

Cancer at the Dinner Table: Experiences of Psilocybin-Assisted Psychotherapy for the Treatment of Cancer-Related Distress

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Abstract

Recent randomized controlled trials of psilocybin-assisted psychotherapy for patients with cancer suggest that this treatment results in large-magnitude reductions in anxiety and depression as well as improvements in attitudes toward disease progression and death, quality of life, and spirituality. To better understand these findings, we sought to identify psychological mechanisms of action using qualitative methods to study patient experiences in psilocybin-assisted psychotherapy. Semistructured interviews were conducted with 13

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adult participants with clinically elevated anxiety associated with a cancer diagnosis who received a single dose of psilocybin under close clinical supervision. Transcribed interviews were analyzed using interpretative phenomenological analysis, which resulted in 10 themes, focused specifically on cancer, death and dying, and healing narratives. Participants spoke to the *anxiety and trauma related to cancer*, and perceived *lack of available emotional support*. Participants described the *immersive and distressing effects of the psilocybin session*, which led to *reconciliations with death*, an *acknowledgment of cancer's place in life*, and *emotional uncoupling from cancer*. Participants made *spiritual or religious interpretations* of their experience, and the psilocybin therapy helped facilitate a *felt reconnection to life*, a *reclaiming of presence*, and greater *confidence in the face of cancer recurrence*. Implications for theory and clinical treatment are discussed.

Keywords

cancer, death, anxiety, depression, psilocybin, psychedelic, hallucinogens, qualitative, spirituality, interpretative phenomenological analysis

One of the really vivid images that I had was a sketch of a dinner table—it was almost this round circle that represented a dinner table—and at the table was cancer, but it was supposed to be at the table. And the feeling I had was cancer is a part of everything. It isn't this bad separate thing; it's something that's part of everything, and that everything is part of everything. And that's really beautiful. It was just a sort of acceptance of the human experience.

—Erin, study participant.

The diagnosis of potentially life-threatening cancer often provokes considerable anxiety and psychosocial distress, which can also involve depression, anger, loss of perceived self-worth, hopelessness, helplessness, and social isolation (Breitbart et al., 2000). Two recent randomized, double-blind, placebo-controlled trials found that a one-time oral administration of moderate-to high-dose psilocybin, in conjunction with psychotherapy, led to large clinical benefits for patients with cancer, including robust anxiolytic and anti-depressant effects, improvements in physical, psychological, and psychosocial well-being, and an increased sense of meaning and peace (Griffiths et al., 2016; Ross et al., 2016). These findings are consistent with a growing body of research regarding psilocybin, a naturally occurring serotonergic compound (4-phosphoryloxy-N,N-dimethyltryptamine) found in over 180 species of mushrooms that has been used in religious and healing practices in

various cultures for centuries (Allen & Arthur, 2005; Friedman, 2006; Stamets, 1996; Studerus, Kometer, Hasler, & Vollenweider, 2011; Wasson, 1980). In previous double-blind placebo-controlled trials using quantitative research methods, the administration of psilocybin to normal volunteers led to positive changes in personality, such as increases in openness to new experiences (MacLean, Johnson, & Griffiths, 2011), and significant spiritual and mystical experiences that had enduring long-term positive effects (in affect, cognition, and behavior) after a single dose of psilocybin (Griffiths, Richards, Johnson, McCann, & Jesse, 2008).

The psychological consequences of a cancer diagnosis are far-reaching, complex, and often pervasive, with conventional pharmacotherapies showing limited efficacy to address symptoms of anxiety and depression (Grassi et al., 2014; Ostuzzi, Matcham, Dauchy, Barbui, & Hotopf, 2015; Walker et al., 2014). It is therefore important to elucidate the subjective experiences of those who underwent psilocybin-assisted psychotherapy, both to understand the nature of this unique treatment and to highlight potential pathways of healing from cancer-related distress. Three randomized controlled trials (RCTs; Griffiths et al., 2016; Grob et al., 2011; Ross et al., 2016) of single-dose psilocybin administration in a supportive milieu as a treatment for cancer-related psychological and existential distress all utilized quantitative methods to assess clinical benefits. Two of these trials (Griffiths et al., 2016; Ross et al., 2016) demonstrated substantial effect sizes on primary outcomes measures of anxiety and depression. Qualitative research methods may complement existing quantitative research on psychedelic-assisted treatments, as these methods are well suited to address questions of meaning, inner experience, and behavioral change within complex multidimensional contexts (McAdams, 1999), and may help elucidate underlying mechanisms of action.

Psilocybin is known to induce a profound shift in consciousness and has been described as a “nonspecific” amplifier of the unconscious (Grof, 1973). On a neurochemical level, psilocybin activates a subtype of serotonin receptor (5-HT_{2A}), which mediates perception, attention, and emotion regulation (Hasler, Grimberg, Benz, Huber, & Vollenweider, 2004). The psychological effects of psilocybin include alterations in waking consciousness, often with heightened sensory experiences and enhanced dream-like visual imagery. These experiences are often accompanied by profound changes in mood, affectivity, and experience of self, and production of internal stimuli (Hasler et al., 2004). Current theoretical conceptualizations regarding the therapeutic mechanisms of action involved in psilocybin-assisted psychotherapy remain underdeveloped. Unlike conventional pharmacotherapies, the efficacy of psychedelic therapy may be fundamentally rooted within an experiential and meaning-laden process, which may be responsible for the long-term, durable

changes frequently seen after a single, therapeutically supported experience with a psychedelic (Grof, 1973).

Some have proposed that a psychedelic-occasioned mystical or peak experience is a mediating factor fostering highly salient spiritual or mystical states of consciousness associated with enduring positive effects in cognition, affect, behavior, and spirituality (Gasser, Kirchner, & Passie, 2015; Griffiths et al., 2008; Griffiths et al., 2011; Griffiths, Richards, McCann, & Jesse, 2006; Pahnke, 1963; Studerus et al., 2011). Support for this comes from the two recently completed RCTs of single-dose psilocybin to treat cancer-related psychological distress (i.e., anxiety and depression), in which both trials demonstrated that the psilocybin-induced mystical experience partially mediated the clinical benefit of sustained anxiolytic and antidepressant effects (Griffiths et al., 2016; Ross et al., 2016). While there is empirical support for this conceptualization (Griffiths et al., 2008), hypotheses regarding other possible mediating factors and psychological mechanisms of action have not yet been evaluated. A review of the existing literature revealed no rigorously conducted qualitative studies of first-person narratives regarding the cancer-related experiences of psilocybin-assisted psychotherapy. Existing qualitative research on psilocybin-assisted psychotherapy is still sparse, with most studies focusing on noncomparable participant populations and contexts (e.g., substance users in uncontrolled recreational settings and participants in non-Western treatment settings), or on the use of other psychedelic substances (see Belser et al., 2017).

Because of the broad range of phenomena reported from participants' experience, two separate articles were created to document these extensive experiences. A previous analysis (Belser et al., 2017), which also employed an interpretative phenomenological analysis of the same data set, focused broadly on a range of phenomena that emerged within the participants' sessions and thereafter. That article reported on a wide range of phenomena from the psilocybin therapy, which included a more nuanced description of the emotional, bodily, and visual phenomena experienced during the session, an in-depth understanding of the relational and social outcomes of the study, and a description of some of the supportive factors of the study design, such as the importance of the music played during the sessions. The current article explores psilocybin therapy experiences directly related to cancer and death, and together with the previous analysis aims to capture a more complete understanding of the treatment through patient narrative accounts.

