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# Self-Guided Psycho-Oncology: A Pilot Implementation Study Evaluating Usage of Conflict Analysis with Cancer Patients

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## ABSTRACT

Cancer patients frequently experience pronounced rates of stress and associated psychological disorders. Unfortunately, many oncology departments only offer limited psychotherapeutic services. This study evaluates if Conflict Analysis (CA), a brief self-guided psychotherapeutic intervention, can help fill this void. CA combines self-report questionnaires, drawing, creative writing, and structured self-reflection. Previously implemented in psycho-educational and clinical contexts, the study presents CA's first psycho-oncology implementation. This study evaluates CA's psychosocial benefits for oncology patients interested in mental health services. CA's abbreviated paper-version (estimated 2.5 h) was provided to nine patients. Before immediately after, and two weeks after, participants completed hope, growth, and motivation measures. Cancer-care-providers completed benefit evaluations. A sample case is discussed. Six participants completed CA. Measures showed nonsignificant improvement. Cancer-care-providers and participants rated CA as therapeutic, diagnostically accurate, and personally relevant. CA appears to be a meaningful, relevant, and accessible intervention for cancer patients. Limitations include illness/treatment influence and sample size. Evidence supports larger cohort replication.

## KEYWORDS

Self-guided interventions; psycho-oncology; brief intervention; narrative interventions; pilot study; implementation study; creativity in counseling

## Main text introduction

Cancer is more than just a physical health concern. Over the course of diagnosis, treatment, and subsequent survivorship, or end-of-life care, more than 25% of the cancer patients will develop depression, anxiety, or post-traumatic stress-related diagnoses (Mehnert et al., 2014; Singer et al., 2009). Despite this incidence level, cancer patients are frequently underserved by psychological services (Kisely et al., 2013), limited by the relative lack of professional mental health providers within oncology departments, barriers to outside mental health providers, and the continued stigma of mental illness (Kadan-Lottick et al., 2005).

Self-guided psycho-oncology approaches, including bibliotherapy (Jacobsen et al., 2013; Körner et al., 2019; Krischer et al., 2007) and web-based models of delivery (Leykin et al., 2012) have been increasingly recognized for helping to fill this gap (Ugalde et al., 2017). Wellness-based methods, such as mindfulness (Ledesma & Kumano, 2009; Monti et al., 2006; Zainal et al., 2013) and narrative interventions (Høybye et al., 2005; Keshet et al., 2015;

Molen, 2000; Petersen et al., 2005), have also been successfully introduced in self-guided psycho-oncology settings, offering an array of potential benefits. That being said, many of these models have been designed as informational outlets or as support groups rather than as active interventions (Leykin et al., 2012). While there has been a rapid increase in evidenced-based psycho-oncology interventions (Cockle-Hearne et al., 2018; Hulbert-Williams et al., 2018), a recent meta-analysis of self-guided psycho-oncology interventions found that patient engagement, adherence, and completion rates were frequently low and that, surprisingly, briefer interventions tended to offer increased patient outcome benefits (Ugalde et al., 2017).

Responding to these achievements and shortcomings, this pilot implementation study evaluates the utilization of Conflict Analysis (CA), a brief interactive self-guided intervention. Based on the Formal Theory of Behavior (A. J. Levis, 1988a), and the Conflict Analysis Battery (A. J. Levis, 1988b), CA focuses on the evaluation of personal conflict and conflict resolution dynamics, premising that through the identification of such patterns, patients can gain self-understanding and motivation for change. CA bridges an array of therapeutic tools to help patients identify these patterns, including self-report questionnaires, narrative writing, drawing, self-reflection, and, when using the web-version, computer-generated feedback. Following the successful findings associated with mindfulness and narrative psycho-oncology interventions, CA anticipates that providing a format for patients to creatively express themselves through storytelling and a structured opportunity for self-reflection will help patients manage stress and gain personal insight (Høybye et al., 2005; Keshet et al., 2015).

