4-point Likert scale: from 0 = not at all to 3 = nearly every day. PHQ-9 has a theoretical range from 0 to 27, which a higher score indicating greater severity of

depression. A PHQ-9 score below 10 indicates minimal or mild depression, a PHQ-9 score between 10 and 19 indicates moderate or moderately severe depression, and a PHQ-9 score of 20 or higher indicates severe depression (Manea et al., 2012).

Anxiety. The Generalized Anxiety Disorder, 7-item (GAD-7) (Spitzer, Roenke, Williams, & Löwe, 2006) was used to measure anxiety. GAD-7 is psychometrically validated anxiety measure among cancer patients, with studies reporting

strong internal consistency, for example, Cronbach's alpha $\geq .88$ (Esser et al., 2018). Participants responded to how often over the last 2 week have they been bothered by a list of seven problems. Participants responded to a 4-point Likert scale (from 0 = not at all to 3 = nearly every day) with higher score indicating greater severity of anxiety. A GAD-7 score of 0–9, 10–14, and 15–21 represents minimal or mild, moderate, and severe anxiety, respectively.

Hope. Participants' hope level was measured by the Herth Hope Index (HHI) (Nayeri et al., 2020). HHI is a psychometrically validated scale for hope with satisfactory performance among AYAs diagnosed with cancer (Phillips–Salimi, Haase, Kintner, Monahan, & Azzouz, 2007). A systematic review of HHI revealed its consistency being .88 or higher (Redlich–Amirav et al., 2018). Participants responded to 12 questions using a 4-point Likert scale (1 = strongly disagree–4 = strongly agree), with a theoretical score range from 12 to 48 and higher score indicating higher level of hope.

Data Analysis

Descriptive statistics were used to characterize participants' demographic and pre-treatment clinical characteristics, as well as their treatment attendance. SFBT acceptability was quantified using descriptive statistic of participants' reported AIM score.

Within-group difference between pre- and immediate post-treatment outcome scores were evaluated using two-tailed, paired samples t-test with a critical alpha level of .05. Within-group effect sizes were calculated using small sample size corrected Hedges' g (Cooper, Hedges, & Valentine, 2019). Repeated Measures Analysis of Variance (ANOVA) was used to identify the pattern of difference on outcomes across the three timepoints, that is, pre-treatment, immediate post-treatment, and 1-month follow up. Partial eta square was used to calculate effect sizes for the repeated measures ANOVA. All enrolled participants completed all four sessions and provided pre- and immediate post-treatment scores.

We lost contact with one participant during 1-month post-treatment follow-up and used that participant's immediate post-treatment score for imputation. Other imputation methods, such as using group average mean scores 1-month post-treatment or using the participant's pre-treatment scores, were conducted for sensitivity analysis and all results remained the same. Distributional assumptions and outliers were evaluated for all statistical analyses and no concern was revealed. All data analyses were conducted using R Software version 4.1.1 (R Core Team, 2021).

Results

Sample Characteristics

Ten eligible participants provided informed consent, completed pre-treatment assessment, and entered study receiving SFBT for depression. As show in Table 2, participants' age

averaged at 23.1 years old ($SD = 3.84$), ranging from 18 to 30 years old. The majority of participants identified as female ($n = 7$, 70%). Four participants (40%) identified as non-Hispanic White, three identified as non-Hispanic Black (30%), leaving 1 and 2 participants identified as non-Hispanic Asian and Hispanic/Latino, respectively. Half of the participants reported being single ($n = 5$, 50%), and two participants reported being married and three participants reported being in a romantic relationship. All study participants had at least a high school or equivalent degree, including four participants with a bachelor's degree (40%) and 1 with a graduate/professional degree (10%). About one third of the participants ($n = 3$, 30%) were employed full time and two participants were employed part time (20%), leaving one participant unemployed and four participants were students at the time.