Method

Participants ($N = 13$) who completed a Phase 2 RCT clinical trial of psilocybin treatment for cancer-related psychological and existential distress were

recruited to enroll in a subsequent interview study of their experiences. The original quantitative study employed a double-blind, crossover, placebo-controlled design to evaluate the efficacy of administering psilocybin and adjunctive psychotherapy as a treatment for anxiety and depression associated with cancer (Ross et al., 2016). Measures of existential/psychospiritual distress, pain, quality of life, and spiritual/mystical states of consciousness were also assessed (Ross et al., 2016). The trial was 9 months in duration and consisted of two drug administration sessions (psilocybin or the active placebo, niacin) spaced 7 weeks apart as part of a crossover design, including sessions of psychotherapy with a dyad of two licensed psychotherapists. Nine psychotherapy sessions were conducted in total: three sessions (6 hours) during the preparatory phase before the first drug administration session; three sessions (6 hours) between the two drug administration sessions; and three sessions (6 hours) in the integration phase following the second drug administration session. The essentials of psychedelic-assisted psychotherapy with seriously ill cancer patients derive from the following sources: palliative clinical care and theory, attachment theory, existential psychotherapy, mindfulness training, logotherapy, and psychoanalytic therapy. The overarching goal of the preparatory psychotherapy sessions was to establish a safe and trusted relationship between the participants and their psychotherapists. The preparatory sessions also reviewed the participants' life stories, significant relationships, religious and spiritual histories, and expectations for the time after death.

In this crossover design, participants were randomized to receive either (a) psilocybin (0.3 mg/kg) first and niacin (250 mg) second, or (b) niacin (250 mg) first and psilocybin (0.3 mg/kg) second. During both drug administration sessions, which lasted approximately 8 hours, participants were encouraged to recline on a couch, wear eyeshades, and listen to a playlist of music. The same two study psychotherapists worked with the participant throughout the study, and were present during the drug administration sessions to promote a supportive treatment milieu and ensure safety. Prior to drug administration, participants were encouraged to set an intention for their sessions, but study therapists did not suggest or encourage exploring any particular content during their sessions. Full study methodology of the internal review board approved Phase 2 trial can be reviewed in separate publication (Ross et al., 2016).

Participants

Participants in the current interview study were between the ages of 18 and 69 years (average age 50 years) and had a potentially life-threatening cancer diagnosis (see Table 1). The 13 interview participants also had a diagnosis of

Table 1. Participant (N = 13) Demographic Information.

<i>Age, years</i>	
Mean	50
Standard deviation	15.77
<i>Gender (%)</i>	
Male	54
Female	46
<i>Race (%)</i>	
White	92
Multiracial	8
<i>Diagnosis (%)</i>	
Adjustment disorder with anxiety, chronic	77
Adjustment disorder with anxiety and depressed mood, chronic	15
Generalized anxiety disorder	8
<i>Cancer stage (%)</i>	
Stage I	31
Stage II	15
Stage III	31
Stage IV	15
Other	8
<i>Site of cancer (%)</i>	
Breast	23
Lymphoma	15
Other	31
Ovarian	31
<i>Education (%)</i>	
Completed graduation/professional school	54
Graduated 4-year college	31
Part college	15
<i>Religious affiliation (%)</i>	
Atheist/agnostic	38
Other Christian	31
Jewish	15
Catholic	8
Other faith/tradition	8
<i>Previous hallucinogen use (%)</i>	
Yes	46
No	54

adjustment disorder with anxiety, adjustment disorder with anxiety and depressed mood, or generalized anxiety disorder, as assessed by the Structural

Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders–Fourth edition–Text revision* Axis I Disorders-Patient Version (First, 2005). A subsample of 13 participants from the original study ($N=29$) was recruited to participate in this qualitative study. We approached the 14 participants who had most recently completed drug administration sessions, of which 13 agreed to participate in the qualitative study. Five of the participants were interviewed within 1 week following their second psilocybin dosing session, and eight were interviewed approximately 1 year following their session. One participant declined to participate due to familial responsibilities. All participants were informed that participation in this qualitative study was entirely optional, and their decision to enroll would not affect their involvement in the original study. Participants received no financial compensation, nor were there penalties for declining to participate. All participants provided written informed consent prior to enrolling. Pseudonyms are used throughout the article to protect participant confidentiality. All participants were still alive at the time of publication.

Interviews

A semistructured interview was conducted with each of the participants by one member of the research team (ABB). On average, the interviews were 1 hour and 33 minutes in duration. The interview guide consisted of questions concerning participants' experiences in the experimental study, their lives before and after participation, and aspects of the experience concerning distress related to cancer (see Appendix in Belser et al., 2017, for a copy of the full interview guide). Given blinding, participants were asked to identify which of the two drug administration sessions they believed to be the psilocybin dosage session and were then asked questions regarding their experiences in that session (Belser et al., 2017). Twelve interviews were conducted in person; one interview was conducted via video teleconference. Interviews were subsequently transcribed verbatim and deidentified to protect the identity of study participants.

Data Analysis

An interpretative phenomenological analysis (Smith, Flowers, & Larkin, 2009) was employed to explore and interpret the interview data. This qualitative research approach draws from phenomenological, heuristic, and narrative theoretical frames (Smith et al., 2009) to systematically analyze participants' experiences as well as their understandings of those experiences. A consensus decision-making process (Schweiger, Sandberg, & Ragan, 1986) was used,

through which each transcript was independently read by two reviewers who coded the transcript, which was subsequently reviewed by an additional two members of the team. Cross-check and independent auditing procedures were employed to increase analytic rigor and validity. We used a computer-assisted qualitative data analysis software package with collaborative capabilities, Atlas.ti 7.5.4, to analyze the interview transcripts (Muhr, 2014). The full analytic process is documented and can be accessed in our previous article (Belser et al., 2017).

Results

Cancer-Related Anxiety and Trauma (Prior to the Psilocybin Treatment)

At the start of the interview, participants were asked to describe their lives before their participation in the psilocybin study. All 13 participants described debilitating fear related to cancer progression or recurrence, the imminence of death, and/or physical and emotional traumas experienced from their medical diagnosis and cancer treatment. Eight participants described the prospect of death moving from a distant abstraction to a close and imminent reality, one that could not be escaped. As one participant indicated following a recurrence of cancer, “It triggered something that I seemed I could not get out from under . . . I just said it: ‘I’m dying’” (Brenda, aged 65 years, diagnosis: ovarian cancer). Another participant (Mike, aged 57 years, diagnosis: prostate cancer) indicated that at the time of his diagnosis, he felt the “bottom dropping out” from under him and felt that “death was going to be very close . . . I wasn’t ready for that.” Erin, a 51-year-old woman, described the psychological and existential shock caused by her Stage III ovarian cancer:

You realize you’re going to die. I don’t know that you realize that until you’re told. I was told that I had a 50/50 chance of being alive in five years. . . . As soon as you think about having limited time for [living], it changes everything.