Rather than specifically targeting psychopathology, CA centers on the identification of causal conflict resolving patterns (Levis, 1988a; Levis & Levis, 2020a, 2020b; Luborsky & Crits-Christoph, 1998) with the anticipation that learning about personal patterns will help patients learn about themselves and gain the ability to change. Although resolving conflict is typically a beneficial experience, leading to the resolution of incipient stressors, frequently the ways that we resolve conflict perpetuate or reinforce maladaptive tendencies. CA, accordingly, focuses on these patterns to help patients make adaptive shifts. To achieve these objectives, CA employs three parts: (1) Relational Modality Evaluation Scale – Spectrum (RMES-S), a self-report personality questionnaire, (2) Metaphor Tasks, a series of self-report narrative and drawing exercises, and (3) Feedback Profile, a concluding module that encourages self-reflection and integration of insights into daily life.

Linking diagnostic frameworks, therapeutic techniques, and technological resources, CA provides patients with a meaningful introduction to psychotherapy and a potential blueprint for subsequent interventions for little cost and without requiring extensive oversight. CA leverages a network of creativity exercises, guiding clients to cathartically express themselves, and then reflect on the conflict resolving patterns present in their creativity. Rather than being specifically curative, CA utilizes patients' own vocabularies and personal stories to anchor pathways to self-growth.

Past studies have suggested the efficacy and relevance of CA's online intervention, although not specifically in a psycho-oncology context. A previous online implementation study (N = 51) found that majorities of participants endorsed CA as informative (94%), personally relevant and personally respectful (92%), diagnostic and therapeutic (86%), and recommended for broader usage (92%) (Levis & Levis, 2020a). Evidence also indicates that CA performed comparably or better than online mindfulness and narrative interventions

on insight, motivation for change, and psychological-wellbeing outcome measures (M. Levis, 2017).

The present study explores the benefits of using an abbreviated version of CA for patients diagnosed with cancer. The choice to utilize CA in a psycho-oncology setting stems from the anticipation that self-guided interventions may help broaden patient access to therapeutic services, that an interactive short-format intervention may offer lasting benefits, and that a wellness-based approach may help reduce stigma and reduce stress. To evaluate these assumptions, the current study assesses CA's therapeutic impact as well as participant and clinician perspectives about CA's impact, accessibility, and personal relevance. To help illustrate CA's implementation, the study showcases a randomly selected participant case study. This study presents CA's first psycho-oncology utilization. An abbreviated version of CA was selected to lessen cognitive demand on patients who were concurrently receiving chemotherapy (Staat & Segatore, 2005).

## Materials and methods

### Design

This study utilized a brief longitudinal case series design. Participants completed baseline measures before the intervention, post-intervention measures after intervention completion, and follow-up measures 2 weeks after intervention completion. The study relied on participant-completed self-report outcome measures, as well as an outcome measure completed by two cancer-care providers. Although CA is available online, this study utilized a paper-version with the expectation that it would be easier for participants to detail what felt particularly compelling or uncomfortable using paper and pen rather than a digital interface. Intervention and measures were approved by the hospital Institutional Review Board.

### Participants

An abbreviated version of CA was made available to cancer patients undergoing chemotherapy at a Northern New England hospital. Study inclusion criterion consisted of receiving chemotherapy for a cancer diagnosis, being able to use a computer or tablet, and being interested in psychotherapy but not currently enrolled in any mental health care. Of the 37 individuals identified by cancer-care providers as potential participants, nine patients expressed interest in the study and completed informed consent. Research-related contact between investigators and participants occurred only when completing informed consent and during a scheduled question and answer phone meeting after post-intervention completion. Cancer-care providers answered logistical questions and collected case materials between visits and after study completion. Other than during these intervals, the intervention was totally self-guided. Counseling support was available upon request. Participants were provided a 25 USD gift card after study completion. Demographic information is presented in [Table 1](#). See Appendix I for the consort diagram.