Regarding pre-treatment clinical characteristics, all study participants reported a sarcoma diagnosis, including two participants reported an additional secondary cancer (one with bone cancer and another with acute myeloid leukemia). The majority of the participants ($n = 8$, 80%) had completed their cancer treatment, that is, in the survivorship care stage, leaving 2 (20%) participants receiving on-going cancer treatment with curative intent. On average, participants reported a pre-treatment PHQ-9 score of 16.1 ($SD = 3.28$), suggesting moderately severe depression. Participants reported a pre-treatment GAD-7 mean score of 11.5 ($SD = 2.55$), indicating moderate anxiety. The average score of pre-treatment level of hope among study participants was 28.4 ($SD = 4.79$), suggesting relatively low level of hope among study participants pre-treatments.

Treatment Adherence and Acceptability

Ten study participants (100%) completed all four SFBT sessions, with an average session length of 40 minutes ($SD = 9.18$) per session. Participants reported an average of 18.6 ($SD = 1.58$) AIM score out of 20, which suggested very strong acceptability of SFBT among AYAs diagnosed with cancer. Specifically, participants reported an average of 4.8 ($SD = .42$) out of 5 for "SFBT meets my approval"; 4.5 ($SD = .53$) out of 5 for "SFBT is appealing to me"; 4.8 ($SD = .53$) out of 5 for "I like SFBT"; and 4.8 ($SD = .42$) out of 5 for "I welcome SFBT."

SFBT's Treatment Effect for Adolescent and Young Adults Diagnosed with Cancer

Treatment effect for depression. Paired sample's t-test (in Table 3) revealed an overall statistically significant reduction in AYA cancer survivors' depression from pre-treatment (mean = 16.1, $SD = 3.28$) to immediate post-treatment (meant = 12.6, $SD = 1.90$), $t(9) = 5.65$, $p < .001$. Such reduction represented a statistically significant and large treatment effect size for depression among AYAs diagnosed with cancer, $g = .95$, $p < .01$. Repeated measures ANOVA (Table 4) revealed a statistically significant pattern of difference on AYA cancer

Table 2. Demographic and Pre-Treatment Clinical Characteristics ($N = 10$).

	Mean (SD)	N (%)
Age	23.1 (3.84)	
Sex		
Female		7 (70%)
Male		3 (30%)
Race/Ethnicity		
Non-Hispanic White		4 (40%)
Non-Hispanic Black		3 (30%)
Non-Hispanic Asian		1 (10%)
Hispanic/Latino		2 (20%)
Marital Status		
Married		2 (20%)
In a romantic relationship		3 (30%)
Single		5 (50%)
Educational Attainment		
High school or equivalent		3 (30%)
Some college		2 (20%)
Bachelor's degree		4 (40%)
Graduate/Professional degree		1 (10%)
Employment Status		
Employed, full time		3 (30%)
Employed, part time		2 (20%)
Unemployed		1 (10%)
Student		4 (40%)
Cancer diagnosis		
Sarcoma only		8 (80%)
Sarcoma and a secondary cancer		2 (20%)
Cancer treatment stage		
Active treatment with curative intent		2 (20%)
Post-treatment survivorship care		8 (80%)
Depression (Patient Health Questionnaire-9)	16.1 (3.28)	
Anxiety (Generalized Anxiety Disorder-7)	11.5 (2.55)	
Hope (Herth Hope Index)	28.4 (4.79)	

Table 3. Within-group pre- and post-treatment change in depression, anxiety, and hope ($n = 10$)^a

Outcome	Pre-treatment M (SD)	Post-treatment M (SD)	t (df)	P	G
Depression (Patient Health Questionnaire-9)	16.1 (3.28)	12.6 (1.90)	5.65 (9)	< .001	0.95**
Anxiety (Generalized Anxiety Disorder-7)	11.5 (2.55)	8.90 (1.60)	5.75 (9)	< .001	0.92*
Hope (Herth Hope Index)	28.4 (4.79)	36.1 (4.61)	7.61 (9)	< .001	1.57***

^aM (SD) = Mean (SD); g = small sample size corrected Hedges' g

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

survivors' PHQ-9 score overtime, $F(2) = 33.26$, $p < .001$. The partial eta-squared demonstrated a within-group effect size of .787.