Although all participants had completed their medical treatments and over half were deemed to be in full or partial cancer remission, participants spoke to the persistent nature of their anxiety, and some reported an actual increase in their anxiety and despair when cancer treatments were complete: “I thought, well, we are going to celebrate when I am done with chemo. I just had no idea when I was done with chemo . . . that’s when all this anxiety really hit me” (Edna, aged 65 years, diagnosis: ovarian cancer). Another

participant similarly expressed an increase in psychological distress following the completion of her cancer treatments:

It wasn't until I started getting toward the end of my treatment that I started having, like, real problems with anxiety. . . . There was a part of me that couldn't really believe that it was over. . . . The first time I had a follow-up CT scan I was freaking out, I was just a mess. (Chrissy, aged 54 years, diagnosis: lung cancer)

Consistent with features of posttraumatic stress disorder, five participants described persistent debilitating symptoms such as hypervigilance, sleeplessness, obsessive checking of their bodies for signs of cancer, and paralyzing anxiety triggered by follow-up visits to their oncologist or the hospital. Adam, a 23-year-old medical student diagnosed with lymphoma, described the overwhelming anxiety that was greatly impeding his life:

Crazy anxiety. Couldn't sleep almost at all. It was through the roof. I thought my cancer was back . . . really rapid heartbeat. It is like your mind is clogged, you know you can't think of anything else but this. And it is kind of like despair, you know there is nothing you can do. It is completely out of your control.

Lack of Available Emotional Support

Eight participants spoke of maladaptive coping strategies in response to their emotional distress. One participant went to work immediately after the completion of her medical treatments and "didn't allow myself to really deal emotionally" (Vandana, aged 36 years, diagnosis: ovarian cancer). Edna ate "compulsively out of anxiety" and reported gaining 70 pounds as a result. In an attempt to "stay away from the anxiety" due to the fear of recurrence of cancer, Adam developed an addiction to alcohol and antianxiety medications, which frequently led to "whole days in which I was not in my right mind."

Participants expounded on the limitations of their medical care to support their emotional needs. They sought the psilocybin study at New York University as a different approach for treating their psychological existential distress: "I had this really wonderful, expert medical care for my body . . . let's get some for my emotional self" (Chrissy). Going into the study, Mike looked for ways way to "come to terms with a terminal diagnosis in a dignified way" with hope that psilocybin would be a "tool and a means of proceeding forward with my condition." Vandana expressed the psychological limits of her cancer care and her desire to gain deeper perspective and healing through the psilocybin trial:

There was never counseling or anything after chemo. It was just, “Here are your antidepressants,” and “Have a good life” kind of thing. There was nothing to help you go back and deal with this trauma that’s affected your life . . . I thought doing the psilocybin sessions would give me a chance to learn more about myself and what I was dealing with.

Immersive and Distressing Effects of Psilocybin

The effects of psilocybin were described in complex and multifaceted ways, but all 13 participants spoke of the highly immersive nature of their session. Nine participants described a loosening or even dissolving sense of self, often merging with different elements of their experience such as the music, emotions, or images. Experiences were described as existing beyond thought and linguistic understanding, as being felt in an embodied way. Erin explained of her psilocybin experience, “It was a feeling beyond an intellectual feeling—it was a feeling to the bottom of my core . . . that’s one reason that it’s hard to talk about . . . it’s beyond words.” Another indicated, “It felt moving on a corporal level . . . you don’t understand it strictly in your head. You understand it as a being, as a body” (Caleb, aged 63 years, diagnosis: bladder cancer). A third of the participants ($n = 4$) described feelings of deep immersion into the natural world during their session: “Feelings of being connected to everything, I mean, everything in nature . . . and it wasn’t like talking about it, which makes it an idea. It was experiential” (Augusta, aged 69 years, diagnosis: breast cancer).

The immersive quality of the experience was felt as overwhelming, challenging, or fearful for many ($n = 9$) of the participants, particularly in the early stages of the session. The difficulty was rooted in feelings of loss of control, an inability to rationally understand the experience, and the sense of being overwhelmed by frightful visions or emotions. As one participant said of the early onset of the experience, “I was watching everything disintegrate . . . my past, my relationships, my personality, everything that makes me feel like [me]. . . . That was terrifying” (Dan, aged 32 years, diagnosis: renal cell carcinoma). Another participant described being led by a “spirit guide” to witness his own funeral: “I was helpless in my casket . . . there was nothing I could do about it and it was tremendously painful, it was horrible” (Victor, aged 26 years, diagnosis: leukemia). Edna described the intense and “very sudden onset” of the effects in the early phase of her psilocybin session:

It really hit me very strong. And it was terrifying. . . . Absolutely nothing, nothing to anchor myself to, nothing, no point of reference, nothing, just lost in space, just crazy, and I was so scared. And then I remembered that Tony and Michelle were right there and suddenly realized why it was so important that I

get to know them and they to get to know me . . . I think it was Tony who took my hand and said “It’s all right. Just go with it.” And I did.

The intensity of this initial phase quickly subsided for all participants who experienced it, and consistently led to significant moments of acceptance, surrender, and new understandings. Participants described being taken to the brink of what they felt they could tolerate, and in those peak moments of intensity the experience shifted or found resolution. As Edna received encouragement from her study psychotherapists, she was able to let go more fully into the experience and “the intensity abated.” She reported feeling “calmness and peace and happiness” as well as heightened feelings of love for her family and friends: “I just felt wonderful.” Victor similarly indicated that “right as that feeling reached its peak, the spirit shot me out of that dead place into a garden and that was the first time that I experienced any kind of relief,” which led to positive revelations about his body and his cancer. Dan experienced similar resolution, reporting that “within a few minutes any negativity kind of went away and actually the whole thing reversed course pretty rapidly” leading to feelings of “complete clarity” and a strong sense of connection to his family.

Four participants spoke to the difficulty of the session as a productive “struggle” or “work,” which was felt to be a therapeutic and important part of their experience. Mike reflected on how he felt the psilocybin was “medicine,” largely because of these difficulties: “It was an intense, intense struggle, and that’s where it became medicinal because it allowed that struggle to happen. It didn’t coat it, it wasn’t an antidepressant . . . it brought it all out.” Adam reported that the difficulty of his psilocybin session was like “going to school” in that “the experience itself is not fun . . . especially when you have to face some hard things,” but that “you start putting everything together, and at the end you are a better person.” Allison (aged 57 years, diagnosis: breast cancer) similarly expressed the benefit of the difficulty in helping foster a greater sense of confidence and resilience: “It wasn’t pleasant, but part of it is like I know I can get through anything. . . . That was very real to me.”

Reconciliations With Death

Nearly all participants ($n = 11$) spoke to a range of experiences during their psilocybin session that led to significant new understandings of death and dying. During their session, over half of participants interviewed ($n = 7$) spoke of directly experiencing a state of being or of a realm that was felt to exist at the time of or after death. These experiences consistently led to feelings of relief and comfort for the participants, as the psilocybin gave

substance and a sense of familiarity to death. As one participant said of his psilocybin session, “There was a notion which almost immediately was clear, that there is nothing to fear after you stop being in your body . . . you just see with your own eyes” (Tom, aged 53 years, diagnosis: follicular lymphoma). Adam explained that in the peak of his psilocybin session he felt he was “deep somewhere in my subconscious,” getting “to something really close to what death would feel like”:

I was not here anymore; I was not with my body . . . I thought to myself that that is death, and it was scary, but I remember I said to myself, “Oh if this is death, it’s not that bad—at least there is something.” . . . It was exotic and unknown, mysterious, something I would not mind being in because I would love to explore that.