The study examined participants' scores on self-report measures predicting growth initiative, hope, therapeutic benefit, change motivation, the intensity of conflict, and a sense of relevance. Between post-intervention and follow-up measures, investigators

**Table 1.** Demographics for intervention noncompleters (n = 2) and completers (n = 6).

Variable	Noncompleters	Completers
Age in years (SD)	64.75 (11.08)	60.33 (12.91)
Gender: n (%)		
Female	1 (50.00)	2 (33.3)
Male	1 (50.00)	4 (66.7)
Race: n (%)		
White	2 (100)	6 (100)
Black	0 (0)	0 (0)
Hispanic	0 (0)	0 (0)
Asian	0 (0)	0 (0)
Highest education: n (%)		
High School	0 (0)	0 (0)
College	2 (100)	5 (83.3)
Graduate Degree	0 (0)	0 (0)
Doctoral Degree	0 (0)	1 (16.7)
Relational Status: n (%)		
Single	0 (0)	1 (16.7)
Married	2 (100)	4 (66.7)
Divorced	0 (0)	1 (16.7)
Annual income: n (%)		
Less than \$10,000	0 (0)	0 (0)
Less than \$30,000	1 (50.00)	2 (33.3)
Less than \$60,000	1 (50.00)	1 (16.7)
Less than \$100,000	0 (0)	3 (50.0)

had brief phone meetings with participants to answer any questions. After participants completed follow-up, investigators reviewed participants' case materials with two cancer-care providers. Following this, each cancer-care provider rated CA's therapeutic and diagnostic benefits for each participant.

### **Conflict analysis (CA) intervention**

The abbreviated CA intervention (estimated completion time is 2.5 hours) included the Relational Modality Evaluation Scale Spectrum (RMES-S; A.J. Levis, 1988b) three Metaphor Tasks (Levis & Levis, 2020b), and a Feedback template (Levis & Levis, 2020a).

RMES-S is a wellness-based Circumplex (Wiggins, 1982) personality inventory. Within the relational modality model (A.J. Levis, 1988a), dominance corresponds with elevated power, while submissiveness corresponds with low power. Cooperativeness corresponds with elevated affiliation levels, while antagonism corresponds with low affiliation levels. RMES-S includes 18 items (see Appendix II), each consisting of a statement and four relational responses. Each response is, respectively, associated with the Dominant Cooperative, Dominant Antagonistic, Submissive Cooperative, and Submissive Antagonistic relational patterns. Participants select one response per item. RMES-S scores are computed by tallying responses for each relational pattern. RMES-S was included at the follow-up to evaluate changes over time.

Participants completed three Metaphor Tasks that illustrate their conflict resolving pattern (Levis, 1988b; M. Levis, 2017). Each of these tasks included a drawing, a creative writing prompt, and a series of self-reflection prompts. The Conflictual Memory Task helps identify developmental and family issues. The Animal Metaphor Task highlights important current conflictual issues. The Short Story Task addresses an idealized vignette of conflict

resolution, typically resolving the incipient conflict from the first task. When presented together, alongside RMES-S scores, CA output helps identify and contextualize participants' conflict resolution patterns, guiding participants to gain insight and initiate behavioral changes. CA output is organized within the Feedback Profile. In CA's online version, the output is emailed to the participant. In the paper-version, participants are instructed to review and reflect on CA output.

Although conceptually similar to certain existing psychotherapy case formulation tools like the Core Conflictual Relationship Theme (Luborsky & Crits-Christoph, 1998), CA offers a self-guided alternative. Rather than requiring a clinician to administer, interpret, and explain assessment results, something that, firstly, requires access to a clinician, and secondly, is associated with heightened financial costs and at times with stigma (Camara et al., 2000; Nakash et al., 2015), CA provides patients a means to expediently, inexpensively, and personally access mental health resources. Given the current imperative to offer medical care services via remote and online channels, CA furthers patients' ability to quickly initiate the therapeutic process.

## **Measures**

The Personal Growth Initiative Scale (PGIS; Robitschek, 1999) is a 9-item single factor, self-report measure of personal focus, and commitment to changing and developing as a person. It was included to evaluate to what extent participants were focused on personal psychological change. PGIS utilizes a 6-point Likert scale, ranging from "definitely disagree" to "definitely agree," and is scored by summing item values. PGIS has good internal consistency (Cronbach's alpha =.77) and is widely used (Bhattacharya & Mehrotra, 2014; Robitschek et al., 2012). Higher scores correlate with better day-to-day functioning and fewer emotional disturbances (Robitschek & Kashubeck, 1999). PGIS was completed at all three study time points.