Treatment effect for anxiety. Paired sample's t-test (in Table 3) revealed an overall statistically significant reduction in AYA cancer survivors' anxiety from pre-treatment (mean = 11.5, $SD = 2.55$) to immediate post-treatment (mean = 8.90, $SD = 1.60$), $t(9) = 5.75$, $p < .001$. Such reduction represented a

statistically significant and large treatment effect size for anxiety among AYAs diagnosed with cancer, $g = .92$, $p < .05$. Repeated measures ANOVA (Table 4) revealed a statistically significant pattern of difference on AYA cancer survivors' GAD-7 score overtime, $F(2) = 19.16$, $p < .01$. The partial eta-squared demonstrated a within-group effect size of .680.

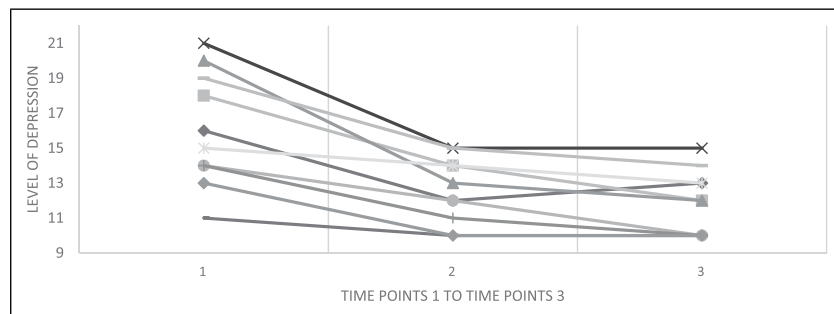
Treatment effect for hope. Paired sample's t-test (in Table 3) revealed an overall statistically significant improvement in

Table 4. Repeated Measures ANOVA for Patterns of Depression, Anxiety, and Hope ($n = 10$)^a

Outcome	Pre-treatment M (SD)	Post-treatment M (SD)	1-month Follow-up M (SD)	F (df)	P	η^2
Depression (Patient Health Questionnaire-9)	16.1 (3.28)	12.6 (1.90)	11.9 (1.85)	33.26 (2)	< .001	.787
Anxiety (Generalized Anxiety Disorder-7)	11.5 (2.55)	8.90 (1.60)	8.5 (2.07)	19.16 (2)	< .01	.680
Hope (Herth Hope Index)	28.4 (4.79)	36.1 (4.61)	36.9 (4.36)	69.90 (2)	< .001	.886

^aM (SD) = Mean (SD).

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

**Figure 2.** Participants' PHQ-9 Scores Across Three Timepoints.

AYA cancer survivors' anxiety from pre-treatment (mean = 28.4, $SD = 4.79$) to immediate post-treatment (mean $t = 36.1$, $SD = 4.61$), $t(9) = 7.61$, $p < .001$. Such increase represented a statistically significant and large treatment effect size to improve hope among AYAs diagnosed with cancer, $g = 1.57$, $p < .001$. Repeated measures ANOVA (Table 4) revealed a statistically significant pattern of difference on AYA cancer survivors' HHI score overtime, $F(2) = 69.90$, $p < 0.01$. The partial eta-squared demonstrated a within-group effect size of .886. Figures 2–4 present the trajectory of each participant's depression, anxiety, and hope over three timepoints, that is, pre-treatment, immediate post-treatment, and 1-month follow up.

Discussion

Depression is highly prevalent and debilitating, especially for AYAs diagnosed with cancer. To address the gap that diagnostically oriented psychotherapies that require eight or more sessions often do not fit well with the unique needs of AYAs with comorbid cancer and depression, this pilot study evaluated a brief, strength-based, hope-engendering psychotherapy for depression among AYA cancer survivors. Overall, results of this pilot trial were highly promising in that SFBT was well accepted by AYAs diagnosed with cancer, and was efficacious in reducing depression, anxiety, and in promoting hope.