Other participants’ revelations of death and dying were related to a sense of interconnectedness, an experiential and felt sense of the unity of all things. Rather than death being an exile into an isolated emptiness, participants spoke to being brought into a transcendent state of belonging, one to which they felt they would return after death. This reported sense of interconnection ($n = 10$) brought relief for many participants, several of whom described suffering from a sense of alienation in their lives, especially following their cancer diagnoses. Erin indicated that the psilocybin session gave her “a greater understanding of global connectedness” with others and nature, and she explained how that sense of belonging may help ease the fear of death:

[The psilocybin] just opens you up and it connects you . . . it’s not just people, it’s animals, it’s trees—everything is interwoven, and that’s a big relief . . . I think it does help you accept death because you don’t feel alone, you don’t feel like you’re going to, I don’t know, go off into nothingness. That’s the number one thing—you’re just not alone.

As for many participants, Erin indicated that these feelings of connectedness were not transient but left an enduring impression on her, well beyond the session: “I have kept that feeling ever since . . . that I wasn’t alone.” Some participants described intricate visions or metaphors of reconnection that influenced their understanding of mortality. At one point during Chrissy’s session, she was having a physical sensation and discomfort in her stomach area, the site of her cancer, where she “felt this coming in and out”:

In my abdomen, that’s also where part of my cancer was . . . I kinda felt like that was my umbilical cord to the universe and that this was where my life would be drained from me some day, and I would surrender it willingly when

my time came, and that was just so profound . . . it was just really comforting, you know, it kinda reaffirmed what I believe, that, you know, we're all kind of a greater whole and that you go back.

Immediately following this vision, she felt like she made the choice to live, hearing the repeating words: “‘I chose this,’ without knowing how it would end. . . . It sounds very simple, but it’s so comforting.” Another participant, Brenda, also had a comforting and transformative vision of reconnection with the earth after death that positively influenced her views on dying. At one point during her session, she experienced herself floating toward a brick crematorium and concluded that she must have died. After “bouncing off” the crematorium she found herself under the ground in rich soil:

I felt like this was really dealing with death . . . I’m in the forest and there’s this beautiful, loamy, woodsy, green, lush kind of woods, and I’m down below the ground. . . . And it felt really, really good, and I thought, “That’s what happens when you die. I am going to be reconnected with this beautiful world. This earthy world that we live in.” . . . It was just simple. It was gorgeous.

As a way to stay close to this felt sense of interconnection following her session, Brenda began and sustained a meditation practice in order “to go to that spot that I just call that really wonderful emptiness—that kind of really good feeling of nothingness.”

Cancer’s Place in Life

Similar to the ways in which the psilocybin session changed participants’ understanding of death, six participants described instances of confronting and transforming their relationship to cancer. These participants described moving from a place of denial or avoidance of their cancer toward a clearer acknowledgement and acceptance of its place in their lives. Participants came to more confidently embrace the reality of cancer and the ways in which it had changed their lives, as well as the pain and difficulty they had to endure because of it:

I had cancer. Rather than saying “That cancer thing; I don’t have that anymore.” No, you went through something that nobody wants to go through. I think I feel more sober about that—not sober sad, just sober, like I can face it. (Caleb)

Five participants reported visions and realizations that further allowed them to see the cancer as a part of them, their life stories, and even part of the broader human experience. As a result of this acceptance, participants felt

their lives to be more authentic, more whole, and less fragmented. Caleb went on to express feeling “more open and more courageous about the realities of my life now. More honest.” Erin, who previously spoke about the profound impact of being told she had a 50% chance of living due to her cancer, had a vision during her psilocybin session in which she saw cancer more inclusively as part of her life:

One of the really vivid images that I had was there was a sketch of a dinner table—it was almost this round circle that represented a dinner table—and at the table was cancer, but it was *supposed* to be at the table. And the feeling I had was cancer is a part of everything. It isn’t this bad, separate thing; it’s something that’s part of everything, and that everything is part of everything. And that’s really beautiful. It was just a sort of acceptance of the human experience because it’s all supposed to be this way.

Erin went on to report that this vision of her cancer helped her feel a greater sense of integration and wholeness in her own life, as “cancer was part of the story, as opposed to something I had to separate out, divide my life into little pieces of the bad stuff and the good stuff . . . everything just felt unified.”

Having struggled in the past with bodies that had failed them and having endured the trauma of cancer treatments, six participants came to new acceptance of their bodies and the remnants of the cancer left in them. For example, Victor, a 17-year-old high school student, when he was first diagnosed with leukemia, saw his body as riddled with cancer, and his narrative suggested anger, grief, and an abiding rejection of his body. He described that during his psilocybin session, he experienced himself as a disembodied form and came to a point where he had to choose a body:

Until this point in the experience, I did not have a body. I was just this kind of soul, this entity . . . I was shopping for a body, and the only body I could choose was my body. And this is meaningful because I had a lot of body issues associated with being sick with what chemo did to my body and how it changed. And so I was circling my body, and I saw everything that has happened to my body, all the food I have eaten, the drugs I have taken, the alcohol, the people I have had sex with, the chemo, the exercise, everything that has ever happened to my body. I took it in at once.

Victor made sense of this experience:

I kind of accepted my body for what it is, and I think up until that point I resisted that . . . I saw this body for what it’s worth. I picked it, it’s mine. . . .

It's more matter-of-fact—this is what it is. I think that acceptance has been liberating.

Adam, who initially described his “crazy anxiety” and debilitating fear of cancer recurrence, similarly came to not only accept the effects of cancer on his body but also a greater embracing of his remission. Before his session, he compulsively checked the vestigial “lumps” where the cancer had been for signs of growth, precipitating feelings of panic, and distress. In the psilocybin session, Adam had a vision in which he saw his lumps against a black background and described how he could “see through them, and I could see that they are just clear liquid—so there is nothing bad in them.” He continued:

I kind of came to the epiphany, or whatever, that these lumps . . . you should accept them. They are part of you, they are part of your past, they are part of what happened, but there is no reason why you should hate them. . . . Accept them as part of your history, and you take care of them.

Emotional Uncoupling From Cancer

All 13 participants described having access to a wide variety of emotions, which were expanded and felt with heightened saliency during their psilocybin session, sometimes experienced in altered perceptual forms involving vivid physical and visual manifestations. The felt amplification and materialization of emotions allowed some participants to have more immediate and full access to them, often leading to feelings of release, expanded positive emotions, and new understandings.

Six participants noted that they had not felt cancer to be a primary or significant focus of their emotional process during their session. Instead, these participants drew a distinction between the cancer and their emotional distress, the latter being something they were able to face, transform, or release in various ways. To these participants, the cancer itself seemed to be less significant and even to lack the substance and urgency that it had before. Mike, who described powerful experiences of releasing long-held fear and anxiety, indicated that during his session, “cancer was nowhere in evidence . . . If anything, it was part of that same smoky, shadowy chaos of anger and fear.” Chrissy emphasized the differentiation between cancer and her emotional response: “. . . during the [psilocybin] experience, I didn’t feel like it was cancer related, I felt it was more related to the anxiety and the fear that I kind of carry in that part of my body.”