The Adult Hope Scale (AHS; Snyder et al., 1991) is a 12-item, self-report scale. AHS contains the Agency and Pathway sub-scales and utilizes an 8-point Likert scale, ranging from "definitely false" to "definitely true." Whereas Agency items evaluate goal accomplishment, pathway items address goal-directedness. AHS has good convergent validity with optimism and hope scales (Bailey et al., 2007; Snyder, 2002) and was completed at all three study time points.

The Change Scale (CS) is a novel 3-item scale developed for this study to evaluate openness to change. It uses a 4-point Likert scale, ranging from "strongly disagree" to "strongly agree." Items were selected from the Query-Wellbeing (M. Levis, 2017), a scale used to evaluate motivation for changes in CA's unabridged version. CS evaluates awareness of how to make changes, motivation for changes, and openness to help in making changes. CS contains the following items: "I feel like I know-how to make changes in my life"; "I feel motivated to make changes in my life"; "I would be interested in assistance to make changes in my life." CS was completed at all three study time points.

Conflictual Intensity (CI) is a novel 9-item scale that evaluates areas of heightened conflict, including physical and mental health issues, and uses a 4-point Likert scale, ranging from "strongly disagree" to "strongly agree." Items were selected from the Psychic Tension Scale (A.J. Levis, 1988b), a scale used in CA's unabridged version. Items include: "I have been consistently anxious"; "I have been consistently depressed"; "I have difficulty

functioning”; “I feel emotionally fragile”; “I have a hard time controlling things in my life”; “I frequently dwell on thoughts”; “I get upset with very little provocation”; “I have fears for my health”; “I am very socially insecure.” CI was completed at baseline and follow-up.

The Query-Participant (QP) and Query-Medical (QM) are novel 10-item scales that evaluate the intervention’s therapeutic benefit, ease of access, and relevance. While QP was completed by participants, QM was completed by cancer-care providers. Items were adapted from follow-up queries used in previous CA studies (Levis & Levis, 2020a, 2020b). Both scales utilized the same items; however, while QP requested participants to respond from their own perspective, QM prompted cancer-care providers to present their opinion about CA’s impact on the participant. Both scales use a 5-point Likert scale, ranging from “strongly disagree” to “strongly agree.” QP was completed at post-intervention and follow-up. Two cancer-care providers (a nurse and an oncology counselor), who were familiar with participants’ oncology cases, completed QM after participants finished follow-up. QP and QM items and scoring matrixes are presented in Tables 3 and 4, respectively.

## Analysis

Repeated measures ANOVAs were utilized to evaluate baseline, post-intervention, and follow-up scores for all outcome measures. Although nonparametric analytic methods are often recommended for small samples, we opted to use parametric methods to maximize study power (Mundry & Fischer, 1998). Descriptive statistics are presented for QP and QM results. A sample participant case study is also highlighted.

## Results

### Outcome measures

Of the nine participants that completed informed consent, one withdrew before completing baseline due to deteriorating health, two withdrew at the beginning of CA, and one moved away from the area between post-intervention and follow-up. Six participants completed the intervention and post-intervention. Five participants completed follow-up. CA completion time was longer than expected (mean = 6 h).

Scores on measures evaluating motivation for changes, conflict intensity, growth initiative, and hope improved over time, although changes did not reach statistical significance (see Table 2 for full results). Among those that completed follow-up, QP results suggested participants believed CA was personally relevant (80% agreement at post-intervention and 100% at follow-up), meaningful (60% agreement at post-intervention and 80% at follow-up), and therapeutic (60% agreement at post-intervention and follow-up). Participants largely recommended CA for usage in psychological care (80% agreement at post-intervention and 100% at follow-up) and in medical evaluations (60% agreement at post-intervention and 80% agreement at follow-up). See Table 3 for full QP results. QM scores indicated that cancer-care providers found CA to be diagnostically accurate and therapeutically beneficial. See Table 4 for full QM results.