Treatment adherence in this study was excellent, evidenced by all study participants (100%) completed four planned

sessions of SFBT. Participants' strong adherence to SFBT identified in this study was similar to published studies of SFBT when being delivered to patients in medical settings (Li et al., 2018; Zhang et al., 2021a). As a strength-based and client-centered approach, SFBT's collaborative nature has been repeatedly documented for its high level of acceptability among clients who may otherwise be resistant to other diagnostically oriented psychotherapies (Matanov, McNamee, Akther, Barber, & Bird, 2021; McPherson et al., 2017). This is especially important for social work practitioners because the profession's unique emphasis on strength-based practices when serving vulnerable populations. Besides, the brief format of SFBT had likely contributed to participants' treatment adherence, especially given the hectic life schedule of many AYAs diagnosed with cancer. Another possible factor contributing to the high adherence rate among AYAs diagnosed with cancer was the high proportion of post-treatment cancer survivors versus those who were undergoing active cancer therapy. Studies have found that cancer patients receiving active treatment are at significantly greater risk of pain, nausea, and sleep disturbances than their peers in the post-treatment survivorship phase (Cillessen, Johannsen, Speckens, & Zachariae, 2019; Zhang et al., 2020). Therefore, adherence to psychotherapies is less likely to be disrupted by side-effects of cancer treatment, for example, pain or fatigue, among post-treatment survivors than their peers receiving active cancer treatment.

Findings of this pilot study also suggested that SFBT has promise for alleviating depression among AYA cancer survivors, with statistically and clinically significant reduction in

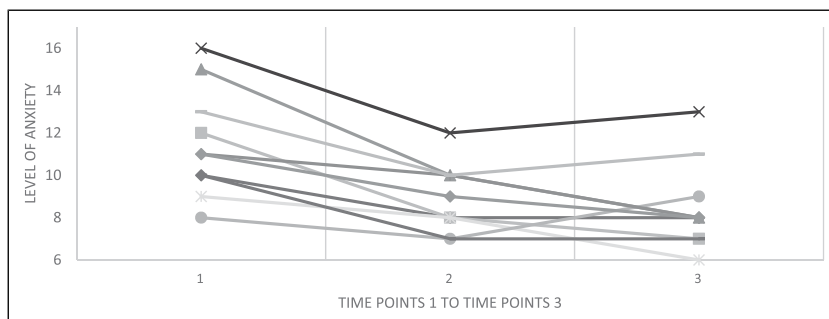


Figure 3. Participants' GAD-7 Scores Across Three Timepoints.

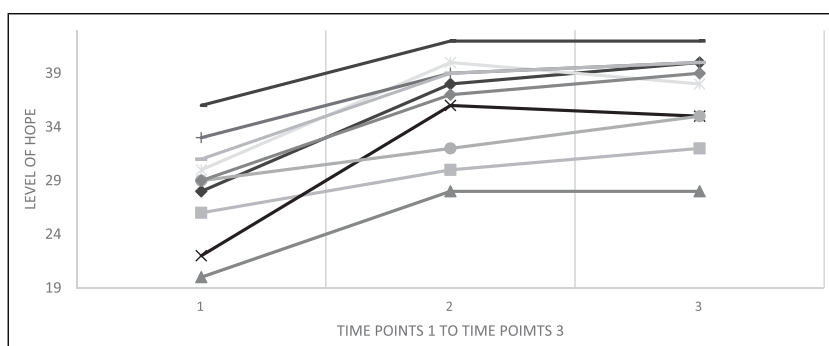


Figure 4. Participants' HHI Scores Across Three Timepoints.

post-treatment depression. Besides, the pattern of depression across three time points (pre-treatment, immediate post-treatment, and 1-month follow up) was statistically significant, and with a partial eta-squared of .787. Such finding was consistent with existing studies evaluating SFBT for internalizing disorders in healthcare settings (Schmit, Schmit, & Lenz, 2016; Zhang et al., 2017) as well as a study evaluating SFBT for AYA cancer survivors in China (Zhang et al., 2021a). Findings of this study further extend the literature by demonstrating promising evidence of SFBT for depression among AYA cancer survivors in the United States. Oncology social workers are the largest workforce in supporting the psychosocial needs among individuals diagnosed with cancer, including AYA cancer survivors. In light of the promising finding, oncology social workers are encouraged to consider SFBT as a promising intervention with preliminary research support to alleviate depression among U.S. AYA cancer survivors.