Brenda, who during her psilocybin session came to face a childhood sexual trauma, described releasing “the emotional baggage I was carrying around”

that “had nothing to do with cancer.” Similarly, Edna, who had a long and traumatic family history with the disease, including from a mother dying of breast cancer when she was four, described living much of her life in fear, “thinking that I was going to die of cancer.” Immediately following an initial period of fear and disorientation during her psilocybin experience, Edna felt her fear manifest as a physical form near her ribcage, “not in relation to the cancer at all”:

My fear just coalesced, and I mentally saw it, it was right here, and it was a big black thing right there under my ribcage . . . I was overcome with anger, with rage, with rage that this thing was fucking me up, and I screamed, “Get the fuck out! Just get out!” I evicted, I ejected the fear, and it was gone.

Spiritual or Religious Interpretations

Seven of the participants interpreted experiences during their psilocybin session as spiritual or religious. Some participants expressed having never been religious or spiritual prior to the study and described opening to this part of their lives because of their session, while others described reclaiming a spiritual connection that had been disrupted or severed due to cancer. Victor, who had abandoned his faith after his cancer diagnosis, came during his psilocybin session to renew his sense of spirituality with a deepened capacity:

I was raised very Christian. When I got diagnosed with leukemia, I renounced my religion. I was like, “This is not going to help me; chemotherapy is going to save me not Jesus Christ or things like that.” . . . My spiritual life was like dormant. I was going to say dead . . . [The psilocybin session] not only stirred that back up and reassured me beyond doubt that there is a spiritual realm and I need to be aware of it. It is an important part of my existence.

For Victor, this spiritual connection during his psilocybin session was felt as an expanded seeing of reality: “An angel, like something from another realm, was letting me in on something that is going on all around me that I’m just not privy to on a day-to-day basis.” Other participants came to appreciate a spiritual side of themselves that was felt for the first time in their lives. These experiences were not always framed in strictly religious terms. One felt that this expanded awareness afforded him access to a universal depth of his “subconscious” while others experienced it as a connection to “pure love,” and others called it “God.” Edna, who described seeing her fear coalesce and release during the psilocybin experience, said that immediately she after “started just feeling love” on the level of a religious experience:

Just overcome with love and all the love that I have for my family and my friends. I felt that it was coming from them; also I felt that I was bathed in it. And if I were religious it definitely would have been a religious experience, I would have said bathed in God's love. And I don't think English really has a way to say this without using that word "God," um maybe bathed in transcendent love. Bathed in universal love. It was such a strong feeling.

This sense of connection with the spiritual side of oneself during the psilocybin experience was felt as comforting for some participants. Brenda similarly spoke to the contentment she felt from this spiritual connection:

I'm sort of discovering that God in yourself, so to speak. . . . So I think that's also opened up to me tremendously—a spiritual piece. And I've never been religious; I'm not religious particularly at all. And I feel like I've really connected with a spiritual side in myself as well . . . that adds another level of contentment and happiness.

Other participants spoke to how this spiritual connection during their psilocybin session provided a sense of resilience in the face of death, as Erin indicated: "You feel like you're a soul . . . life is, you know, it's not permanent, but it's wonderful." Similarly, Caleb expressed a sense of strong gratitude and life fulfillment from his psilocybin experience, even in the face of his cancer diagnosis, which he indicated was "unequivocally" a religious experience that may have also influenced his relationship to death:

I know I won't be alive forever, and I don't know what happens after I die, but I think there's something heavenly about the experience . . . I think it informs my vision, but it wasn't something that was calculated up here [pointing to head], it's something that literally went through my body. . . . It's the closest thing to an exalted experience that I've ever had . . . and a very heightened sense of gratitude that despite, let's say, despite the cancer and the diagnosis and the surgery, I'm alive right now.

Reconnection to Life

During their psilocybin experience, all 13 participants expressed reconnecting to feelings of aliveness and belonging, which had been forgotten in the face of cancer and adulthood. The feelings of joy and vibrancy during their session provided a deeper sense of the quality and fullness of their lives. Participants described a quality of transcendence in their perspective—beyond anxiety, cancer, and death—that led to a greater sense of well-being and emotional fortitude in the face of these difficulties. As Mike succinctly

explained when describing how he thought the psilocybin treatment works, “It brings people to a level of awareness that fear and anxiety don’t have the nourishment to grow from.” Another participant, Caleb, described how the psilocybin led him through a kind of life review where “everything that had occurred to me since the day I was born until that very moment made sense.” He further explained that the psilocybin was

. . . rolling back all the experiences of my life. Whether it’s a sprained ankle, or a delicious meal, or my marriage, or the children, or the clothes I’ve bought all my life . . . revealed in a more profound way. . . . So that everything had its place. I didn’t think a lot about cancer, and in many ways, cancer wasn’t in the room.

Augusta also spoke to this sense of life fulfillment and joy, which provided her a sense of confidence and resilience, connecting to a state beyond the fears and worries of death:

I think it’s from [the psilocybin] experience . . . you know, bringing me more in touch with these joyous, happy, positive aspects of being alive—just being alive! That’s what I really feel I mean: if I went tomorrow, I’ve had a really good run. But I think I have a little more time. I’m just so grateful . . . I’ve actually experienced these things in my life.

For other participants, these feeling states were specifically related to remembering the simple and positive feelings of their childhoods, prior to the complexities and challenges of adult life. Vandana, for instance, spoke of reclaiming memories and feelings from her long-forgotten childhood, which became available to her during her session and gave her an abiding sense of freedom from thinking about cancer and death:

It was surreal because I never remember my childhood . . . [During the session] I got that sense, that whole feeling of, like, everything is just right . . . there are no insecurities, there are no life responsibilities, there’s no daily grind, there’s no cancer, there’s no nothing. It’s just this pleasant childhood where I ran around after school and played. I literally ate from the trees . . . that feeling of freedom, of just not having that weight and burden of dealing with life and death.

Vandana went on to explain why this treatment may be valuable for cancer patients with difficulty coping: “Even if it’s a day, that feeling of freedom . . . that would be what I would want them to feel, that completeness, that ‘I’ve lived a good life.’” Dan similarly reported reconnecting to long-forgotten feelings of contentment from his childhood during his psilocybin session:

Certain sentiments that I had not felt for a while were coming back to me . . . maybe they were from my childhood, just the way that I was connected to my brother felt very intense. . . . It was very loving and very like, “everything is okay.” It was almost exciting, this very blissful connection . . . these were more basic feelings, I guess the way you feel maybe when you are three years old . . . something simpler, purer.

Dan later explained how his life has been affected since his psilocybin treatments, specifically his ability to be more present and able to appreciate the subtler moments of aliveness in his day-to-day life:

The percentage of my life that I am able to be present in just a moment has increased dramatically . . . just to lose yourself in the moment . . . it is unique and monumental in a way.

Tom similarly indicated that since the psilocybin experience he does not have “a fear of death . . . I actually am more interested in life now more than ever before.”