**Table 2.** Self-report outcome measure scores and repeated measure ANOVA results ( $n = 5$ ).

Scale	Baseline <i>M (SD)</i>	Post <i>M (SD)</i>	Follow-up <i>M (SD)</i>	Mean difference baseline to follow-up ( <i>SE</i> )	<i>df</i>	<i>F</i>	<i>p</i>	Partial $\eta^2$
Agency	6.65 (.12)	6.80 (.60)	7.15 (.76)	-.50 (.49)	2	.96	.420	.195
Pathway	6.85 (.70)	6.75 (.68)	6.95 (.65)	-.10 (.13)	2	.52	.615	.114
PGIS	4.49 (.79)	4.64 (.70)	4.71 (.77)	-.22 (.30)	2	.33	.728	.076
CS	2.70 (.30)	2.87 (.18)	2.93 (.43)	-.23 (.14)	2	1.07	.388	.211
CI†	1.87 (.79)	-	1.47 (.43)	-.40 (.19)	1	4.23	.109	.514

Degrees of freedom (*df*), variance ratio (*F*), significance (*p*), and effect size ( $\eta^2$ ) are presented for the effect of time. Agency and Pathway are Adult Hope Scale sub-scales and are rated from 1–8 (Snyder, 1991). Personal Growth Initiative Scale (PGIS) is rated from 1–6 (Robitschek, 1999). Changes Scale (CS) is rated from 1–3. Conflictual Intensity (CI) is rated from 1–4. Given study's pilot nature and small sample size, no corrective statistic was used. † CI was only completed at baseline and follow-up.

### Case presentation

A participant's case was randomly selected from the study-completer cohort. "Michael" is a 70-year-old nonmarried Caucasian male being treated for advanced cancer. A synopsis of Michael's intervention protocol is presented below.

### Conflictual memory

This task requested participants to illustrate and recount an important conflictual memory from childhood. Guided questions were presented to facilitate self-analysis. Michael recalled how, during a family vacation, he was selected to choose the group's activity for the day. Instead of going to the "grown-up" theme park that his older siblings wanted, he chose an activity targeted for young children. Michael felt that he "disappointed them big time" and that everyone was mad at him. His response was to blame himself for making the wrong choice and to critique his parents for giving him the opportunity to choose the activity.

### Animal metaphor

This task requested participants to illustrate and narrate a story about two animals. Michael presented a playful female golden retriever that wants to play and a sneaky female black cat that is cold, critical, and wants to be alone. Michael identifies that this cat's behavior is reminiscent of his own treatment of an acquaintance, writing that "she is lonely (and maybe infatuated), I do not have time for new friends." Reflecting on this tendency, he wrote, "I try to let them win . . . I try to make them feel comfortable. I get in trouble when I want my way or when I argue my point too long." In addressing what changes he could make to change this pattern, he indicated that he should "Listen more. Opinion less. Others over self."

### Short story

This task requested participants to write and illustrate a story. Michael recounted the hiking adventure of two male rabbits. While one rabbit is more adventurous and eager to explore the mountains, the other is safety-conscious and wants to return home. As they venture further away from home, this conflict increases. Despite this tension, the rabbits have fun and return home happy. Michael identified with both characters, noting that the more conservative rabbit is his "inner logical self." Reflecting on this pattern he wrote, "I avoid conflict yet I think people perceive me as wanting my way, so they give in, just like I do. I do