Additionally, results of this study revealed that SFBT significantly reduced AYA cancer survivors' anxiety, with a statistically significant and large treatment effect size. Anxiety is common among AYA cancer survivors as many of them experiencing fear of cancer recurrence and death anxiety (Gonen et al., 2012). Although having anxiety was not an inclusion criterion for this study, all enrolled participants reported a mild or greater level of anxiety pre-treatment, confirming the high prevalence of anxiety (comorbid with depression) among AYAs diagnosed with cancer. There exists

substantial overlap in both the symptoms and etiologic factors of comorbid depression and anxiety (Garber & Weersing, 2010). Therefore, we were not surprised to see a reduction in anxiety among AYAs diagnosed with cancer, especially given SFBT's treatment effect for depression (Jeannet, Conijn, Oijevaar, & Riper, 2014). It is also worth noting that SFBT by nature is transdiagnostic due to its focus on strengths rather than diagnoses/problems (H. S. Kim & Hogins, 2018). Therefore, it is most likely that SFBT techniques and skills were effective for general psychological distress, which includes both depression and anxiety. Understanding the clinical burden of comorbid depression and anxiety, oncology social work practitioners may consider SFBT as a potentially efficacious treatment that simultaneously addresses AYA cancer survivors' depression and anxiety.

Finally, coherent with the SFBT change mechanism literature (Franklin, Zhang, Froerer, & Johnson, 2017; J. S. Kim & Franklin, 2015), this study identified a statistically significant improvement in AYA cancer survivors' positive emotion, hope, before and after treatment. Besides SFBT's change mechanism literature, numerous empirical studies have linked positive emotions, especially hope, with lower risk of depression and anxiety among individuals diagnosed with cancer (Jimenez-Fonseca et al., 2018; Yang, Liu, Wang, Wang, & Wang, 2014). Although this study was not sufficiently powered to formally evaluate hope as a mediator, based on existing literature and findings of this study, it is reasonable to infer that participants' positive emotions, enhanced by

SFBT, contributed to the reduction in AYA cancer survivors' depression and anxiety.

The proposed SFBT change mechanism, however, needs to be further considered across subgroups of AYAs with different cancer diagnoses and treatment stages. Certain cancer diagnosis may pose unique challenges that have long-term impact on patients' hope about their future. For example, prostate cancer—a drastically increasing diagnosis among AYAs—poses significant risk of infertility and family making to young adults (Bleyer, Spreafico, & Barr, 2020). Without proper oncofertility support, AYAs may have to give up the hope of having biological child, which calls for further tailoring of hope-engendering strategies of SFBT when working with subgroups of AYAs diagnosed with cancer.

It is important to note several limitations of this study. First, although results have suggested that SFBT significantly reduce depression, anxiety, and increase hope, these findings must be interpreted with caution due to the small sample size. It is important to further evaluate SFBT for AYA cancer survivors in a larger sample. Second, this study used a single-arm pre-/post-test design, which did not compare SFBT with a control condition or an active comparison. As a result, findings of the study remain preliminary, and a randomized controlled trial design should be utilized in future studies. Finally, due to the referral source for the study, all AYA cancer survivors had a sarcoma diagnosis, which limited the findings generalizability to other cancer diagnoses.

These limitations notwithstanding, results from this pilot study demonstrate the significance of offering a brief, strength-based, and hope-engendering psychotherapeutic approach for depression among AYAs diagnosed with cancer. Due to various disparity related factors, AYAs is an age-specific cancer population that is least likely to seek for mental health treatment. It is critical for social work researchers and practitioners to incorporate a research-supported and clinically meaningful intervention for this vulnerable cancer population. Results from this pilot study extend beyond existing SFBT literature and provide promising empirical evidence supporting the delivery of SFBT to AYAs diagnosed with cancer in the United States. Future research testing SFBT with larger samples and using a randomized controlled trial design is warranted.

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