Reclaiming of Presence

Inspired by the heightened feelings of peace and contentment from their psilocybin experiences, seven participants described tangible changes in their lives to cultivate those feelings on a daily basis. Often, this refocusing represented a shift in life priority away from the stressful patterns in their work and relationships and feeling “less hurried” in life. Chrissy described “slowing down a little bit, not going right to the stress,” and no longer feeling compelled to immediately return incoming e-mails. Edna similarly indicated, “I just sort of let go of being so organized around time.” Adam indicated that the psilocybin experience helped him realize the importance of caring for his emotional needs and pursuing this deeper sense of contentment in his daily life:

[The psilocybin experience] has made me more aware that . . . I cannot just live for material stuff and success . . . I have to satisfy my emotional side as well, which now I am trying to slowly, slowly do. I am trying to do things and live experiences that would make me happy internally. I am not stopping . . . following my goals, but I realized that being so intense about getting what I want does not have a point.

Some participants reported that their experiences in the psilocybin session gave them greater confidence to put up boundaries against various stressors

and overcome barriers that were impeding life goals. Edna, who had struggled with overeating through much of her life, reported gaining confidence to commit to a YMCA membership, where she made newly established friendships and began a fast that helped her lose 30 pounds, all of which she attributed to her involvement in the study:

I am so much more able to do things that I wanted to do, and didn't feel I could, something always holding me back . . . I really want to enjoy every minute, I want to enjoy being alive, and I knew that before the study but afterwards I became able to do it much more often. I have found ways to make that happen . . . I have always been very afraid of change, and it was like, "Wow, change is an opportunity." (Edna)

Augusta similarly described the ways in which her aliveness had withdrawn during her cancer treatments and she was merely "plodding through" life. She explained how the session allowed her to regain a connection to her sense of joy and abundance in the world, even in the face of cancer recurrence: "I don't want to plod, even if I have to go through that again. It's gonna be different. Every moment has so many possibilities." She further explained how the session helped her maintain presence in her life:

I feel like a whole bunch of crap has been dumped off the surface. This stuff that made my world shut down so much and made me look at the ground and watch the clock numbers clicking by. There's life and so many things going on, just watching that tree over there blowing in the breeze, seeing people in the street, and all the different people in vehicles rushing by! I just feel good about being alive. . . . It's always there; we just don't notice, and I'm trying to notice and not forget that I can see it at any time, I can hear it any time. It's like waking up in the most profound way, that this is really what life is.

Confidence in the Face of Cancer Recurrence

One measure of success of the psilocybin treatment is participants' attitudes toward cancer recurrence, which was the most commonly reported source of anxiety before their session. The majority of participants ($n = 11$) reported a positive shift in their perspectives toward cancer recurrence or progression after receiving psilocybin. The predominant change was a felt sense of being less preoccupied by the possibility of recurrence, a reduction in thinking or obsessive worrying about cancer, and an expressed confidence in facing cancer were it to return. Furthermore, many came to realize the cost to their lives of maintaining these kinds of worries, and they resolved to no longer spend their time focusing on cancer. For Edna, the prospect of cancer recurrence was so filled with dread that it brought into question her very desire to live

were it to recur. She spoke poignantly about her shift in perspectives toward cancer following her psilocybin treatment:

Before, I thought if this recurs before I die of something else, I am not going through all of the possible treatments, etcetera . . . I don't want to die in misery, and I will just figure out how to kill myself and not deal with this. And truthfully, I don't even think about it now. I really don't. . . . If it comes back I will deal with it then, you know? . . . At some point I realized, what if I lived to 90 and I spend my whole life worrying about it? I am not going to waste this time worrying about this . . . it is not a decision, it is a feeling, it is a change in how I feel. (Edna)

Following their psilocybin treatments, some participants described no longer feeling overwhelmed or devastated by reminders of their cancer, such as follow-up visits to the doctor or the presentation of physical abnormalities. Vandana, who had compulsively visited an oncologist every 3 months and sought a cancer screening after even a minor stomachache, described a substantial change and freedom from this preoccupation:

It's not something I focus on anymore. I don't focus on cancer . . . I don't run to the doctor right away to make sure I'm going to make it, or whatever. Since [the psilocybin treatment], I know for a fact that that was a huge change for me. It's not a priority; it's not the thing that controls my life.

It is important to note that the newfound confidence participants reported regarding cancer and its recurrence was distinct from a kind of denial or ignorance of those realities. Rather, many participants acknowledged the real possibility of their cancer returning, as well as the devastation, they would still likely feel if it did. However, following the psilocybin treatment, the current emotional charge of that possibility had shifted or been diffused, and participants were less preoccupied by an unknown future. As Dan described, "It's not like all of a sudden I'm cool with death . . . but I'm just not as obsessed with it." Allison similarly indicated:

I don't want to belittle [the cancer]. . . . It was horrible, it was a nightmare. But it was a nightmare that had a happy ending, and I hope that I don't get it again. But I don't think about it that much. I used to think about death every day; for a year and a half, I thought about death every single day. And I don't know, this might've been helpful with, it probably was, with stopping thinking about it all of the time, and to worry about it all the time, and fearing it all the time.

Chrissy, also not sugarcoating the reality of her cancer, said with laughter, "Well, I still hate the motherfucker" and that she is "still waiting for my first pain-free day." But since her participation in the psilocybin study, she is able

to experience a sense of relief “from having to be afraid of the cancer all the time and be thinking about it all the time.” She also expressed greater confidence facing the unknown and that the remaining discomfort will eventually pass in its own time: “I just feel more faith.”

Discussion

The keynote of [the mystical experience] is invariably reconciliation. It is as if the opposites of the world, whose contradictoriness and conflict make all our difficulties and troubles, were melted into unity. (William James, 1902)

The aim of this qualitative analysis was to capture, through narrative accounts, an in-depth understanding of the experiences of those who participated in a RCT of psilocybin-assisted psychotherapy for cancer-related emotional distress (Ross et al., 2016). That study along with a corresponding study (Griffiths et al., 2016), revealed that a single administration of psilocybin led to rapid, substantial, and enduring anxiolytic and antidepressant effects up to 6 months after participants’ sessions (Ross et al., 2016). The present analysis revealed 10 distinct themes focusing on the therapeutic effects of psilocybin administration on cancer-related psychological and existential distress. These supplement themes described in our previous article, which documented a wide range of additional phenomena from the treatment, including positive effects on relationships, a detailed description of visual and emotional phenomena, and other supportive factors of the study design (e.g., music; Belser et al., 2017).

The present study revealed that the psilocybin sessions were generally described as immersive and experiential in nature, with insights and visions not merely imagined or thought but felt as *lived* experiences for the participants. During their sessions, many participants experienced a loss of self and a sense of merging within visionary landscapes, similarly described in reports of mystical (Stace, 1961), transcendent or peak (Maslow, 1959), and unitive consciousness experiences (Pahnke, 1969). A number of well-documented psychological processes share attributes with psilocybin therapy, including the experiential (Perls, Hefferline, & Goodman, 1951), imaginal (Edwards, 1989), and “felt sense” (Gendlin, 1982), as well as in the mindfulness literature, such as “meta-awareness” (Garland, Farb, Goldin, & Fredrickson, 2015). It has been hypothesized that these therapy modalities function by transcending habitual patterns of relating to one’s difficulties, providing experiential access to cognitive structures or complex situations beyond what could be said or thought. It appears that the experiential and immersive quality of the psilocybin therapy may help explain the immediate and enduring

positive changes in participants' lives after a single session, beyond the mere reduction of symptoms.