**Table 3.** Query-Participant (QP) items and rates of agreement.

Item	n (% agreement at post)					n (% agreement at follow-up)				
	1	2	3	4	5	1	2	3	4	5
QP average overall %	18	0	16	54	12	0	14	12	54	20
I felt this program was diagnostic.	1 (20)	0 (0)	0 (0)	4 (80)	0 (0)	0 (0)	1 (20)	1 (20)	2 (40)	1 (20)
I felt that completing the program was an emotional experience.	1 (20)	0 (0)	1 (20)	2 (40)	1 (20)	0 (0)	2 (40)	0 (0)	2 (40)	1 (20)
I was surprised by the program's personal relevance.	1 (20)	0 (0)	0 (0)	3 (60)	1 (20)	0 (0)	0 (0)	0 (0)	3 (60)	2 (40)
I felt the program was therapeutic.	1 (20)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)	1 (20)	1 (20)	2 (40)	1 (20)
I felt this program helped me identify how to better resolve conflict.	1 (20)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)	1 (20)	0 (0)	4 (80)	0 (0)
I felt this program helped me to identify how to improve my relational pattern.	1 (20)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)	1 (20)	1 (20)	3 (60)	0 (0)
After taking this program, I feel more motivated to make changes in my life.	1 (20)	0 (0)	1 (20)	3 (60)	0 (0)	0 (0)	1 (20)	1 (20)	3 (60)	0 (0)
I think this program would be useful for psychological evaluations.	1 (20)	0 (0)	0 (0)	3 (60)	1 (20)	0 (0)	0 (0)	0 (0)	3 (60)	2 (40)
I think this program would be useful for medical evaluations.	0 (0)	0 (0)	2 (40)	1 (20)	2 (40)	0 (0)	0 (0)	1 (20)	2 (40)	2 (40)
I found this overall experience personally relevant and meaningful.	1 (20)	0 (0)	1 (20)	2 (40)	1 (20)	0 (0)	0 (0)	1 (20)	3 (60)	1 (20)

Note. QP items were rated: 1 "strongly disagree"; 2 "disagree"; 3 "neither disagree nor agree"; 4 "agree"; 5 "strongly agree".

**Table 4.** Query–Medical (QM) items and rates of agreement.

Item	Rater 1					Rater 2					Rater agreement
	1	2	3	4	5	1	2	3	4	5	
<i>Overall average for each score category (%)</i>	0	2	16	62	20	0	2	16	62	20	100%
I felt this program was diagnostically accurate for the patient.	0	0	0	4	1	0	0	0	4	1	100%
I felt that completing the program was an emotional experience for the patient.	0	0	1	3	1	0	0	1	3	1	100%
I was surprised by the program’s personal relevance for the patient.	0	0	1	2	2	0	0	1	2	2	100%
I felt the program was therapeutic for the patient.	0	0	1	3	1	0	0	1	3	1	100%
I felt this program helped the patient identify how to better resolve conflict.	0	1	0	4	0	0	1	0	4	0	100%
I felt this program helped the patient identify how to improve his/her relational pattern.	0	0	1	4	0	0	0	1	0	0	100%
After taking this program, I think that patient is more motivated to make changes in his/her life.	0	0	2	3	0	0	0	2	3	0	100%
I think this program would be useful for psychological evaluations.	0	0	1	2	2	0	0	1	2	2	100%
I think this program would be useful for medical evaluations.	0	0	1	2	2	0	0	1	2	2	100%
I think that the patient found this overall experience personally relevant and meaningful.	0	0	0	4	1	0	0	0	4	1	100%

QM items were rated: 1 “strongly disagree”; 2 “disagree”; 3 “neither disagree nor agree”; 4 “agree”; 5 “strongly agree”.

not have to win discussions . . . I lack the need to express myself usually. Of course, I do have strongly held beliefs and opinions – I just barely show them.” Tying this vignette to his medical experiences, Michael related that, “Starting chemo 20 months ago, it was a new and exciting journey although the ultimate destination is known . . . Sadly I am getting closer to the final destination, but change can be better and exciting!” Concluding this task, Michael suggested that he should “concede more, but in a logical manner.”

Reflecting on what he learned through the intervention, Michael wrote “I am better than I thought I was,” “my bad is never that bad, it can be fixed or accepted,” and “making others feel important is important.” Reflecting on the changes he would like to make upon completing CA, he wrote, “Be more tolerable, patient, forgiving, understanding.” Reflecting on CA overall, he concluded, “Very good insights. Made me think about myself which I rarely do as I find myself boring.”

Summarizing Michael’s Metaphor Tasks, we note Michael’s pattern of avoiding situations that endanger his comfort, but also of regretting his guardedness. In the first task, he selects the child-focused activity as opposed to the adventure-park but concludes it would have been preferable if he was not the decision-maker. In the second, his character avoids the attention of his “infatuated” counterpart, and yet comments at the end that he should prioritize “others over self.” In the final task, Michael’s character is reluctant to venture away from home, yet ultimately listens to his friend, and enjoys challenging himself. The final task shifts toward the resolution of this dynamic. Even though his character is afraid, he is able to actually “concede more,” his desired resolution, and enjoy himself.