The felt quality of immersion and "intense struggle" of the psilocybin led many participants to report transient forms of fear or distress during their session, with one participant experiencing negative psychological effects in the days immediately following. However, all participants experienced resolution of these manifest difficulties either spontaneously or with the support of study therapists. This research, along with the findings from our previous article (Belser et al., 2017), showed that these challenging experiences may be a significant factor in the therapeutic process, leading to important emotional catharses, experiences of surrender, validation of strength, and resolution of unresolved psychological conflicts. These results are consistent with prior research into the nature of challenging experiences from consumers of psilocybin mushrooms, which showed that of the nearly 2,000 participants who completed the survey, 84% endorsed benefiting from their challenging experience, and that the level of difficulty reported was positively correlated with enduring increases in well-being (Carbonaro et al., 2016).

Psychological Mechanisms of Action: Reconciliation and Transcendence

This research demonstrated that the therapeutic process with psilocybin involved a powerful reconciliation of the discordant realities of cancer and death in participants' lives. As for many participants who described "running" from their cancer, it is widely believed that symptoms of distress following a devastating or traumatic event like a cancer diagnosis are maintained in part by avoidance of related stimuli (Walser & Hayes, 2006). The psilocybin experience offered many participants an opportunity to encounter and turn *toward* death and cancer in profound and dramatic ways, leading to new understandings and relationships to these painful realities. Etymologically, the root of the word *reconciliation* means "to bring together" or "to make friendly," which was a common phenomenon found in the narratives. For example, the site of Chrissy's cancer became a welcomed "umbilical cord to the universe"; cancer joined Erin at a dinner table; death became a pathway for Brenda to return to a beautiful earth; and Victor embraced his body, inclusive of its cancer. Consistent with classical mystical-type experiences (Pahnke, 1963; Pahnke & Richards, 1966; Richards, 1978), participants reported that when experienced directly in the psilocybin session, cancer and death were often no longer seen as separate from life but were now a living process or continuum within it. Furthermore, the differentiation between emotions and cancer described by the participants is consistent with the

theory of trauma processing, in which “the uncoupling of sensation from image and thought” is what allows the release of complicated emotions (Levine, 2010). Freed from their overwhelming emotional charge, participants were able to more clearly consider the reality of cancer and death in their lives, and consistently reported no longer being preoccupied or overwhelmed by fear.

Another significant pathway that could explain improvements in anxiety and depression relates to the more positive, transcendent, and life-affirming aspects of the psilocybin experience. Participants spoke of being pulled from the habitual patterns and overwhelm of cancer and of being given an expanded perspective on what was felt to be most important and meaningful in life, which endured beyond the session. Transcendence, as Cassel (1982) wrote, “is probably the most powerful way in which one is restored to wholeness,” as it locates the person in a “far larger landscape” of possibility, which can bring greater meaning to suffering. These findings help explicate a primary result, derived from the entire sample of the quantitative study ($N = 29$) from which the current study derived its sample (Ross et al., 2016), which showed that 52% and 70% of all 29 participants rated the psilocybin experience as being among the top five most spiritually significant, or the top five most personally meaningful experiences, of their entire lives, respectively. These results are consistent with prior research on psilocybin with healthy normal volunteers that showed that similar positive attributes in meaning and spiritual significance were enduring at the 14-month follow-up (Griffiths et al., 2008). The idea that positive experiences can lead to expanded life priorities is also consistent with Fredrickson’s (2001) broaden-and-build resilience theory, which posits that positive experiences and emotions expand one’s horizon of possibilities and perspective and can thus bring fortitude in the face of future difficulties.

Our results showed that following their psilocybin session, participants did not merely return to the level of functioning that existed prior to their cancer diagnosis but rather nurtured a heightened sense of meaning and perspective in their lives. A similar theory of posttraumatic growth articulates the idea that following a life crisis or traumatic event like cancer, individuals may, under the right conditions, experience positive changes in their lives, such as an increase in well-being and sense of life priority (Tedeschi & Calhoun, 2004). It appears that a single therapeutically supported dose of psilocybin served as a catalyst for such growth by reconciling distressing realities of cancer and death, as well as reconnecting participants to abiding sources of meaning in their lives: a heightened sense of spirituality, a deepened reconnection to family and loved ones (Belser et al., 2017), and a greater openness and presence with one’s surroundings. This kind of growth may

help explain the enduring effects of the psilocybin treatment, as death and cancer were no longer felt as threatening and could no longer supersede the meaning and sense of connection participants now felt in life. As Victor Frankl (1988) wrote, "Meaning can be found in life literally up to the last moment, up to the last breath, in the face of death" (p. 76).

Limitations and Future Directions

Combined with our earlier article (Belser et al., 2017), we report a variety of qualitative phenomena from participants' involvement in the RCT of psilocybin treatment for cancer-related psychological and existential distress, conducted at NYU Langone Medical Center. To address separate research questions, we present two separate articles, with the current article focusing on those inquiries related specifically to cancer and death and the healing from emotional distress. Because of the multifaceted nature of the experience and idiographic nuance, it is a unique challenge to contextualize and define clear pathways that led many participants' to enduring relief from their cancer anxiety. It is thus important to consider all themes and phenomena as potentially contributing to such healing and that psychological change in psilocybin-assisted therapy may occur via numerous pathways.

Limitations regarding the focus of the interview guide, timing of the interviews, and possible issues with participant recall were discussed in our previous article (Belser et al., 2017). This study was also limited by a relatively homogeneous sample, largely consisting of Caucasian, well-educated, middle-class individuals. These participants were self-selected and may be unique in their seeking a novel treatment modality. Therefore, results may not generalize to other populations, underscoring the need for future research to focus on the inclusion of patients of diverse backgrounds.

Future qualitative research should assess perspectives from family members and the medical or therapeutic teams of participants to gain external perspective on how this treatment affected participants' lives and played out within their social systems. It should also be noted that although cancer and death were discussed in preparatory therapy meetings, the visions and revelations participants described emerged during their psilocybin session without verbal prompting from their study therapists during or immediately prior to their drug administration sessions. Future qualitative research into the experience of psilocybin may explore whether similar themes, especially those related to death, emerged within other study populations as well, particularly nononcology participants.

Although legal barriers restrict the current clinical use of psilocybin to research trials, our findings may have broad relevance to the psychological and

emotional experiences of cancer patients and the alleviation of suffering. The results of this article may be used to inform practitioners, including physicians, mental health providers, palliative care nurses, clergy, and other providers who deliver care to cancer patients. Even in the absence of psilocybin, caregivers can work to establish therapeutically supported milieus for patients to more deeply explore meaning in cancer and death, to help release difficult emotions, and to reengage with sources of spiritual, social, and environmental fulfillment.