This dynamic accords with Michael’s RMES-S score changes. Whereas at baseline, Michael’s Submissive Cooperative and Dominant Cooperative scores were equal (six and six, respectively), at follow-up, his Submissive Cooperative score (10) was more than double his Dominant Cooperative score (four). There was also a concurrent reduction in Dominant Antagonistic scores (five to three). This shift suggests Michael is less dominant, and that, despite his anxieties, desires not only partnership but also someone/something to challenge him and lead him out of his comfort zone. With this in mind, it is intriguing that Michael

referenced chemotherapy as “a new and exciting journey” like the rabbits’ hiking adventure. Although he may push others away, Michael fears abandonment, and the associated sense that without others’ guidance, he will be unable to venture forward.

Although no clinical feedback was presented to Michael, we may observe that the intervention encouraged growth and increased self-awareness. At follow-up, Michael added that the drawings were challenging but very impactful and that the investigator’s phone conversation “increased CA’s benefits” and “reinforced things about me in a good way.” He also commented that he would enjoy sharing his CA protocol with his cancer-care providers as “sharing makes the burden easier.” When comparing Michael’s baseline and follow-up mean scores, all scales show improvements. PGIS increased from 4.33 to 4.56 (max score of five); Agency increased from 7 to 7.5 (max score of eight); Pathway increased from 6.5 to 6.75 (max score of eight); CS decreased from 1.67 to 1.33 (max score of four).

## **Discussion**

Cancer patients face considerable stress and encounter pronounced rates of mental illness (Ledesma & Kumano, 2009). Based on this pilot study, CA appears to offer therapeutic benefits and be personally relevant and meaningful for individuals being treated for cancer. Changes from post-intervention to follow-up included increases in the agency, pathways to success, growth initiative, and motivation for change, and a reduction in conflict intensity. Changes, however, did not reach statistical significance, likely due to the small sample size. As there are not published standards of clinically meaningful change for the utilized measures, it is similarly difficult to ascertain clinical benefits. That being said, all scores are indicative of some degree of benefit. The relatively high score changeover time on the Adult Hope Scale’s Agency subscale supports the anticipated finding that CA contributes to patients’ sense of empowerment.

While withdrawal rates were higher than anticipated, rates were not higher than comparable interventions with similar populations (Applebaum et al., 2012; Baider et al., 2001). Cancer-care providers agreed CA offered therapeutic benefits, provided useful feedback, and was highly diagnostically accurate. High rates of agreement between the two cancer-care providers affirm the ease of reviewing participants’ completed study materials and suggest CA offers utility for both clients and clinicians.

Several participants commented during the phone meeting that they appreciated that CA did not focus on medical or psychological pathology, but instead directed users to reflect on their behavior. This shift encouraged participants to step outside of illness-based self-conceptualizations and focus on their interactional patterns. While score increases between post-intervention and follow-up may stem from the participant/investigator phone meetings that were completed during this interval, they may also be associated with the insight-oriented focus of CA. Keeping with Shedler’s (2010) findings, insight-oriented interventions may help patients continue learning and experiencing therapeutic growth even after the intervention’s conclusion.

## **Conclusion**

Selecting to use the paper-version of CA precluded utilizing the feedback features included in CA’s online version. It stands to reason that subsequent study iterations that use CA’s online version may offer additional opportunities for engagement and growth. Limitations

include the influence of illness/treatment ability to complete intervention. Several participants blamed the “chemo brain” (Staat & Segatore, 2005) for reducing cognitive ability. This finding may be associated with the longer than expected completion time. Although the study’s small sample size and reliance on self-report, and novel measures further restrict generalizability, initial data support the continued exploration of CA in psycho-oncology contexts. Practice implications include broadening access to patient-centered mental health tools for patients diagnosed with cancer, as well as to other populations that may have limited care opportunities. Implications may also extend to psychotherapists practicing in integrated care settings with cancer patients.

## Disclosure of interest

The authors have no conflict of interest.

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## Data availability statement

Data are available from the corresponding author upon request.

## Research involving human participants and/or animals

All procedures performed in studies involving human participants were in accordance with the ethical standards of the hospital institutional review board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

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