Conclusion

This study used qualitative methods to describe the subjective experiences of those who underwent psilocybin treatment for cancer-related emotional distress. It identifies major narrative themes that contributed to alleviation of their anxiety and despair, complementing two quantitative studies in the same area (Griffiths et al., 2016; Ross et al., 2016). Our study provides support for the psilocybin-assisted psychotherapy treatment approach, which is unique in its capacity to induce rapid, substantial, and enduring benefits in anxiety and depression and to occasion deeply meaningful experiences and new perspectives for individuals struggling to assimilate the existential reality of cancer into their lives. For the cancer patient, especially those seeking relief through greater meaning and understanding of the emotional and existential implications of a life-threatening illness, a therapeutically supported psilocybin experience may serve as a powerful intervention. We conclude that the psilocybin-assisted psychotherapy paradigm has the potential to complement the delivery of medical care and psychological treatment for individuals with cancer whose diagnosis precipitates debilitating psychological and existential distress.

Authors' Note

Thomas C. Swift, Alexander B. Belser, and Gabrielle Agin-Liebes contributed equally to the work.

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Author Biographies



Alexander B. Belser, MPhil, is a Fellow and Adjunct Instructor in the Department of Applied Psychology at New York University (NYU). He cofounded the NYU Psychedelic Research Group in 2006. He is an investigator of a qualitative study exploring how patients with cancer experience psilocybin-assisted psychotherapy. He serves as a scientific collaborator for the NYU Psilocybin Alcohol Dependence Qualitative Study, a study investigating psilocybin treatment for alcohol addiction. He is also helping conduct a qualitative study of religious leaders who are administered psilocybin. He graduated from Georgetown University, and pursued graduate studies at Cambridge University, NYU, and Columbia University. He is a member of the Research Advisory Board of Compass Pathways, a medical research foundation that supports innovation in mental health through translational research. He currently works at Mount Sinai Beth Israel Hospital and lives in Brooklyn, New York. His website is <http://alexbelser.com>.



Gabrielle Agin-Liebes is completing her training toward a PhD in clinical psychology at Palo Alto University (PAU) under the joint mentorship of Matthew J. Cordova, PhD, and Josef Ruzek, PhD. She is a member of the PAU Early Intervention Clinic (EIC) lab, which provides and evaluates evidence-based treatments to prevent trauma-related problems in recently traumatized individuals. As part of this research laboratory, she is examining the effects of self-compassion on trauma-related guilt cognitions and shame. She is also a practicum therapist at the Gronowski Center, a community mental health clinic, and coleads an empirically supported meditation group at Kara Grief Support Center in Palo Alto.



Thomas C. Swift, MA, MFTI, received his degree in existential-phenomenological psychology from Seattle University and is currently pursuing clinical licensure in California. He has worked as a guide at Johns Hopkins University in the psilocybin cancer-anxiety study, and is currently conducting qualitative research into the nature of healing with psychedelics in a clinical context, with MDMA and psilocybin. He is also a current director of the RiverStyx Foundation which has been dedicated to advancing opportunities for psychological growth and healing in the areas of end-of-life care, addiction recovery, and the criminal justice system.



Sara Teranna is a doctoral student at UCLA—Luskin, School of Public Affairs in the Department of Social Welfare. Her research interests are in nonprofit human-service organizations, founders of such organizations, and neighborhoods of concentrated disadvantage; she also specializes in qualitative methodology and advanced CAQDAS (computer-assisted qualitative data analysis software) technologies.



Neşe Devenot, PhD, graduated from the University of Pennsylvania in 2015 with a doctorate in comparative literature, and she currently serves as Andrew W. Mellon Postdoctoral Fellow in Digital Humanities at the University of Puget Sound in Tacoma, WA. She was a 2015-2016 Research Fellow at the New York Public Library's Timothy Leary Papers, and she was awarded Best Humanities Publication in Psychedelic Studies from Breaking Convention in 2016. Her research explores the function of metaphor and other literary devices in verbal accounts of psychedelic experiences.



Harris L. Friedman, PhD, is a retired research professor of psychology at University of Florida, and is a professor emeritus of humanistic and transpersonal psychology at Saybrook University and a distinguished professor of integral and transpersonal psychology at the California Institute of Integral Studies. He now teaches at Goddard College, supervises dissertations at several universities, and also practices as a clinical psychologist and organizational consultant. He has written extensively on transpersonal assessment and psychotherapy, as well as on culture and change. He is a prolific author with over 200 professional publications, and his recent books, with other authors/editors, include *Transcultural Competence* (American Psychological Association, 2015), *The Praeger Handbook of Social Justice and Psychology* (3 volumes; 2014), and *The Wiley-Blackwell Handbook of Transpersonal Psychology* (2013). He serves as the associate editor of *The Humanistic Psychologist* and the senior editor of the *International Journal of Transpersonal Studies*.



Jeffrey Guss, MD, is a psychiatrist, psychoanalyst, and researcher with specializations in psychoanalytic therapy and the treatment of substance use disorders. He is coprincipal investigator and director of therapist training for the NYU School of Medicine's study on psilocybin-assisted psychotherapy in the treatment of cancer-related existential distress. He is interested in the integration of psychedelic therapies with contemporary psychoanalytic theory and has published in *Studies in Gender and Sexuality* and *Psychoanalysis, Culture & Society*. He is an instructor and mentor with the California Institute of Integral Studies' Center for Psychedelic Therapies and maintains a full-time private practice.



Anthony Bossis, PhD, is a clinical assistant professor of psychiatry at New York University School of Medicine and a founding member of the NYU Psilocybin Research Group, which in 2009 began FDA-approved scientific research into the therapeutic efficacy of psilocybin, a naturally occurring psychedelic compound found in specific species of mushrooms. He was director of palliative care research, coprincipal investigator, and psilocybin session guide for the NYU clinical trial investigating the efficacy of a psilocybin-generated mystical experience on the existential and psychospiritual distress in persons with cancer. Subjective

features of a mystical experience include unity, sacredness, transcendence, and a greater connection to deeply felt positive emotions including that of love. The study results were published in the *Journal of Psychopharmacology* in December 2016. He is a clinical supervisor of psychotherapy training and cofounder and former codirector of the palliative care service at Bellevue Hospital. He has a long-standing interest in comparative religion, consciousness research, and the interface of psychology and spirituality. He maintains a private consulting and psychotherapy practice in NYC.



Stephen Ross, MD, is an associate professor of psychiatry and child and adolescent psychiatry at the New York University (NYU) School of Medicine and associate professor of Oral and Maxillofacial Pathology, Radiology, and Medicine at the NYU College of Dentistry. He is the director of the division of alcoholism and drug abuse in the psychiatry department at Bellevue Hospital Center, director of addiction psychiatry at NYU Langone Medical Center/Tisch Hospital, and the director of the NYU addiction fellowship. He directs an NIH funded Addictive Disorders Laboratory at Bellevue Hospital Center and is the director of the NYU Psychedelic Research Group. He researches the therapeutic application of hallucinogen treatment models to treat psychiatric and addictive disorders. He is an expert in psycho-oncology and is studying novel pharmacologic-psychosocial approaches to treating psychological distress associated with advanced or terminal cancer. He is the principal investigator (PI) of the NYU Psilocybin Cancer Project (a recently completed FDA Phase II RCT studying the efficacy of psilocybin-assisted psychotherapy in patients with life-threatening cancer and psychological/existential distress), PI of a controlled trial administering psilocybin to religious professionals, and co-PI of a controlled trial assessing psilocybin-assisted psychotherapy in patients with alcoholism. He receives his research funding from the National Institute on Drug Abuse (NIDA), the NYU School of Medicine, and the Heffter Research Institute.